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Hertfordshire Minerals Local Plan

Sustainability Appraisal including Strategic Environmental Assessment

Final report

Prepared by LUC
December 2018

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1 Introduction

- 1.1 LUC was appointed by Hertfordshire County Council (hereafter referred to as HCC) in December 2014 to carry out the Sustainability Appraisal (SA) incorporating Strategic Environmental Assessment (SEA) of the emerging Minerals Local Plan (hereafter referred to as the MLP).
- 1.2 This SA Report has been prepared for the purposes of consultation under Regulation 19 of the Town and Country Planning (Local Planning) (England) Regulations 2017. This report relates to the Hertfordshire Proposed Submission Minerals Local Plan 2018 and it should be read in conjunction with this document.
- 1.3 Once adopted, the plan will replace the current Minerals Local Plan 2002-2016 which was adopted in 2007. The adopted Local Plan was 'saved' by Direction under paragraph 1(3) of Schedule 8 to the Planning and Compulsory Purchase Act 2004. It comprises strategic and development management policies and allocations of specific sites and Preferred Areas for mineral extraction and subsequent reclamation.
- 1.4 The preparation of the MLP is subject to a full Sustainability Appraisal (SA), in line with the Planning and Compulsory Purchase Act 2004 and current Government planning policy (the NPPF¹). The preparation of the MLP must also be in accordance with the requirements of European Directive 2001/42/EC (known as the Strategic Environment Assessment, or SEA Directive) as transposed into law in England by the SEA Regulations.
- 1.5 This Sustainability Appraisal Report has been prepared to provide key stakeholders and members of the public with information on the process and the findings of the Sustainability Appraisal undertaken in preparing the Proposed Submission MLP. In particular, this report documents the likely significant sustainability effects of implementing the MLP. An earlier iteration of this SA Report accompanied the consultation of the Consultation Draft MLP in late 2017.

Sustainability Appraisal and Strategic Environmental Assessment

- 1.6 The purpose of Sustainability Appraisal is to promote sustainable development by integrating sustainability considerations into the preparation and adoption of plans.
- 1.7 Sustainability Appraisal (SA) is a statutory requirement of the Planning and Compulsory Purchase Act 2004. It is designed to ensure that the Development Plan Document (DPD) preparation process maximises the contribution that a plan makes to sustainable development and minimises any potential adverse impacts. The SA process appraises the likely social, environmental and economic effects of the strategies and policies within a DPD (in this case the MLP) from the outset of its development.
- 1.8 Strategic Environmental Assessment (SEA) is also a statutory assessment process, required under the SEA Directive², transposed in the UK by the SEA Regulations (Statutory Instrument 2004, No 1633). The SEA Regulations require the formal assessment of plans and programmes which are likely to have significant effects on the environment, and set the framework for future consent of projects requiring Environmental Impact Assessment (EIA)³. The purpose of SEA, as defined in Article 1 of the SEA Directive is '*to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans....with a view to promoting sustainable development*'.

¹ National Planning Policy Framework

² SEA Directive 2001/42/EC

³ Under EU Directives 85/337/EEC and 97/11/EC concerning EIA.

- 1.9 SEA and SA are separate processes but have similar aims and objectives. Simply put, SEA focuses only on the likely environmental effects of a plan whilst SA includes a wider range of considerations, extending to social and economic impacts. The Government's Sustainability Appraisal guidance⁴ outlines how it is possible to satisfy both requirements by undertaking a joint SA/SEA process, and to present an SA report that incorporates the requirements of the SEA Regulations.
- 1.10 **Table 1.1** signposts how the requirements of the SEA Regulations have been met within this SA report.

Table 1.1: Requirements of the SEA Regulations and where these have been addressed in this SA Report

SEA Regulations' Requirements	Where covered in this SA report
Environmental Report	
Where an environmental assessment is required by any provision of Part 2 of these Regulations, the responsible authority shall prepare, or secure the preparation of, an environmental report in accordance with paragraphs (2) and (3) of this regulation. The report shall identify, describe and evaluate the likely significant effects on the environment of: (a) implementing the plan or programme; and (b) reasonable alternatives taking into account the objectives and geographical scope of the plan or programme. (Regulation 12(1) and (2) and Schedule 2).	Chapters 5, 6 and 7 and Appendices 5 and 6.
1) An outline of the contents and main objectives of the plan or programme, and of its relationship with other relevant plans and programmes.	Chapter 3 provides an outline of the main objectives of the MLP and its relationship with other relevant plans and programmes.
2) The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme.	Chapter 3 and Appendix 3.
3) The environmental characteristics of areas likely to be significantly affected.	Chapter 3 and Appendix 3.
4) Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC on the conservation of wild birds and the Habitats Directive.	Chapter 3.
5) The environmental protection, objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental, considerations have been taken into account during its preparation.	Appendix 2.

⁴ DCLG (2014) Planning Practice Guidance. Available at: <http://planningguidance.planningportal.gov.uk/blog/guidance/strategic-environmental-assessment-and-sustainability-appraisal/strategic-environmental-assessment-and-sustainability-appraisal-and-how-does-it-relate-to-strategic-environmental-assessment/>

SEA Regulations' Requirements	Where covered in this SA report
<p>6) The likely significant effects on the environment, including short, medium and long-term effects, permanent and temporary effects, positive effects, and secondary, cumulative and synergistic effects, on issues such as:</p> <ul style="list-style-type: none"> (a) biodiversity; (b) population; (c) human health; (d) fauna; (e) flora; (f) soil; (g) water; (h) air; (i) climatic factors; (j) material assets; (k) cultural heritage, including architectural and archaeological heritage; (l) landscape; and (m) the interrelationship between the issues referred to in subparagraphs (a) to (l). 	<p>Chapters 5, 6 and 7, and Appendices 5 and 6.</p>
<p>7) The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme.</p>	<p>Chapters 6 and 7</p>
<p>8) An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information.</p>	<p>Chapter 4 – data limitations and difficulties encountered. Chapter 5 – reasons for selecting the proposed vision, strategic objectives and strategic and development management policy options. Chapter 7 – reasons for selecting the proposed site allocations</p>
<p>9) A description of the measures envisaged concerning monitoring in accordance with regulation 17.</p>	<p>Chapter 8.</p>
<p>10) A non-technical summary of the information provided under paragraphs 1 to 9.</p>	<p>A separate non-technical summary document will be prepared for the SA Report accompanying consultation on the Submission draft MLP.</p>
<p>The report shall include such of the information referred to in Schedule 2 to these Regulations as may reasonably be required, taking account of:</p> <ul style="list-style-type: none"> (a) current knowledge and methods of assessment; (b) the contents and level of detail in the plan or programme; the stage of the plan or programme in the decision-making process; and (c) the extent to which certain matters are more appropriately assessed at different levels in that process in order to avoid duplication of the assessment. <p>(Regulation 12 (3))</p>	<p>Addressed throughout this SA report.</p>
<p>Consultation</p>	

SEA Regulations' Requirements	Where covered in this SA report
<p>When deciding on the scope and level of detail of the information that must be included in the environmental report, the responsible authority shall consult the consultation bodies. (Regulation 12(5))</p>	<p>Consultation on the SA Scoping Report for the MLP was undertaken between August and October 2015 alongside a set of initial consultation documents, including topic papers and a site selection methodology.</p> <p>The Consultation Draft MLP will be published for consultation for a ten week period starting at 9am on Monday 04 December 2017 and ending at 5pm on Friday 09 February 2017.</p>
<p>Every draft plan or programme for which an environmental report has been prepared in accordance with regulation 12 and its accompanying report ("the relevant documents") shall be made available for the purposes of consultation in accordance with the following provisions of this regulation.</p> <p>As soon as reasonable practical after the preparation of the relevant documents, the responsible authority shall:</p> <ul style="list-style-type: none"> (a) send a copy of those documents to each consultation body; (b) take such steps as it considers appropriate to bring the preparation of the relevant documents to the attention of the persons who, in the authority's opinion, are affected or likely to be affected by, or have an interest in the decisions involved in the assessment and adoption of the plan or programme concerned, required under the Environmental assessment of Plans and Programmes Directive ("the public consultees"); (c) inform the public consultees of the address (which may include a website) at which a copy of the relevant documents may be viewed, and the period within which, opinions must be sent. <p>The period referred to in paragraph (2) (d) must be of such length as will ensure that the consultation bodies and the public consultees are given an effective opportunity to express their opinion on the relevant documents. (Regulation 13 (1), (2), and (3))</p>	<p>This SA Report will be available for consultation alongside the Consultation Draft MLP.</p>
<p>Where a responsible authority, other than the Secretary of State, is of the opinion that a plan or programme for which it is the responsible authority is likely to have significant effects on the environment of another Member State, it shall, as soon as reasonable practicable after forming that opinion:</p> <ul style="list-style-type: none"> (a) notify the Secretary of State of its opinion and of the reasons for it; and (b) supply the Secretary of State with a copy of the plan or programme concerned, and of the accompanying environmental report. <p>(Regulation 14 (1))</p>	<p>The MLP is unlikely to have a significant effect on another EU Member State.</p>
<p>Taking the environmental report and the results of the consultations into account in decision-making (relevant extracts of Regulation 16)</p>	
<p>As soon as reasonably practicable after the adoption of a plan or programme for which an environmental assessment has been carried out under these Regulations, the responsible authority shall:</p> <ul style="list-style-type: none"> (a) make a copy of the plan or programme and its accompanying environmental report available at its principal office for inspection by the public at all reasonable times and free of charge. <ul style="list-style-type: none"> ● (Regulation 16(1)) 	<p>To be addressed after the MLP is adopted.</p>

SEA Regulations' Requirements	Where covered in this SA report
<p>As soon as reasonably practicable after the adoption of a plan or programme:</p> <p>(a) the responsible authority shall inform (i) the consultation bodies; (ii) the persons who, in relation to the plan or programme, were public consultees for the purposes of regulation 13; and (iii) where the responsible authority is not the Secretary of state, the Secretary of State,</p> <p>that the plan or programme has been adopted, and a statement containing the following particulars:</p> <p>(a) how environmental considerations have been integrated into the plan or programme;</p> <p>(b) how the environmental report has been taken into account;</p> <p>(c) how opinions expressed in response to: (i) the invitation in regulation 13(2)(d); (ii) action taken by the responsible authority in accordance with regulation 13(4), have been taken into account;</p> <p>(d) how the results of any consultations entered into under regulation 14(4) have been taken into account;</p> <p>(e) the reasons for choosing the plan or programme as adopted, in the light of the other reasonable alternatives dealt with; and</p> <p>(f) the measures that are to be taken to monitor the significant environmental effects of the implementation of the plan or programme.</p>	<p>To be addressed after the MLP is adopted.</p>
Monitoring	
<p>The responsible authority shall monitor the significant effects of the implementation of each plan or programme with the purpose of identifying unforeseen adverse effects at an early stage and being able to undertake appropriate remedial action. (Regulation 17(1))</p>	<p>To be addressed after the MLP is adopted.</p>

Habitats Regulations Assessment

- 1.11 In line with the Conservation of Habitats and Species Regulations (2010)(the Habitats Regulations), a Habitats Regulations Assessment (HRA) has been undertaken by LUC alongside the production of this SA. HRA is a process that considers whether the plan is likely to have any significant effects on European sites in the area. European sites include Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites, which are designated under an international convention, but assessed in the same way as SPAs and SACs for the purposes of HRA. HRA is a separate process from SA and uses a different methodology, hence the processes are being carried out and reported on individually. Nevertheless, in considering likely effects of the plan on European sites, HRA addresses an aspect of sustainability that needs to be considered in the SA. As such, this SA has considered the findings of the HRA.

Aim and structure of the report

- 1.12 This report is the SA/SEA report for the Proposed Submission MLP. It has been prepared in the spirit of the integrated approach to SEA and SA, and throughout the report, the abbreviation 'SA' should therefore be taken to refer to 'SA incorporating the requirements of SEA'.
- 1.13 This chapter provides an introduction to the SA of the MLP. The remainder of this report is structured into the following chapters:

- **Chapter 2 – Methodology**, describes the stages of the SA process and the approach used for the specific SA tasks, including how reasonable alternatives have been identified and appraised.
- **Chapter 3 – Sustainability Context for Minerals Development in Hertfordshire**, summarises the MLP's relationship with other relevant plans, policy and strategies, summarises the social, economic and environmental characteristics of Hertfordshire, and identifies the key sustainability issues relating to mineral development within Hertfordshire.
- **Chapter 4 – Sustainability Appraisal Framework and Assumptions**, describes the SA Framework and the assumptions used for assessing the potential sustainability effects of the MLP.
- **Chapter 5 – Sustainability Appraisal Findings – Options Stage**, describes the findings from the SA of the 'Initial Consultation' Document' (August 2015), which included a number of alternatives to the vision, quantity of resource required and policies.
- **Chapter 6 - Sustainability Appraisal Findings – Consultation Draft MLP Proposed Vision, Strategic Objectives and Policies**, sets out the main findings from the SA of the Vision, Strategic Objectives, Strategic Policies and Development Management Policies included in the Consultation Draft MLP. It draws conclusions from the findings of the appraisals and reports the recommendations made for the Draft MLP to maximise the benefits of the plan and minimise any adverse effects.
- **Chapter 7 – Sustainability Appraisal Findings – Proposed Submission MLP Vision, Strategic Objectives and Policies**, sets out the changes to the MLP since the publication of the Consultation Draft MLP and any associated changes in effects.
- **Chapter 8 – Sustainability Appraisal Findings – Proposed Submission MLP Site Allocations and Reasonable Alternatives**, sets out the main findings from the SA of the site allocations included in the Proposed Submission MLP and the reasonable alternatives considered, including site options appraised before and after consultation on the Consultation Draft MLP.
- **Chapter 9 – Monitoring**, makes recommendations regarding the approach to monitoring the significant sustainability effects of implementing the MLP.
- **Chapter 10 –Conclusions**, summarises the key findings from the SA in terms of any significant sustainability effects predicted (positive or negative) from implementing the MLP.

1.14 The main body of the report is supported by a number of appendices:

- **Appendix 1** presents the consultation comments that have been received to date in relation to the SA Scoping Report and SA Report which accompanied the Consultation Draft MLP and describes how those comments have been addressed.
- **Appendix 2** sets out the review of relevant plans, policies and programmes (this was originally presented in the SA Scoping Report and has been updated to reflect the most up-to-date documents).
- **Appendix 3** contains the baseline information for Hertfordshire (as with Appendix 2, this was originally presented in the SA Scoping Report and has been updated to reflect the most up-to-date evidence and consultation comments received).
- **Appendix 4** presents the detailed SA matrices for the reasonable alternatives considered during the SA of the 'Initial Consultation' Document (August 2015). The main findings of these are explained in **Chapter 5**.
- **Appendix 5** presents the detailed SA matrices for the Draft Policies set out in the Consultation Draft MLP. The main findings of these are explained in **Chapter 6**.
- **Appendix 6** presents the detailed SA matrices for the Policies set out in the Proposed Submission MLP. The main findings of these are explained in **Chapter 7**.

- **Appendix 7** presents the detailed SA matrices for the Mineral Site options considered for inclusion in the MLP, including those selected for allocation in the Proposed Submission Local Plan. The main findings of these are explained in **Chapter 8**.

2 Methodology

- 2.1 In addition to complying with legal requirements, the approach being taken to the SA of the MLP is based on current best practice and the guidance on SA/SEA set out in the National Planning Practice Guidance, which involves carrying out SA as an integral part of the plan-making process. **Table 2.1** below sets out the main stages of the plan-making process and shows how these correspond to the SA process.

Table 2.1: Corresponding stages in plan making and SA

Local Plan Step 1: Evidence Gathering and engagement
SA stages and tasks
<p>Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope</p> <p>1: Identifying other relevant policies, plans and programmes, and sustainability objectives</p> <p>2: Collecting baseline information</p> <p>3: Identifying sustainability issues and problems</p> <p>4: Developing the SA framework</p> <p>5: Consulting on the scope of the SA</p>
Local Plan Step 2: Production
SA stages and tasks
<p>Stage B: Developing and refining options and assessing effects</p> <p>1: Testing the Plan objectives against the SA Framework</p> <p>2: Developing the Plan options</p> <p>3: Evaluating the effects of the Plan</p> <p>4: Considering ways of mitigating adverse effects and maximising beneficial effects</p> <p>5: Proposing measures to monitor the significant effects of implementing the Plans</p>
<p>Stage C: Preparing the Sustainability Appraisal Report</p> <p>1: Preparing the SA Report</p>
<p>Stage D: Seek representations on the Plan and the Sustainability Appraisal Report</p> <p>1: Public participation on Plan and the SA Report</p> <p>2(i): Appraising significant changes</p>
Local Plan Step 3: Examination
SA stages and tasks
2(ii): Appraising significant changes resulting from representations

Local Plan Step 4 & 5: Adoption and Monitoring

SA stages and tasks

3: Making decisions and providing information

Stage E: Monitoring the significant effects of implementing the Plan

1: Finalising aims and methods for monitoring

2: Responding to adverse effects

- 2.2 The following sections describe the approach that has been taken to the SA of the MLP to date and provide information on the subsequent stages of the process.

Stage A: Scoping

- 2.3 The SA process began with the Scoping Report for the MLP, which was prepared by LUC in 2015.
- 2.4 The Scoping stage of SA involves collating information about the social, economic and environmental baseline for the plan area and the key sustainability issues facing it, as well as information about the policy context for the preparation of the plan. The SA Scoping Report presented the outputs of the following tasks:
- Policies, plans and programmes of relevance to the MLP were identified and the relationships between them were considered, enabling any potential synergies to be exploited and any potential inconsistencies and incompatibilities to be identified and addressed.
 - In line with the requirements of the SEA Regulations, baseline information was collected on the following 'SEA topics': biodiversity, population, human health, flora, fauna, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage and the landscape. Data on social and economic issues were also taken in to consideration. This baseline information provides the basis for predicting and monitoring the likely effects of the MLP and helps to identify alternative ways of dealing with any adverse effects identified.
 - Drawing on the review of relevant plans, policies and programmes and the baseline information, key sustainability issues for Hertfordshire were identified (including environmental problems, as required by the SEA Regulations). Consideration was given to the likely evolution of each issue, if the MLP were not to be implemented.
 - A Sustainability Appraisal 'framework' was then presented; setting out the SA objectives against which options and subsequently policies, and sites in the MLP would be appraised. The SA framework provides a way in which the sustainability impacts of implementing a plan can be described, analysed and compared. The SA framework comprises a series of sustainability objectives and subsidiary questions used to 'interrogate' draft policy and site options during the plan-making process. During the SA, the performance of the policy and site options (and subsequently draft policies and site allocations) is assessed against these SA objectives and sub-questions.
- 2.5 The review of relevant plans, policies and programmes and the baseline information will be updated as necessary during each stage of the SA process to ensure that they reflect the current situation in Hertfordshire and continue to provide an accurate basis for assessing the likely effects of the MLP. As such, **Chapter 3** and **Appendix 2** and **Appendix 3** include updated versions of the review of relevant plans, policies and programmes and baseline information.
- 2.6 Public and stakeholder participation is an important element of the SA and wider plan-making processes. It helps to ensure that the SA report is robust and has due regard for all appropriate information that will support the plan in making a contribution to sustainable development. The SA Scoping Report for the MLP was published alongside a set of initial consultation documents in

August 2015 for an eight week consultation period with the statutory consultees (Natural England, the Environment Agency and Historic England). The comments received during the consultation were then reviewed and addressed as appropriate throughout the remainder of the SA process.

- 2.7 **Table A1.1** in **Appendix 1** of this report lists the comments that were received during the Scoping consultation and describes how each one has been addressed. In light of the comments received, a number of amendments were made to the review of plans, policies and programmes, the baseline information, key sustainability issues and the SA framework. These amendments were reflected in following SA work and are reflected in the parts of the Scoping work that are presented in **Appendices 2 and 4** of this report and summarised in **Chapter 3**.

Stage B: Developing and Refining Options and Assessing Effects

- 2.8 Developing options for a plan is an iterative process undertaken by the local planning authority usually involving a number of consultations with public and stakeholders. Consultation responses and the SA can help to identify where there may be other 'reasonable alternatives' to the options being considered for a plan (e.g. additional sites that may be suitable for development). The SA can also help decision makers by identifying the potential positive and negative sustainability effects of each option.
- 2.9 Regulation 12 (2) of the SEA Regulations requires that:
"The (environmental or SA) report must identify, describe and evaluate the likely significant effects on the environment of —
(a) implementing the plan or programme; and
(b) reasonable alternatives, taking into account the objectives and the geographical scope of the plan or programme"
- 2.10 It should be noted that any alternatives considered to the plan need to be "reasonable". This implies that alternatives that are "not reasonable" do not need to be subject to appraisal. Examples include alternatives that do not meet the objectives of the plan or national policy (e.g. the NPPF), or are not within the geographical scope of the plan.
- 2.11 It also needs to be recognised that the SEA and SA findings are not the only factors taken into account when determining a preferred option to take forward in a plan. There will often be an equal number of positive or negative effects identified for each option, such that it is not possible to 'rank' them based on sustainability performance in order to select a preferred option. Factors such as public opinion, other Council targets and conformity with other plans, programmes and strategies will also be taken into account by plan-makers when selecting preferred options for their plan.

Alternatives considered in the preparation of the MLP to date

SA of MLP Initial Consultation Document (January 2016)

- 2.12 The options considered in the SA that were included in the MLP Initial Consultation Document comprised the following:
- Draft Vision (two options).
 - Draft Objectives (nine objectives).
 - Quantity of Sand and Gravel (three options).
 - Mineral Sterilisation (five options).
 - Windfall Sites (two options).
 - MSAs and MCAs Site Selection.
 - Brick Clay (three options).

- Chalk (four options).
 - Secondary and Recycled Aggregates (seven options).
 - Draft Development Management Policies (13 policies).
- 2.13 The MLP Initial Consultation document was accompanied by a set of relevant topic papers on county's chalk and clay resource, sand and gravel apportionment, secondary and recycled aggregates, a site selection and extension methodology and sterilisation, railhead and wharf infrastructure and windfall sites.
- 2.14 This appraisal work (carried out in 2015) has informed the preparation of the proposed vision, strategic objectives and strategic and development management policies published in the Consultation Draft MLP (2017). The reasoning behind the selection and rejection of these appraised options can be found in **Chapter 5** below.
- 2.15 The detailed SA matrices for the options presented in the Initial Consultation Document are available for review on the Council's website⁵.
- SA of the Consultation Draft MLP (2017)*
- 2.16 **Chapter 6** and **Appendix 5** contain the appraisal work of the Consultation Draft MLP's proposed vision, strategic objectives, strategic and development management policies.
- 2.17 The site options considered for allocation in the Consultation Draft MLP comprised the following:
- Sand and Gravel Sites (18 options).
 - Brick Clay Sites (two options).
 - Preferred Areas 1 and 2 defined within the adopted Minerals Local Plan 2002-2016.
- 2.18 The reasoning for the selection or non-selection of each site option is presented in **Table 8.5** in **Chapter 8**.
- SA of the Proposed Submission MLP (2018)*
- 2.19 Following consultation on the Draft MLP in 2017, three new Sand and Gravel site options were submitted for consideration:
- MLPCS0021
 - MLPCS0022
 - MLPCS0023
- 2.20 In addition, site option MLPCS0001 was resubmitted for consideration following clarifications to the original proposal. The revised proposal was reappraised as a separate site option MLPCS0001RS. Again, the reasoning for the selection or non-selection of each site option is presented in **Table 8.5** in **Chapter 8**.
- 2.21 **Chapter 8** and **Appendix 7** contain new appraisal work of the proposed site allocations for mineral extraction and their reasonable alternatives.
- 2.22 A number of changes were also made to the MLP objectives and policies, the reasoning for which is provided in **Chapter 7**.

Stage C: Preparing the Sustainability Appraisal report

- 2.23 This SA Report describes the process undertaken to date in carrying out the SA of the MLP. It sets out the findings of the appraisal, highlighting any likely significant effects (both positive and negative, and taking into account the likely secondary, cumulative, synergistic, short, medium and long-term and permanent and temporary effects), making recommendations for

⁵ <https://www.hertfordshire.gov.uk/services/recycling-waste-and-environment/planning-in-hertfordshire/minerals-and-waste-planning/minerals-planning/minerals-local-plan-review/sustainability-appraisal.aspx>

improvements and clarifications that may help to mitigate negative effects and maximise the benefits of the plan, and outlining proposed monitoring measures.

- 2.24 Each site/policy option and subsequent proposed site allocation/draft policy was assessed against each SA objective, and a judgement was made with regards to the likely effect that they would have on that objective. These judgements were recorded as a colour coded symbol, as shown below in **Figure 2.1**. The sustainability effects are presented in **Chapters 5, 6 and 7** and **Appendices 5, 6 and 7** along with a brief justification of the judgement made.

Figure 2.1 Key to symbols and colour coding used in the SA of the Draft MLP⁶

++	The policy is likely to have a significant positive impact on the SA objective(s).
+	The policy is likely to have a minor positive impact on the SA objective(s).
0	The policy is likely to have a negligible or no impact on the SA objective(s).
+/-	The policy is likely to have a mixture of positive and negative impacts on the SA objective(s).
-	The policy is likely to have a minor negative impact on the SA objective(s).
--	The policy is likely to have a significant negative impact on the SA objective(s).
?	It is uncertain what effect the policy will have on the SA objective(s).

Stage D: Consultation on the MLP and this SA Report

- 2.25 The first iteration of this SA Report was published on the Council's website for consultation alongside the Consultation Draft MLP for a ten week period from December 2017 to February 2018. This new version of the SA Report will be published on the Council's website for consultation alongside the Proposed Submission MLP in early 2019.

Stage E: Monitoring Implementation of the Plan

- 2.26 Stage E will follow adoption of the MLP. LUC has not been commissioned to undertake the SA monitoring. However, the SEA Regulations and the Government's SA Guidance require that the Sustainability Report includes a description of measures envisaged concerning monitoring. This is discussed in **Chapter 8**, and will be expanded at subsequent stages in the SA process, as the monitoring framework for the MLP is established, and the likely significant effects of the final MLP are identified.

⁶ Not all effects were considered appropriate for all SA objectives. See **Appendix 4** for details.

3 Sustainability Context for Minerals Development in Hertfordshire

Review of Plans, Policies and Programmes

- 3.1 The Hertfordshire Minerals Local Plan is not being prepared in isolation and is greatly influenced by other plans and programmes and by broader sustainability objectives. The Plan needs to be consistent with international and national guidance and strategic planning policies, and should contribute to the goals of a wide range of other programmes and plans. It must also conform to environmental protection legislation and the sustainability objectives established at the international, national and local levels.
- 3.2 Schedule 2 of the SEA Regulations requires:
- (1) *“an outline of the...relationship with other relevant plans or programmes”*; and
- (5) *“the environmental protection objectives established at international, Community or Member State level, which are relevant to the plan and the way those objectives and any environmental considerations have been taken into account during its preparation”*

Outline of the Proposed Submission Hertfordshire Minerals Local Plan

- 3.3 This version of the Plan is the second version of the minerals planning document for Hertfordshire which, once adopted, will become part of the statutory development plan for the county. The purpose of the plan is to secure sustainable availability of minerals and conservation of the existing environment. As the Minerals Planning Authority (MPA), HCC has a statutory responsibility to plan for future minerals supply within Hertfordshire.
- 3.4 The Proposed Submission MLP includes:
- **Policy Context** – explains the planning system and identifies policy drivers at an international, sub-national and local level.
 - **Key Challenges for Hertfordshire** – identifies challenges to minerals development in Hertfordshire with regards to population, housing and economic growth.
 - **Minerals in Hertfordshire** – provides information on the type and locations of minerals, as well as existing supply and demand issues.
 - **Vision and Objectives** – presents the aspirations for the future of minerals supply in Hertfordshire. The nine objectives concern how the vision and overarching aim of sustainable development is to be achieved.
 - **Presumption in Favour of Sustainable Development** – includes two policies (Policy 1 and Policy 2) relating to sustainable development: one which considers the requirement of the NPPF for a presumption in favour of sustainable development and the other which addresses climate change and related issues.
 - **Strategic Aggregate Policies** – contains four policies (Policies 3, 4, 5, 6) regarding aggregate supply and locations and Preferred Areas for working minerals.
 - **Industrial Minerals Policies** – contains two policies (Policies 7 and 8) to specify the scenarios under which new extraction sites for brick clay and chalk would be permitted.
 - **Safeguarding** – includes four policies (Policies 9, 10, 11 and 12) which define Mineral Safeguarding Areas, manage sterilisation of mineral deposits and safeguard transit links and processing plants.

- **Non-conventional Aggregate Extraction** – includes two policies (Policies 13 and 14) regarding the scenarios under which borrow pits and incidental extraction would be permitted.
- **Protecting Hertfordshire** – contains two policies (Policy 13 and Policy 14) intended to maintain the integrity of Hertfordshire's Green Belt and managing cumulative effects on the natural and historic environments, human health and amenity, transport networks and aviation safety.
- **Environmental Policies** – includes five policies (Policies 17 - 21) that require minerals proposals to have regard to the environment, including water management, the historic environment, landscape and biodiversity. Generally, proposals are required to maintain and enhance the environment.
- **Highways and Transport** – sets out Hertfordshire's position in terms of transport and includes three transport policies (Policies 22, 23 and 24) which relate to ensuring suitable access to and from the site and reducing negative implications of development for the transport network.
- **Protection of Soils** – consist of a single policy (Policy 23), which requires proposals to consider and conserve soil resources.
- **Sustainable Reclamation** – contains two policies (Policy 24 and Policy 25) regarding the restoration, after-use and after care of mineral workings sites.

Relationship between MLP and other relevant plans and programmes, including their environmental protection objectives

- 3.5 A review has been undertaken of the other plans, policies and programmes that are relevant to the MLP. The purpose of the review of other plans and strategies is to understand how they will influence the preparation of the MLP and the SA. **Table 3.1** below lists relevant plans, programmes and strategies. The list is not and cannot be exhaustive. The review has only sought to identify key documents which reflect local, national and international social, economic and environmental issues. In line with the SEA Regulations requirements, **Appendix 2** identifies the relationship that the plans and policies have with the development of the MLP, and also shows how the environmental, social and economic objectives contained within those plans and policies have been taken into account during preparation of the MLP and also the SA.
- 3.6 The most significant development in terms of the policy context for the MLP was the 2012 publication of the National Planning Policy Framework (NPPF), which replaced the suite of Planning Policy Statements (PPSs) and Planning Policy Guidance, including Minerals Policy Statements and Minerals Policy Guidance documents. A key Government intention was to streamline national planning policy and guidance. This has also resulted in the publication of national Planning Practice Guidance⁷ (PPG) as a web-based resource that accompanies the NPPF. A large majority of past guidance has been included in the PPG; however, many guidance documents were also cancelled. A revised version of the NPPF was published in July 2018.
- 3.7 The MLP must be consistent with the requirements of the NPPF, which sets out information about the purposes of local plan-making. The NPPF emphasises that the purpose of the planning system is to contribute to the achievement of sustainable development, which should be delivered through the preparation and implementation of plans and the application of the policies in the Framework.
- 3.8 However, with respect to Areas of Outstanding Natural Beauty (AONB) (the Chilterns AONB is partially within Hertfordshire) the NPPF acknowledges that specific designated landscapes may indicate development should be restricted. Para 172 of the NPPF states that *'great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight'*.

⁷ DCLG (2014). Planning Practice Guidance. Available at: <http://planningguidance.planningportal.gov.uk/>

3.9 While the NPPF replaces a number of former Minerals Policy Statements, the principles for minerals planning are still retained in the NPPF⁸ including:

- The maintenance of landbanks for crushed rock and sand and gravel.
- Designation of Mineral Safeguarding Areas.
- Safeguarding existing, planned and potential sites for bulk transport, handling and processing of minerals; the manufacture of concrete and concrete products; and the handling, processing and distribution of substitute, recycled and secondary aggregate material.
- Providing for restoration and aftercare at the earliest opportunity and to high environmental standards.
- Setting out criteria against which planning applications will be assessed to ensure that planned operations do not have unacceptable adverse impacts on the natural and historic environment or human health, taking into account the cumulative effects.

Table 3.1: Relevant plans, policies and documents reviewed for the SA of the MLP

International
IPCC's Fifth Assessment Report on Climate Change 2014
Johannesburg Declaration on Sustainable Development 2002
Aarhus Convention 1998
Bern Convention 1979
Ramsar Convention on Wetlands of International Importance 1971
European Directives
SEA Directive
Birds Directive
Waste Framework Directive
Water Framework Directive
Bathing Water Quality Directive
Drinking Water Directive
Air Quality Framework Directive
Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora
European
Seventh Environmental Action Plan 2020
Biodiversity Strategy to 2020
Spatial Development Perspective 1999

⁸ See section 17 of the NPPF, available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

International
Management of waste from extractive industries
European Landscape Convention 2002
European Convention on the Protection of the Archaeological Heritage 1992
National
National Planning Policy Framework 2018
National Planning Policy for Waste 2014
Planning Practice Guidance on Minerals 2015
National Policy Statement for Waste Water 2012
National Policy Statement for Hazardous Waste 2013
The UK Low Carbon Transition Plan 2009
Carbon Plan: Delivery our low carbon future 2011
UK Renewable Energy Strategy 2009
The National Adaptation Programme – Making the Country Resilient to a Changing Climate 2013
Underground, Under threat – Groundwater Protection: Policy and Practice
Planning Practice Guidance on Flood risk and coastal change 2014
The National Flood and Coastal Erosion Risk Management Strategy for England 2011
Future Water: The Government's Water Strategy for England 2008
Water for People and the Environment: Water Resources Strategy for England and Wales 2009
Safeguarding our Soils: A Strategy for England 2009
The Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007
Biodiversity 2020 – A strategy for England's wildlife and ecosystem services 2011
Securing the Future: Delivering UK Sustainable Development Strategy 2011
Community Energy Strategy 2014
Natural Environment and Rural Communities Act – Section 41: List of Habitats and Species of Principal Importance in England 2006
Minerals Extraction and the Historic Environment 2012
Mineral Extraction and Archaeology: A Practice Guide 2008

International
Aggregate Mineral Survey for England and Wales 2009
England's statutory landscape designations: a practical guide to your duty of regard 2010
Underground, Under threat – Groundwater Protection: Policy and Practice 2007
White Papers
Natural Environment White Paper 2011
The Natural Choice: securing the value of nature 2011
Legislation
Flood and Water Management Act 2010
Climate Change Act 2008
Regulations
The Conservation of Habitats and Species Regulations 2010

- 3.10 Following the decision to leave the European Union, the European Union (Withdrawal) Bill 2017-19 (commonly known as the 'Great Repeal Bill') was introduced to UK Parliament. This Bill will eventually repeal the 1972 European Communities Act, ending the precedence of European law over laws passed in the UK Parliament, meaning that UK laws will not need to comply with relevant EU Directives. The Bill proposes to copy all existing European legislation into UK law to ensure a smooth transition. Therefore, at least for the short term, the legal requirements of UK plan-making will retain their current form.

Hertfordshire Waste Local Plan

- 3.11 Hertfordshire County Council is currently undertaking a review of the Waste Local Plan including:
- Waste Core Strategy and Development Management Policies Document (adopted 5th November 2012) which sets out the Waste Management Strategy.
 - Waste Site Allocations Document (adopted on 15th July 2014) which sets out the existing waste sites and those sites with potential for future waste facilities.
 - An Employment Land Areas of Search Supplementary Planning Document (adopted 10th November 2015).
- 3.12 The new Hertfordshire Waste Local Plan will be a single, all-encompassing document which sets out a clear vision, objectives and spatial strategy for waste, in accordance with the National Planning Policy Framework (NPPF), ensuring that it provides sufficient opportunities to meet the identified needs of the area for waste management.

Baseline Information

- 3.13 This section addresses the SEA Regulations requirements in Schedule 2:
- (2) The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan.
 - (3) The environmental characteristics of areas likely to be significantly affected.

(4) Any existing environmental problems which are relevant to the plan including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC on the conservation of wild birds and the Habitats Directive.

- 3.14 Baseline information provides the context for assessing the sustainability of proposals in the MLP and it provides the basis for identifying trends, predicting the likely effects of the plan and monitoring its outcomes. The requirements for baseline data vary widely, but it must be relevant to environmental, social and economic issues, be sensitive to change and should ideally relate to records which are sufficient to identify trends.
- 3.15 The baseline data focuses on key indicators which are readily available and can be updated to illustrate the environmental, social and economic issues. The choice of baseline data has been informed by the previous stages in the SA process. Potentially a key limitation of the SA process is gaps in baseline data. **Appendix 3** of this report provides an extensive discussion on the relevant baseline information for Hertfordshire and in particular the role of minerals development.
- 3.16 As an integrated SA and SEA is being carried out, baseline information relating to other 'sustainability' topics has also been included; for example information about housing, social inclusiveness, transport, energy, minerals and economic growth.

Key Sustainability Issues

- 3.17 Identification of the key sustainability issues, and consideration of how these issues might develop over time if the MLP is not prepared, help to meet the requirements of Schedule 2 of the SEA Regulations to provide information on:
- (2) The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan; and*
- (4) Any existing environmental problems which are relevant to the plan.*
- 3.18 Key sustainability issues facing Hertfordshire were identified during the Scoping stage of the SA and were presented in the Scoping Report. These issues have been regularly reviewed to ensure they are up-to-date. **Table 3.2** presents these key issues and describes the likely evolution of each key sustainability issue if the MLP were not to be adopted.

Table 3.2: Key sustainability issues for Hertfordshire and the likely evolution of the environment in the absence of the MLP

No.	Key Sustainability Issues	The likely evolution of the environment in the absence of the MLP
1	<p>Changes in landscape character</p> <p>Hertfordshire has a rich variety of character, both urban and rural, as well as an AONB providing a high quality environment for those who live and work in the County. There is the potential for minerals development to contribute to detrimental changes in landscape character in the County and plans should endeavour to minimise impacts as much as possible.</p>	<p>In the absence of an MLP, there is the potential that new minerals development could be located in sensitive areas leading to negative impacts on valued landscapes.</p>
2	<p>Potential for damage to the historic environment</p> <p>In Hertfordshire, there are 198 Conservation Areas, 8,056 Listed Buildings, 45 Registered Parks and Gardens, 176 Scheduled Monuments.</p>	<p>Despite the high level of protection afforded to nationally designated cultural heritage sites within the NPPF, in the absence of the MLP and appropriate policies there may be adverse effects to Hertfordshire's cultural heritage (including architecture and archaeology) as a result of less stringent mitigation or poorly planned minerals development.</p>
3	<p>Preventing further declines in condition status of Hertfordshire's biodiversity</p> <p>Latest figures on the condition of SSSIs suggests 46.0%, are described as being in "unfavourable but recovering condition".</p> <p>In 2011/12, positive conservation management was being implemented in 23.5% of Local Wildlife Sites.</p> <p>Between 2005 and 2013 of the 35 butterfly species measured, 14 have decreased in numbers and 21 have increased in numbers or remained static. Based on distribution, 18 have increased their range and 8 have decreased, with the others unchanged.</p> <p>As for aquatic ecology, in 2013, the majority of the water bodies (41.5%) were classified as having poor ecological status including the River Quin and the Lee from Luton Hoo Lakes to Hertford. 4.9% of Hertfordshire's water bodies were classified as bad; these include the Stort Navigation through Bishops Stortford. This will be having a negative impact upon species and plants within and surrounding these habitats.</p>	<p>The provision of minerals for society's needs may cause adverse effects to the natural environment. However, MLPs contain policies which aim to protect and enhance the environment. Despite the high level of protection afforded to internationally and nationally designated nature conservation sites within the NPPF, without the MLP it is more likely that environmental designations in the County could be adversely affected by poorly planned minerals development or with less stringent mitigation measures applied. The opportunity to protect and enhance the environment and achieve net biodiversity gains (e.g. through restoration) could be limited.</p>
4	<p>Uneven unemployment levels</p> <p>Hertfordshire enjoys a high employment rate compared to the rest of the region and is above the national average with</p>	<p>The MLP provides an opportunity to increase employment opportunities in those communities where the employment level is increasing. In the absence of the MLP, unemployment may increase further,</p>

No.	Key Sustainability Issues	The likely evolution of the environment in the absence of the MLP
	<p>79.2%, slightly above the East of England rate of 77.1%, according to figures for the 12 months to Jun-16. However, there continues to be pockets of unemployment across the county, particularly in Stevenage and Broxbourne where there have been increases in the claimant count for those in receipt of Job Seekers Allowance.</p>	<p>particularly in Stevenage and Broxbourne.</p>
5	<p>Climate change: warmer, drier and high risk of damage from flooding.</p> <p>Annual mean temperatures from Hertfordshire and Central England Temperature (CET) records show a long term warming trend.</p> <p>Hertfordshire experiences lower than average rainfall and it is likely that climate change will exacerbate this.</p> <p>The main sources of flood risk include surface water, groundwater, rivers and other watercourses. 12,896 dwellings fall in Flood Zone 2 and 3. Significant levels of fluvial flood risk are seen in the south and south eastern parts of the County.</p>	<p>Despite policies in the NPPF, in the absence of the MLP and specific policies aimed at combating climate change and reducing the impacts, it is likely that contributions to climate change from minerals development in Hertfordshire will not be appropriately controlled and mitigated.</p>
6	<p>Air quality</p> <p>With the exception of Stevenage Borough Council and Welwyn Hatfield District Council, all District Authorities have Air Quality Management Zones (AQMAS). Watford and Hertsmere have the largest number, with a total of 30, while North Hertfordshire has just one. In total, there are 51 Air Quality Management Zones across Hertfordshire.</p>	<p>In the absence of the MLP and policies aimed at reducing emissions from transport of minerals, air quality in Hertfordshire is more likely to be adversely affected as a result of less stringent mitigation or poorly planned minerals development.</p>
7	<p>Poor health in some areas</p> <p>Life expectancy in Hertfordshire is improving, but varies between men and women and between smaller areas according to levels of multiple deprivations.</p> <p>In 2012, North Herts and Hertsmere had significantly higher rates of hospital admissions due to self-harm than the Hertfordshire average. Although East Herts and St Albans have the lowest levels of hospital, admissions both LAs have still seen a gradual rise over these three years.</p>	<p>The environment can have an important role in determining individuals' and communities' physical and mental health. The minerals sector provides employment and can have an effect on access to sports and leisure facilities, both of which are beneficial to physical and mental health. In the absence of the MLP, there may be negative impacts on human health in some areas of Hertfordshire as a result of less stringent mitigation or poorly planned minerals development.</p>
8	<p>Increases in greenhouse gas emissions</p> <p>In 2012-13, Hertfordshire County produced 147,087 tonnes of greenhouse gas emissions (tonnes CO₂ e) but per</p>	<p>Despite policies in the NPPF, in the absence of the MLP and specific policies aimed at combating greenhouse gas emissions, it is likely that greenhouse gas emissions from minerals development in Hertfordshire will not be appropriately controlled and</p>

No.	Key Sustainability Issues	The likely evolution of the environment in the absence of the MLP
	capita CO ₂ emissions have reduced by 14.9% since 2005.	mitigated and could therefore result in reversing the trend in the reduction in emissions.
9	<p>Declining access to outdoor green space and Hertfordshire's extensive network of Public Rights of way (PRoW)</p> <p>According to Hertfordshire Strategic Green Infrastructure Plan 2011, there are deficiencies in Access to Natural Greenspace (ANG) in East Herts, North Herts, Hertsmere and Welwyn Hatfield, Watford and Stevenage. Stevenage and North Herts perform below the average at both County and sub-regional levels.</p> <p>The County has an extensive PRoW, with over 5200 paths totalling more than 3000km.</p>	<p>The provision of minerals for society's needs may cause adverse effects to the natural environment. However, MLPs contain policies which aim to protect and enhance the environment. Without the MLP, it is more likely that ANG in the areas with the highest levels of deficiencies could continue to decline as a result of poorly planned minerals development or with less stringent mitigation measures applied. Access to, and the breakup of connections between PRoW, could also result in adverse effects.</p> <p>The opportunity to protect and enhance the environment and achieve net biodiversity gains (e.g. through restoration) could be limited.</p>
10	<p>Water quality</p> <p>The water quality within the County is not yet meeting 'good' ecological status in regards to the EU Water Framework Directive. Only 9.8% of water bodies within the County have good ecological status.</p>	<p>In the absence of the MLP and policies aimed at the protection of the water environment, water bodies and hydrological regimes in Hertfordshire are more likely to be adversely affected as a result of less stringent mitigation or poorly planned minerals development.</p>
11	<p>Traffic growth</p> <p>If the County continues to attract more people through inward migration, traffic growth will continue to affect the transport network and may exceed planned capacity in some places. Increased traffic could have a detrimental effect on quality of life within the County.</p>	<p>In the absence of the MLP and policies aimed at reducing emissions from transport of minerals, traffic growth in Hertfordshire may continue in certain areas and along particular routes. However, other non-minerals related road traffic is likely to contribute more to overall traffic growth in the County.</p>
12	<p>Development pressure</p> <p>Hertfordshire's proximity to London means that there is pressure for development of housing. Local authorities are responsible for determining housing numbers and distribution; however with over 50% of the County being designated Green belt it is likely that there will be more limited land for all types of development.</p>	<p>Development pressure in Hertfordshire, particularly for housing is likely to lead to limited availability of land for other uses. In the absence of an MLP there is the potential that the County could not be able to provide a sufficient supply of minerals to meet the society's needs.</p>

4 Sustainability Appraisal Framework and Assumptions

- 4.1 The SEA Regulations, Schedule 2(6) require the Environmental Report to consider:
- “The likely significant effects on the environment, including short, medium and long term effects, permanent and temporary effects, positive and negative effects and secondary, cumulative and synergistic effects, on issues such as (a) biodiversity, (b) population, (c) human health, (d) fauna, (e) flora, (f) soil, (g) water, (h) air, (i) climatic factors, (j) material assets, (k) cultural heritage including architectural and archaeological heritage, (l) landscape and (m) the inter-relationship between the issues referred to in sub-paragraphs (a)–(l).”
- 4.2 Development of an SA Framework is not a requirement of the SEA Regulations. However, it provides a recognised way in which the likely sustainability effects of a plan can be predicted, described, analysed and compared in a consistent way. Once SA Objectives are developed they provide the basis for testing options and policy formulation of relevant aspects of the MLP. The objectives derived from this process are the basis for identifying appropriate indicators and targets against which the success of adopted strategies and policies may be judged.
- 4.3 The SA objectives presented in **Table 4.1** have been developed through consultation with HCC Minerals and Waste Planning Policy officers and feedback from an Interested Parties Event held on the 19th March 2015. The SA objectives have been updated where necessary taking into account the feedback and using LUC’s professional judgement and experience of using SA objectives to appraise sustainability effects of plans. The objectives reflect the review of relevant plans and programmes (as set out in **Appendix 2**) and baseline situation/key issues described in **Chapter 3** and **Appendix 3**.
- 4.4 The policy and site options considered for inclusion in the Consultation Draft MLP have been appraised against the SA Objectives, which are included in **Table 4.1** below. The SA Framework consists of ‘Headline’ SA Objectives, each with a number of sub-objectives, which help to provide decision-making criteria to use during the identification of potential effects from the MLP. The SA objectives presented in **Table 4.1** cover the topics required in the SEA Regulations⁹, as demonstrated in **Table 4.2**.

Table 4.1: Sustainability Appraisal Framework for the MLP

HEADLINE SA OBJECTIVES	Sub-objectives	
Environmental		
1. To protect, conserve and enhance natural habitats, species and geological features including those identified in s41 of the NERC Act 2006, consistent with the UK Post-2010 Biodiversity Framework, Biodiversity 2020 and the Local nature Partnership aims.	1.1	To protect against the loss of priority habitats, biodiversity and species
	1.2	To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site.
	1.3	To protect against the deposition of air and other pollutants on designated nature conservation sites

⁹ Biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage and landscape

HEADLINE SA OBJECTIVES	Sub-objectives	
	1.4	To protect and enhance sites of geological conservation interest.
2. To conserve and enhance the quality of the historic environment including landscape history, human history, archaeological history	2.1	To conserve and enhance the County's cultural heritage, including both designated and non-designated heritage assets and their setting.
	2.2	To conserve below ground archaeological assets
	2.3	Seek to ensure the supply of locally distinctive building materials for historic building methods
3. To conserve and enhance Hertfordshire's landscape assets such as landscapes of natural beauty and greenspaces.	3.1	To conserve and enhance the character and quality of Hertfordshire's landscapes
4. To protect water resources , water quality and the function of the water environment from pollution and over abstraction	4.1	To protect the quality of ground and surface water
	4.2	To protect the quantity of ground and surface water from over abstraction
5. To minimise the effects of climate change and reduce emissions of greenhouse gases	5.1	To reduce operational emissions through improved/enhanced technologies and sustainable transport.
	5.2	To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site
6. To avoid the risk of flooding , by directing development away from areas at highest risk and promote opportunities for implementing alleviation / mitigation during site restoration.	6.1	To protect against the risk of flooding
	6.2	To provide opportunities for flood alleviation / mitigation during the restoration of the site
7. To protect and ensure the sustainable use of mineral resources	7.1	To encourage the use of recycled and secondary aggregates
Economic		
8. To maximise the potential economic benefits of mineral extraction for the economy in Hertfordshire	8.1	To provide opportunities for local people to access employment and skills both during and after extraction
	8.2	To ensure an steady and adequate supply of minerals to meet Hertfordshire's needs
	8.3	To ensure that mineral sterilisation is minimised

HEADLINE SA OBJECTIVES		Sub-objectives
	8.4	Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality
Social		
9. To protect and improve health and amenity for individuals and communities within Hertfordshire	9.1	To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport
	9.2	To protect against the loss of Public Rights of Way, access, recreation areas and open space
	9.3	To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site
	9.4	To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes

4.5 The SEA Regulations requires in Schedule 2(6) that information is provided on the likely significant effects on a number of environmental topics. **Table 4.2** sets out the "SEA Themes" and shows that they are all covered by at least one of the draft SA sub-objectives for the MLP, although many of the SEA topics are cross-cutting issues and therefore a number of sub-objectives are repeated under different SEA Themes. Coverage of the SEA topics by the SA objectives ensures that each of the topics will be addressed in the SAs of the MLP.

Table 4.2: Coverage of 'SEA themes' in the SA objectives

SEA Themes		Sub-objectives covered under each theme
Biodiversity	1.1	To protect against the loss of priority habitats, biodiversity and species.
	1.2	To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site.
	1.3	To protect against the deposition of air and other pollutants on designated nature conservation sites.
Population	8.1	To provide opportunities for local people to access employment and skills both during and after extraction.
Human Health	5.1	To reduce operational emissions through improved/enhanced technologies and sustainable transport.
	9.1	To protect the health and amenity of local residents and communities from the impacts of minerals workings.
	9.2	To protect against the loss of Public Rights of Way, recreation areas and

SEA Themes		Sub-objectives covered under each theme
		open space.
	9.3	To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site.
	9.4	To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes.
Fauna, Flora	1.1	To protect against the loss of priority habitats, biodiversity and species.
	1.2	To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site.
	1.3	To protect against the deposition of air and other pollutants on designated nature conservation sites.
Soil	1.4	To protect and enhance sites of geological conservation interests.
	8.4	Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality.
Water	4.1	To protect the quality of ground and surface water.
	4.2	To protect the quantity of ground and surface water from over abstraction.
Air	5.1	To reduce operational emissions through improved/enhanced technologies and sustainable transport.
Climatic Factors	5.1	To reduce operational emissions through improved/enhanced technologies and sustainable transport.
	5.2	To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site (e.g. small-scale wind turbines/solar panels).
	6.1	To protect against the risk of flooding.
	7.1	To encourage the use of recycled and secondary aggregates.
	6.2	To provide opportunities for flood alleviation / mitigation during the restoration of the site.
Material Assets	7.1	To encourage the use of recycled and secondary aggregates.
	8.4	Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a

SEA Themes		Sub-objectives covered under each theme
		higher quality.
	8.2	To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs.
	8.3	To ensure that mineral sterilisation is minimised,
Cultural Heritage (including architectural and archaeological heritage, landscape)	2.1	To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting.
	2.2	To conserve and enhance below ground archaeological assets.
	2.3	Seek to ensure the supply of locally distinctive building materials for historic building methods.
	3.1	To conserve and enhance the character and quality of Hertfordshire's landscapes.

Assumptions taken into account during the SA

- 4.6 SA inevitably relies on an element of subjective judgement. In predicting and assessing the likely sustainability effects of the MLP, the SA team's analysis of the characteristics of Hertfordshire and the sustainability issues it faces has been drawn upon as well as the professional experience of the SA team of having undertaken numerous SAs of minerals local plans and site allocations.
- 4.7 To support the appraisal of mineral site options that will be included in the MLP a set of assumptions and justifications for determining the significance of the potential effects was developed for each SA headline objective, with the purpose of providing a consistent approach to the prediction and assessment of effects. The assumptions for each SA objective relate specifically to the assessment of the potential sites that will be considered for allocation in the MLP. These assumptions were developed so that, where possible, quantitative data can be used to appraise the sites. Following consultation on the SA Report which accompanied the Consultation Draft MLP in 2017, the assumptions and evidence sources used to appraise the significant effects of site options and the selected allocations in the Proposed Submission MLP on the historic environment (SA objectives 2.1 and 2.2) were updated in response to recommendations made by Historic England. A summary of Historic England's recommendations and be found in **Appendix 1**. The latest iteration of the assumptions are presented in **Appendix 4**.
- 4.8 It should be noted that the proposed distances from specific assets (e.g. biodiversity and recreational) used within relevant SA Objectives to predict the magnitude of potential effects of allocating the sites are for a guide only and will not mean that mineral sites within a certain distance would definitely have an effect in every instance. The potential effects depend significantly on the type and design of mineral sites eventually developed on the site, which will need to be assessed at the planning application stage.

Limitations and Difficulties Encountered

- 4.9 The SEA Regulations require consideration to be given to any difficulties that were encountered during the SA process, including any data limitations. A number of potential challenges have arisen from the scope of this SA, including the range of sites that needed to be subject to appraisal and the need to ensure that this was done in a consistent manner. In order to address

this issue, detailed assumptions relating to each of the SA objectives were developed and applied during the appraisal of site options (as described above).

5 Sustainability Appraisal Findings – Options stage (Initial Consultation Document)

- 5.1 This chapter describes the findings of the SA of the options that HCC identified and considered in preparing the MLP, and were subject to consultation via the Initial Consultation Document in 2015. The options that were appraised (or reasonable alternatives as they are referred to in the SEA Regulations) comprised the following:
- Draft Vision (two options).
 - Draft Objectives (nine objectives).
 - Quantity of Sand and Gravel (three options).
 - Mineral Sterilisation (five options).
 - Windfall Sites (two options).
 - MSAs and MCAs Site Selection.
 - Brick Clay (three options).
 - Chalk (four options).
 - Secondary and Recycled Aggregates (seven options).
 - Draft Development Management Policies (13 policies).
- 5.2 These reasonable alternatives were identified by HCC in conjunction with the development of the evidence base that informed the preparation of the MLP Initial Consultation Document. This evidence base, which was published alongside the MLP Initial consultation Document, includes a series of topic papers on the county's chalk and clay resource, sand and gravel apportionment, secondary and recycled aggregates, a site selection and extension methodology and sterilisation, railhead and wharf infrastructure and windfall sites. Note that some of the issues within the MLP Initial Consultation Document did not have specific options associated with them; rather an opinion-seeking consultation question was posed. LUC identified which options within the Initial Consultation Document should be subject to appraisal (as listed above) and the reasons for this are shown in **Table 5.10** below.
- 5.3 The options within the Initial Consultation Document were assessed by LUC and the results of the SA were set out in a separate SA Report in January 2016. These SA findings were considered by the Council throughout the preparation of the Consultation Draft MLP. In this way, the SA process informed the development of HCC's proposed draft policies and site allocations to be included in the Consultation Draft MLP. The SA matrices and findings prepared for the Initial Consultation Document in 2015/16 are re-presented below.

Draft Vision Options

- 5.4 Two Draft Visions are identified in the Hertfordshire Minerals Local Plan Initial Consultation Document and their likely effects are shown below in **Table 5.1**. The two options present different styles of writing a vision. Both Visions include maintaining a steady and adequate supply of sand and gravel and support transport of minerals by sustainable transport, whilst conserving natural occurring resources through effective use and encouraging use of alternative minerals. Both visions also seek to improve the natural, built and historic environments. Draft Vision 2 puts slightly more emphasis on conserving the rural character of Hertfordshire and emphasises Green Belt as the main constraint in the county.

Table 5.1: The likely effects of the Draft Vision Options on the SA objectives

Draft Vision	Vision 1	Vision 2
SA Objective		
Environmental		
SA1: Biodiversity and Geodiversity	+	+
SA2: Historic Environment	+	+
SA3: Landscape	++	++
SA4: Water Resources	+	+
SA5: Climate Change	+	+
SA6: Flooding	+	+
SA7: Mineral Resources	++	++
Economic		
SA8: Local Economy	+	+
Social		
SA9: Health and Amenity	+	+

- 5.5 Both Draft Visions are likely to have the same effects on the SA objectives. Positive effects are likely to occur on all the SA objectives due to the aspirational nature of the Draft Visions, with two environmental objectives (SA3: Landscape and SA7: Mineral Resources) expected to have significant positive effects. The Draft Visions outline that minerals will be used sustainably by utilising the supply of alternative materials in construction projects. Hertfordshire’s landscape is considered to be ‘respected’ in Draft Vision 1 and ‘preserved’ and ‘maintained’ in Vision 2.
- 5.6 The other SA objectives in all of the environmental, economic and social categories are addressed in both Visions through outlining the use of sustainable transport and calling for high quality restoration and subsequent management of mineral sites as early as possible.

Draft MLP Objectives

- 5.7 Nine draft objectives have been identified in the Hertfordshire Minerals Local Plan Initial Consultation Document and **Table 5.2** below shows their likely effects on the SA objectives.

Table 5.2: The likely effects of the Draft MLP Objectives on the SA objectives

Draft Objective	1	2	3	4	5	6	7	8	9
SA Objective									
Environmental									
SA1: Biodiversity and Geodiversity	0	0	0	0	+	+	++	0	++
SA2: Historic Environment	0	0	0	0	+	0	++	0	0
SA3: Landscape	0	0	0	0	+	0	+	0	++
SA4: Water Resources	0	0	0	0	+	0	+	0	0
SA5: Climate Change	0	0	0	++	+	++	0	+	0
SA6: Flooding	0	0	0	0	+	0	0	+	0
SA7: Mineral Resources	++	-	++	0	0	0	+	-	0
Economic									

Draft Objective	1	2	3	4	5	6	7	8	9
SA Objective									
SA8: Local Economy	0	+	0	0	0	0	+	++	+
Social									
SA9: Health and Amenity	0	0	0	0	+	0	++	0	++

- 5.8 The Draft MLP Objectives are generally compatible with the SA objectives, with most MLP Objectives being likely to have either positive or negligible effects on the SA objectives. The majority of significant positive effects identified are because the intention of the Draft MLP Objective directly relates to that of the SA objectives. For example, the significant positive effect identified for Draft MLP Objective 8 is because it ensures that maximum economic gain is obtained from the site through safeguarding sites thereby prioritising mineral extraction over other development.
- 5.9 Draft MLP Objectives 7 and 9 are expected to each have three significant positive effects on SA objectives. These are related to the restoration of mineral sites, ensuring that the natural environment is enhanced and available for public use. Draft MLP Objective 7 mentions that positive contributions need to be made to cultural heritage, whereas Draft MLP Objective 9 refers to amenity value. Draft MLP Objectives 7 and 9 are also expected to have minor positive effects on SA objective 8 (economy) because as explained above, they outline measures dealing with the restoration of minerals sites which can provide opportunities for local people to access employment and skills.
- 5.10 Draft MLP Objective 5 is unlikely to have a significant positive effect on any of the SA objectives. It is however, expected to have a minor positive effect on almost all of the SA objectives excluding SA objective 7 (mineral resources) and SA objective 8 (local economy). This is due to its relatively broad aims of ensuring mineral extraction does not adversely impact on people, the natural, built and historic environments and to mitigate any cumulative impacts that occur.
- 5.11 The minor negative effects identified in relation to SA objective 7 (mineral resources) are because Draft MLP Objectives 2 and 8 encourage the extraction of primary minerals, and therefore not the use of recycled and secondary aggregates. However, it is recognised that the primary purpose of the MLP is to make provision for the future supply of primary aggregates, and that MLP Draft Objective 1 seeks to encourage the sustainable use of minerals by utilising secondary and recycled aggregates which will reduce the reliance on primary won aggregates, hence the significant positive effect for this same SA objective.

Quantity of Sand and Gravel Options

- 5.12 Issue 7 of the Initial Consultation Document considers how the Hertfordshire Minerals Local Plan can support the prevention of mineral sterilisation in Hertfordshire. Two options regarding the quantity of sand and gravel are identified with a further third option of an alternative quantity. Although the third option did not specify what that alternative quantity should be, a possible figure that could be used is considered below. This is to address consultation responses that did not specify what that alternative should be, but referred to a figure between the other two options.
- 5.13 The three options are as follows:
- 1.39 million tonnes, as specified by the East of England Aggregate Working Party apportionment figure (identified in Issue 7).
 - 1.12 million tonnes, based on 10-year average sales figures (identified in Issue 7).
 - 1.17 million tonnes, based on the 3-year average sales figures (additional option considered after the publication of the Initial Consultation Document, based on the alternative sales figure set out in the Hertfordshire Local Aggregate Assessment 2014).

- 5.14 **Table 5.3** below shows the potential effects the quantity of sand and gravel options are likely to have on the SA objectives.

Table 5.3: The likely effects of the quantity of sand and gravel options on the SA objectives

Draft Option	A	B	C
SA Objective			
Environmental			
SA1: Biodiversity and Geodiversity	?	?	?
SA2: Historic Environment	?	?	?
SA3: Landscape	?	?	?
SA4: Water Resources	?	?	?
SA5: Climate Change	?	?	?
SA6: Flooding	?	?	?
SA7: Mineral Resources	--	-?	-
Economic			
SA8: Local Economy	+	+/-?	+
Social			
SA9: Health and Amenity	0	0	0

- 5.15 The significant negative effect identified in relation to SA objective 7 (mineral resources) is because 1.39 million tonnes per year (Option A) is the highest of the options and is less likely to encourage the use of secondary and recycled aggregates. Additionally, between 2009 and 2013, the sales of secondary and recycled aggregates have fluctuated a bit but overall increased by 71,000 tonnes, while sales of primary aggregates have also fluctuated but overall decreased between 2009 and 2013 (as shown in Table 3 of the Initial Consultation Document). As Option A is based on the East of England Aggregate Working Party apportionment figure (reviewed in 2009) it is six years out of date, and will not have taken into account these more recent figures. Options B and C could also have a negative effect on encouraging the use of recycled and secondary aggregates as they also make provision for a quantity of primary sand and gravel aggregate to be extracted each year, although the quantities are slightly lower than Option A, therefore the effects are considered to be minor negative. Options B and C also take into account the sales figures since 2009, so may be more likely to reflect likely levels of secondary and recycled aggregate sales.
- 5.16 The quantity of sand and gravel options is likely to have mainly minor positive effects in relation to SA objective 8 (economy) as the options seek to ensure a steady and adequate supply of minerals to meet Hertfordshire's needs. The minor negative effect identified on Option B is because there is potential for the construction industry to be short of sand and gravel if the MLP plans for sand and gravel in line with the average sales figure of 1.12 million tonnes per year until 7 years after the end of the plan.
- 5.17 The uncertain effects identified on the environmental objectives and social objective are due to the uncertainty regarding potential impacts of the locations and size of sand and gravel extraction sites that will be required to meet the quantities identified in Draft Options A, B and C. Effects of potential mineral extraction sites will be subject to SA/SEA in 2016 once the Council has undertaken a Call for Sites consultation exercise and is carrying out a technical assessment of potential sites.

Mineral Sterilisation Options

5.18 Issue 12 in the Initial Consultation Document considers how the MLP can support the prevention of mineral sterilisation in Hertfordshire (specifically sand and gravel as other materials are covered by subsequent issues in the Initial Consultation Document). The five options proposed are identified below and their effects on the SA objects are show in **Table 5.4**:

- A. Include a policy that identifies the Minerals Safeguarding Areas and Minerals Consultation Areas and sets the thresholds for non-mineral proposals in these areas which the County Council wishes to be consulted on.
- B. Include a policy on minerals sterilisation which encourages the prior extraction of minerals before non-mineral developments.
- C. Include a policy that combines the identification of Minerals Safeguarding Areas and Minerals Consultation Areas with the encouragement of prior extraction to avoid the sterilisation of minerals by non-minerals development.
- D. Include two separate policies. One policy identifying the Minerals Safeguarding Areas and Minerals Consultation Areas and the thresholds for non-minerals proposals which ensure consultation with the County Council, and one policy encouraging the prior extraction of minerals to avoid the sterilisation of minerals by non-mineral developments.
- E. Deal with proposals on a site-by-site basis as a windfall site.

Table 5.4: The likely effects of sterilisation and windfall policy options on the SA objectives

Draft Option	A	B	C	D	E
Environmental					
SA1: Biodiversity and Geodiversity	++?	++?	++?	++?	?
SA2: Historic Environment	+/-?	+/-?	+/-?	+/-?	?
SA3: Landscape	+/-?	+/-?	+/-?	+/-?	?
SA4: Water Resources	0	0	0	0	0
SA5: Climate Change	0	0	0	0	0
SA6: Flooding	0	0	0	0	0
SA7: Mineral Resources	-	--	--	--	-
Economic					
SA8: Local Economy	++	++	++	++	++?
Social					
SA9: Health and Amenity	+/-?	+/-?	+/-?	+/-?	?

5.19 Aside from Option E (discussed below), significant positive effects are identified for all options in relation to SA objective 1 (biodiversity and geodiversity) as the potential restriction of non-mineral development in Mineral Safeguarding Areas (MSAs) and Mineral Consultation Areas (MCAs) that would prejudice mineral workings may prevent development that could harm biodiversity. Also, areas used for mineral activity within MSAs and MCAs, in the long-term, could benefit biodiversity as a result of the restoration of mineral sites. Similarly, if non-mineral developments were restricted following consideration of the proposal within the MSAs and MCAs, there could be less likelihood of a development occurring that would not result in the same benefits of restoration of the area following mineral extraction. Furthermore, MSAs and MCAs may lead to more mineral extraction activities (e.g. where the mineral needs to be worked before non-

mineral development can take place) or the continuation of ancillary mineral facilities that could provide benefits via site restoration.

- 5.20 Due to the principle of safeguarding, ensuring that mineral resources will be protected from unnecessary sterilisation by other development can also protect the geodiversity dimension of SA objective 1. Due to these considerations in MSAs, geological formations may be preserved and in some instances created, depending on whether mineral extraction takes place, and this should contribute to maintaining and enhancing geodiversity. These effects are uncertain for Options A, B, C and D as the principle of minerals safeguarding does not mean that extraction will be automatically allowed in all areas identified as MSAs and MCAs, or that non-mineral development will be prevented in these areas, and all effects will be site-specific and based on the nature and design of proposals that come forward within MSAs and MCAs.
- 5.21 Significant positive effects are also likely on SA objective 8 (economy) from all of the Options as they are concerned with safeguarding minerals to ensure a steady and adequate supply of minerals to meet Hertfordshire's needs and they also ensure that mineral sterilisation is minimised. Option E is also likely to have an additional uncertain effect on SA objective 8 because the policy would rely on windfall sites that are not guaranteed to be safeguarded from non-mineral development. Both mineral and non-mineral development however, can provide economic opportunities for local people to access employment and skills.
- 5.22 All the Options identified in Issue 12 are likely to have negative effects on SA objective 7 (mineral resources) as they all seek to enable works on primary mineral material and do not encourage the use of recycled and secondary aggregates. Significant negative effects are expected for Options B, C and D because these options also promote the prior extraction of primary minerals.
- 5.23 The effects for Option E are likely to be uncertain on SA objective 1, SA objective 2 (historic environment), SA objective 3 (landscape) and SA objective 9 (health and amenity) as the this option does not safeguard mineral areas like the other options seek to do, instead it concerns considering sites on a site-by-site basis. It is therefore unknown whether mineral or non-mineral development is likely to occur, both of which have differing impacts on the environment.
- 5.24 Mixed effects are likely for nearly all of the Options on SA objective 2, SA objective 3 and SA objective 9, as MSAs and MCAs may potentially restrict non-mineral developments that could otherwise have a negative effect on these three SA objectives. However, the Safeguarding Areas may lead to more mineral extraction activities that could have an adverse impact on the historic environment, landscape and health and amenity. It must be emphasised, however, that the process of safeguarding does not mean that extraction will be automatically allowed or that non-mineral development cannot take place. However, any effects would be uncertain as the potential for effects will depend on the exact nature and design of proposals within Safeguarding Areas, which will not be known until the planning application stage.

Windfall Sites Options

- 5.25 Issue 14 of the Initial Consultation Document sets out two options for how the MLP should cover the topic of windfall sites, i.e. proposals for sand and gravel extraction that come forward on sites outside of the Specific Sites and Preferred Areas that will be allocated in the MLP. The two options are described below, and the potential sustainability effects are shown in **Table 5.5**:
- A. Incorporate windfall sites into a policy related to mineral extraction applications for sites outside of Specific Sites and Preferred Areas.
 - B. Include a policy specifically about the use of windfall sites for mineral extraction, promoting a phased approach to development to allow the gradual extraction of minerals in sync with the non-mineral development.

Table 5.5: The likely effects of windfall policy options on the SA objectives

Draft Option	A	B
SA Objectives		
Environmental		
SA1: Biodiversity and Geodiversity	+/-?	+/-?
SA2: Historic Environment	+/-?	+/-?
SA3: Landscape	+/-?	+/-?
SA4: Water Resources	0	0
SA5: Climate Change	0	0
SA6: Flooding	0	0
SA7: Mineral Resources	-?	-?
Economic		
SA8: Local Economy	++?	++
Social		
SA9: Health and Amenity	+/-?	+/-?

- 5.26 Significant positive effects are likely for SA objective 8 (local economy) as both options would result in the provision of a mineral supply if a windfall site was to come forward which would avoid the prospect of mineral sterilisation. Option B also outlines measures to ensure that other non-mineral development activities are not compromised when a windfall site arises. This could ensure that the minerals supply in Hertfordshire is not sterilised alongside enabling other sectors of the economy to still function which could support employment and opportunities to people in Hertfordshire. Option A, has an uncertainty attached on this SA objective as the policy may potentially impact on non-mineral developments.
- 5.27 There are likely to be mixed effects on SA objectives 1 (biodiversity and geodiversity), 2 (historic environment), 3 (landscape) and 9 (health and amenity) because both of the Options could result in mineral workings which could have adverse effects on habitats and species, compromising the setting of historic assets and landscape character and possibly impacting on health and amenity, resulting in a minor negative effect. However, after a mineral site has been worked, a windfall site could be restored to encourage biodiversity, enhance historic settings and make it an attractive recreational destination that could help improve people’s health, so a minor positive effect in the longer term is also identified.
- 5.28 Minor negative effects are likely on SA objective 7 (mineral resources) as the working of a windfall mineral site would encourage the use of primary land won aggregates in place of supporting usage of recycled and secondary aggregates.

MSAs and MCAs Site Selection Option

- 5.29 Issue 15 in the Initial Consultation Document asks whether the proposed selection procedure for Minerals Safeguarding Areas and Minerals Consultation Areas is appropriate. The national guidance for the Minerals Safeguarding Area Selection Procedure outlined in the MLP Initial Consultation Document has not been subject to SA/SEA as it sets out a procedure for the County Council to follow, rather than the proposed areas to be identified as MSAs/MCAs.
- 5.30 Nonetheless, it is noted that in sustainability terms, Mineral Safeguarding Areas and Mineral Consultation Areas should help safeguard mineral resources from sterilisation and may therefore have a positive effect on economic development related to minerals. However, as non-mineral developments may potentially be restricted within MSAs and MCAs, policies in the MLP concerning these areas could also have negative effects on economic development, environmental factors and social well-being as Safeguarding Areas may reduce opportunities for other types of

development. However, it is recognised that the process of safeguarding through MSAs and MCAs does not mean that extraction will be automatically allowed or that non mineral development cannot take place.

Brick Clay Options

5.31 Issue 16 considers how the MLP can encourage and support the extraction of brick clay in Hertfordshire. The three Options are identified below and their effects are shown below.

A. Identify Minerals Safeguarding Areas and Minerals Consultation Areas to safeguard clay resources from sterilisation by non-mineral development.

B. Identify Preferred Areas where the County Council would ideally like clay extraction to occur.

C. Include a policy that provides general support to planning applications that propose to extract brick clay.

Table 5.6 The likely effects of brick clay policy options on the SA objectives

Draft Option	A	B	C
SA Objective			
Environmental			
SA1: Biodiversity and Geodiversity	++?	+/-?	+/-?
SA2: Historic Environment	0?	0?	0?
SA3: Landscape	+/-?	+/-?	+/-?
SA4: Water Resources	?	?	?
SA5: Climate Change	0	0	0
SA6: Flooding	0?	0?	0?
SA7: Mineral Resources	-	-	-
Economic			
SA8: Local Economy	++	++	++
Social			
SA9: Health and Amenity	-?	-?	-?

5.32 All of the Options outlined in Issue 16 are likely to have a significant positive effect on SA objective 9: (local economy) because their aims are to ensure that there is a steady and adequate supply of brick clay to meet Hertfordshire's supply requirement of 25 years and to ensure that mineral sterilisation is minimised.

5.33 Option A is also likely to have significant positive for SA objective 1 (biodiversity and geodiversity) because this Option seeks to implement MSAs and MCAs with the aim of preventing sterilisation of clay sites from non-mineral developments that could otherwise have adverse impacts on biodiversity. In addition, brick clay minerals sites, MSAs and MCAs in the long term could benefit biodiversity through restoration. Similarly, geodiversity also benefits from avoidable sterilisation as geological formations may be preserved and in some instances created, depending on whether mineral extraction takes place, and this should contribute to maintaining and enhancing geodiversity. Therefore, as brick clay sites could be permitted through Options B and C as well, these options are likely to have a minor positive effect on biodiversity and geodiversity in the long term. However, both Options B and C could involve extraction of brick clay, which could have some negative impacts on biodiversity and geodiversity in the shorter term, hence the mixed effect for SA objective 1.

- 5.34 The significant positive effect for Option A is uncertain as minerals safeguarding does not mean that extraction will be automatically allowed in all areas identified as MSAs and MCAs, or that non-mineral development will be prevented in these areas. Furthermore, all effects will be site-specific and based on the design of proposals that come forward within MSAs and MCAs.
- 5.35 Mixed but uncertain effects are also likely for all options in relation to SA objective 3 (landscape), because brick clay extraction could have adverse effects on landscape character and quality during the operation of the site, although this is uncertain until detailed proposals are known at the planning application stage. Conversely, positive effects might be achieved in the long term through appropriate restoration of the extraction site.
- 5.36 Minor negative effects are likely on SA objective 7 (mineral resources) as all the Options support the extraction of brick clay, a primary aggregate, and do not encourage the use of secondary and recycled aggregates.
- 5.37 Minor negative effects are also expected on SA objective 9 (health and amenity) as the associated works where clay is used to make brick, may be visually intrusive and arising from this, the operation of the plant and the distribution of the finished products can cause noise and traffic problems. The scale of workings for brick clay however, is relatively small within Hertfordshire and the only brick clay is located in the Hemel Hempstead area¹⁰. These minor effects are likely to be uncertain as the potential for effects will depend on the exact nature and design of the sites, which would not be known until the planning application stage.
- 5.38 The potential effects on SA objectives 2 (historic environment), 4 (water resources) and 6 (flooding) are uncertain as they will depend on the specific location of the brick clay extraction site, but are likely to be negligible. The brick clay options are unlikely to have any effect on SA objective 5 (climate change).

Chalk Options

- 5.39 Issue 18 in the Initial Consultation Document asks whether the MLP should encourage and support the extraction of chalk in Hertfordshire. The four Options are identified below and their effects are shown in **Table 5.7**:
- A. It shouldn't - current extraction levels are appropriate for the use of chalk in the county.
 - B. It should include policy to support the safeguarding of active extraction sites.
 - C. It should keep the existing non-energy mineral policy which would only grant permission to chalk extraction if the need for minerals cannot be met by existing reserves.
 - D. It should include policy to encourage new, small scale extraction operations.

Table 5.7: The likely effects of chalk policy options on the SA objectives

Draft Option	A	B	C	D
SA Objective				
Environmental				
SA1: Biodiversity and Geodiversity	0	0	0?	+/-?
SA2: Historic Environment	0	0	0?	+/-?
SA3: Landscape	0	0	0?	+/-?
SA4: Water Resources	0	0	0?	-
SA5: Climate Change	0	0	0?	0

¹⁰ Hertfordshire Local Aggregate Assessment (2014) Hertfordshire County Council.

Draft Option	A	B	C	D
SA Objective				
SA6: Flooding	0	0	0?	0
SA7: Mineral Resources	0	-	-?	--?
Economic				
SA8: Local Economy	0	+	+?	++?
Social				
SA9: Health and Amenity	0	0	0?	0

- 5.40 Option A is unlikely to have any effects as it would not be changing the situation for chalk extraction in Hertfordshire. Option D is the only option likely to generate a significant positive effect because by encouraging new, small scale extraction operations, this Option could provide employment opportunities for local people and also ensures there is a steady supply of chalk to meet Hertfordshire's needs as outlined in SA objective 8 (local economy). Options B and C would also enable continued chalk extraction in the County, although less likely to introduce new extraction sites than Option D, therefore Options B and C would have minor positive effects on SA objective 8.
- 5.41 Conversely, Option D is the only option that expected to have a significant negative effect (in relation to SA objective 7 (mineral resources)), as by encouraging new chalk sites, the primary extraction of materials is also being promoted. Similarly, Options B and C could have a minor negative effect on SA objective 7. Option C and D's effects are uncertain however, as new extraction sites may not be needed as there are low levels of chalk used in the County equating to sales of approximately 25,000 tonnes per year¹¹ and the current three operational chalk sites already meet national policy criteria.
- 5.42 Mixed effects are likely on SA objective 1 (biodiversity and geodiversity), SA objective 2 (historic environment) and SA objective 3 (landscape) from Option D as the development of a new chalk mineral operation site may lead to positive effects through the sympathetic restoration of sites which could have positive effects on biodiversity, historic assets and landscape character. The chalk workings itself however, may have adverse effects on habitats and species and be visually intrusive, leading to minor negative effects. However, the effects would be uncertain as the potential for effects will depend on the exact nature and design of the chalk sites, which would not be known until the planning application stage. Option B is not expected to affect these objectives as it relates to the continued operation of existing chalk extraction sites, which have already been considered for their potential environmental effects through the planning application process and been granted planning permission. Option C is also not expected to affect these objectives as it is not very likely that new mineral extraction proposals come forward due to the low level of chalk currently used in the County, although this is uncertain.
- 5.43 Option D could have a minor negative effect on water quality as chalk is a major aquifer and is the primary source of groundwater in Hertfordshire¹². Therefore, by encouraging new small scale chalk sites, there is potential for groundwater contamination to occur.

Secondary and Recycled Aggregates Options

- 5.44 Issue 19 in the Initial Consultation Document considers how the MLP can encourage and support the production of secondary and recycled aggregate for use as an alternative to primary, land-won minerals in Hertfordshire. The five Options are identified below and their likely effects are shown in **Table 5.8**:

¹¹ Table 9, Annual Minerals Raised Inquiry Survey, Monitor PA1007 'Minerals extraction in Great Britain 2012 (2014) DCLG

¹² Hertfordshire Local Aggregate Assessment (2014) Hertfordshire County Council.

- A. It should not provide any support.
- B. Maintain the same stance as the existing Minerals Local Plan and provide support to the installation of secondary and recycled aggregate processing facilities in appropriate locations.
- C. Encourage the provision of secondary and recycled aggregates but refer applicants to the Waste Local Plan for further information and guiding policy.
- D. Strengthen policy and text to complement the Waste Local Plan by encouraging the installation of secondary and recycled aggregates facilities to produce alternative materials.
- E. Identify sites that may currently be being used to produce secondary and recycled aggregates as well as strengthening policy and text to encourage the installation of secondary and recycled aggregate facilities.

5.45 Issue 20 considers how the MLP can encourage the installation of secondary and recycled aggregate facilities on existing mineral sites rather than at new sites in Hertfordshire. The two Options are identified below and their effects are also shown in **Table 5.8**:

- A. Yes the Minerals Local Plan should encourage the installation of secondary and recycled aggregate facilities on existing mineral sites rather than at new sites.
- B. No the Minerals Local Plan should not encourage the installation of secondary and recycled aggregate facilities on existing mineral sites rather than at new sites.

Table 5.8: The likely effects of secondary and recycled aggregate policy options on the SA objectives

Draft Option SA Objective	Issue 19					Issue 20	
	A	B	C	D	E	A	B
Environmental							
SA1: Biodiversity and Geodiversity	+/-?	0	0	0	+	+	-?
SA2: Historic Environment	0	0	0	0	+	+	-?
SA3: Landscape	+/-?	0	0	0	+	+	-?
SA4: Water Resources	0	0	0	0	0	0	0
SA5: Climate Change	+/-?	0	0	0	+	+	0
SA6: Flooding	0	0	0	0	0	0	0
SA7: Mineral Resources	--	+++?	++	++	++	++	+++?
Economic							
SA8: Local Economy	0	0	0	0	0	0	0
Social							
SA9: Health and Amenity	+/-?	-?	0?	-?	+	+	-?

5.46 Significant positive effects are expected for SA objective 7 (mineral resources) because the Options are seeking to encourage the use of recycled and secondary aggregates, which directly aligns with the aims of this SA objective.

5.47 The likely significant negative effect identified in SA objective 7 is in relation to Option A because it does not support the use of secondary and recycled aggregate. If alternative resources such as secondary and recycled aggregates are used more widely, the demand for land-won materials would decrease, and primary minerals are preserved for future use and, on the whole, are used more sustainably in the county. Therefore, without a policy encouraging an alternative to primary

land-won minerals, could result in the unnecessary and unsustainable use of primary mineral resources.

- 5.48 The uncertain mixed effects (minor positive and minor negative) are identified on Option A is because without a policy there is less likely to be secondary and recycled aggregate operations within the County. Therefore, the associated adverse impacts on SA objective 1 (biodiversity), SA objective 3 (landscape) and SA objective 9 (health and amenity) as well as transport impacts and associated emissions SA objective 5 (climate change) may not occur which could lead to a minor positive effect. The minor negative effect is because without secondary and recycled aggregate operations, new land-won developments may need to increase, thereby having adverse impacts on these SA objectives. The uncertainty lies with the location of secondary and recycled aggregate operations, the provision of good working practices and the implementation of planning conditions by County Council planning officers, all of which cannot be determined at this stage.
- 5.49 Options E and F are likely to have similar effects (minor positive) on the SA objectives as they both seek to support the provision of secondary and recycled aggregate processing facilities on existing sites, thereby reducing adverse impacts and the additional disturbances incurred by the development of a new site on the environment and local amenity.
- 5.50 The uncertain minor negative effects identified for Option G are because Option G is not likely to encourage secondary and recycled aggregate facilities at existing mineral sites rather than new sites, and additional secondary and recycled aggregate facilities at new sites may have more potential for adverse impacts on the environmental assets of Hertfordshire as well as the people living and visiting the county. However, this is uncertain as potential adverse impacts would depend on the location of secondary and recycled aggregate operations, the provision of good working practices and the implementation of planning conditions by County Council planning officers, all of which cannot be determined at this stage.

Draft Development Management Policies

- 5.51 In order to comply with national policy, the MLP Initial Consultation Document provides 13 Development Management (DM) Policy topics that are to be included in the Hertfordshire MLP. The policy topics are listed below and a compatibility matrix for the SA objectives was prepared and is shown in **Table 5.9**:
- Policy 13: Water Reservoirs
 - Policy 14: Green Belt
 - Policy 15: Cumulative Impact
 - Policy 16: Water Resources
 - Policy 17: Heritage and Setting
 - Policy 18: Landscape
 - Policy 19: Biodiversity
 - Policy 20: General Environmental and Amenity Protection
 - Policy 21: Road Traffic and Transport
 - Policy 22: Public Rights of Way
 - Policy 23: Soils and Agricultural Land
 - Policy 24: Restoration
 - Policy 25: After-care and After-use

Table 5.9 The likely effects of the Draft DM policies on the SA objectives

DM Policy	15: Water Reservoirs	16: Green Belt	17: Cumulative Impact	18: Water Resources	19: Heritage and Setting	20: Landscape	21: Biodiversity	22: Environmental and Amenity Protection	23: Transport	24: PROW	25: Soils and Agricultural Land	26: Restoration	27: After-care and After-use
Environmental													
SA1: Biodiversity and Geodiversity	+	+	+	+	0	+	++	+	+	0	0	++	++
SA2: Historic Environment	0	+?	+	0	++	+	0	+	+	0	0	++	++
SA3: Landscape	0?	++	+	+	+	++	+	+	+	0	0	++	++
SA4: Water Resources	++	0	+	++	0	0	+	+	0	0	0	+	+
SA5: Climate Change	0	0	+	0	0	0	0	+	++	0	0	0	0
SA6: Flooding	++	0	+	+	0	0	0	+	+	0	0	+	+
SA7: Mineral Resources	0	0	0	0	0	0	0	0	0	0	0	0	0
Economic													
SA8: Local Economy	0	0?	0	0	+	0	+	0	0	+	+	+	+
Social													
SA9: Health and Amenity	+	+	+	0	0	+	+	0	+	++	+	++	++

- 5.52 Overall, positive effects are likely from DM policy topics on nearly all of the SA objectives. SA objective 7 (mineral resources) has only negligible effects because this SA objective is addressed through other policy options presented outlined in the rest of the Initial Consultation Document.
- 5.53 Significant positive effects are expected where the DM policy's topic aligns directly with the SA objectives. DM Policies 26 (Restoration) and 27 (After-care and After-use) are each likely to have four significant effects on SA objective 1 (biodiversity), SA objective 2 (historic environment), SA objective 3 (landscape) and SA objective 9 (health and amenity) because they will seek to improve the environment as a whole once mineral workings has ceased. Environmental improvement also provides opportunities to encourage healthy lifestyles through delivery of improved access to recreation sites.
- 5.54 There are no significant positive effects likely for SA objective 8 (local economy) as there is no DM Policy directly addressing this SA objective. However, indirect minor positive effects are identified for six of the potential DM Policy topics.
- 5.55 An uncertainty is identified for DM Policy 13 (Water Reservoirs) because the presence of a water reservoir could impact the landscape depending on its scale and specific location which cannot be known at this stage, however, the DM Policy could include wording to help to mitigate potential effects on the landscape. There are also uncertainties under DM Policy 14 (Green Belt) for SA objectives 2 (historic environment) and 8 (local economy) because depending on its aim and final wording, a Green Belt policy might limit some mineral extraction activity within the Green Belt which could impact on the local economy. Conversely, if the DM policy were to limit mineral extraction in the Green Belt, this could have an indirect positive effect on the setting of heritage assets located within or near to the Green Belt. However, this is uncertain as it will depend on the specific location of heritage assets within the County and also the policy intention. These uncertainties may be reduced once the actual DM policies have been drafted.

Reasonable alternatives

- 5.56 The options summarised above constitute reasonable alternatives for policies for the Minerals Local Plan. The PPG requires that the reasons for selection of preferred options and rejection of alternative options are documented through the SA process. **Table 5.10** below explains whether the options presented in the Initial Consultation Document were selected for inclusion in the Draft MLP or not and the reasons for this. **Chapter 7** sets out the changes to the Draft MLP in the Proposed Submission MLP.

Table 5.10 Reasons for selection of preferred options over reasonable alternatives

Option	Selected or not selected?	Hertfordshire Council's reasons for decision making
Vision and Objectives		
Draft Vision 1	Selected - Merged with Vision 2	<p>The Vision included in the draft Plan has been revised to represent a merged version of both Visions 1 and 2. The selected Vision contains the content of Vision 1 in the more concise format of Vision 2, with fewer words so that the selected Vision is easier to understand. Additional minor amendments have been made to the selected Vision following representations on the Initial Consultation Version, including the setting of the time period for the Vision to match the Plan Period and the expansion of the term natural environment.</p> <p>No further reasonable alternatives were identified.</p>
Draft Vision 2	Selected – merged with Vision 1	See above.
Objectives 1 to 9	Selected	The Council developed nine objectives to be met by the policies in the plan. These objectives were developed specifically for Hertfordshire to ensure the Vision and overarching aim of sustainable development are achieved; therefore no reasonable alternatives were identified.
Draft Strategic Policy Options		
Quantity of sand and gravel A	Selected	<p>Approximately two-thirds of responses at Initial Consultation stage supported the use of the East of England Aggregate Working Party (EEAWP) apportionment figure of 1.39 million tonnes per year as the figure on which to plan for a steady and adequate supply of sand and gravel supply so this is what the Minerals Local Plan will use.</p> <p>The NPPF (para 207) states that Local Aggregate Assessments should be based on a rolling average of 10-year sales data and other relevant local information. The relevant local information will need to be presented during the development of the Plan in order to provide robust justification for the use of a figure other than the 10-year average sales figure in the Plan. However, when considering the growth agenda promoted by Government, the housing currently being planned for in Local Planning Authority Local Plans and the relatively low output of housing and infrastructure during the past decade of recession, the 10-year average sales figure is unlikely to provide any flexibility should demand increase at all.</p> <p>The NPPF (para 207) also states that minerals planning authorities should participate in the operation of an Aggregate Working Party and take advice of that Party into account when preparing their Local Aggregate Assessment. Member-counties of the EEAWP have agreed as a group to use apportionment figures as they are considered a more realistic estimate of future minerals demand for the East of England so the use of the apportionment figure will provide consistency with neighbouring Plans.</p>
Quantity of sand and gravel B	Not selected	The option of using the 10-year average sales figures was not selected. The reason for not selecting this is set out in the selection reasoning for Quantity of sand and gravel A above.

Option	Selected or not selected?	Hertfordshire Council's reasons for decision making
Quantity of sand and gravel C	Not selected	Whilst there were some suggestions of taking this approach, no alternative quantity figure was provided. As such the reason for not selecting this is set out in the selection reasoning for Quantity of sand and gravel A above.
Mineral Sterilisation A	Not selected	This option was not selected because Minerals Safeguarding Areas and Minerals Consultation Areas are incorporated into option C. A separate policy was not considered necessary.
Mineral Sterilisation B	Not selected	Generally, the representations to the Initial Consultation received suggest that the draft Plan should contain both a policy for Minerals Safeguarding Areas and Minerals Consultation Areas combined and a policy for mineral sterilisation.
Mineral Sterilisation C	Selected	<p>Combining mineral safeguarding with a refined excluded development list in the supporting text which specifically details the types of applications that are unlikely to be objected to was considered to be the clearest option.</p> <p>The adopted MLP contains Policy 5: Mineral Sterilisation which encourages prior extraction and it is considered that whilst the detailed wording from the policy will be reviewed the general aim of the policy will remain.</p> <p>As part of the review of the MLP, it is intended that the existing Minerals Consultation Area SPD is also reviewed and could be incorporated into the suggested policy/policies within the MLP.</p> <p>Windfall sites (sites which become available which were not specifically allocated within the plan) will be dealt with on a site by site basis if and when planning applications come forward and determined against the policies contained within the MLP and on the merits of the application.</p>
Mineral Sterilisation D	Not selected	Combining mineral safeguarding with a refined excluded development list in the supporting text which specifically details the types of applications that are unlikely to be objected to was considered to be the clearest option.
Mineral Sterilisation E	Not selected	Windfall sites (sites which become available which were not specifically allocated within the plan) will be dealt with on a site by site basis if and when planning applications come forward and determined against the policies contained within the MLP and on the merits of the application. However, a mineral safeguarding policy is required with clear supporting text.
Windfall Sites A	Selected	<p>The issue of how to incorporate windfall sites into the Plan received a varied response to the Initial Consultation. Generally, the favoured option would be to incorporate windfall sites into a policy related to mineral extraction applications outside of Specific Sites and Preferred Areas, which is option A.</p> <p>Windfall sites are sites which become available but are not specifically allocated within the Plan. It is therefore not possible to plan the timing of when these sites would come forward. It is suggested that windfall sites be dealt with</p>

Option	Selected or not selected?	Hertfordshire Council's reasons for decision making
		on a site by site basis if and when planning applications come forward and determined against the policies contained within the MLP and on the merits of the application. For that reason, it is proposed to strengthen the wording of Minerals Policy 4: Applications outside Preferred Areas from the adopted Minerals Local Plan, in addition to proposing policies for mineral sterilisation and Mineral Safeguarding Areas and Mineral Consultation Areas. Policies can encourage the progressive restoration and phasing within the sites to ensure that sites are restored at the earliest opportunity, in addition to encouraging the consideration of a phased approach to prior extraction where sites would be used for non-mineral development.
Windfall Sites B	Not Selected	A separate policy is considered unnecessary as Option A covers windfall sites.
Brick Clay A	Selected	The Initial Consultation received equal support for the three suggested options to encourage the extraction of brick clay. The MLP identifies MSA and MCAs based on the available BGS information to safeguard clay resources. However, it is not considered suitable to assess the clay resources with a similar site selection methodology to sand and gravel in order to identify preferred areas due to difficulties for land ownership and the availability of data. It is considered that identifying MSA and MCA and including a policy within the plan meets the council's requirements for the provision of clay.
Brick Clay B	Not Selected	Option B was not selected. It is not considered suitable to assess the clay resources with a similar site selection methodology to sand and gravel in order to identify preferred areas due to difficulties for land ownership and the availability of data.
Brick Clay C	Selected in part as part of Brick Clay Option A	This option is partially selected as it is considered that identifying MSA and MCA and including a policy within the plan meets the council's requirements for the provision of clay.
Chalk A	Not Selected	It is considered that the Minerals Local Plan should maintain support for the extraction of chalk where there is an additional need for the agricultural use of chalk by way of a non-energy mineral policy.
Chalk B	Not Selected	Active extraction sites operate under existing planning permissions and a non-energy policy would provide flexibility by supporting new extraction operations where it can be shown that demand cannot be met by the current supply, and that the need can be clearly demonstrated to outweigh all adverse effects of the proposals.
Chalk C	Selected	There was a consensus in the representations to the Initial Consultation that support should be included for the extraction of chalk in the draft Minerals Local Plan, and that the existing policy should be reviewed to ensure there is sufficient detail to determine such applications. Although there was a mixed response regarding the method to support extraction, it may be appropriate to promote continuing levels of extraction by including a chalk policy that

Option	Selected or not selected?	Hertfordshire Council's reasons for decision making
		safeguards the existing extraction operations and looks to provide flexibility by supporting new extraction operations where it can be shown that demand cannot be met by the current supply, and that the need can be clearly demonstrated to outweigh all adverse effects of the proposals.
Chalk D	Not Selected	A non-energy policy would provide flexibility by supporting new extraction operations where it can be shown that demand cannot be met by the current supply, and that the need can be clearly demonstrated to outweigh all adverse effects of the proposals.
Secondary and Recycled Aggregates (Issue 19) A	Not Selected	Responses to the Initial Consultation gave an overwhelming backing for the Plan to continue to support the production of secondary and recycled aggregates for use as an alternative to primary, land-won minerals. It is considered important to ensure the sustainable use of minerals.
Secondary and Recycled Aggregates (Issue 19) B	Not Selected	Responses to the Initial Consultation gave an overwhelming backing for the Plan to continue to support the production of secondary and recycled aggregates for use as an alternative to primary, land-won minerals. There was a varied response as to how this should be done, with there needing to be a link between the Minerals Local Plan and the Waste Local Plan.
Secondary and Recycled Aggregates (Issue 19) C	Not Selected	Responses to the Initial Consultation gave an overwhelming backing for the Plan to continue to support the production of secondary and recycled aggregates for use as an alternative to primary, land-won minerals. Whilst there was a varied response to how this should be done, signposting to the Waste Local Plan was not considered to be substantial as the link needs to be stronger.
Secondary and Recycled Aggregates (Issue 19) D	Selected	Responses to the Initial Consultation gave an overwhelming backing for the Plan to continue to support the production of secondary and recycled aggregates for use as an alternative to primary, land-won minerals. Whilst there was a varied response to how this should be done, it is proposed to strengthen the policy wording and supporting text of the existing Minerals Local Plan and make a clear reference to the overlap this issue has with the Waste Local Plan.
Secondary and Recycled Aggregates (Issue 19) E	Not Selected	Existing permitted sites are safeguarded within the Waste Local Plan. Whilst there was a varied response to how this should be done, it is proposed to strengthen the policy wording and supporting text of the existing Minerals Local Plan and make a clear reference to the overlap this issue has with the Waste Local Plan.
Secondary and Recycled Aggregates (Issue 20) A	Not Selected	<p>It is considered that to ensure flexibility, the policy will cover the potential for secondary and recycled aggregate facilities to be located on existing mineral sites or new sites.</p> <p>A mixed response was received to this issue as part of the Initial Consultation. Adopted policies 7 and 8 of the MLP</p>

Option	Selected or not selected?	Hertfordshire Council's reasons for decision making
		provide criteria for assessing planning applications for recycled and secondary aggregate sites located both on mineral sites and in other appropriate locations. Mineral Policy 8, in particular, includes criteria for ensuring proposals do not prejudice the long-term beneficial restoration of a mineral site and that facilities are located appropriately.
Secondary and Recycled Aggregates (Issue 20) B	Selected	<p>It is considered that to ensure flexibility, the policy will cover the potential for secondary and recycled aggregate facilities to be located on existing mineral sites or new sites.</p> <p>A mixed response was received to this issue as part of the Initial Consultation. Adopted policies 7 and 8 of the MLP provide criteria for assessing planning applications for recycled and secondary aggregate sites located both on mineral sites and in other appropriate locations. Mineral Policy 8, in particular, includes criteria for ensuring proposals do not prejudice the long-term beneficial restoration of a mineral site and that facilities are located appropriately.</p>
Draft Development Management Policies		
Policy 15: Water Reservoirs	Selected	<p>This policy was written as a key area that the Minerals Local plan needs to address and was not previously covered in the adopted Minerals Local Plan.</p> <p>Local Plans should take account of the impact of climate change on water resource from proposed development. New development should be planned to avoid increased vulnerability to the range of impacts arising from climate change. Many MPA include this within general criteria based policies, however a separate policy has been drafted for agricultural reservoirs.</p> <p>For all policies: There was a general consensus from representations to the Initial Consultation and from Development Management input that the list of Development Management policy headings contained the necessary topics related to minerals planning. It was not always clear to consultees where a particular topic would be included within policy so the policy headings have been reviewed to ensure clarity in the draft Minerals Local Plan.</p>
Policy 16: Green Belt	Selected	<p>The NPPF states that the fundamental aim of Green Belt Policy is to prevent urban sprawl by keeping land permanently open and that the essential characteristics of the Green Belt are its openness and permanence.</p> <p>Local planning authorities should plan positively to enhance the beneficial use of the Green Belt through opportunities that provide access, outdoor sport, recreation, retain and enhance landscapes, visual amenity and</p>

Option	Selected or not selected?	Hertfordshire Council's reasons for decision making
		<p>biodiversity, and improve damaged and derelict land.</p> <p>The NPPF deems mineral extraction 'not inappropriate' within the Green Belt, provided it preserves the openness of the Green Belt and does not conflict with the purposes of including land in Green Belt.</p> <p>With sixty per-cent of Hertfordshire being Metropolitan Green Belt there is a need to protect the Green Belt, but there is also opportunity to enhance the beneficial use. Mineral extraction proposals can be restoration led and these proposals could enhance Hertfordshire's Green Belt.</p> <p>Taking into account the temporary nature of mineral extraction and associated development, mineral extraction need not be classed as inappropriate development. Minerals can only be worked where they are found and this must be considered when determining mineral proposals within the Green Belt.</p>
Policy 17: Cumulative Impact	Selected	<p>Based on Policy 11: Cumulative Impact in the adopted Minerals Local Plan.</p> <p>National Policy is very clear that cumulative impacts should be considered in granting planning permission in several elements:</p> <ul style="list-style-type: none"> Natural environment Historic environment Human health Aviation safety General amenity and community Multiple sites Multiple impacts <p>Cumulative impact may arise from individual sites or a number of sites in the locality. Guidance states that there must be an appropriate policy to ensure the cumulative impact of a proposed mineral development on the community and the environment will be acceptable.</p> <p>Transport impact should be considered cumulatively but only refused when the impact is severe (no definition of severe).</p> <p>HCC Corporate Plan 2013-2017 – aims for Hertfordshire to be a country where people have the opportunity to live healthy, fulfilling lives in prosperous communities.</p>

Option	Selected or not selected?	Hertfordshire Council's reasons for decision making
Policy 18: Water Resources	Selected	<p>Mineral operations and proposals will need to use this policy to ensure there is no adverse impact on water quality and supply. Early engagement with the Environment Agency will indicate whether water quality is likely to be a significant planning concern.</p> <p>Proposed mineral operations will also be assessed so that there is no adverse impact on increased flooding.</p> <p>The National Planning Policy Framework (NPPF) has guided Local Authorities to avoid unnecessary development in areas at risk of flooding, but if development is necessary then the proposed development should be made safe without the increased flood risk elsewhere.</p> <p>The Flood and Water Management Act 2010 gives Local Authorities in England a new responsibility for leading the co-ordination of flood risk management in their area. The act requires lead local flood authorities to monitor the strategy they put in place and develop it to suit the need of the county, in this case Hertfordshire. Surface runoff, groundwater and ordinary watercourses are all included as local flood risk. Sustainable Drainage systems (SUDS) are required to create an Approving Body (SAB) for the approval of proposed drainage systems in new developments and redevelopments. Implementation of policies in this plan should have regard to these duties and reflect the Act's requirements. Climate change and the availability of water resources for future operations and reclamation including biodiversity and ecology is an important consideration for minerals planning.</p>
Policy 19: Heritage and Setting	Selected	<p>With a rich history and culture, Hertfordshire's historic environment withholds an interesting variety of archaeology. These sites required a level of protection, and where possible enhancement. There will, however, be mineral operations with unavoidable negative impacts to the site. Therefore provisions need to be put in place for their protection and or replacement.</p> <p>In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary.</p> <p>Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.</p>
Policy 20:	Selected	Based on Policy 12: Landscape in the adopted Minerals Local Plan.

Option	Selected or not selected?	Hertfordshire Council's reasons for decision making
Landscape		<p>The NPPF indicates that local planning policy should take account of the impacts of climate change on the landscape and that a local plan should have a criteria-based approach in policy to assess the landscape.</p> <p>Plans should highlight the importance of valued landscapes and the special characteristics of protected landscapes including AONB, SSSI's, Ancient Woodlands and national parks.</p> <p>Local planning authorities should set criteria based policies against which proposals for any development on or affecting protected wildlife or geodiversity sites or landscape areas will be judged. Distinctions should be made between the hierarchy of international, national and locally designated sites, so that protection is commensurate with their status and gives appropriate weight to their importance and the contribution that they make to wider ecological networks.</p>
Policy 21: Biodiversity	Selected	<p>Based on Policy 9: Contribution to bio-diversity in the adopted Minerals Local Plan.</p> <p>Development should not contribute to an unacceptable risk on soil, air, water, noise pollution or land instability. Where possible extraction sites and mineral operations should be sites on land with the least environmental or amenity value. Proposals should demonstrate how the development will mitigate against impacts.</p> <p>National Policy aims to minimise impacts on biodiversity and geodiversity by planning for biodiversity at a landscape scale across local authority boundaries, identify designated sites of importance to biodiversity, promote the preservation, restoration and recreation of habitats and ecological networks that are linked to national and local targets and prevent harm to geological conservation interest.</p> <p>Natural Environment and Rural Communities Act 2006, Section 41 requires the secretary of state to publish a list of flora and fauna and habitats considered to be of principal importance for the purpose of conserving biodiversity. The S41 list should be used by local authorities, which is a duty under section 40 of the Natural Environment and Rural Communities Act 2006 to Regional planning bodies, such as Hertfordshire County Council will use S41 to identify apply the requirement of the NPPF to promote preservation and to restore and enhance species and habitats. Local planning authorities should use it to identify the specific species and habitats that require special consideration when determining plans, and in this case mineral operations in Hertfordshire. Any proposed mineral workings will have to consider the habitat and species action plans that may be affected within the planned area of development (Hertfordshire Biodiversity Action Plan (BAP)).</p> <p>The NPPF is clear that mineral sites should be restored at the earliest opportunity and to a high environmental standard and proposals should contribute to the natural and local environment by minimising the impact on</p>

Option	Selected or not selected?	Hertfordshire Council's reasons for decision making
		<p>biodiversity and providing net gains where possible. Where ecological networks are evident these must also be enhanced. The NPPF encourages where applicable the use of an ecological survey to assess impacts and connect to existing ecological networks.</p> <p>Emphasis on monitoring biodiversity prior to, during and after extraction. This includes period between extraction and reclamation (mean biodiversity will be monitored throughout process so it can be assured that all time period can be covered for the protection of species and habitats).</p> <p>Local Nature Partnership Guiding principles for planning for biodiversity and the natural environment</p> <ol style="list-style-type: none"> 1. Recognise the value of the natural environment and the range of benefits and services it provides 2. Protect and enhance existing biodiversity assets 3. Seek opportunities to improve habitat connectivity 4. Integrate biodiversity opportunities within new development 5. Make decisions informed by the best available ecological information and data 6. Secure the long term management of existing and new habitats/sites
Policy 22: General Environmental Amenity Protection	Selected	<p>Noise should be fully appraised and include in its analysis evidence to suggest a rise to significant adverse effect and enable a good standard of amenity.</p> <p>Dust is also considered heavily with the National Framework.</p>
Policy 23: Road Traffic and Transport	Selected	<p>Based on Policy 16: Transport in the adopted Minerals Local Plan.</p> <p>The NPPF is very clear that only a severe impact on the highways network will result in a refusal of planning permission when the impacts are assessed individually and cumulatively.</p> <p>This policy is specifically about detail for site use, the strategic element of transport will be covered by the sustainable transport policy.</p>
Policy 24: Public Rights of Way	Selected	<p>Where possible, the council will encourage improved and enhanced access into the countryside, through the Rights of Way network especially where this can be linked to the provision of Green Infrastructure.</p>
Policy 25: Soils and Agricultural Land	Selected	<p>Local planning authorities should take into account the economic and other benefits of the best and most versatile agricultural land. Where significant development of agricultural land is demonstrated to be necessary, local planning authorities should seek to use areas of poorer quality land in preference to that of a higher quality.</p>

Option	Selected or not selected?	Hertfordshire Council's reasons for decision making
		It is recognised that mineral development will often need to temporarily remove soils in order to access minerals; this policy aims to protect the soils and agricultural land within the county.
Policy 26: Restoration	Selected	<p>Based on Policy 13: Reclamation Scheme in the adopted Minerals Local Plan.</p> <p>Phased restoration should be encouraged for timely working and to help reclaim the land at the earliest opportunity minimising disturbance to the local area. Restoration and aftercare plans should be undertaken on a site-by-site basis. Sites should be restored to a high quality using the highest environmental standards.</p> <p>Planning obligations and conditions can be used where necessary to secure the restoration and aftercare of sites. Conditions must be drafted in such a way that, even if the interest of the applicant applying for permission is subsequently disposed of, the requirements for restoration and aftercare can still be fulfilled, whether by a new operator or in the case of default, by the land-owner.</p>
Policy 27: After-care and After-use	Selected	<p>Based on Policy 14: After Use in the adopted Minerals Local Plan.</p> <p>National Policy is clear that MLP need to put in place policies to ensure land is reclaimed at the earliest opportunity. National guidance suggests that possible uses of land previously extracted for mineral include creation of new habitats and biodiversity; use for agriculture; forestry; recreational activities; waste management, including waste storage; and the built environment, such as residential, industrial and retail where appropriate.</p> <p>Landfill with inert materials would only be suitable in order to reach an appropriate after-use.</p>

6 Hertfordshire Draft MLP Vision, Objectives and Policies – Summary of SA Findings

- 6.1 This section summarises the SA findings in relation to the social, economic and environmental objectives for the Hertfordshire Draft MLP Vision, Objectives, Strategic and Development Management Policies. A detailed assessment was undertaken, considering their likely effects against each of the SA objectives. It is difficult, however, to make firm judgements on the potential for effects until full details of mineral proposals (e.g. the exact nature and design of sites) are submitted at the planning applications stage.
- 6.2 The SA matrices prepared for the appraisal of the proposed strategic policies and development management policies within the Consultation Draft MLP are presented in **Appendix 5**, and a summary of these findings is presented below under the headings listed above.

Draft Minerals Local Plan Vision

- 6.3 The draft Vision for the Hertfordshire Minerals Local Plan sets out a positive vision for the future which encourages sustainable economic growth as required by the NPPF, and is likely to have a positive effect on the majority of the SA Objectives as shown in **Table 6.1**.
- 6.4 Positive effects have been identified for the social SA objectives, as the draft Vision aims to minimise impacts and maximise improvements on human health now and in the future and provide high quality restoration and subsequent management of mineral sites that provides opportunities for outdoor recreation. The draft Vision also supports the provision of minerals to support wider economic objectives like the delivery of housing and other development to support local social and economic growth. A minor positive effect is therefore expected for SA objective 9.1 (health, well-being and amenity of residents). The draft Vision also supports the minimisation of impacts upon the environment and human health and as such, a minor positive score is also expected in relation to SA objective 9.2 (recreation loss). A significant positive effect is expected in relation to SA objective 9.3 (recreation provision) as the draft Vision also specifically identifies that the restoration of mineral sites is expected to increase opportunities for recreation.
- 6.5 Contributing to mineral supply and the needs of other areas as well as meeting the County's own needs for minerals by ensuring aggregate provision, supports social and economic progress locally, and should result in significant positive effects on economic SA objectives 8.1 (employment) and 8.2 (supply of minerals). The allocation of minerals sites ensures that mineral resources are safeguarded for extraction rather than sterilised by other forms of development; therefore a significant positive effect is also identified for SA objective 8.3 (Conservation and supply of mineral resources). The draft Vision seeks to ensure that restoration of mineral sites will result in improved agricultural land and as such a significant positive effect is also considered likely in relation to SA objective 8.4 (soil).
- 6.6 Positive effects are likely in fourteen out of fifteen of the environmental SA objectives and four of these are expected to be significant: SA objectives 1.2 (enhancement of biodiversity), SA objectives 2.1 and 2.2 (above and below ground historic assets) and SA objective 3.1 (landscape). The draft Vision supports mineral production which is carried out in a way which conserves and enhances the outdoor environment of Hertfordshire, including the built and historic environments. The restoration of mineral sites is also to be carried out to a high standard, as the draft Vision requires early restoration to conserve and enhance the character and quality of Hertfordshire's landscape, provide net gains in biodiversity and improve water management. The draft Vision therefore supports the protection, conservation and enhancement of biodiversity, the historic landscape and water resources in Hertfordshire.
- 6.7 However, as it is not explicitly stated in the wording of the draft Vision, the minor positive effects on the protection of existing biodiversity habitats (SA objective 1.1), including from air and other

pollutants (SA objective 1.3), protection of geology (SA objective 1.4), reduction in climate change emissions (SA objective 5.1) and flood risk and alleviation (SA objectives 6.1 and 6.2) are considered to be uncertain. The draft Vision also contributes to the conservation and enhancement of the historic environment by supporting clay extraction to supply the specialist brickworks within the county, which should help to enhance local distinctiveness. Therefore, a minor positive effect is expected on SA objective 2.3 (historic environment - locally distinctive building materials).

- 6.8 Although the draft Vision directly addresses SA objective 1.2 (the creation of biodiversity habitats) it should also seek to cover the protection of existing habitats (SA objective 1.2 and 1.3) more robustly. **It was therefore recommended that the Vision should make an overarching statement in relation to biodiversity, which covers the protection of existing habitats and species** to provide a hook for Draft MLP Objective 8.
- 6.9 In addition, although the draft Vision addresses SA Objectives 4.1 (water quality) and 4.2 (water quantity from over abstraction) through reference to 'improved water management', it does not directly address the broader environmental issues of SA Objective 6.1 (flood risk) and SA Objective 6.2 (flood risk alleviation). **It was therefore recommended that the Vision should make an overarching statement in relation to flooding and the water environment** as a hook for Draft MLP Objective 7 (Climate Change). The draft Vision asserts that the effects of climate change will be managed, but it is unclear what aspects of the climate change this refers to, therefore it is considered that the effect of minerals upon SA objectives 5.1 (transport emissions) and 5.2 (energy efficiency) will be considered in minerals proposals. However, the wording does not mention this specifically and therefore an uncertain minor positive score is considered likely. **It was therefore recommended that the Vision should make an overarching statement in relation to transport emissions and renewable energy** as a hook for the Draft MLP Objectives 5 and 7.
- 6.10 The NPPF is clear that plans should take account of secondary and recycled aggregates before considering extraction of primary minerals, but the draft Vision makes no mention of this priority and consequently scores a negligible effect against SA objective 7.1 (recycled and secondary aggregates). **It was therefore recommended that that the Vision should make an overarching statement encouraging the prioritisation of recycled and secondary aggregates over new primary mineral extraction sites.**

Minerals Local Plan Proposed Objectives

- 6.11 The proposed Objectives for the Draft MLP are generally compatible with and supportive towards achievement of the SA objectives, although there is also no relationship between a number of the SA objectives and the Draft MLP Objectives as the aims of the Draft MLP Objectives and SA objectives focus on different issues, as shown in **Table 6.1**. For example, Draft MLP Objective 1 (Economic growth) aims to enable sustainable local economic growth by identifying adequate mineral extraction sites/areas, therefore, while it would have significant positive effects on two of the economic SA objectives, it has no effect on or no relationship with most of the social and environmental SA objectives. Conversely, Draft MLP Objective 8 (natural, built and historic environment) has no effect or no relationship with many of the social and economic SA objectives, but positive effects for most of the environmental SA objectives.

Environmental SA Objectives

- 6.12 With reference to the environmental SA objectives, Draft MLP Objective 8 (natural, built and historic environment) is likely to have the most positive effects, with four out of fifteen scoring a significant positive effect. Draft MLP Objective 8 seeks to ensure that the restoration of minerals sites contributes positively to the natural, built and historic environments, including landscape and biodiversity. Therefore, significant positive effects are identified in relation to four environmental SA objectives including 1.2 (biodiversity enhancement), 2.1 and 2.2 (above and below ground historic environments) and 3.1 (landscape). The natural environment is also considered to include geological, water and the soil environment and therefore positives impact were considered likely in relation to SA Objectives 1.4 (geology), 4.1 (water quality), 4.2 (water

quantity), 6.1 (flood risk) and 6.2 (flood alleviation), however as this Draft MLP Objective does not explicitly address these issues, a minor uncertain positive effect is identified.

- 6.13 Draft MLP Objective 1 (Economic growth) seeks to ensure sustainable local economic growth through the identification of adequate mineral extraction sites/areas to enable built development and associated infrastructure. Therefore, a significant positive effect is identified in relation to SA objective 2.3 (historic environment-locally distinctive building materials). Draft MLP objective 2 (Safeguarding mineral resources) seeks to provide a steady and adequate supply of minerals which includes safeguarding resources for future use and reducing the transportation of minerals across the County by encouraging the use of minerals in construction on the land from which they are extracted. Therefore significant positive effects are considered likely with respect to the environmental objectives SA objective 5.1 (transport emissions) and 7.1 (recycling of recycled and secondary aggregates). Draft MLP objective 3 (Secondary and recycled aggregates) is considered to have just one significant positive effect on SA objective 7.1 (Recycling recycled and secondary aggregates) as its sole purpose is to encourage the sustainable use of minerals by utilising secondary and recycled aggregates. However, it could also have a minor positive effect on SA objective 8.2 (minerals supply) as it would contribute partly to the supply of aggregates.
- 6.14 It is considered that Draft MLP Objective 5 (sustainable transport of minerals) could have a significant positive effect on SA objectives 1.3 (biodiversity- deposition of air and other pollutants) and 5.1 (climate change emissions) because it encourages sustainable transport of minerals which should help to reduce emissions associated with road transport of minerals. Draft MLP Objective 5 focuses on sustainable transport provision and seeks to promote and encourage road, rail and water transport options as well as safeguarding existing railheads to increase the mineral rail network and therefore a mixed effect was identified in relation to a number of objectives. Road traffic can have a detrimental impact on the natural, historic and built environment through impacts on the road network, the deposition of pollutants, vibration and noise. Efforts to encourage alternative transport measures could result in a significant positive effect on SA Objective 1.3 (deposition of pollutants on biodiversity), but as there are a number of biodiversity sites within close proximity to the road network across the County, a minor negative effect was also identified for this SA objective. Minor positive effects on SA objectives 1.1 (protection of biodiversity), 2.1 (above ground historic environment) and 3.1 (landscape). However, as the Draft MLP Objective also includes the use of the road network as an option, minor negative effects are also identified for these SA objectives.
- 6.15 Significant positive effects were identified for Draft MLP Objective 9 (Countryside access and biodiversity) in relation to SA objective 9.3 (recreation) because it aims to increase public access to the countryside and enhance biodiversity through enhancing the amenity value of land when restoring extraction sites. This Objective seeks to enhance biodiversity as part of the restoration process, which is likely to have an indirect beneficial impact on improving the landscape along with a direct effect on protecting biodiversity and as a result a significant positive effect was also identified in relation to both SA objectives 1.1 and 1.2 (protection and enhancement of biodiversity). However, as this policy also seeks to increase access to the countryside, there could be increased disturbance to biodiversity, which could have a negative impact upon existing habitats and species. Therefore, overall a mixed significant positive/ minor negative score is considered likely in relation to the SA Objective 1.1 (protection of biodiversity).
- 6.16 Draft MLP Objective 4 (Conserve sand, gravel and clay resources) is not considered to have a significant effect on any of the environmental SA Objectives, however, it could have a minor positive effect on SA objective 1.4 (geology) as sand and gravel are an important geological resource and future extraction could help to expose geological faces that are important for education purposes. As this Draft MLP Objective seeks to conserve sand, gravel and clay resources for current and future generations, it could have a significant positive effect on SA objective 8.2 (supply of minerals), with minor positive effects on 8.1 (employment) and 8.3 (mineral sterilisation).
- 6.17 Draft MLP Objective 7 (Climate change) seeks to address climatic impacts and therefore could have a significant positive effect on SA objective 5.2 (climate change-energy efficiency and renewables), although this is uncertain as the wording is quite broad. Draft MLP Objective 7 could also address a number of environmental SA objectives, including objectives 1.1 and 1.2

(protection and enhancement of biodiversity), 1.3 (biodiversity- deposition of air and other pollutants), 1.4 (geology), 2.1 and 2.2 (above and below ground historic environment), 4.1 and 4.2 (water quality and water quantity from over extraction), 5.1 (sustainable transport), 6.1 and 6.2 (risk of flood and prevention). However, the wording of the Draft MLP objective does not specifically refer to all of these environmental issues and as such an uncertain score was identified.

Economic SA Objectives

- 6.18 Draft MLP Objectives 1 (Economic growth), 2 (Safeguarding mineral resources) and 4 (Conserve sand, gravel and clay) are all considered to have significant positive effects upon either SA objectives 8.1 (employment), 8.2 (supply of minerals) and 8.3 (mineral sterilisation). Draft MLP Objectives 1 (economic growth) and 2 (Safeguarding mineral resources) seek to ensure the continued and sustainable local economic growth through the identification of adequate mineral extraction sites/areas within Hertfordshire, as well as safeguarding resources for future use, reducing the transportation of minerals across the County and encouraging the use of minerals in construction on the land from which they are extracted.
- 6.19 Draft MLP Objective 2 (Safeguarding mineral resources) and Draft MLP Objective 4 (Conserve sand, gravel and clay) are expected to have a minor positive effect upon SA objective 8.1 (employment) and 8.3 (mineral sterilisation) as they will help to ensure that there is a continuous supply of mineral resource and associated employment. However, the minerals sector is relatively small and therefore there is some uncertainty as to whether this policy will actually increase job and training opportunities. Draft MLP Objective 3 (Secondary and recycled aggregates) encourages the sustainable use of minerals by encouraging the use of secondary and recycled aggregates and therefore is likely to have a minor positive effect on SA objective 8.2 (supply of minerals).
- 6.20 None of the Draft MLP Objectives are considered likely to have any significant effects on SA objective 8.4, therefore it was **recommended that reference to agricultural land improvement is added to Draft MLP Objective 8, as this would link to the Vision and then the subsequent Policy 23 in the Draft MLP.**
- 6.21 Draft MLP Objectives 5 (Sustainable transport of minerals) and 9 (Public access and biodiversity) are unlikely to have any effect on the economic SA objectives.

Social SA Objectives

- 6.22 Draft MLP Objectives 6 (Health and amenity) and 9 (Public access and biodiversity) are expected to have significant positive effects on the social SA objectives 9.1 (health and wellbeing) and 9.3 (recreational provision). Draft MLP Objective 6 seeks to ensure that the delivery of mineral extraction does not have an adverse or cumulative impact upon people and their local environment, while Draft MLP Objective 9 seeks to enhance access to the countryside which will benefit communities and visitors to the County. With the exception of SA objective 9.4 (Aerodrome safety) for which no effects are identified, Draft MLP Objectives 1, 2, 4, 5, 6, 8 and 9 are all considered to have minor positive impacts on the other SA social objectives. Draft MLP Objective 3 (secondary and recycled aggregates) and Draft MLP Objective 7 (climate change) is unlikely to have any effect on any of the social objectives.

Table 6.1: Summary of SA scores for the Draft Vision and Strategic Objectives

Vision and Objectives	Vision	1. Economic growth	2. Safeguarding mineral resources	3. Secondary and recycled aggregates	4. Conserve sand, gravel and clay	5. Sustainable transport of minerals	6. Health and amenity	7. Climate change	8. Natural and historic environment	9. Public access and biodiversity
SA Objectives										
Environmental										
1.1 Biodiversity (protection)	+?	0	0	0	0	-/+	+	?	0	-/++
1.2 Biodiversity (enhancement)	++	0	0	0	0	0	+	?	++	++
1.3 Biodiversity (deposition of air and other pollutants)	+?	0	0	0	0	-?/++	+	?	0	0
1.4 Geology	+?	0	0	0	+	0	+	?	+?	0
2.1 Historic environment (above ground)	++	0	0	0	0	-/+	+	?	++	0
2.2 Historic environment (below ground)	++	0	0	0	0	0	+	?	++	0
2.3 Historic environment (locally distinctive building materials)	+	++	0	0	0	0	0	0	0	0
3.1 Landscape	++	0	0	0	0	-/+	+	0	++	+
4.1 Water quality	+?	0	0	0	0	0	+	?	+?	0
4.2 Water quantity (from over abstraction)	+?	0	0	0	0	0	+	?	+?	0
5.1 Sustainable transport and emissions	+?	0	++	0	0	++	+	?	0	0

Vision and Objectives										
SA Objectives	Vision	1. Economic growth	2. Safeguarding mineral resources	3. Secondary and recycled aggregates	4. Conserve sand, gravel and clay	5. Sustainable transport of minerals	6. Health and amenity	7. Climate change	8. Natural and historic environment	9. Public access and biodiversity
5.2 Climate change (energy efficiency and renewables)	+?	0	0	0	0	0	0	++?	0	0
6.1 Flooding (risk)	+?	0	0	0	0	0	+	?	+?	0
6.2 Flooding (prevention)	+?	0	0	0	0	0	+	?	+?	0
7.1 Recycling (recycled and secondary aggregates)	0	0	++	++	0	0	0	0	0	0
Economic										
8.1 Local economy (employment)	++	++	+?	0	+?	0	0	0	0	0
8.2 Local Economy (supply of minerals)	++	++	++	+	++	0	+	0	0	0
8.3 Local Economy (mineral sterilisation)	++	0	++	0	+	0	0	0	0	0
8.4 Best and most versatile agricultural land	++	0	0	0	0	0	0	?	0	0
Social										
9.1 Health, well-being and amenity of residents	+	+?	+?	0	+	-/+	++	?	+?	+
9.2 Recreation (loss)	+	0	0	0	0	+	+	0	0	0
9.3 Recreation (provision)	++	0	0	0	0	0	+	0	+?	++
9.4 Aerodrome safety	0	0	0	0	0	0	0	0	0	0

Draft MLP Strategic Policies¹³

- 6.23 **Table 6.2** summarises the scores from the full SA matrices for each strategic policy presented in **Appendix 5**.

Draft MLP Section 7: Presumption in Favour of Sustainable Development

- 6.24 This section contains two policies:
- Draft Policy 1: Sustainable Development
 - Draft Policy 2: Climate Change
- 6.25 These two policies are likely to have mostly positive effects on the SA objectives, or no effect. Draft Policy 1: Sustainable Development would have minor positive effects on almost all of the SA objectives because it seeks to grant planning permission for mineral extraction and associated development in accordance with the National Planning Policy Framework's (NPPF) presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development. As such, it is considered that the policy seeks to protect against the loss of or harm to all of the environmental assets covered by the environmental SA objectives (including biodiversity, heritage, water quality/quantity, flood alleviation etc.), plus reduce adverse impacts on other sensitive receptors such as local residents, users of recreation areas, Public Rights of Way (PRoWs) and aerodromes (covered by the social SA objectives). It would also have minor positive effects on the economic objectives through helping to provide employment opportunities, maintaining a steady and adequate supply of minerals and protecting best and most versatile land.
- 6.26 Draft Policy 1 is unlikely to affect SA objectives 2.3 (locally distinctive building materials), 7.1 (recycled and secondary aggregates) and 8.3 (mineral sterilisation) as it makes no reference to ensuring the supply of locally distinctive building, it does not specifically encourage the use of recycled or secondary aggregates and does not address development which could sterilise a mineral reserve.
- 6.27 Draft Policy 2: Climate Change could have significant positive effects on more than half of the environmental SA objectives because it encourages minerals extraction proposals to promote the benefits from restoration with a particular emphasis on biodiversity (SA objective 1.2), landscape (3.1), water resource enhancement (4.1 and 4.2) and flood alleviation (6.2) highlighted in the supporting text. It also requires proposals to demonstrate in a Climate Change Statement effective adaptation and resilience measures to potential climate changes, including achieving onsite water efficiency (4.2), minimising greenhouse gas emissions by installing renewable and low-carbon energy generation onsite (5.1 and 5.2), reducing flood risk (6.1) and using secondary and recycled aggregates (7.1). Draft Policy 2 is also likely to have a minor positive effect on reducing air pollution on nature conservation sites (SA objective 1.3) and on local residents' health and amenity as by installing renewable and low-carbon energy generation onsite, the amount of air pollutants emitted could be reduced. Draft Policy 2 could also have a minor positive effect on SA objective 9.3 (green infrastructure/recreation) because it encourages proposals to promote the benefits from restoration with a particular emphasis on landscape, biodiversity flood alleviation and water resource enhancement highlighted in the supporting text, which could all contribute to green infrastructure provision. However, all of these positive effects are uncertain as details of any proposal and their Climate Change Statements would not be known until the planning application stage.
- 6.28 Draft Policy 2 is unlikely to affect any of the four economic SA objectives.

¹³ For the purposes of the Sustainability Appraisal, the Policies within the Draft Minerals Local Plan have been separated into Strategic and Development Management Policies to communicate more clearly the significant effects of the Plan. However, the Draft Minerals Local Plan does not separate Strategic Policies from Development Management Policies.

Draft MLP Section 8: Strategic Aggregate Policies

- 6.29 This section contains three policies:
- Draft Policy 3: Aggregate Supply
 - Draft Policy 4: Working of Specific Sites
 - Draft Policy 5: Secondary and Recycled Aggregates (was previously Policy 6)
- 6.30 Draft Policy 3 supports the maintenance of a steady and adequate supply of sand and gravel. Potential for minor negative effects on nine of the environmental SA objectives is recorded due to the potential loss of or harm to the environmental assets covered by the environmental SA objectives (including biodiversity, heritage, landscape, water quality/quantity etc.). Most of these effects are uncertain as the details and location of any proposal will not be known until the planning application stage. The minor negative effect on SA objective 7.1 (recycled and secondary aggregates) is not uncertain as these policies encourage primary mineral extraction. For three of the environmental objectives: SA objectives 1.4 (geology), 3.1 (landscape) and 5.1 (greenhouse gas emissions), the minor negative effect is mixed with a minor positive effect. Draft Policy 3 could result in mineral extraction sites that expose new geological faces through mineral extraction which could provide educational opportunities or new sites of geological conservation interest, plus mineral operators are becoming increasingly aware of the need to restore sites to a high standard. As such, a proposed site could be restored to a standard which enhances the character and quality of the landscape. Finally, mineral applications submitted under Draft Policy 3 may propose to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/ offices), which could help to reduce greenhouse gas emissions. Minor positive effects on their own are identified for SA objectives 1.2 (enhancing biodiversity), 5.2 (energy efficiency) and 6.2 (flood alleviation) because sand and gravel sites could provide water storage and flood alleviation, proposals for operation of the sites could include energy efficient measures and restoration proposals could help to create habitats and improve biodiversity.
- 6.31 Minor negative effects from Draft Policy 3 are also identified for one economic SA objective (8.4: best and most versatile land) and three of the social SA objectives because the development of sites for sand and gravel extraction could result in the loss of best and most versatile agricultural land (8.4), PROws and recreational assets (9.2), could potentially affect the health and amenity of local residents near to the sites (9.1) or compromise the safety of aerodromes (9.4) depending on whether the site is restored to a water use. By contrast, Draft Policy 3 could have positive effects on the remaining economic SA objectives as they would provide opportunities for employment (8.1), reduce mineral sterilisation (8.3) and ensure a steady and adequate supply of minerals (8.2); with significant positive effects on the latter.
- 6.32 Draft Policy 4 allocates three specific sites and one preferred area for sand and gravel extraction. The location of these areas earmarked for extraction activities gives rise to the potential for significant negative effects against four of the environmental objectives 1.1 (biodiversity protection), 1.3 (biodiversity and air pollution), 2.1 (built historic environment) and 4.1 (water quality). These significant negative effects are recorded due to the close proximity of relevant sensitive receptors to the site allocations and the strategic road network they are likely to utilise. However, in all cases, these significant negative effects are recorded as uncertain until the exact location, layout, and design of each mineral extraction site are known. Furthermore, minor negative effects are recorded for objectives 3.1 (landscape) and 7.1 (recycling aggregates) due to the moderate sensitivity of the landscape in the locations of the allocations and the fact that the new extraction sites will result in the generation and processing of primary aggregates. Minor positive effects are recorded for environmental objectives 1.2 (biodiversity enhancement) and 5.2 (energy efficiency and renewables) due to the potential of the new allocations to make provision for biodiversity assets through the restoration of sites post extraction and the opportunities for utilising sustainable energy sources. A minor negative effect is also recorded against objective 5.2 in acknowledgement that the operations will generate greenhouse gas emissions. A minor positive effect is recorded against objective 5.1 (sustainable transport and emissions) due to the location of the allocations in close proximity to areas of growth and the potential the new extraction site

pose in helping construction sites minimise their carbon footprint by sourcing sand and gravel locally.

- 6.33 Draft Policy 4 scores significant positive and negative effects against economic objectives 8.2 (supply of minerals) 8.4 (agricultural land) respectively. The former is due to the fact that three new mineral extraction sites and the prospect of further extraction within a preferred area significantly improve the supply of minerals within the county over the plan period; the latter acknowledges the fact that the three specific sites and one preferred area are located on land designated as Grade 2 and 3 agricultural land, resulting in the temporary loss of some of the county's best and most versatile land. Minor positive effects are recorded for the two remaining economic objectives 8.1 (employment) and 8.3 (mineral sterilisation). The former effect is recorded in acknowledgment of the fact that the new mineral extraction sites will generate a small increase in the number of jobs within the county and the latter acknowledges the fact that allocations to extract minerals prohibit their sterilisation.
- 6.34 Draft Policy 4 scores a significant negative effect against social objective 9.2 (recreation loss) due to the fact that the allocations contain Public Rights of Way which may or may not require relocation, restricting access to the countryside at the very least in the short term. However, this significant negative effect is recorded as uncertain until such time as the need to relocate such facilities is confirmed. Minor negative effects are recorded for social objectives 9.1 (health and wellbeing) and 9.4 (aerodrome safety). The former is recorded due to the close proximity of the allocations to sensitive receptors such as residential communities and schools; the latter is recorded due to the fact that three of the allocated sites are within an airport safeguarding zone resulting in the prospect of restored mineral extraction sites increasing the likelihood of bird strike. Finally, a minor positive effect is recorded for social objective 9.3 (recreation provision) due to the opportunities the new sites offer for creating new and improved recreation facilities following the restoration of each extraction site. Uncertainty is attached to all four social objectives in acknowledgement of the fact that the potential for such effects cannot be determined until the detailed location, design and layout of each site are known.
- 6.35 Draft Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the other policies within the plan and proposals must also fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix is explored in **Chapter 8**.
- 6.36 Draft Policy 5 performs more positively against most of the SA objectives than Policies 3 and 4 because it encourages the use of secondary and recycled aggregates, which could reduce the effects of primary extraction within the County. In addition, despite the policy enabling development proposals for new recycling/reprocessing facilities for secondary and recycled aggregates, which could themselves have some adverse effects on biodiversity, heritage, landscape, health and amenity, the policy explicitly states that proposals for recycling facilities must be appropriate to the character of the surrounding natural environment and not adversely impact upon the natural, built or historic environments, amenity or human health. As such, it is considered that the policy would have minor positive effects on a number of the SA objectives. However, this is uncertain as the location and nature of the proposal would not be known until the planning application stage. In addition, Draft Policy 5 could have a significant positive effect on SA objective 7.1 (recycled and secondary aggregates) because it specifically addresses this objective.
- 6.37 The only potential minor negative effects from Draft Policy 5 relate to SA objectives 5.1 (greenhouse gas emissions), 8.4 (best and most versatile agricultural land) and 9.2 (PRoWs/recreation). The effect on greenhouse gas emissions is mixed because promoting the use of secondary and recycled aggregates could contribute to reducing emissions associated with the operation of primary mineral extraction sites. In addition, where recycled aggregate facilities are located within existing mineral sites, transport of the recycled aggregate may be reduced. However, there are likely to still be some operational and transport emissions from new secondary and recycled aggregate facilities that are not co-located with other mineral sites. For SA objective 8.4, permitting development proposals for new recycling/reprocessing facilities could result in the loss of agricultural land but the exact land-take and location of any proposed secondary/recycled aggregates facility will not be known until the planning application stage.

Similarly, permitting development proposals for new recycling/reprocessing facilities could have an adverse effect on PRowS, access, recreation areas and open space (9.2) and the policy does not explicitly reference the protection of PRowS, access, recreation areas or open space.

Draft MLP Section 9: Industrial Minerals

- 6.38 This section contains two policies:
- Draft Policy 6: Brick Clay (was previously Policy 7)
 - Draft Policy 7: Chalk (was previously Policy 8)
- 6.39 The two policies in this section have almost the same effects as Policies 3 and 4 because they support maintaining a supply of brick clay and chalk within the County and new sites could come forward to extract these types of minerals. Therefore, there could be a number of potentially minor negative effects associated with the extraction and transport of brick clay and chalk on the environmental SA objectives in particular, but also on loss of best and most versatile agricultural land (SA objective 8.4) plus health and amenity of local residents (9.1), PRowS/recreation (9.2) and aerodromes (9.4). However, most of these effects are uncertain as the location and nature of the proposals would not be known until the planning application stage.
- 6.40 Minor positive effects are identified for SA objectives 1.2 (enhancing biodiversity), 5.2 (energy efficiency) and 6.2 (flood alleviation) because sand and gravel sites could provide water storage and flood alleviation, proposals for operation of the sites could include energy efficient measures and restoration proposals could help to create habitats and improve biodiversity. However, these are also uncertain as it will depend on what is included in the proposals that come forward.
- 6.41 Draft Policy 6 could have significant positive effects on SA objective 2.3 (locally distinctive building materials) and SA objective 8.2 (supply of minerals) due to the fact that this policy seeks to secure the continued supply of brick clay within Hertfordshire which is used in the construction and restoration of traditional brick and flint building styles, complementing the County's local heritage. Draft Policy 7 is unlikely to generate any significant positive effects against these objectives due to the fact that no chalk mineral sites have been proposed for allocation in the Plan. However, Draft Policy 7 is likely to have a minor positive effect on SA objective 2.3 (locally distinctive building materials) as chalk contains locally important flints which are used in the construction and maintenance of roads and buildings, particularly in restoration of historic buildings. The flints are considered to be a locally distinctive product, hence the minor positive effect. Both policies would have minor positive effects on the remaining economic SA objectives as they would provide opportunities for employment (8.1) and reduce mineral sterilisation (8.3).

Draft MLP Section 10: Safeguarding

- 6.42 This section contains four policies:
- Draft Policy 8: Mineral Safeguarding (was previously Policies 9 and 10)
 - Draft Policy 9: Rail Heads and Wharves (was previously Policy 10)
 - Draft Policy 10: Concrete Batching, Asphalt and Coated Stone Plants (was previously Policy 11)
- 6.43 Draft Policy 9 relates to safeguarding mineral resources within Hertfordshire and encouraging prior extraction of viable mineral resources prior to non-minerals development taking place. Therefore it is likely to have mixed minor positive and minor negative effects on most of the environmental SA objectives, as well as SA objective 8.4 (best and most versatile agricultural land), 9.1 (health and amenity) and 9.2 (PRowS/recreation). This is because this policy may potentially restrict or delay non-mineral development that could otherwise have a negative effect on various environmental receptors as well as local residents and users of nearby recreation assets. Therefore, a minor positive effect is considered likely although it is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted. However, the prior extraction of minerals could itself have adverse effects on these same receptors, but this effect is also uncertain as it depends on whether the mineral resource is

considered viable and worth prior extraction. Similarly, Draft Policy 9 would also have a mixed minor positive and minor negative effect on SA objective 8.1 (employment) because it could provide employment opportunities during the prior extraction of minerals. However, it may also potentially restrict or delay non-mineral development that could otherwise have a positive effect on the local economy.

- 6.44 Draft Policy 8 would have significant positive effects on ensuring that mineral sterilisation is minimised (SA objective 8.3) as that is the key aim of the policy. However, this effect is uncertain as the policy does not completely rule out non-mineral development from taking place, only that mineral sterilisation and prior extraction is considered as part of a planning application. It would also have a minor positive effect on ensuring a steady and adequate supply of minerals (8.2), and minor positive but uncertain effects on enhancing sites of geological conservation interest (1.4) and ensuring supply of locally distinctive building materials (2.3). Draft Policy 8 could also have a minor positive effect on providing opportunities for flood alleviation (6.2), although this would be temporary while the prior extraction was taking place. It would also have a positive effect on reducing greenhouse gas emissions (5.1) because it explicitly states that full consideration should be given to the use of the raised sand and gravel material on site in construction projects. Therefore, this would help to reduce the distance the prior extracted mineral resource needs to travel, and help to reduce emissions. However, identification of Minerals Safeguarding Areas and Mineral Consultation Areas could encourage minerals extraction, leading to a greater need to transport minerals.
- 6.45 In contrast, Policies 9 and 10 are likely to have only positive effects or no effects on the SA objectives. This is because these two policies seek to safeguard existing minerals related infrastructure (rail heads, wharves, concrete batching, asphalt and coated stone plants) and are therefore likely to restrict non-mineral development near to this infrastructure that could otherwise have a negative impact on many of the environmental and some of the social SA objectives. In this way a positive effect is identified although the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether or not it is permitted. Similarly, although safeguarding this infrastructure may prolong any existing adverse effects on sensitive receptors due to the operation of rail heads, wharves, concrete batching, asphalt and coated stone plants, these are not identified as these effects would have been considered when the existing infrastructure was originally developed and permitted. Draft Policy 9 is likely to have a significant positive effect on SA objective 5.1 (greenhouse gas emission) because it seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves. However, this effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted. As such, it is considered that the policy promotes the use of sustainable transport methods when transporting minerals. This would make a significant contribution to reducing operational emissions with regard to transportation. Draft Policy 10 safeguards concrete batching, asphalt and coated stone plants which do not contribute to or encourage sustainable transport so it has no effect on this objective. Both policies are likely to have minor positive effects on employment (SA objective 8.1) as the continued operation of existing rail heads and wharves, plus concrete batching, asphalt and coated stone plants will provide opportunities for local people to access employment.

Draft MLP Section 11: Non-conventional Aggregate Extraction

- 6.46 This section contains two policies:
- Draft Policy 11: Borrow Pits (was previously Policy 12)
 - Draft Policy 12: Incidental Extraction (was previously Policy 13)
- 6.47 These two policies allow for mineral extraction in certain circumstances. Draft Policy 11 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use such as a construction project, and Draft Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. As such, both policies could result in proposals coming forward for mineral extraction anywhere in the County that mineral resources occur. Therefore, these two policies have almost the same effects as Policies 3 and 4, because

new sites could come forward to extract minerals. Therefore, there could be a number of potentially minor negative effects associated with the extraction and transport of minerals on the environmental SA objectives in particular, but also on loss of best and most versatile agricultural land (SA objective 8.4) plus health and amenity of local residents (9.1), PRoWs/recreation (9.2) and aerodromes (9.4). However, most of these effects are uncertain as the location and nature of the proposals would not be known until the planning application stage.

- 6.48 For three of the environmental objectives: SA objectives 1.4 (geology), 3.1 (landscape) and 5.1 (greenhouse gas emissions), the minor uncertain negative effect is mixed with a minor or significant positive effect. These policies could result in mineral extraction sites that expose new geological faces through mineral extraction which could provide educational opportunities or new sites of geological conservation interest, plus mineral operators are becoming increasingly aware of the need to restore sites to a high standard. As such, a proposed site could be restored to a standard which enhances the character and quality of the landscape. Finally, mineral applications submitted under Policies 11 and 12 may propose to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/ offices), which could help to reduce greenhouse gas emissions. In addition, Draft Policy 11 could have a significant positive effect on SA objective 5.1 (greenhouse gas emissions) because it explicitly states proposals for borrow pits will be permitted where it can be demonstrated that the site's proximity to the construction project is more sustainable than importing aggregate, therefore, transport distances and associated emissions should be minimised.
- 6.49 Uncertain minor positive effects on their own are identified for SA objectives 1.2 (enhancing biodiversity), 1.3 (air pollution on nature conservation sites – Draft Policy 11 only), 5.2 (energy efficiency – Draft Policy 12 only), and 6.2 (flood alleviation) because extraction at borrow pits or incidental extraction sites could provide water storage and flood alleviation, proposals for operation of the sites could include energy efficient measures and restoration proposals could help to create habitats and improve biodiversity. In addition, due to the close proximity of borrow pits to their intended construction use, transport distances and associated emissions should be minimised.
- 6.50 In addition, these policies could have positive effects on the remaining economic SA objectives as they would provide opportunities for employment (8.1), ensure a steady and adequate supply of minerals (8.2) and reduce mineral sterilisation (8.3). Finally, the policies could also have minor positive effects on social SA objective 9.3 (green infrastructure) because the restoration of borrow pits or incidental extraction sites may provide opportunities to improve health and amenity through the delivery of green infrastructure, PRoW or recreation areas. These minor positive effects are uncertain as any restoration proposal will not be known until the planning application stage.

Table 6.2: Summary of SA findings for Draft MLP Strategic Policies

SA objective	Draft MLP Strategic Policies											
	1: Sustainable Development	2: Climate Change	3: Aggregate Supply	4: Within Specific Sites or Preferred areas	5: Secondary & Recycled Aggregates	6: Brick Clay	7: Chalk	8: Mineral Safeguarding	9: Rail Heads & Wharves	10: Concrete Batching etc.	11: Borrow Pits	12: Incidental Extraction
Environmental Objectives												
1.1: Biodiversity (protection)	+	0	-?	--?	+?	-?	-?	+/-?	+	+	-?	-?
1.2: Biodiversity (enhancement)	+	+++	+	+	0	+	+	0	0	0	+	+
1.3: Biodiversity (deposition of air and other pollutants)	+	+	-?	--?	+	-?	-?	+/-?	+	+	+	-?
1.4: Geology	+	0	-/+?	0	+	-?	-/+?	+	0	0	-/+?	-/+?
2.1: Historic environment (above ground)	+	0	-?	--?	+	-?	-?	+/-?	+	+	-?	-?
2.2: Historic environment (below ground)	+	0	-?	?	+	-?	-?	+/-?	+	+	-?	-?
2.3: Historic environment (locally distinctive building materials)	0	0	0	0	+	++	0	+	0	0	0	?
3.1: Landscape	+	+++	-/+?	-	+	-/+?	-/+?	+/-?	+	+	-/+?	-/+?
4.1: Water quality	+	+++	-?	--?	+	-?	-?	+/-?	+	+	-?	-?
4.2: Water quantity (from over abstraction)	+	+++	?	?	+	?	?	+/-?	+	+	?	?
5.1: Sustainable transport and emissions	+	+++	+?/-	+	+/-	+?/-	+?/-	+/-?	+++	0	+++/-	+/-?
5.2: Climate change (energy efficiency and renewables)	+	+++	+	+?/-	+	+	+	0	0	0	0	+
6.1: Flooding (risk)	+	+++	0	0?	+	0?	0?	0	0	0	0?	0?
6.2: Flooding (prevention)	+	+++	+	0	0	+	+	+	0	0	+	+
7.1: Recycling (recycled and secondary aggregates)	0	+++	-	-?	++	-	-	-	0	0	-	-
Economic Objectives												
8.1: Local economy (employment)	+	0	+	+	+	+	+	+?/-	+	+	+	+
8.2: Local Economy (supply of minerals)	+	0	++	++	+	++	0	+	0	+	+	+
8.3: Local Economy (mineral sterilisation)	0	0	+	+	0	+	+	+++	0	0	+	+
8.4: Best and most versatile agricultural land	+	0	-?	--	-?	-?	-?	+/-?	0	0	-?	-?
Social Objectives												
9.1: Health, well-being and amenity of residents	+	+	-/+	-?	+	-/+	-/+	+/-?	+	+	-?	-?
9.2: Recreation (loss)	+	0	-?	--?	-?	-?	-?	+/-?	+	+	-?	-?
9.3: Recreation (provision)	+	+	+	+	0	+	+	0	0	0	+	+
9.4: Aerodrome safety	+	0	-?	-?	0	-?	-?	0	0	0	-?	-?

Draft MLP Development Management Policies¹⁴

- 6.51 The thirteen draft development management policies are generally supportive of the SA objectives as shown by the number of minor and significant positive scores illustrated in **Table 6.3**. This section summarises the SA findings in relation to the social, economic and environmental objectives. **Appendix 5** includes the full SA matrices for each development management Policy.

Environmental SA objectives

- 6.52 The development management policies are likely to have an overall positive effect on the environmental SA objectives. Most of the development management policies are expected to have positive effects on SA objective 3.1 (landscape), with four policies having potentially significant positive effects (Draft Policy 13: Green Belt, Draft Policy 16: Historic Environment, Draft Policy 17: Landscape and Green Infrastructure and Draft Policy 19: Protection and Enhancement of Environment and Amenity). The aims of these four policies align directly with this SA objective (i.e. they seek to protect, and where possible, enhance the landscape). The significant positive effect on SA objective 3.1 from Draft Policy 16: Historic Environment is due to the close relationship between the historic environment and the landscape character of Hertfordshire. As the Historic Environment policy aims to conserve and where possible enhance heritage assets, this should contribute to the protection of the County's landscape character.
- 6.53 The 15 remaining significant positive effects in the Environmental section are due to Policies 15: Water Management, 16: Historic Environment, 17: Landscape, 18: Biodiversity, 19: Protection and Enhancement of Environment and Amenity and 20: Strategic Transport being directly applicable to the SA objectives relating to biodiversity (1.1, 1.2, 1.3, 1.4), cultural heritage and archaeology (2.1, 2.2), water quality and quantity (4.1, 4.2), reducing emissions (5.1) and flooding (6.1, 6.2).
- 6.54 Draft Policy 20: Strategic Transport is expected to have an uncertain significant positive effect on SA objective 1.3 (protect against the deposition of air and other pollutants on designated nature conservation sites). The policy encourages the minimisation of road transportation in favour of more sustainable, less carbon intensive options.
- 6.55 Draft Policy 24: Restoration and 27: Aftercare and after-use resulted in the most uncertain scores (six each). Draft Policy 24 seeks to ensure that proposals for mineral extraction are supported by a restoration strategy to ensure the land is returned to its original or former condition. Apart from addressing the potential impact upon the landscape and soil quality, very little is mentioned in relation to other environmental issues like the restoration of certain habitats, water quality, historical assets etc. Therefore, uncertainty is identified in relation to 1.4, 2.1, 2.2, 4.1, 4.2 and 9.4. Similarly, Draft Policy 25: Aftercare and after-use might have positive effects on a number of environmental issues, but as they are not specifically referenced in the policy or supporting text, the effects are uncertain. Draft Policy 14: Cumulative Impact is also considered to have uncertain effects in relation to SA objectives 1.1, 1.3, 6.1 and 6.2. This is because the policy does not make specific reference to the issues being assessed by these SA objectives. **It was recommended that for Draft Policy 14, additional bullet points are added under the 'Natural Environment' heading in the supporting text to include biodiversity (with reference to habitats and species and designated nature conservation sites), flood risk and flood alleviation. For Policies 24 and 25, more reference in the supporting text could be made to opportunities to retain geodiversity, reduce flood risk and increase flood alleviation, improve water quality and aerodrome safety.**

¹⁴ For the purposes of the Sustainability Appraisal, the Policies within the Draft Minerals Local Plan have been separated into Strategic and Development Management Policies to communicate more clearly the significant effects of the Plan. However, the Draft Minerals Local Plan does not separate Strategic Policies from Development Management Policies.

Economic SA objectives

- 6.56 The development management policies are likely to have negligible effects on the majority of the economic objectives due to the fact that they focus mainly on reducing potential environmental and social impacts of minerals development. Draft Policy 23: Soils and Agricultural Land would have a significant positive effect on SA objective 8.4 (best and most versatile agricultural land), given that the policy aim is directly in line with the SA objective. There could also be a minor positive effect on SA objective 8.4 from Policies 14: Cumulative Impact and 24: Restoration as these policies aim to provide protection to the quality of soil and ensure that if any agricultural land is used for minerals, then it is returned to at least the equivalent grade prior to mineral extraction. Draft Policy 19: Protection and Enhancement of Environment and Amenity seeks to ensure that consideration has been given to the natural environment, although not mentioned specifically in policy, this could provide protection of the County's best and most versatile agricultural land, and as such an uncertain minor positive effect is considered likely for SA objective 8.4. Draft Policy 25: Aftercare and after use, requires proposals to demonstrate consideration to the quality of the area, which might include agricultural quality, although this is not mentioned in the policy and therefore an uncertain effect was identified in relation to SA objective 8.4.
- 6.57 There could be a minor positive effect on SA objective 8.1 (local economy) from Policies 23: Soils and Agricultural Land, 24: Restoration and 25: Aftercare and After-use. Draft Policy 23 could provide employment opportunities and maintain the economic benefits of agricultural land in the long term. The supporting text for policies 24 and 25 suggests potential restoration uses and requires proposals to consider the contribution of the restored sites to the local economy. Draft Policy 13: Green Belt, is also likely to have a minor positive effect upon SA objective 8.2 (mineral supply). This policy recognises that mineral development is temporal and not deemed as inappropriate development and as such will support proposals for mineral extraction and associated development in the Green Belt in order to ensure there is a continued supply. None of the development management policies are likely to have any effect on SA objective 8.3 (mineral sterilisation).

Social SA objectives

- 6.58 All but two of the development management policies are likely to have a positive effect on SA objectives 9.1 (health, well-being), the exception being Draft Policy 16 and Draft Policy 23 which scores a negligible effect, with two policies expected to have significant positive effects. Draft Policy 15: Water Management has a significant positive effect given that the policy aim is to protect against adverse impact to water quality, water supply, amenity value of water resources and protect against flood risk. Draft Policy 19: Protection and Enhancement of Environment and Amenity is also likely to have a significant effect on SA objective 9.1, as the policy aim is directly in line with the SA objective.
- 6.59 Three other significant positive effects are identified for the social objectives. Draft Policy 17: Landscape and Green Infrastructure would have a significant positive effect on 9.3 (green infrastructure and recreation) because it requires mineral proposals to demonstrate that throughout the lifetime of the development (including restoration) continued long term improvements are made to wider ecological networks and green infrastructure. Draft Policy 22: Public Rights of Way also has a significant positive effect on SA objectives 9.2 and 9.3 (the protection and the provision of open space, green infrastructure and other recreational facilities) because it aims to bring recreational, aesthetic and health benefits to a community.
- 6.60 Most of the other development management policies would have minor positive effects on SA objectives 9.1, 9.2 and 9.3 as by protecting Hertfordshire's environment, they should help to protect and enhance the amenity for residents and visitors, including users of Public Rights of Way. Most of the development management policies are unlikely to have any effect on SA objective 9.4 (safety of aerodromes). The only policies which directly address this Objective are Draft Policy 14: Cumulative Impact and Draft Policy 18: Biodiversity both with minor positive effects, although this is uncertain for Draft Policy 18 as neither the policy nor supporting text specifically require proposals to assess the relationship between the site, local bird species and aerodrome safety. The uncertain effect identified in relation to Draft Policy 24: Restoration is due

to the fact that the policy's provision for the creation of new habitats for biodiversity might include new habitats for birds, which could affect aerodrome safety; however, this will not be known until the planning application stage.

Table 6.3: Summary of SA findings for the Draft Development Management policies

SA objective	Development Management Policies												
	13: Green Belt	14: Cumulative Impact	15: Water Management	16: Historic Environment	17: Landscape and Green Infrastructure	18: Biodiversity	19: Protection and Enhancement of Environment and Amenity	20: Strategic Transport	21: Operational Transport	22: Public Rights of Way	23: Soils and Agricultural Land	24: Restoration	25: Aftercare and After-use
Environmental Objectives													
1.1: Biodiversity (protection)	+?	?	+	0	+	++	++	+?	+?	+?	+?	0	+
1.2: Biodiversity (enhancement)	+?	0	+	0	++	++	+?	0	+?	+?	+?	+	+
1.3: Biodiversity (deposition of air and other pollutants)	0	?	0	0	0	+++?	++	+++?	+?	0	0	0	0
1.4: Geology	0	+	0	0	+	++	+?	0	0	0	+?	?	+
2.1: Historic environment (above ground)	+	+	0	++	+	+?	++	+?	+?	0	0	?	+
2.2: Historic environment (below ground)	0	+	0	++	0	0	+?	0	0	0	0	?	?
2.3: Historic environment (locally distinctive building materials)	0	0	0	+?	0	0	0	0	0	0	0	0	0
3.1: Landscape	++	+	+	++	++	+?	++	+?	+?	+	+	+?	+
4.1: Water quality	0	+	++	0	0	+?	+?	0	0	0	0	?	?
4.2: Water quantity (from over abstraction)	0	+	++	0	0	0	+?	0	0	0	0	?	0
5.1: Sustainable transport and emissions	0	+	0	0	0	0	+?	+++?	0	0	0	0	+
5.2: Climate change (energy efficiency and renewables)	0	0	0	0	0	0	0	0	0	0	0	0	0
6.1: Flooding (risk)	0	?	++	0	0	0	+?	0	0	0	0	+?	?
6.2: Flooding (prevention)	0	?	++	0	0	0	+?	0	0	0	0	+?	?
7.1: Recycling (recycled and secondary aggregates)	0	0	0	0	0	0	0	0	0	0	0	0	0
Economic Objectives													
8.1: Local economy (employment)	0	0	0	0	0	0	0	0	0	0	+	+?	+
8.2: Local Economy (supply of minerals)	+	0	0	0	0	0	0	0	0	0	0	0	0
8.3: Local Economy (mineral sterilisation)	0	0	0	0	0	0	0	0	0	0	0	0	0
8.4: Best and most versatile agricultural land	0	+	0	0	0	0	+?	0	0	0	++	+	?
Social Objectives													
9.1: Health, well-being and amenity of residents	+	+	++	0	+	+	++	+?	+?	+	0	+?	+?
9.2: Recreation (loss)	+	+	0	0	+	+	+?	0	0	++	0	+?	+?
9.3: Recreation (provision)	+?	0	0	0	++	+?	+?	0	0	++	0	+?	+?
9.4: Aerodrome safety	0	+	0	0	0	+?	0	0	0	0	0	?	?

7 Hertfordshire Proposed Submission MLP Vision, Objectives and Policies – Summary of SA Findings

- 7.1 This section summarises the SA findings in relation to the social, economic and environmental objectives for the Vision, Objectives, Strategic and Development Management Policies in the Proposed Submission version of the Hertfordshire MLP. A detailed assessment has been undertaken, considering their likely effects against each of the SA objectives.
- 7.2 The SA matrices prepared for the appraisal of the strategic policies and development management policies within the Proposed Submission MLP are presented in **Appendix 6**, and a summary of these findings is presented below under the headings listed above.

Minerals Local Plan Vision

- 7.3 Following publication of the Draft Hertfordshire MLP, the draft Vision in the MLP was revised to remove reference to 2031 in acknowledgement of the fact that the Plan period will be 15 years from the point of adoption. In addition the original reference to clay extraction was revised in acknowledgment of the cessation of brickmaking and associated extraction within the County.
- 7.4 The Vision for the Hertfordshire Minerals Local Plan sets out a positive vision for the future to be achieved by the end of the plan period which encourages sustainable economic growth as required by the NPPF, and is likely to have a positive effect on the majority of the SA Objectives as shown in **Table 7.1**.
- 7.5 Positive effects have been identified for the social SA objectives, as the Vision aims to minimise impacts and maximise improvements on human health now and in the future and provide high quality restoration and subsequent management of mineral sites that provides opportunities for outdoor recreation. The Vision also supports the provision of minerals to support wider economic objectives like the delivery of housing and other development to support local social and economic growth. A minor positive effect is therefore expected for SA objective 9.1 (health, well-being and amenity of residents). The Vision also supports the minimisation of impacts upon the environment and human health and as such, a minor positive score is also expected in relation to SA objective 9.2 (recreation loss). A significant positive effect is expected in relation to SA objective 9.3 (recreation provision) as the Vision also specifically identifies that the restoration of mineral sites is expected to increase opportunities for recreation.
- 7.6 Contributing to mineral supply and the needs of other areas as well as meeting the County's own needs for minerals by ensuring aggregate provision, supports social and economic progress locally, and should result in significant positive effects on economic SA objectives 8.1 (employment) and 8.2 (supply of minerals). The allocation of minerals sites ensures that mineral resources are safeguarded for extraction rather than sterilised by other forms of development; therefore a significant positive effect is also identified for SA objective 8.3 (Conservation and supply of mineral resources). The Vision seeks to ensure that restoration of mineral sites will result in improved agricultural land and as such a significant positive effect is also considered likely in relation to SA objective 8.4 (soil).
- 7.7 Positive effects are likely in fourteen out of fifteen of the environmental SA objectives and four of these are expected to be significant: SA objectives 1.2 (enhancement of biodiversity), SA objectives 2.1 and 2.2 (above and below ground historic assets) and SA objective 3.1 (landscape). The Vision supports mineral production which is carried out in a way which conserves and enhances the outdoor environment of Hertfordshire, including the built and historic environments. The restoration of mineral sites is also to be carried out to a high standard, as the Vision requires early restoration to conserve and enhance the character and quality of

Hertfordshire's landscape, provide net gains in biodiversity and improve water management. The Vision therefore supports the protection, conservation and enhancement of biodiversity, the historic landscape and water resources in Hertfordshire.

- 7.8 However, as it is not explicitly stated in the wording of the Vision, the minor positive effects on the protection of existing biodiversity habitats (SA objective 1.1), including from air and other pollutants (SA objective 1.3), protection of geology (SA objective 1.4), reduction in climate change emissions (SA objective 5.1) and flood risk and alleviation (SA objectives 6.1 and 6.2) are considered to be uncertain. The Vision also contributes to the conservation and enhancement of the historic environment by supporting clay extraction to supply the specialist brickworks within the county, which should help to enhance local distinctiveness. Therefore, a minor positive effect is expected on SA objective 2.3 (historic environment - locally distinctive building materials).
- 7.9 Although the vision directly addresses SA objective 1.2 (the creation of biodiversity habitats) it should also seek to cover the protection of existing habitats (SA objective 1.2 and 1.3) more robustly. The recommendation made at the Consultant Draft MLP stage is therefore repeated: **It is recommended that the Vision should make an overarching statement in relation to biodiversity, which covers the protection of existing habitats and species** to provide a hook for MLP Objective 8.
- 7.10 In addition, although the Vision addresses SA Objectives 4.1 (water quality) and 4.2 (water quantity from over abstraction) through reference to 'improved water management', it does not directly address the broader environmental issues of SA Objective 6.1 (flood risk) and SA Objective 6.2 (flood risk alleviation). The recommendation made at the Consultant Draft MLP stage is therefore repeated: **It is recommended that the Vision should make an overarching statement in relation to flooding and the water environment** as a hook for MLP Objective 7 (Climate Change). The Vision asserts that the effects of climate change will be managed, but it is unclear what aspects of the climate change this refers to, therefore it is considered that the effect of minerals upon SA objectives 5.1 (transport emissions) and 5.2 (energy efficiency) will be considered in minerals proposals. However, the wording does not mention this specifically and therefore an uncertain minor positive score is considered likely. The recommendation made at the Consultant Draft MLP stage is therefore repeated: **It is recommended that the Vision should make an overarching statement in relation to transport emissions and renewable energy** as a hook for the MLP Objectives 5 and 7.
- 7.11 The NPPF is clear that plans should take account of secondary and recycled aggregates before considering extraction of primary minerals, but the Vision makes no mention of this priority and consequently scores a negligible effect against SA objective 7.1 (recycled and secondary aggregates). **It is therefore recommended that that the Vision should make an overarching statement encouraging the prioritisation of recycled and secondary aggregates over new primary mineral extraction sites.**
- 7.12 In an effort to maintain a streamlined and short a vision as possible, the Council elected not to adopted the above recommendations.

Minerals Local Plan Objectives

- 7.13 Following publication of the Draft Hertfordshire MLP, the objectives were consolidated from nine objectives to eight and amended as following:
- Draft Objective 1 was updated to reflect the wording of the revised NPPF published in July 2018.
 - Draft Objective 2 was amended and combined with draft Objective 3 and moved to Objective 3.
 - Draft Objective 4 was moved to Objective 2 and added to make reference to minerals infrastructure.
 - Draft Objective 5 was renumbered to Objective 4.
 - Draft Objective 6 was amended to focus on the protection of people and the local environment and renumbered to Objective 5.

- Draft Objective 7 was renumbered to Objective 6.
- Draft Objective 8 was renumbered to Objective 7 and updated in response to the recommendation made in the SA of the Draft Local Plan, making specific reference that after-use will protect and enhance the environment, including agricultural land in addition to the original references to landscape and biodiversity improvements.
- Draft Objective 9 was removed and replaced with a new objective in acknowledgement of responses received on the draft MLP. The new objective focusses on ensuring the MLP improves health and well-being through the positive restoration of extraction sites to deliver green infrastructure and opportunities for recreation and physical activity. The objective was also renumbered to Objective 8.

7.14 The Objectives for the MLP are generally compatible with and supportive towards achievement of the SA objectives, although there is also no relationship between a number of the SA objectives and the MLP Objectives as the aims of the MLP Objectives and SA objectives focus on different issues, as shown in **Table 7.1**. For example, MLP Objective 1 (Economic growth) aims to enable sustainable local economic growth by ensuring a steady and adequate supply of minerals across the county, therefore, while it would have significant positive effects on two of the economic SA objectives, it has no effect on or no relationship with most of the social and environmental SA objectives. Conversely, MLP Objective 7 (natural, built and historic environment) has no effect or no relationship with many of the social and economic SA objectives, but positive effects for most of the environmental SA objectives.

Environmental SA Objectives

- 7.15 With reference to the environmental SA objectives, MLP Objective 7 (natural, built and historic environment) is likely to have the most positive effects, with four out of fifteen scoring a significant positive effect. MLP Objective 7 seeks to ensure that the restoration of minerals sites contributes positively to the natural, built and historic environments, including landscape and biodiversity. Therefore, significant positive effects are identified in relation to four environmental SA objectives including 1.2 (biodiversity enhancement), 2.1 and 2.2 (above and below ground historic environments) and 3.1 (landscape). The natural environment is also considered to include geological, water and the soil environment and therefore positives impact were considered likely in relation to SA Objectives 1.4 (geology), 4.1 (water quality), 4.2 (water quantity), 6.1 (flood risk) and 6.2 (flood alleviation), however as this MLP Objective does not explicitly address these issues, a minor uncertain positive effect is identified.
- 7.16 MLP Objective 1 (Economic growth) seeks to ensure sustainable local economic growth through ensuring a steady and adequate supply of minerals across the county to enable built development and associated infrastructure. Therefore, a significant positive effect is identified in relation to SA objective 2.3 (historic environment-locally distinctive building materials). MLP objective 3 (Sustainable use of minerals) seeks to encourage the sustainable use of minerals by utilising secondary and recycled aggregates and to reduce the transportation of minerals across the County by encouraging the use of minerals in construction on the land from which they are extracted. Therefore significant positive effects are considered likely with respect to the environmental objectives SA objective 5.1 (transport emissions) and 7.1 (recycling of recycled and secondary aggregates) and a minor positive effect on SA objective 8.2 (minerals supply).
- 7.17 It is considered that MLP Objective 4 (sustainable transport of minerals) could have a significant positive effect on SA objectives 1.3 (biodiversity- deposition of air and other pollutants) and 5.1 (climate change emissions) because it encourages sustainable transport of minerals which should help to reduce emissions associated with road transport of minerals. MLP Objective 4 focuses on sustainable transport provision and seeks to promote and encourage road, rail and water transport options as well as safeguarding existing railheads to increase the mineral rail network and therefore a mixed effect was identified in relation to a number of objectives. Road traffic can have a detrimental impact on the natural, historic and built environment through impacts on the road network, the deposition of pollutants, vibration and noise. Efforts to encourage alternative transport measures could result in a significant positive effect on SA Objective 1.3 (deposition of pollutants on biodiversity). Minor positive effects on SA objectives 1.1 (protection of biodiversity), 2.1 (above ground historic environment) and 3.1 (landscape). However, as the MLP

Objective also includes the use of the road network as an option, minor negative effects are also identified for these SA objectives.

- 7.18 Significant positive effects were identified for MLP Objective 8 (Restoration) in relation to SA objectives 1.1 and 1.2 (protection and enhancement of biodiversity) because it aims to deliver improvements to green infrastructure as part of the restoration process, which is likely to have an indirect beneficial impact on improving the landscape. However, as this objective also seeks to increase access to the countryside, there could be increased disturbance to biodiversity, which could have a negative impact upon existing habitats and species. Therefore, overall a mixed significant positive/ minor negative score is considered likely in relation to the SA Objective 1.1 (protection of biodiversity).
- 7.19 MLP Objective 2 (Conserve sand, gravel and clay resources) is not considered to have a significant effect on any of the environmental SA Objectives, however, it could have a minor positive effect on SA objective 1.4 (geology) as sand and gravel are an important geological resource and future extraction could help to expose geological faces that are important for education purposes. As this MLP Objective seeks to conserve sand, gravel and clay resources for current and future generations, it could have a significant positive effect on SA objective 8.2 (supply of minerals), with minor positive effects on 8.1 (employment) and 8.3 (mineral sterilisation).
- 7.20 MLP Objective 6 (Climate change) seeks to address climatic impacts and therefore could have a significant positive effect on SA objective 5.2 (climate change-energy efficiency and renewables), although this is uncertain as the wording is quite broad. MLP Objective 6 could also address a number of environmental SA objectives, including objectives 1.1 and 1.2 (protection and enhancement of biodiversity), 1.3 (biodiversity- deposition of air and other pollutants), 1.4 (geology), 2.1 and 2.2 (above and below ground historic environment), 4.1 and 4.2 (water quality and water quantity from over extraction), 5.1 (sustainable transport), 6.1 and 6.2 (risk of flood and prevention). However, the wording of the MLP objective does not specifically refer to all of these environmental issues and as such an uncertain score was identified.

Economic SA Objectives

- 7.21 MLP Objectives 1 (Economic growth) 2 (Conserve sand, gravel and clay) and 3 (Sustainable use of minerals) are all considered to have significant positive effects upon either SA objectives 8.1 (employment), 8.2 (supply of minerals) and 8.3 (mineral sterilisation). MLP Objectives 1 (economic growth) and 3 (Sustainable use of minerals) seek to ensure the continued and sustainable local economic growth through ensuring a steady and adequate supply of minerals across the county, as well as reducing the transportation of minerals across the County and encouraging the use of minerals in construction on the land from which they are extracted.
- 7.22 MLP Objective 2 (Conserve sand, gravel and clay) and 3 (Sustainable use of minerals) are expected to have a minor positive effect upon SA objective 8.1 (employment) and 8.3 (mineral sterilisation) as they will help to ensure that there is a continuous supply of mineral resource and associated employment. However, the minerals sector is relatively small and therefore there is some uncertainty as to whether this policy will actually increase job and training opportunities.
- 7.23 MLP Objective 7 seeks to ensure that the restoration of minerals sites contributes positively to the natural, built and historic environments, including agricultural land. Therefore, a significant positive effect is recorded against SA Objective 8.4 (agricultural land).
- 7.24 MLP Objectives 4 (Sustainable transport of minerals) and 9 (Public access and biodiversity) are unlikely to have any effect on the economic SA objectives.

Social SA Objectives

- 7.25 MLP Objectives 5 (Health and amenity) and 8 (Restoration) are expected to have significant positive effects on the social SA objectives 9.1 (health and wellbeing) and 9.3 (recreational provision). MLP Objective 5 seeks to ensure that the delivery of mineral extraction does not harm people and their local environment but positively affects them, while MLP Objective 8 aims to deliver opportunities for recreation and physical activity through mineral site restoration. With the exception of SA objective 9.4 (Aerodrome safety) for which no effects are identified, MLP

Objectives 1, 2, 3, 4, 5, , 7 and 8 are all considered to have minor positive impacts on the other SA social objectives. MLP Objective 6 (climate change) is unlikely to have any effect on any of the social objectives.

Table 7.1: Summary of SA scores for the Vision and Strategic Objectives

Vision and Objectives	Vision	1. Economic growth	2. Conserve sand, gravel and clay	3. Sustainable use of minerals	4. Sustainable transport of minerals	5. Health and amenity	6. Climate change	7. Natural and historic environment	8. Restoration
SA Objectives									
Environmental									
1.1 Biodiversity (protection)	+?	0	0	0	-/+	+	?	0	-/+
1.2 Biodiversity (enhancement)	++	0	0	0	0	+	?	++	++
1.3 Biodiversity (deposition of air and other pollutants)	+?	0	0	0	++	+	?	0	0
1.4 Geology	+?	0	+	0	0	+	?	+?	0
2.1 Historic environment (above ground)	++	0	0	0	-/+	+	?	++	0
2.2 Historic environment (below ground)	++	0	0	0	0	+	?	++	0
2.3 Historic environment (locally distinctive building materials)	+	++	0	0	0	0	0	0	0
3.1 Landscape	++	0	0	0	-/+	+	0	++	+
4.1 Water quality	+?	0	0	0	0	+	?	+?	0
4.2 Water quantity (from over abstraction)	+?	0	0	0	0	+	?	+?	0
5.1 Sustainable transport and emissions	+?	0	0	++	++	+	?	0	0

Vision and Objectives	Vision	1. Economic growth	2. Conserve sand, gravel and clay	3. Sustainable use of minerals	4. Sustainable transport of minerals	5. Health and amenity	6. Climate change	7. Natural and historic environment	8. Restoration
SA Objectives									
5.2 Climate change (energy efficiency and renewables)	+?	0	0	0	0	0	++?	0	0
6.1 Flooding (risk)	+?	0	0	0	0	+	?	+?	0
6.2 Flooding (prevention)	+?	0	0	0	0	+	?	+?	0
7.1 Recycling (recycled and secondary aggregates)	0	0	0	++	0	0	0	0	0
Economic									
8.1 Local economy (employment)	++	++	+?	+?	0	0	0	0	0
8.2 Local Economy (supply of minerals)	++	++	++	++	0	+	0	0	0
8.3 Local Economy (mineral sterilisation)	++	0	+	++	0	0	0	0	0
8.4 Best and most versatile agricultural land	++	0	0	0	0	0	?	++	0
Social									
9.1 Health, well-being and amenity of residents	+	+?	+	+?	-/+	++	?	+?	++
9.2 Recreation (loss)	+	0	0	0	+	+	0	0	0
9.3 Recreation (provision)	++	0	0	0	0	+	0	+?	++
9.4 Aerodrome safety	0	0	0	0	0	0	0	0	0

MLP Strategic Policies¹⁵

7.26 **Table 7.2** summarises the scores from the full SA matrices for each strategic policy presented in **Appendix 6**.

MLP Section 7: Presumption in Favour of Sustainable Development

7.27 This section contains two policies:

- Policy 1: Sustainable Development
- Policy 2: Climate Change

7.28 Following the publication of the Draft Hertfordshire MLP both Policies 1 and 2 were amended to make reference to the reclamation of permitted mineral extraction sites to ensure reclamation is considered as part of the permitting of mineral applications. In addition some duplicated text was removed from Policy 2 and an additional example of a climate change consideration was added: the efficiency of processing plant and equipment.

7.29 These two policies are likely to have mostly positive effects on the SA objectives, or no effect. Policy 1: Sustainable Development would have minor positive effects on almost all of the SA objectives because it seeks to grant planning permission for mineral extraction and associated development in accordance with the National Planning Policy Framework's (NPPF) presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development. As such, it is considered that the policy seeks to protect against the loss of or harm to all of the environmental assets covered by the environmental SA objectives (including biodiversity, heritage, water quality/quantity, flood alleviation etc.), plus reduce adverse impacts on other sensitive receptors such as local residents, users of recreation areas, Public Rights of Way (PROWs) and aerodromes (covered by the social SA objectives). It would also have minor positive effects on the economic objectives through helping to provide employment opportunities, maintaining a steady and adequate supply of minerals and protecting best and most versatile land.

7.30 Policy 1 is unlikely to affect SA objectives 2.3 (locally distinctive building materials), 7.1 (recycled and secondary aggregates) and 8.3 (mineral sterilisation) as it makes no reference to ensuring the supply of locally distinctive building, it does not specifically encourage the use of recycled or secondary aggregates and does not address development which could sterilise a mineral reserve.

7.31 Policy 2: Climate Change could have significant positive effects on more than half of the environmental SA objectives because it encourages minerals extraction proposals to promote the benefits from restoration with a particular emphasis on biodiversity (SA objective 1.2), landscape (3.1), water resource enhancement (4.1 and 4.2) and flood alleviation (6.2) highlighted in the supporting text. It also requires proposals to demonstrate in a Climate Change Statement effective adaptation and resilience measures to potential climate changes, including achieving onsite water efficiency (4.2), minimising greenhouse gas emissions by installing renewable and low-carbon energy generation onsite (5.1 and 5.2), reducing flood risk (6.1) and using secondary and recycled aggregates (7.1). Policy 2 is also likely to have a minor positive effect on reducing air pollution on nature conservation sites (SA objective 1.3) and on local residents' health and amenity as by installing renewable and low-carbon energy generation onsite, the amount of air pollutants emitted could be reduced. Policy 2 could also have a minor positive effect on SA objective 9.3 (green infrastructure/recreation) because it encourages proposals to promote the benefits from restoration with a particular emphasis on landscape, biodiversity flood alleviation and water resource enhancement highlighted in the supporting text, which could all contribute to green infrastructure provision. However, all of these positive effects are uncertain as details of

¹⁵ For the purposes of the Sustainability Appraisal, the Policies within the Draft Minerals Local Plan have been separated into Strategic and Development Management Policies to communicate more clearly the significant effects of the Plan. However, the Draft Minerals Local Plan does not separate Strategic Policies from Development Management Policies.

any proposal and their Climate Change Statements would not be known until the planning application stage.

- 7.32 Policy 2 is unlikely to affect any of the four economic SA objectives.

MLP Section 8: Strategic Aggregate Policies

- 7.33 This section contains three policies:

- Policy 3: Aggregate Supply
- Policy 4: Working of Specific Sites
- Policy 5: Substitute or Secondary Materials (was previously Policy 6)

- 7.34 Following the publication of the Draft Hertfordshire MLP the following amendments were made to the strategic aggregate policies:

- Policy 3 was amended in light of changes to the NPPF to make reference to the need for at least a seven year landbank in accordance with the Hertfordshire Local Aggregate Assessment.
- Policy 4 was amended to remove the word 'proposed' from the sites and preferred area identified in Policy 4 and the associated Policies Map. The same three sites and preferred area identified in the Hertfordshire Draft MLP have been taken forward for allocation in the Hertfordshire Proposed Submission MLP. The text accompanying the listed sites and preferred area now clarifies that proposals for mineral extraction in these locations must fulfil the requirements set out within their associated planning briefs and proposals outside these locations will be considered against policies within the Plan, with specific reference given to Policy 3: Aggregate Supply.
- Policy 5's title was revised from 'Secondary and Recycled Aggregates' to 'Substitute or Secondary Materials' to reflect the terminology in the Revised NPPF published in 2018. Furthermore, additional wording has been added to clarify that the policy will support extensions to existing facilities as well as new facilities.

- 7.35 Policy 3 supports the maintenance of a steady and adequate supply of sand and gravel. Potential for minor negative effects on nine of the environmental SA objectives is recorded due to the potential loss of or harm to the environmental assets covered by the environmental SA objectives (including biodiversity, heritage, landscape, water quality/quantity etc.). Most of these effects are uncertain as the details and location of any proposal will not be known until the planning application stage. The minor negative effect on SA objective 7.1 (recycled and secondary aggregates) is not uncertain as these policies encourage primary mineral extraction. For three of the environmental objectives: SA objectives 1.4 (geology), 3.1 (landscape) and 5.1 (greenhouse gas emissions), the minor negative effect is mixed with a minor positive effect. Policy 3 could result in mineral extraction sites that expose new geological faces through mineral extraction which could provide educational opportunities or new sites of geological conservation interest, plus mineral operators are becoming increasingly aware of the need to restore sites to a high standard. As such, a proposed site could be restored to a standard which enhances the character and quality of the landscape. Finally, mineral applications submitted under Policy 3 may propose to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/ offices), which could help to reduce greenhouse gas emissions. Minor positive effects on their own are identified for SA objectives 1.2 (enhancing biodiversity), 5.2 (energy efficiency) and 6.2 (flood alleviation) because sand and gravel sites could provide water storage and flood alleviation, proposals for operation of the sites could include energy efficient measures and restoration proposals could help to create habitats and improve biodiversity.

- 7.36 Minor negative effects from Policy 3 are also identified for one economic SA objective (8.4: best and most versatile land) and three of the social SA objectives because the development of sites for sand and gravel extraction could result in the loss of best and most versatile agricultural land (8.4), PRoWs and recreational assets (9.2), could potentially affect the health and amenity of local residents near to the sites (9.1) or compromise the safety of aerodromes (9.4) depending on whether the site is restored to a water use. By contrast, Policy 3 could have positive effects on

the remaining economic SA objectives as they would provide opportunities for employment (8.1), reduce mineral sterilisation (8.3) and ensure a steady and adequate supply of minerals (8.2); with significant positive effects on the latter.

- 7.37 Policy 4 allocates three specific sites and one preferred area for sand and gravel extraction. The location of these areas earmarked for extraction activities gives rise to the potential for significant negative effects against four of the environmental objectives 1.1 (biodiversity protection), 1.3 (biodiversity and air pollution), 2.1 (built historic environment), 2.2 (archaeology) and 4.1 (water quality). These significant negative effects are recorded due to the close proximity of relevant sensitive receptors to the site allocations and the strategic road network they are likely to utilise¹⁶. However, in all cases, these significant negative effects are recorded as uncertain until the exact location, layout, and design of each mineral extraction site are known. Furthermore, minor negative effects are recorded for objectives 3.1 (landscape) and 7.1 (recycling aggregates) due to the moderate sensitivity of the landscape in the locations of the allocations and the fact that the new extraction sites will result in the generation and processing of primary aggregates. Minor positive effects are recorded for environmental objectives 1.2 (biodiversity enhancement) and 5.2 (energy efficiency and renewables) due to the potential of the new allocations to make provision for biodiversity assets through the restoration of sites post extraction and the opportunities for utilising sustainable energy sources. A minor negative effect is also recorded against objective 5.2 in acknowledgement that the operations will generate greenhouse gas emissions. A minor positive effect is recorded against objective 5.1 (sustainable transport and emissions) due to the location of the allocations in close proximity to areas of growth and the potential the new extractions site pose in helping construction sites minimise their carbon footprint by sourcing sand and gravel locally.
- 7.38 Policy 4 scores significant positive and negative effects against economic objectives 8.2 (supply of minerals) 8.4 (agricultural land) respectively. The former is due to the fact that three new mineral extraction sites and the prospect of further extraction within a preferred area significantly improve the supply of minerals within the county over the plan period; the latter acknowledges the fact that the three specific sites and one preferred area are located on land designated as Grade 2 and 3 agricultural land, resulting in the temporary loss of some of the county's best and most versatile land. Minor positive effects are recorded for the two remaining economic objectives 8.1 (employment) and 8.3 (mineral sterilisation). The former effect is recorded in acknowledgment of the fact that the new mineral extraction sites will generate a small increase in the number of jobs within the county and the latter acknowledges the fact that allocations to extract minerals prohibit their sterilisation.
- 7.39 Policy 4 scores a significant negative effect against social objective 9.2 (recreation loss) due to the fact that the allocations contain Public Rights of Way which may or may not require relocation, restricting access to the countryside at the very least in the short term. However, this significant negative effect is recorded as uncertain until such time as the need to relocate such facilities is confirmed. Minor negative effects are recorded for social objectives 9.1 (health and wellbeing) and 9.4 (aerodrome safety). The former is recorded due to the close proximity of the allocations to sensitive receptors such as residential communities and schools; the latter is recorded due to the fact that three of the allocated sites are within an airport safeguarding zone resulting in the prospect of restored mineral extraction sites increasing the likelihood of bird strike. Finally, a minor positive effect is recorded for social objective 9.3 (recreation provision) due to the opportunities the new sites offer for creating new and improved recreation facilities following the restoration of each extraction site. Uncertainty is attached to all four social objectives in acknowledgement of the fact that the potential for such effects cannot be determined until the detailed location, design and layout of each site are known.
- 7.40 Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the other policies within the plan and proposals must also fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix is explored in **Chapter 8**.

¹⁶ The HRA of the draft MLP had not been able to assess in detail the potential of the mineral operation allocated in the draft MLP to generate air pollution impacts. At this stage, detailed data from Hertfordshire County Council's traffic model was not available.

- 7.41 Policy 5 performs more positively against most of the SA objectives than Policies 3 and 4 because it encourages the use of secondary and recycled aggregates, which could reduce the effects of primary extraction within the County. In addition, despite the policy enabling development proposals for new recycling/reprocessing facilities for secondary and recycled aggregates, which could themselves have some adverse effects on biodiversity, heritage, landscape, health and amenity, the policy explicitly states that proposals for recycling facilities must be appropriate to the character of the surrounding natural environment and not adversely impact upon the natural, built or historic environments, amenity or human health. As such, it is considered that the policy would have minor positive effects on a number of the SA objectives. However, this is uncertain as the location and nature of the proposal would not be known until the planning application stage. In addition, Policy 5 could have a significant positive effect on SA objective 7.1 (recycled and secondary aggregates) because it specifically addresses this objective.
- 7.42 The only potential minor negative effects from Policy 5 relate to SA objectives 5.1 (greenhouse gas emissions), 8.4 (best and most versatile agricultural land) and 9.2 (PRoWs/recreation). The effect on greenhouse gas emissions is mixed because promoting the use of secondary and recycled aggregates could contribute to reducing emissions associated with the operation of primary mineral extraction sites. In addition, where recycled aggregate facilities are located within existing mineral sites, transport of the recycled aggregate may be reduced. However, there are likely to still be some operational and transport emissions from new secondary and recycled aggregate facilities that are not co-located with other mineral sites. For SA objective 8.4, permitting development proposals for new recycling/reprocessing facilities could result in the loss of agricultural land but the exact land-take and location of any proposed secondary/recycled aggregates facility will not be known until the planning application stage. Similarly, permitting development proposals for new recycling/reprocessing facilities could have an adverse effect on PRoWs, access, recreation areas and open space (9.2) and the policy does not explicitly reference the protection of PRoWs, access, recreation areas or open space.

MLP Section 9: Industrial Minerals

- 7.43 This section contains two policies:
- Policy 6: Brick Clay (was previously Policy 7)
 - Policy 7: Chalk (was previously Policy 8)
- 7.44 Following the publication of the Draft Hertfordshire MLP Policy 6 was updated to reflect the cease in brick clay extraction and brick making in the County. Consequently, the Bovingdon Brickworks is no longer safeguarded as a strategic site for the extraction of brick clay and Pocket's Dell Quarry and Land at Cox and Croft Fields, Shantock Lane is no longer allocated. The criteria required to permit new brick clay workings have been retained. Policy 7 has not changed.
- 7.45 The two policies in this section have almost the same effects as Policies 3 and 4 because they support the extraction of brick clay and chalk within the County and although there are currently no operational brick clay and chalk sites within the County new sites could come forward to extract these types of minerals. Therefore, there could be a number of potentially minor negative effects associated with the extraction and transport of brick clay and chalk on the environmental SA objectives in particular, but also on loss of best and most versatile agricultural land (SA objective 8.4) plus health and amenity of local residents (9.1), PRoWs/recreation (9.2) and aerodromes (9.4). However, most of these effects are uncertain as the location and nature of the proposals would not be known until the planning application stage.
- 7.46 Minor positive effects are identified for SA objectives 1.2 (enhancing biodiversity), 5.2 (energy efficiency) and 6.2 (flood alleviation) because sand and gravel sites could provide water storage and flood alleviation, proposals for operation of the sites could include energy efficient measures and restoration proposals could help to create habitats and improve biodiversity. However, these are also uncertain as it will depend on what is included in the proposals that come forward.
- 7.47 Policies 6 and 7 are likely to have a minor positive effect on SA objective 2.3 (locally distinctive building materials) as chalk contains locally important flints and brick clay is used to make locally distinctive bricks used in the construction and restoration of traditional brick and flint building

styles, complementing the County's local heritage. The flints are considered to be a locally distinctive product, hence the minor positive effect. Both policies would have minor positive effects on the remaining economic SA objectives as they would provide opportunities for employment (8.1) and reduce mineral sterilisation (8.3).

MLP Section 10: Safeguarding

7.48 This section contains four policies:

- Policy 8: Mineral Safeguarding
- Policy 9: Safeguarding Bulk Transport and Bulk Handling and Processing Sites (was previously Policy 9 and 10).

7.49 Following the publication of the Draft Hertfordshire MLP references to Mineral Consultation Areas within Policy 8 were removed in light of the wording in the Revised NPPF (2018). Draft Policy 9 (Rail heads and Wharves) and draft Policy 10 (Concrete Batching, Asphalt and Coated Stone Plants) were merged into Policy 9 (Safeguarding Bulk Transport and Bulk Handling and Processing Sites) to remove duplication within the MLP. In addition, the rail aggregate depot at Walsworth Road, Hitchin was added to the list of safeguarded Bulk Transport sites after the agent of the site operator submitted representations to the DMLP confirming the re-opening of the site and its use for transportation of minerals. Finally, Panshanger, Hertford was removed from the safeguarded list as infrastructure is no longer on site due to the completion of mineral extraction and processing at Panshanger Quarry. The new title of Policy 9 reflects the wording in the Revised NPPF (2018).

7.50 Policy 8 relates to safeguarding mineral resources within Hertfordshire and encouraging prior extraction of viable mineral resources prior to non-minerals development taking place. Therefore it is likely to have mixed minor positive and minor negative effects on most of the environmental SA objectives, as well as SA objective 8.4 (best and most versatile agricultural land), 9.1 (health and amenity) and 9.2 (PRoWs/recreation). This is because this policy may potentially restrict or delay non-mineral development that could otherwise have a negative effect on various environmental receptors as well as local residents and users of nearby recreation assets. Therefore, a minor positive effect is considered likely although it is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted. However, the prior extraction of minerals could itself have adverse effects on these same receptors, but this effect is also uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction. Similarly, Policy 8 would also have a mixed minor positive and minor negative effect on SA objective 8.1 (employment) because it could provide employment opportunities during the prior extraction of minerals. However, it may also potentially restrict or delay non-mineral development that could otherwise have a positive effect on the local economy.

7.51 Policy 8 would have significant positive effects on ensuring that mineral sterilisation is minimised (SA objective 8.3) as that is the key aim of the policy. However, this effect is uncertain as the policy does not completely rule out non-mineral development from taking place, only that mineral sterilisation and prior extraction is considered as part of a planning application. It would also have a minor positive effect on ensuring a steady and adequate supply of minerals (8.2), and minor positive but uncertain effects on enhancing sites of geological conservation interest (1.4) and ensuring supply of locally distinctive building materials (2.3). Policy 8 could also have a minor positive effect on providing opportunities for flood alleviation (6.2), although this would be temporary while the prior extraction was taking place. It would also have a positive effect on reducing greenhouse gas emissions (5.1) because it explicitly states that full consideration should be given to the use of the raised sand and gravel material on site in construction projects. Therefore, this would help to reduce the distance the prior extracted mineral resource needs to travel, and help to reduce emissions. However, identification of Minerals Safeguarding Areas could encourage minerals extraction, leading to a greater need to transport minerals.

7.52 In contrast, Policy 9 is likely to have only positive effects or no effects on the SA objectives. This is because the policy seeks to safeguard existing minerals related infrastructure (rail heads, wharves, concrete batching, asphalt and coated stone plants) and is therefore likely to restrict

non-mineral development near to this infrastructure that could otherwise have a negative impact on many of the environmental and some of the social SA objectives. In this way a positive effect is identified although the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether or not it is permitted. Similarly, although safeguarding this infrastructure may prolong any existing adverse effects on sensitive receptors due to the operation of rail heads, wharves, concrete batching, asphalt and coated stone plants, these are not identified as these effects would have been considered when the existing infrastructure was originally developed and permitted. Policy 9 is likely to have a significant positive effect on SA objective 5.1 (greenhouse gas emission) because it seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves. However, this effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted. As such, it is considered that the policy promotes the use of sustainable transport methods when transporting minerals. This would make a significant contribution to reducing operational emissions with regard to transportation. The policy is likely to have a minor positive effect on employment (SA objective 8.1) as the continued operation of existing rail heads and wharves, plus concrete batching, asphalt and coated stone plants will provide opportunities for local people to access employment.

MLP Section 11: Non-conventional Aggregate Extraction

7.53 This section contains two policies:

- Policy 10: Borrow Pits (was previously Policy 11)
- Policy 11: Incidental Extraction (was previously Policy 12)

7.54 Following the publication of the Draft Hertfordshire MLP the last paragraph of Policy 10 was amended to allow some potential importation of mineral for restoration. This change was made in response to representations which stated that there may be examples where importation of inert fill is a more sustainable option than limiting the amount of extraction of borrow pit material for use in adjacent construction project. No wording changes were made to Policy 11.

7.55 These two policies allow for mineral extraction in certain circumstances. Policy 10 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use such as a construction project, and Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. As such, both policies could result in proposals coming forward for mineral extraction anywhere in the County that mineral resources occur. Therefore, these two policies have almost the same effects as Policies 3 and 4, because new sites could come forward to extract minerals. Therefore, there could be a number of potentially minor negative effects associated with the extraction and transport of minerals on the environmental SA objectives in particular, but also on loss of best and most versatile agricultural land (SA objective 8.4) plus health and amenity of local residents (9.1), PRoWs/recreation (9.2) and aerodromes (9.4). However, most of these effects are uncertain as the location and nature of the proposals would not be known until the planning application stage.

7.56 For three of the environmental objectives: SA objectives 1.4 (geology), 3.1 (landscape) and 5.1 (greenhouse gas emissions), the minor uncertain negative effect is mixed with a minor or significant positive effect. These policies could result in mineral extraction sites that expose new geological faces through mineral extraction which could provide educational opportunities or new sites of geological conservation interest, plus mineral operators are becoming increasingly aware of the need to restore sites to a high standard. As such, a proposed site could be restored to a standard which enhances the character and quality of the landscape. Finally, mineral applications submitted under Policies 10 and 11 may propose to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/ offices), which could help to reduce greenhouse gas emissions. In addition, Policy 10 could have a significant positive effect on SA objective 5.1 (greenhouse gas emissions) because it explicitly states proposals for borrow pits will be permitted where it can be demonstrated that the site's proximity to the construction project is more sustainable than importing aggregate, therefore, transport distances and associated emissions should be minimised.

- 7.57 Uncertain minor positive effects on their own are identified for SA objectives 1.2 (enhancing biodiversity), 1.3 (air pollution on nature conservation sites – Policy 10 only), 5.2 (energy efficiency – Policy 11 only), and 6.2 (flood alleviation) because extraction at borrow pits or incidental extraction sites could provide water storage and flood alleviation, proposals for operation of the sites could include energy efficient measures and restoration proposals could help to create habitats and improve biodiversity. In addition, due to the close proximity of borrow pits to their intended construction use, transport distances and associated emissions should be minimised.
- 7.58 In addition, these policies could have positive effects on the remaining economic SA objectives as they would provide opportunities for employment (8.1), ensure a steady and adequate supply of minerals (8.2) and reduce mineral sterilisation (8.3). Finally, the policies could also have minor positive effects on social SA objective 9.3 (green infrastructure) because the restoration of borrow pits or incidental extraction sites may provide opportunities to improve health and amenity through the delivery of green infrastructure, PRow or recreation areas. These minor positive effects are uncertain as any restoration proposal will not be known until the planning application stage.

Table 7.2: Summary of SA findings for MLP Strategic Policies

SA objective	MLP Strategic Policies										
	1: Sustainable Development	2: Climate Change	3: Aggregate Supply	4: Within Specific Sites or Preferred areas	5: Secondary & Recycled Aggregates	6: Brick Clay	7: Chalk	8: Mineral Safeguarding	9: Safeguarding Transport, Bulk Handling and Processing Sites	10: Borrow Pits	11: Incidental Extraction
Environmental Objectives											
1.1: Biodiversity (protection)	+	0	-?	--?	+?	-?	-?	+/-?	+?	-?	-?
1.2: Biodiversity (enhancement)	+	++?	+?	+?	0	+?	+?	0	0	+?	+?
1.3: Biodiversity (deposition of air and other pollutants)	+	+?	-?	--?	+?	-?	-?	+/-?	+?	+?	-?
1.4: Geology	+	0	-/+?	0	+?	-?	-/+?	+?	0	-/+?	-/+?
2.1: Historic environment (above ground)	+	0	-?	--?	+?	-?	-?	+/-?	+?	-?	-?
2.2: Historic environment (below ground)	+	0	-?	--?	+?	-?	-?	+/-?	+?	-?	-?
2.3: Historic environment (locally distinctive building materials)	0	0	0	0	+?	++	0	+?	0	0	?
3.1: Landscape	+	++?	-/+?	-	+	-/+?	-/+?	+/-?	+?	-/+?	-/+?
4.1: Water quality	+	++?	-?	--?	+?	-?	-?	+/-?	+?	-?	-?
4.2: Water quantity (from over abstraction)	+	++?	?	?	+?	?	?	+/-?	+?	?	?
5.1: Sustainable transport and emissions	+	++?	+?/-	+?	+/-	+?/-	+?/-	+/-?	++?	++/-	+/-?
5.2: Climate change (energy efficiency and renewables)	+	++?	+?	+?/-	+?	+?	+?	0	0	0	+?
6.1: Flooding (risk)	+	++?	0	0?	+	0?	0?	0	0	0?	0?
6.2: Flooding (prevention)	+	++?	+?	0	0	+?	+?	+	0	+?	+?
7.1: Recycling (recycled and secondary aggregates)	0	++?	-	-?	++	-	-	-	0	-	-
Economic Objectives											
8.1: Local economy (employment)	+	0	+	+	+	+	+	+?/-	+	+	+
8.2: Local Economy (supply of minerals)	+	0	++	++	+	++	0	+	+	+	+
8.3: Local Economy (mineral sterilisation)	0	0	+	+	0	+	+	++?	0	+	+
8.4: Best and most versatile agricultural land	+	0	-?	--	-?	-?	-?	+/-?	0	-?	-?
Social Objectives											
9.1: Health, well-being and amenity of residents	+	+?	-/+	-?	+?	-/+	-/+	+/-?	+?	-?	-?
9.2: Recreation (loss)	+	0	-?	--?	-?	-?	-?	+/-?	+?	-?	-?
9.3: Recreation (provision)	+	+?	+?	+?	0	+?	+?	0	0	+?	+?
9.4: Aerodrome safety	+	0	-?	-?	0	-?	-?	0	0	-?	-?

MLP Development Management Policies¹⁷

- 7.59 Following the publication of the Draft Hertfordshire MLP the following amendments were made to the development management policies:
- Policy 12: Green Belt (was Policy 13) was amended to correct some minor grammatical errors.
 - Policy 13: Cumulative Impact (was Policy 14) was amended to include a requirement for applicants to incorporate appropriate mitigation rather than just take account of cumulative impacts. In addition, reference is now made to the built environment as a key consideration alongside other environmental and infrastructure issues. In addition, an addition was made in response to the recommendation made in the SA of the Draft Local Plan, making specific reference to biodiversity and flood risk and flood alleviation under the header 'Natural Environment' in the supporting text to the policy.
 - Policy 14: Water Management (was Policy 15) was amended to include the phrase 'no unacceptable adverse impacts' as opposed to the original text 'no adverse impact' in acknowledgement that some adverse impacts may be acceptable. In addition, reference was made to conserving water management as well as enhancing it.
 - Policy 15: Historic Environment (was Policy 16) was amended to emphasise the importance of planning for the reclamation of minerals sites post extraction as part of proposals. In addition, the revised policy lists the supporting documentation required to accompany a proposal, specifically an appropriate desk-based assessment and, where necessary field evaluation which is linked to a landscape and visual impact assessment.
 - Policy 16: Landscape and Green Infrastructure (was Policy 17) was amended in response to a representation received during the consultation on the draft MLP. The representation requested that the policy improve the clarity of requirements for a proposal and to make correct references to existing strategies and assessments.
 - Policy 17: Biodiversity (was Policy 18) was amended to ensure that proposals consider the impacts of all phases of a scheme including a measurable net gain in biodiversity during restoration and aftercare.
 - Policy 18: Protection and Enhancement of Amenity (was Policy 19) was amended to clarify that proposals must set out in an assessment how the proposed scheme meets the criteria of the policy.
 - Policy 19: Health and Wellbeing was added as new policy in response to a representation from Hertfordshire County Council's Public Health team requiring that the MLP do more to promote positive planning for health and wellbeing benefits to take advantage of the opportunities provided by mineral extraction and to balance against the short-term adverse impacts of mineral working. The new policy requires that minerals proposals demonstrate that the potential health impacts of the scheme have been adequately assessed, that the scheme offers enhanced access to the natural environment in the long term and that reclamation will contribute to positive health and wellbeing outcomes.
 - Policy 20: Strategic Transport was amended to replace the term 'significant adverse impacts' with 'unacceptable adverse impacts' in acknowledgement that some adverse impacts may be acceptable.
 - Policy 21: Operational Transport was amended to replace the term 'significant adverse impacts' with 'unacceptable adverse impacts' in acknowledgement that some adverse impacts may be acceptable. The phrase "any current restrictions" was added to a criterion relating to the compatibility of the strategic highway network. This addition was made in response representations received during consultation on the Draft MLP which highlighted that lorry

¹⁷ For the purposes of the Sustainability Appraisal, the Policies within the Draft Minerals Local Plan have been separated into Strategic and Development Management Policies to communicate more clearly the significant effects of the Plan. However, the Draft Minerals Local Plan does not separate Strategic Policies from Development Management Policies.

movements are not permitted to travel along roads with weight restrictions. Reference to “routeing restrictions” was also added in response to representations which highlighted that lorry routes may need to be controlled in certain areas.

- Policy 22: Public Rights of Way remains unchanged.
- Policy 23: Soils and Agricultural Land remains unchanged.
- Policy 24: Restoration was amended to replace the term ‘not adversely impact upon’ with ‘have unacceptable adverse impacts’ in acknowledgement that some adverse impacts may be acceptable. In addition, an addition was made in response to the recommendation made in the SA of the Draft Local Plan, making specific reference to the role of restoration in conserving geodiversity, reducing flood risk, increasing flood alleviation, improving water quality and ensuring aerodrome safety in the supporting text to the policy.
- Policy 25: Aftercare and After-use amended in response to the recommendation made in the SA of the Draft Local Plan, making specific reference to the role of aftercare and after-use in conserving geodiversity, reducing flood risk, increasing flood alleviation, improving water quality and ensuring aerodrome safety in the supporting text to the policy.

7.60 The fourteen development management policies are generally supportive of the SA objectives as shown by the number of minor and significant positive scores illustrated in **Table 7.3**. This section summarises the SA findings in relation to the social, economic and environmental objectives. **Appendix 6** includes the full SA matrices for each development management Policy.

Environmental SA objectives

- 7.61 The development management policies are likely to have an overall positive effect on the environmental SA objectives. Most of the development management policies are expected to have positive effects on SA objective 3.1 (landscape), with four policies having potentially significant positive effects (Policy 12: Green Belt, Policy 15: Historic Environment, Policy 16: Landscape and Green Infrastructure and Policy 18: Protection and Enhancement of Amenity). The aims of these four policies align directly with this SA objective (i.e. they seek to protect, and where possible, enhance the landscape). The significant positive effect on SA objective 3.1 from Policy 15: Historic Environment is due to the close relationship between the historic environment and the landscape character of Hertfordshire. As the Historic Environment policy aims to conserve and where possible enhance heritage assets, this should contribute to the protection of the County’s landscape character.
- 7.62 The 15 remaining significant positive effects in the Environmental section are due to Policies 14: Water Management, 15: Historic Environment, 16: Landscape, 17: Biodiversity, 18: Protection and Enhancement of Amenity and 20: Strategic Transport being directly applicable to the SA objectives relating to biodiversity (1.1, 1.2, 1.3, 1.4), cultural heritage and archaeology (2.1, 2.2), water quality and quantity (4.1, 4.2), reducing emissions (5.1) and flooding (6.1, 6.2).
- 7.63 Policy 20: Strategic Transport is expected to have an uncertain significant positive effect on SA objective 1.3 (protect against the deposition of air and other pollutants on designated nature conservation sites). The policy encourages the minimisation of road transportation in favour of more sustainable, less carbon intensive options.
- 7.64 Policy 24: Restoration and Policy 25: Aftercare and After-use seek to ensure that proposals for mineral extraction are supported by a restoration strategy to ensure the land is returned to its original or former condition, addressing the potential impact upon the landscape and soil quality considering potential to provide opportunities to retain geodiversity, reduce flood risk, increase flood alleviation and improve water quality; however until the detailed plans for such works are known it is considered uncertain whether such work will positively or adversely affect the historic environment.

Economic SA objectives

- 7.65 The development management policies are likely to have negligible effects on the majority of the economic objectives due to the fact that they focus mainly on reducing potential environmental

and social impacts of minerals development. Policy 23: Soils and Agricultural Land would have a significant positive effect on SA objective 8.4 (best and most versatile agricultural land), given that the policy aim is directly in line with the SA objective. There could also be a minor positive effect on SA objective 8.4 from Policies 13: Cumulative Impact and 24: Restoration as these policies aim to provide protection to the quality of soil and ensure that if any agricultural land is used for minerals, then it is returned to at least the equivalent grade prior to mineral extraction. Policy 18: Protection and Enhancement of Amenity seeks to ensure that consideration has been given to the natural environment, although not mentioned specifically in policy, this could provide protection of the County's best and most versatile agricultural land, and as such an uncertain minor positive effect is considered likely for SA objective 8.4. Policy 25: Aftercare and after use, requires proposals to demonstrate consideration to the quality of the area, which might include agricultural quality, although this is not mentioned in the policy and therefore an uncertain positive effect was identified in relation to SA objective 8.4.

- 7.66 There could be a minor positive effect on SA objective 8.1 (local economy) from Policies 23: Soils and Agricultural Land, 24: Restoration and 25: Aftercare and After-use. Policy 23 could provide employment opportunities and maintain the economic benefits of agricultural land in the long term. The supporting text for policies 24 and 25 suggests potential restoration uses and requires proposals to consider the contribution of the restored sites to the local economy. Policy 12: Green Belt, is also likely to have a minor positive effect upon SA objective 8.2 (mineral supply). This policy recognises that mineral development is temporal and not deemed as inappropriate development and as such will support proposals for mineral extraction and associated development in the Green Belt in order to ensure there is a continued supply. None of the development management policies are likely to have any effect on SA objective 8.3 (mineral sterilisation).

Social SA objectives

- 7.67 All but two of the development management policies are likely to have a positive effect on SA objectives 9.1 (health, well-being), the exception being Policy 15 and Policy 23 which scores a negligible effect, with two policies expected to have significant positive effects. Policy 14: Water Management has a significant positive effect given that the policy aim is to protect against adverse impact to water quality, water supply, amenity value of water resources and protect against flood risk. Policy 18: Protection and Enhancement of Amenity is likely to have a significant effect on SA objective 9.1, as the policy aim is directly in line with the SA objective. Policy 19: Health and Wellbeing is likely to have a significant positive effect on SA objective 9.1, as the policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed. However, this effect is considered to be uncertain due to the fact that they are dependent on the type of restoration being proposed.
- 7.68 Five other significant positive effects are identified for the social objectives. Policy 16: Landscape and Green Infrastructure would have a significant positive effect on 9.3 (green infrastructure and recreation) because it requires mineral proposals to demonstrate that throughout the lifetime of the development (including restoration) continued long term improvements are made to wider ecological networks and green infrastructure. Policy 19: Health and Wellbeing and Policy 22: Public Rights of Way also has a significant positive effect on SA objectives 9.2 and 9.3 (the protection and the provision of open space, green infrastructure and other recreational facilities) because they aims to bring recreational, aesthetic and health benefits to communities. In both cases, these effects are uncertain due to the fact that they are dependent on the type of restoration being proposed.
- 7.69 Most of the other development management policies would have minor positive effects on SA objectives 9.1, 9.2 and 9.3 as by protecting Hertfordshire's environment, they should help to protect and enhance the amenity for residents and visitors, including users of Public Rights of Way. Most of the development management policies are unlikely to have any effect on SA objective 9.4 (safety of aerodromes). The only policies which directly address this Objective are Policy 13: Cumulative Impact and Policy 17: Biodiversity and Policy 19: Health and Wellbeing each with minor positive effects, although this is uncertain for Policy 17 as neither the policy nor

supporting text specifically require proposals to assess the relationship between the site, local bird species and aerodrome safety.

Table 7.3: Summary of SA findings for the Development Management policies

SA objective	Development Management Policies													
	12: Green Belt	13: Cumulative Impact	14: Water Management	15: Historic Environment	16: Landscape and Green Infrastructure	17: Biodiversity	18: Protection and Enhancement of Amenity	19: Health and Well Being	20: Strategic Transport	21: Operational Transport	22: Public Rights of Way	23: Soils and Agricultural Land	24: Restoration	25: Aftercare and After-use
Environmental Objectives														
1.1: Biodiversity (protection)	+?	+	+	0	+	++	++	0	+?	+?	+?	+?	0	+
1.2: Biodiversity (enhancement)	+?	0	+	0	++	++	+?	+?	0	+?	+?	+?	+	+
1.3: Biodiversity (deposition of air and other pollutants)	0	+	0	0	0	+++	++	+	+++	+?	0	0	0	0
1.4: Geology	0	+	0	0	+	++	+?	0	0	0	0	+?	+	+
2.1: Historic environment (above ground)	+	+	0	++	+	+?	++	0	+?	+?	0	0	?	?
2.2: Historic environment (below ground)	0	+	0	++	0	0	+?	0	0	0	0	0	?	?
2.3: Historic environment (locally distinctive building materials)	0	0	0	+?	0	0	0	0	0	0	0	0	0	0
3.1: Landscape	++	+	+	++	++	+?	++	+	+?	+?	+	+	+?	+
4.1: Water quality	0	+	++	0	0	+?	+?	+?	0	0	0	0	+	+
4.2: Water quantity (from over abstraction)	0	+	++	0	0	0	+?	0	0	0	0	0	+	0
5.1: Sustainable transport and emissions	0	+	0	0	0	0	+?	0	+++	0	0	0	0	+
5.2: Climate change (energy efficiency and renewables)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.1: Flooding (risk)	0	+	++	0	0	0	+?	0	0	0	0	0	+	+
6.2: Flooding (prevention)	0	+	++	0	0	0	+?	0	0	0	0	0	+	+
7.1: Recycling (recycled and secondary aggregates)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Economic Objectives														
8.1: Local economy (employment)	0	0	0	0	0	0	0	0	0	0	0	+	+?	+
8.2: Local Economy (supply of minerals)	+	0	0	0	0	0	0	0	0	0	0	0	0	0
8.3: Local Economy (mineral sterilisation)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8.4: Best and most versatile agricultural land	0	+	0	0	0	0	+?	0	0	0	0	++	+	+?
Social Objectives														
9.1: Health, well-being and amenity of residents	+	+	++	0	+	+	++	+++	+?	+?	+	0	+?	+?
9.2: Recreation (loss)	+	+	0	0	+	+	+?	+++	0	0	+++	0	+?	+?
9.3: Recreation (provision)	+?	0	0	0	++	+?	+?	+++	0	0	+++	0	+?	+?
9.4: Aerodrome safety	0	+	0	0	0	+?	0	+	0	0	0	0	+	+

8 Hertfordshire Proposed Submission MLP – Mineral Site Allocations and Reasonable Alternatives – Summary of SA Findings

8.1 This section summarises the SA findings in relation to the social, economic and environmental objectives for the potential mineral sites which came forward as a result of Hertfordshire County council's Call for Sites process. In addition, two of the three preferred areas¹⁸ allocated in the adopted Minerals Local Plan were appraised as potential options.

Site and preferred area options

8.2 HCC received 19 submissions from landowners, agents or minerals operators during the 2016 Call for Sites exercise (proposing 18 sand and gravel sites and one brick clay site) and an additional brick clay site was subsequently submitted, resulting in 20 site options in total. In addition, HCC previously defined three preferred areas in the adopted MLP within which it had been considered that there was potential for defining further sand and gravel extraction sites if required. One of the preferred areas has already come forward for extraction in its entirety and been worked, therefore it does not provide any further potential for extraction. **Table 8.1** sets out the sites submitted and **Table 8.2** sets out the preferred areas within the adopted Minerals Local Plan.

8.3 Following consultation on the Draft MLP in 2017, three new Sand and Gravel site options were submitted for consideration:

- MLPCS021
- MLPCS022
- MLPCS023

8.4 In addition, site option MLPCS0001 was resubmitted for consideration following clarifications to the original proposal. The revised proposal was reappraised as a separate site option MLPCS0001RS.

Table 8.1: List of Sites put forward through the Call for Sites

Site ID	Site Name	Mineral to Extract
Sites Submitted and Assessed in 2016/early 2017		
MLPCS001	Land at Cromer Hyde Farm	Sand and Gravel
MLPCS002	Land at Salisbury Hall	Sand and Gravel
MLPCS003	Land at Ware Park	Sand and Gravel
MLPCS004	Land at Pynesfield	Sand and Gravel

¹⁸ The Preferred Areas represent areas of the County's mineral reserves which are considered to have potential for defining further sand and gravel extraction sites if required.

Site ID	Site Name	Mineral to Extract
MLPCS005 ¹⁹	Nashe's and Fairfold's Farm	Sand and Gravel
MLPCS006	Hatfield Aerodrome	Sand and Gravel
MLPCS007	Barwick	Sand and Gravel
MLPCS008	Hatfield Quarry – Furze Field	Sand and Gravel
MLPCS009	Hatfield Quarry – Land adjoining Coopers Green Lane	Sand and Gravel
MLPCS010	The Briggens Estate – Olives Farm	Sand and Gravel
MLPCS011	Water Hall Quarry – Farm Fields Area	Sand and Gravel
MLPCS012	Water Hall Quarry – Broad Green Area	Sand and Gravel
MLPCS013	Harry's Field	Brick Clay
MLPCS014	Water Hall Quarry – Bunkers Hill South Area	Sand and Gravel
MLPCS015	Plashes Farm	Sand and Gravel
MLPCS016	Water Hall Quarry – Howe Green Area	Sand and Gravel
MLPCS017	Robins Nest Hill	Sand and Gravel
MLPCS018	Southfield Wood East	Sand and Gravel
MLPCS019	Pipers End	Sand and Gravel
MLPCS020	Roundhill Wood	Brick Clay
Sites Submitted and Assessed in late 2017/2018		
MLPCS021	Land adjacent to Coursers Farm (North Mymms West)	Sand and Gravel
MLPCS022	Land adjacent to Coursers Farm (North Mymms East)	Sand and Gravel
MLPCS023	Warren Farm	Sand and Gravel
MLPCS001RS	Land at Cromer Hyde Farm – Revised Scheme	Sand and Gravel

Table 8.2: Preferred areas in adopted Minerals Local Plan

Preferred Areas		
1	Land close to the existing Hatfield Quarry	Sand and Gravel
2	Land to the north of the existing Rickneys Quarry	Sand and Gravel





¹⁹ Site MLPCS005 was subsequently withdrawn and therefore has not been appraised as a site option for inclusion in the new Minerals Local Plan.

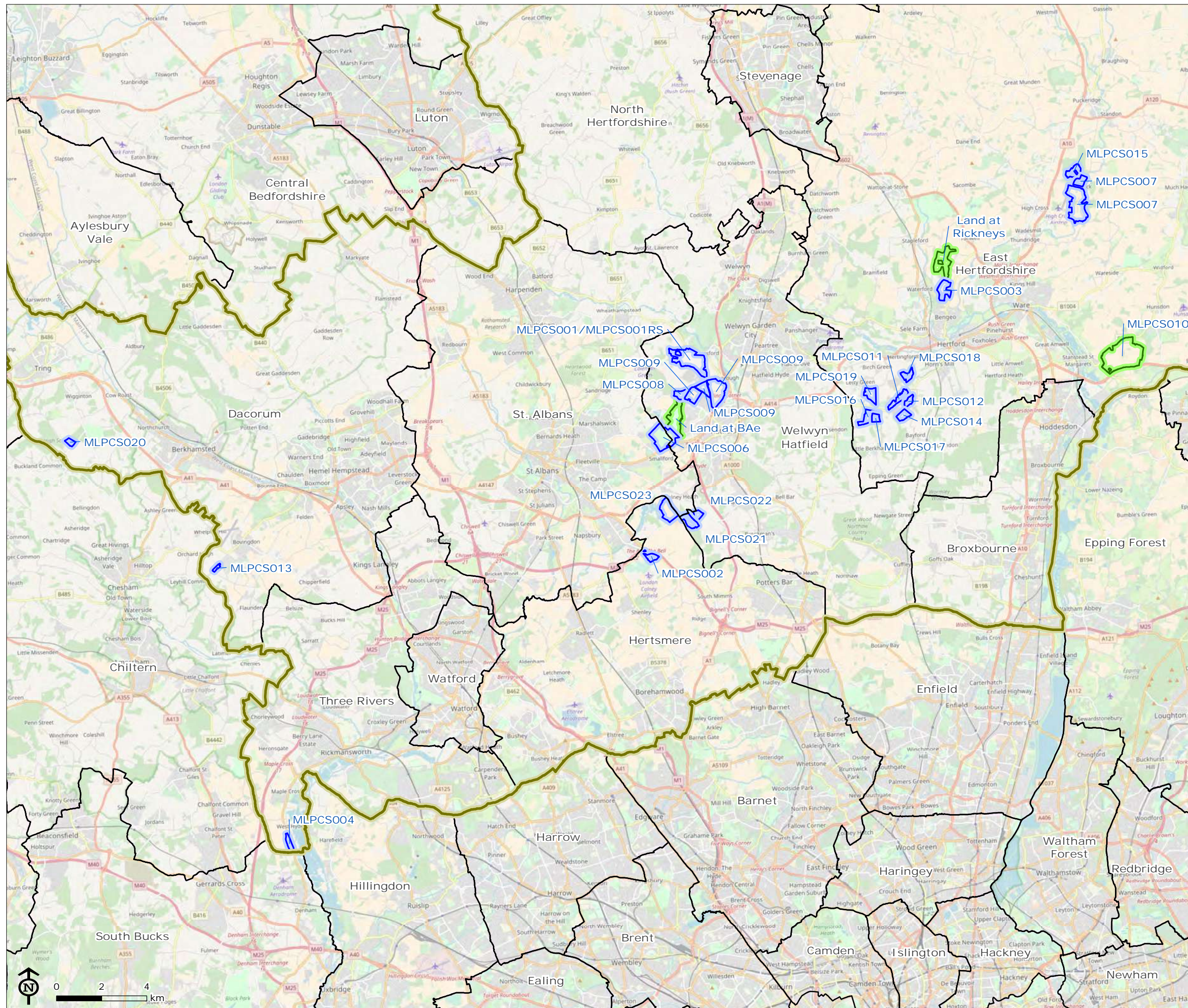
Preferred Areas		
3 ²⁰	Land to the south-east of the existing Tyttenhanger Quarry	Sand and Gravel

8.5 **Table 8.3** summarises the scores from the full SA matrices for each potential mineral site included in **Appendix 7**. A map showing the location of all the potential mineral Site Options appraised is presented in **Figure 8.1**.

²⁰ Since the adoption of the Minerals Local Plan, Preferred Area 3 has been worked through extensions to the neighbouring Tyttenhanger Quarry. Consequently, Preferred Area 3 has not been appraised for inclusion in the new Minerals Local Plan.

Figure 8.1: Location of site and preferred area options

-  Hertfordshire County boundary
-  District boundary
-  Promoted site
-  Preferred area



Map Scale @ A3: 1:165,000



Environmental effects of site and preferred area options

SA Objective 1: To protect, conserve and enhance natural habitats, species and geological features including those identified in s41 of the NERC Act 2006, consistent with the UK Post-2010 Biodiversity Framework, Biodiversity 2020 and the Local Nature Partnership aims.

1.1: To protect against the loss of priority habitats, biodiversity and species

- 8.6 All of the site options and preferred areas have the potential to have a negative effect on biodiversity, as they could affect one or more international, national or local designated nature conservation sites or BAP Priority Habitats or rare species. The majority (23) of sites and both preferred areas could have a **significant negative effect** as they either contain or are within 250m of one or more national or local designated nature conservation sites, including SSSIs, SPA, Ancient Woodland, Local Wildlife Sites or BAP priority habitats and therefore have the potential for adverse effects on biodiversity.
- 8.7 MLPCS002 could have a **minor negative effect** on biodiversity because it was found to be between 250m and 1km of one or more national or local designated nature conservation sites or BAP priority habitats.
- 8.8 However, the majority of these effects would be uncertain as the potential for effects on biodiversity will depend on the exact nature and design of new sites, and many effects could be adequately mitigated through implementation of good operational practices, and requiring certain surveys or detailed assessments to be undertaken as part of the planning application process. The exceptions to this are MLPCS007, MLPCS015, MLPCS020, Preferred Area 2, MLPCS021, MLPCS022 and MLPCS023 where the uncertainty was removed, owing to the presence of at least one designated biodiversity site within these sites.
- 8.9 Site specific requirements for all allocated sites will need to be included either within policies in the MLP or within specific site development briefs.

1.2: To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site

- 8.10 All of the potential mineral sites and preferred areas could have a **minor positive, uncertain effect** on this SA objective as minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration which seeks to provide/ enhance biodiversity onsite and within the locality.
- 8.11 This effect is recorded as uncertain as the final restoration proposals of each site will not be known until the planning application stage.

1.3: To protect against the deposition of air and other pollutants on designated nature conservation sites

- 8.12 Eight of the sites are considered likely to have a **negligible** effect on increasing deposition of air pollutants on designated nature conservation sites because they are not within 1km of the primary route network and HDV flows from the sites are unlikely to pass within 200m of designated nature conservation sites. The other remaining sites, as well as both preferred areas, have some potential for **significant negative effects** on nature conservation designated sites because HDV movements may travel along routes that pass within 200m of sites. It is acknowledged that effects on European Sites generated by the sites allocated in Policy 4 of the MLP have been subjected to Appropriate Assessment in the HRA Report and are considered to be negligible. However, other national and local nature designations have the potential to be affected. These effects are all acknowledged to be uncertain until the detailed routeing and scale of extraction is defined.

1.4: To protect and enhance sites of geological conservation interest

- 8.13 All of the mineral sites and preferred areas could have a **negligible effect** on the protection and enhancement of geological conservation sites. Three sites (MLPCS004 and MLPCS007 and

MLPCS015) were found to be within 500m of / contain a national site of special scientific interest (SSSI). However, none of these SSSIs are designated for their geological interest.

SA Objective 2: To conserve and enhance the quality of the historic environment including landscape history, human history, archaeological history

2.1: To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting

- 8.14 Eight (sites: MLPCS003, MLPCS004, MLPCS008, MLPCS012, MLPCS013, MLPCS014, MLPCS020 and MLPCS023) of the site options and Preferred Area 2 have the potential to have a **minor negative effect** in relation to the conservation and enhancement of the County's cultural heritage, including above ground heritage assets. Most potential mineral sites were found to be within 1km of a Historic Park or Garden or Registered Battlefield, Scheduled Ancient Monument or Listed Building, or a Conservation Area, and minerals extraction sites could potentially affect the setting of these heritage assets. Twelve sites and Preferred Area 1 have the potential to have a **significant negative effect** due to each containing or lying in close proximity to a heritage asset.
- 8.15 The two remaining site options (MLPCS016 and MLPCS017) were considered to have a negligible effect on this SA Objective. Although these sites were found to be between 250m and 1km of a heritage asset, the existence of physical barriers to screen and reduce the potential for intervisibility and direct impact upon the setting of heritage assets meant that it is considered likely to be a negligible effect.
- 8.16 However, all of these effects would be uncertain as the potential for effects on heritage will depend on the exact nature and design of new sites, and many effects could be adequately mitigated through implementation of good operational practices, additional landscape surveys or detailed landscape designs to be undertaken as part of the planning application process.

2.2: To conserve below ground archaeological assets

- 8.17 Seven of the site options (MLPCS002, MLPCS003, MLPCS004, MLPCS006, MLPCS008, MLPCS021 and MLPCS023) and Preferred Area 1 have the potential to have a **minor negative effect** because they each contain or lie directly adjacent to a non-designated archaeological asset that is highly susceptible to physical change. Five of the site options (MLPCS001/MLPCS001RS, MLPCS009, MLPCS010, MLPCS015 and MLPCS16) and Preferred Area 2 could have a **significant negative effect** on below ground archaeological assets because they each fall within at least one area of archaeological interest.
- 8.18 The effects of the remaining site options are **uncertain** as there is insufficient data at this stage to determine whether the sites contain archaeological assets. As such, until a more detailed assessment of below ground archaeological assets is undertaken at the sites the effect remains uncertain.
- 8.19 It should also be noted that the extraction of minerals offers the opportunity to help discover and conserve archaeological assets if found onsite (although this will not be in situ).

2.3: Seek to ensure the supply of locally distinctive building materials for historic building methods

- 8.20 All of the mineral sites and preferred areas with the exception of two sites (MLPCS013 and MLPCS020) could have a **negligible effect** on this SA objective as they are being promoted for sand and gravel extraction and would not contribute to the supply of locally distinctive building materials. Proposed mineral sites MLPCS013 and MLPCS020 could have **minor positive effects** on this SA objective due to the fact that they are both being promoted for brick clay extraction, a locally distinctive building material.

SA Objective 3: To conserve and enhance Hertfordshire's landscape assets such as landscapes of natural beauty and greenspaces

3.1: To conserve and enhance the character and quality of Hertfordshire's landscapes

- 8.21 The majority of the sites (15) and Preferred Area 2 could have a **minor negative effect** on this SA objective as they are considered to have a 'moderate' or 'low-moderate' landscape sensitivity to mineral extraction as set out in the Hertfordshire MLP Landscape and Visual Sensitivity Study 2016.
- 8.22 One of the sites (MLPCS006) and Preferred Area 1 could have a **negligible effect** on this objective as it is considered to have a 'low' landscape sensitivity to mineral extraction and six of the sites (MLPCS001/MLPCS001RD, MLPCS007, MLPCS015, MLPCS020, MLPLCS022 and MLPCS023) could have a **significant negative effect** as they are considered to have a 'moderate-high' landscape sensitivity to mineral extraction as set out in the Hertfordshire MLP Landscape and Visual Sensitivity Study 2016.
- 8.23 None of the sites with the exception of MLPCS020 are located within the Chilterns AONB.

SA Objective 4: To protect water resources, water quality and the function of the water environment from pollution and over abstraction

4.1: To protect the quality of ground and surface water

- 8.24 Mineral sites that are in Source Protection Zone (SPZ) 1 and/or adjacent to a water body could potentially lead to release of contaminants or accidental pollution incidents. Five sites: MLPCS001/MLPCS001RS, MLPCS004, MLPCS0013, MLPCS0014 and MLPCS0018, were not located within SPZ1 and not within or adjacent to a water body and a **negligible but uncertain** effect has been identified. While it may not have a negative effect, at this stage in the planning process it is not possible to determine the impacts of minerals sites on water quality (surface or groundwater) or water use and efficiency as it will very much depend on the proposal (mineral type, design, method of working etc.), which would be assessed at the planning application stage.
- 8.25 Six sites scored a **minor negative effect**. These potential mineral sites were all outside SPZ1, but the potential for minor negative effects has still been identified owing to them being within/adjacent to a water body. Three sites and Preferred Area 2 have the potential for **significant negative effects** on water quality (MLPCS003, MLPCS007, MLPCS016 and MLPCS023), because they are located in SPZ1. Five sites, including Preferred Areas 1, MLPCS006, MLPCS008, MLPCS009, MLPCS017 and MLPCS019 were also identified as having potential for significant negative effects on water quality due the presence of water bodies in combination with a plume of bromate, which has potential to contaminate the water supply.
- 8.26 There are other regulatory regimes in place, such as the Environment Agency's Environmental Permitting regime, which require the minerals industry to obtain permits setting out thresholds for impacts on water supply and quality from minerals operations. Therefore, it is assumed that any minerals extraction operation that might occur in future on a site allocated in the MLP will be undertaken in line with the Environmental Permit, which should also help to minimise potential effects on water supply and quality.

4.2: To protect the quantity of ground and surface water from over abstraction

- 8.27 All of the potential mineral sites and preferred areas could have an **uncertain effect** on this SA objective as it will not be known until the planning application stage to what extent the proposed mineral activity will require the use of water resources.

SA Objective 5: To minimise the effects of climate change and reduce emissions of greenhouse gases

5.1: To reduce operational emissions through improved/enhanced technologies and sustainable transport

- 8.28 All of the potential mineral sites and preferred areas could have minor positive effects on this objective, as they are within close proximity to strategic development allocations in Local Plans and could potentially contribute to reducing transport distances of aggregates for construction. Sites MLPCS001/MLPCS001RS, MLPCS002, MLPCS006, MLPCS008, MLPCS009, MLPCS0021, MLPCS021 and MLPCS023 are particularly close to allocations SP 24 (New Village at Symondshyde) and SP 22 (North West Hatfield) in the Welwyn Hatfield Proposed Submission Local Plan (August 2016). MLPCS002, MLPCS021, MLPCS022 and MLPCS023 are also located within close proximity to a large site (HEL392) being promoted through the Hertsmere Borough Council Local Plan process for 6,000 dwellings. Additionally, MLPCS003 and Preferred Area 2 are within close proximity to HERT4 (North of Hertford) and MLPCS010 is within close proximity to GA1 (10,000 homes in the Gilston Area) in the adopted East Herts District Plan (2018).

5.2: To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site

- 8.29 All of the potential mineral sites and preferred areas could have a **mixed (minor positive uncertain and minor negative) effect** on this SA objective as all sites have the opportunity to use small-scale onsite renewable energy sources to power plant and machinery used in the extraction process and/or onsite infrastructure (e.g. buildings/offices). This is uncertain as this level of detail will not be known until the planning application stage.
- 8.30 All of the sites could also lead to the emission of carbon dioxide and other greenhouse gases from onsite plant, machinery and vehicles, although sand and gravel sites and the clay extraction site are likely to be less intensive than crushed rock sites, thus having smaller effects.

SA Objective 6: To avoid the risk of flooding, by directing development away from areas at highest risk and promote opportunities for implementing alleviation / mitigation during site restoration

6.1: To protect against the risk of flooding

- 8.31 The proposed sites MLPCS013 and MLPCS020 are being promoted for brick clay. Although clay extraction sites are not deemed suitable developments within flood zone 3b or 2 when infrastructure is located within them, these sites are outside flood risk zones 2 or 3 and therefore negligible effects are considered likely.
- 8.32 All of the potential sand and gravel sites and both preferred areas (also for sand and gravel) could have a **negligible uncertain effect** on this SA objective because sand and gravel sites are considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere as they are classed as water-compatible development in the NPPG. However, these effects are uncertain as it would not be known until a more detailed assessment (i.e. a site specific Flood Risk Assessment) has been undertaken once the specific proposals are known.

6.2: To provide opportunities for flood alleviation / mitigation during the restoration of the site

- 8.33 All but three of the potential mineral sites and both preferred areas are likely to have a **negligible effect** on this SA objective as 19 of the mineral sites and both preferred areas do not contain land designated as flood zones 2, 3a or 3b, meaning that there is limited potential to reduce the risk of flooding. MLPCS011 is within land designated as Flood Zone 2, 3a and 3b, MLPCS006 is within Flood Zone 2 and MLPCS007 is within Flood Zone 1 and 2. Extraction and restoration works at these locations have the potential for positive effects associated with dewatering and the storing of excess water in times of heavy rain. Consequently, site MLPCS011 is considered to have potential to have **significant positive effects** and sites MLPCS006 and MLPCS007 to have potential to have minor positive effects. Until the extent of the extraction is known and the nature of the subsequent restoration is defined, the effects of these sites are recorded as uncertain.

SA Objective 7: To protect and ensure the sustainable use of mineral resources

7.1: To encourage the use of recycled and secondary aggregates

- 8.34 All of the potential mineral sites and preferred areas could have a **minor negative uncertain effect** on this SA objective as they will contribute to the use of primary aggregates and not encourage the use of recycled and/or secondary aggregates.

Economic effects of site and preferred area options

SA Objective 8: To maximise the potential economic benefits of mineral extraction for the economy in Hertfordshire

8.1: To provide opportunities for local people to access employment and skills both during and after extraction

- 8.35 All of the potential mineral sites and preferred areas could have a **minor positive effect** on this SA objective. The location of mineral sites is unlikely to directly affect local businesses in Hertfordshire, as it is unlikely that new sites will encourage further investment and growth in the industry. However, all of the sites could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed in the County will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.

8.2: To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs

- 8.36 All of the mineral sites and preferred areas could have a **minor positive effect** on this SA objective as they will contribute towards providing minerals to meet Hertfordshire's needs.

8.3: To ensure that mineral sterilisation is minimised

- 8.37 All of the mineral sites and preferred areas could have a **minor positive effect** on this SA objective as new potential mineral sites would not be inappropriate development as they are contributing to the extraction of mineral resources, not limiting the ability to extract resources. The allocation of any of the sites for mineral extraction will provide a degree of protection to the resource from inappropriate non-mineral development until the resource has been fully worked.

8.4: Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality

- 8.38 Most of the sites and both preferred areas are likely to have a **minor negative effect** on SA Objective 9, as they are large (i.e. over 20ha) and within grade 1, 2 or 3 agricultural land, or are small to medium (i.e. less than 20ha) and entirely within grade 1, 2 or 3 agricultural land. In both situations, mineral extraction at the site could result in the loss of high quality agricultural land. For sites MLPCS001/MLPCS001RS, MLPCS006, MLPCS009, MLPCS010 and MLPCS020 a **significant negative effect** was scored. These sites were large (i.e. over 20ha) with a majority of the land area on grade 2 BMV agricultural land.

Social effects of site and preferred area options

SA Objective 9: To protect and improve health and amenity for individuals and communities within Hertfordshire

9.1: To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport

- 8.39 All of the potential mineral extraction sites and preferred areas could have **minor negative, uncertain effects** on SA Objective 9.1 as they are all within 100m of sensitive receptors, in

particular residential properties and businesses. Therefore, development at these sites has the potential to have a minor negative effect on the health and amenity of local residents and employees, because all minerals development would result in some level of dust, noise, vibration and light pollution during site preparation, operation and restoration and associated with transport of minerals from the site. The proposed allocations in Welwyn Hatfield (MLPCS001/MLPCS001RS, MLPCS008 and MLPCS009), East Hertfordshire (MLPCS003) and St Albans (MLPCS006) are particularly close to some of the largest settlements in the County. Proposed mineral allocations at MLPCS004, MLPCS013 and MLPCS015 are further away from existing settlements compared to the other allocations, but their proximity to residential properties and businesses led to the minor negative effect.

- 8.40 However, the SA has assumed that mineral extraction at any of the potential sites will be well operated and that mitigation measures implemented as a result of the development management policies that are likely to be included in the Minerals Local Plan should be sufficient to avoid any potential long term effects on health and local amenity.

9.2: To protect against the loss of Public Rights of Way, access, recreation areas and open space

- 8.41 The majority (13) of sites and both preferred areas scored a **significant negative effect** in relation to the protection against the loss of Public Rights of Way, access, recreation areas and open space. Most of the sites scoring a significant negative effect were due to the presence of Public Rights of Way (PRoW) on the site. A **minor negative effect** was identified at potential mineral sites MLPCS004, MLPCS008, MLPCS011, MLPCS013, MLPCS014, MLPCS021 and MLPCS022 due to the presence of a PRoW being within 100m of the proposed mineral site.
- 8.42 Two sites (MLPCS012 and MLPCS017) were found to have a **negligible effect** in relation to this SA objective because they were found to be over 100m from a leisure or recreational facility or open space, including PRoW.

9.3: To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site

- 8.43 All of the proposed mineral allocations and both preferred areas have the potential to generate positive effects through the delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site. The significance of these positive effects is dependent on the scale and quality of enhancements to existing public rights of way, open/green spaces and recreational facilities. Until the scale and quality of the restoration works are known, the potential for positive effects is recorded as **minor positive uncertain** for all options.

9.4: To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes

- 8.44 The MLP Site Assessment Study identified sites MLPCS006, MLPCS008 and MLPCS009 and Preferred Area 1 to be within the Luton Airport Safeguarding Zone and therefore these were identified as having a **minor negative effect** on the potential to compromise the operation and safety of commercial/civil or military aerodromes. Therefore, if it is restored to a water-based use, it could affect the safe operating of the airport, as it is likely to attract large numbers of birds and increase the risk of bird strike. However, this effect is uncertain as it is dependent on the type of restoration proposed and the eventual development of the site.
- 8.45 All other sites and Preferred Area 2 were not found to be within an Airport Safeguarding Zone and as such a negligible effect was scored.

Table 8.3: Summary of SA findings for the potential mineral site options

SA Objective	Site ID																							
	MLPCS001 / MLPCS001RS	MLPCS002	MLPCS003	MLPCS004	MLPCS006	MLPCS007	MLPCS008	MLPCS009	MLPCS010	MLPCS011	MLPCS012	MLPCS013	MLPCS014	MLPCS015	MLPCS016	MLPCS017	MLPCS018	MLPCS019	MLPCS020	Preferred Area 1	Preferred Area 2	MLPCS021	MLPCS022	MLPCS023
Environmental objectives																								
1.1: Biodiversity (protection)	--?	-?	--?	--?	--?	--	--?	--?	--?	--?	--?	--?	--?	--	--?	--?	--?	--?	--	--?	--	--	--	--
1.2: Biodiversity (enhancement)	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?
1.3: Biodiversity (deposition of air and other pollutants)	--?	--?	--?	--?	--?	--?	0?	--?	--?	0?	0?	0?	0?	--?	0?	0?	--?	0?	--?	--?	--?	--?	--?	--?
1.4: Geology	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.1: Historic environment (above ground)	--?	--?	-?	-?	--?	--?	-?	--?	--?	--?	-?	-?	-?	--?	0?	0?	--?	--?	-?	--?	-?	--?	--?	-?
2.2: Historic environment (below ground)	--?	-?	-?	-?	-?	?	-?	--?	--?	?	?	?	?	--?	--?	?	?	?	?	-?	--?	-?	?	-?
2.3: Historic environment (locally distinctive building materials)	0	0	0	0	0	0	0	0	0	0	0	+	0	0	0	0	0	0	+	0	0	0	0	0
3.1: Landscape	--	-	-	-	0	--	-	-	-	-	-	-	-	--	-	-	-	-	--	0	-	-	--	-
4.1: Water quality	0?	-?	--?	0?	--?	--?	--?	--?	-?	-?	0?	0?	0?	-?	--?	--?	0?	--?	-?	--?	--?	0?	-?	--?
4.2: Water quantity (from over abstraction)	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?
5.1: Sustainable transport and emissions	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?
5.2: Climate change (energy efficiency and renewables)	+?/-	+?/-	+?/-	+?/-	+?/-	+?/-	+?/-	+?/-	+?/-	+?/-	+?/-	+?/-	+?/-	+?/-	+?/-	+?/-	+?/-	+?/-	+?/-	+?/-	+?/-	+?/-	+?/-	+?/-
6.1: Flooding (risk)	0?	0?	0?	0?	0?	0?	0?	0?	0?	0?	0?	0?	0?	0?	0?	0?	0?	0?	0?	0?	0?	0?	0?	0?
6.2: Flooding (prevention)	0	0	0	0	+?	+?	0	0	0	++?	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7.1: Recycling (recycled and secondary aggregates)	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?
Economic objectives																								
8.1: Local economy (employment)	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
8.2: Local Economy (supply of minerals)	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
8.3: Local Economy (mineral sterilisation)	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
8.4: Best and most versatile agricultural land	--	-	-	-	--	-	-	--	--	-	-	-	-	-	-	-	-	-	--	-	-	-	-	-
Social objectives																								
9.1: Health, well-being and amenity of residents	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?	-?
9.2: Recreation (loss)	--?	--?	--?	-?	--?	--?	-?	--?	--?	-?	0?	-?	-?	--?	--?	0?	--?	--?	--?	--?	--?	-?	-?	--?
9.3: Recreation (provision) ²¹	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?	+?
9.4: Aerodrome safety	0	0	0	0	-?	0	-?	-?	0	0	0	0	0	0	0	0	0	0	0	-?	0	0	0	0

²¹ While significant positive effects are equally as likely as more minor positive effects, this will depend on the scale and quality of enhancements to existing public rights of way, open/green spaces and recreational facilities. Until the scale and quality of the restoration works are known, a minor positive uncertain effect has been recorded for all site options.

Site selection assessment and grouped options





- 8.46 In 2017, in conjunction with the SA process, Hertfordshire County Council subjected the site options and preferred areas to a separate site selection assessment to help inform the identification of preferred sites for allocation in the Draft MLP. The site selection methodology assessed the viability and deliverability of each option as well as the presence of primary and secondary constraints. The results of this site selection study were used alongside other evidence bases collected by the Council to define four 'grouped options' made up of multiple site and preferred area options. Each grouped option represents a combination of sites and preferred areas that would meet the County's mineral requirements if allocated in the new MLP. The Council's reasoning behind the definition of the four grouped options for appraisal is outlined below:
- Option 1 draws on the overall recommendations within the Site Selection Report to identify the following site options: MLPCS004²², MLPCS012, MLPCS017, MLPCS008, MLPCS006, MLPCS009, MLPCS018 and preferred areas 1 and 2. Overall, these options are considered to be the most appropriate for allocation in the Minerals Local Plan. This option assumes that sites MLPCS017 and MLPCS018 would need to have economic viability issues addressed.
 - Option 2 draws on the overall recommendations within the Site Selection Report on the most appropriate sites and preferred areas for allocation, but only includes the best performing site options that scored 'green' in the 'Sieve 2' Resource Assessment. This consists of the following site options: MLPCS012, MLPCS008, MLPCS006, MLPCS009 and preferred areas 1 and 2. Sites options MLPCS017 and MLPCS018 with economic viability and land ownership constraints have not been included in this option.
 - Option 3 is based on option 2 and consists of the following sites: MLPCS008, MLPCS006, MLPCS009, MLPCS003 and Preferred Area 2. Option 3 differs from Option 2 in a number of ways. MLPCS012 has been removed due to uncertainty with a current enforcement case on Bunkers Hill Quarry which could affect the deliverability of the site. Preferred Area 1 has been removed in Option 3 due to uncertainty on deliverability associated with the bromate plume that covers a significant proportion of the area. The removal of these site options required the inclusion of an additional site. In the Site Selection Report, site MLPCS002 represents the next highest ranked site option to score 'green' in the 'Sieve 2' Resource Assessment; however, MLPCS002 has not been included in option 3 due to significant highway concerns raised. Site MLPCS003 has been included in Option 3 as the next highest ranked site option to score 'green' in the 'Sieve 2' Resource Assessment.
 - Option 4 is based on option 3 and consists of the following sites: MLPCS008, MLPCS006, MLPCS009 and a new preferred area at site option MLPCS010 (Briggens Estate – Olives Farm). Option 4 differs from Option 3 in a number of ways. Site MLPCS003 has been removed due to the determination of a planning application on the site being considered not acceptable in planning terms. A subsequent resubmission of the planning application has also been refused. Preferred Area 2 has also been removed from this option to provide an alternative scenario from the preferred areas (1, 2 and 3) in the adopted Minerals Local Plan. Site option MLPCS010 (Briggens Estate – Olives Farm) has been included as an alternative preferred area.²³
- 8.47 Reasoning as to why the other sites that have been promoted as part of the Call for Sites exercise were not considered viable options to feature within any of the group options as shown above can be seen in the separate site selection assessment. Further information on the decision to not take sites forward can be found in the Environment, Planning and Transport Cabinet Panel report titled 'Sites to be identified in the Draft Minerals Local Plan' dated 7 September 2017.

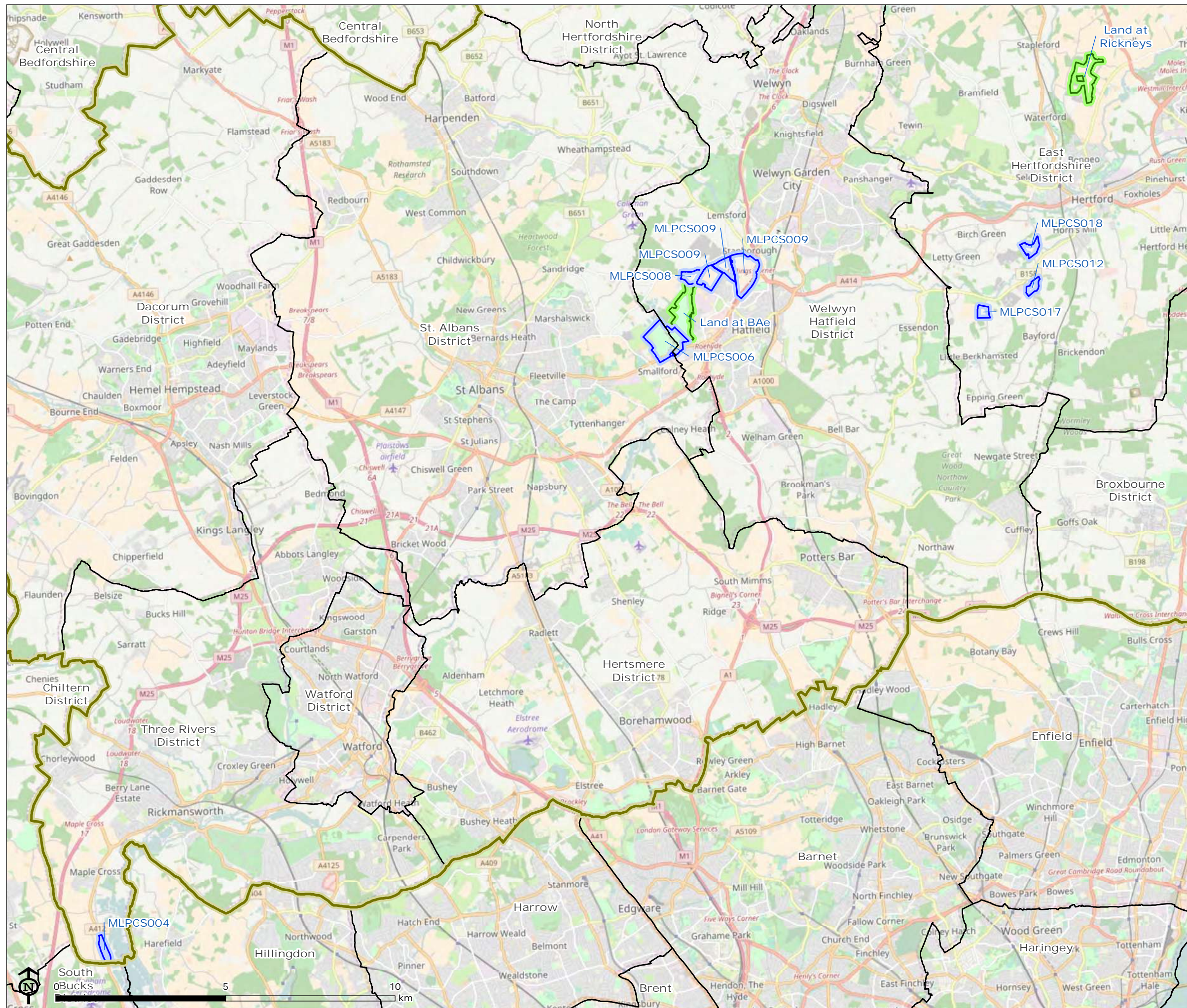
²² Site MLPCS004 was granted permission on appeal in January 2017 and therefore in further options has been included as permitted reserves.

²³ Site option MLPCS010 (Briggens Estate – Olives Farm) has been included as a Preferred Area rather than a site due to its scorings in the Detailed Site Assessment (Sieve 3) of the Site Selection Report and supplementary highways assessment.

- 8.48 The site selection assessment was updated in 2018 to assess the new site options (MLPCS021, MLPCS022, MLPCS023 and MLPCS001RS) and updated in response to consultation comments received during consultation on the Draft MLP and its associated evidence base. Although there were some minor changes to the ranking of the sites options ranked in order of appropriateness in the Site Selection Report, these changes did not affect the justification set out above for the selection of the four group options tested in the SA Report which accompanied the Draft MLP in 2017. Therefore, the justification for the selection of the four grouped options set out in the Site Selection Report and the 'Sites to be identified in the Draft Minerals Local Plan' remains unchanged for the Proposed Submission MLP in 2018.
- 8.49 **Table 8.4** summarises the scores from the detailed SA matrices for each grouped option in **Appendix 7**. A series of maps showing the location of the sites and preferred areas identified within each grouped option are presented in **Figures 8.2-8.5** below.

Figure 8.2: Grouped Option 1





-  Hertfordshire County boundary
-  District boundary
-  Promoted site
-  Preferred Area

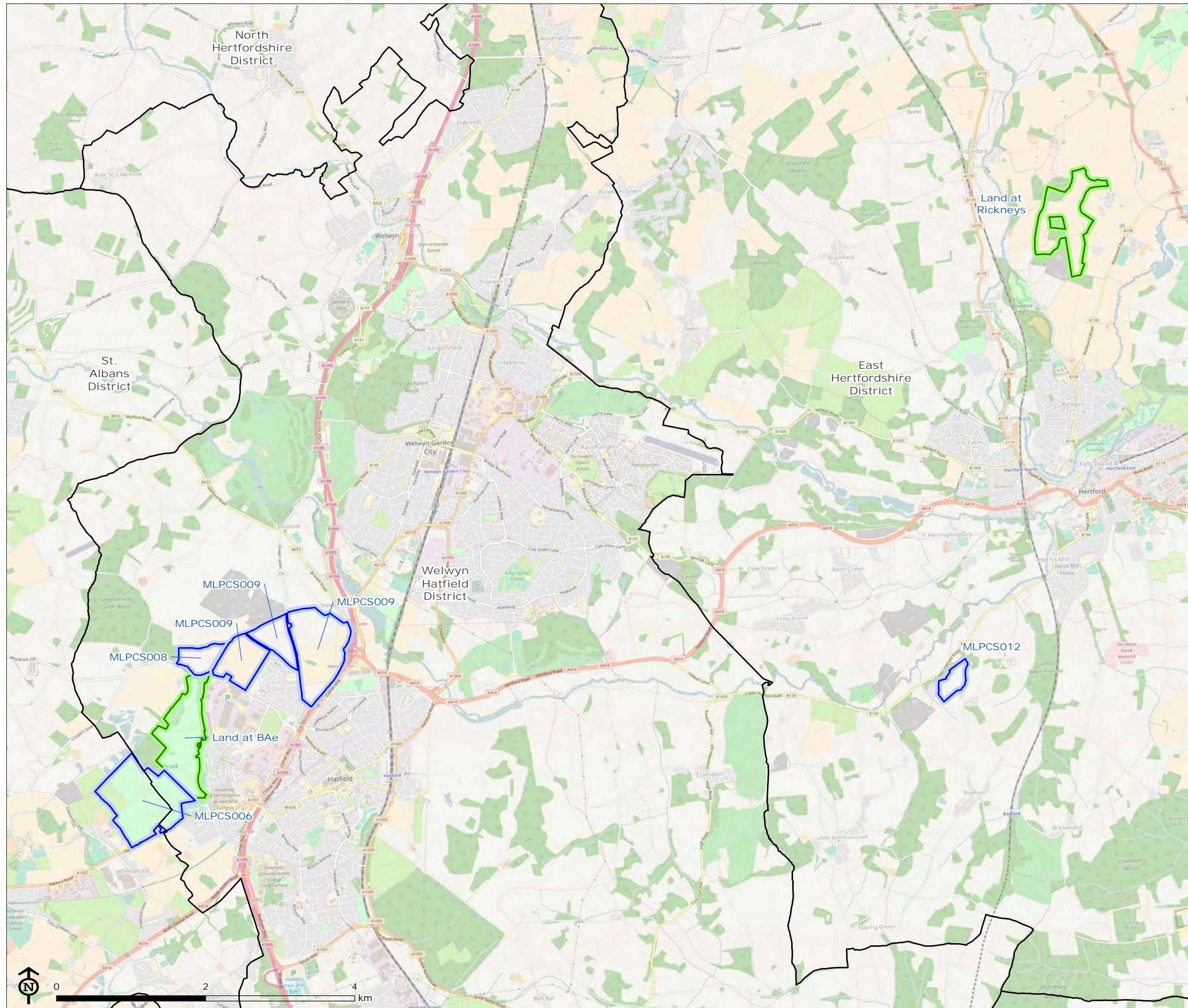


Map Scale @ A3: 1:110,000



Figure 8.3: Grouped Option 2





-  Hertfordshire County boundary
-  District boundary
-  Promoted site
-  Preferred Area

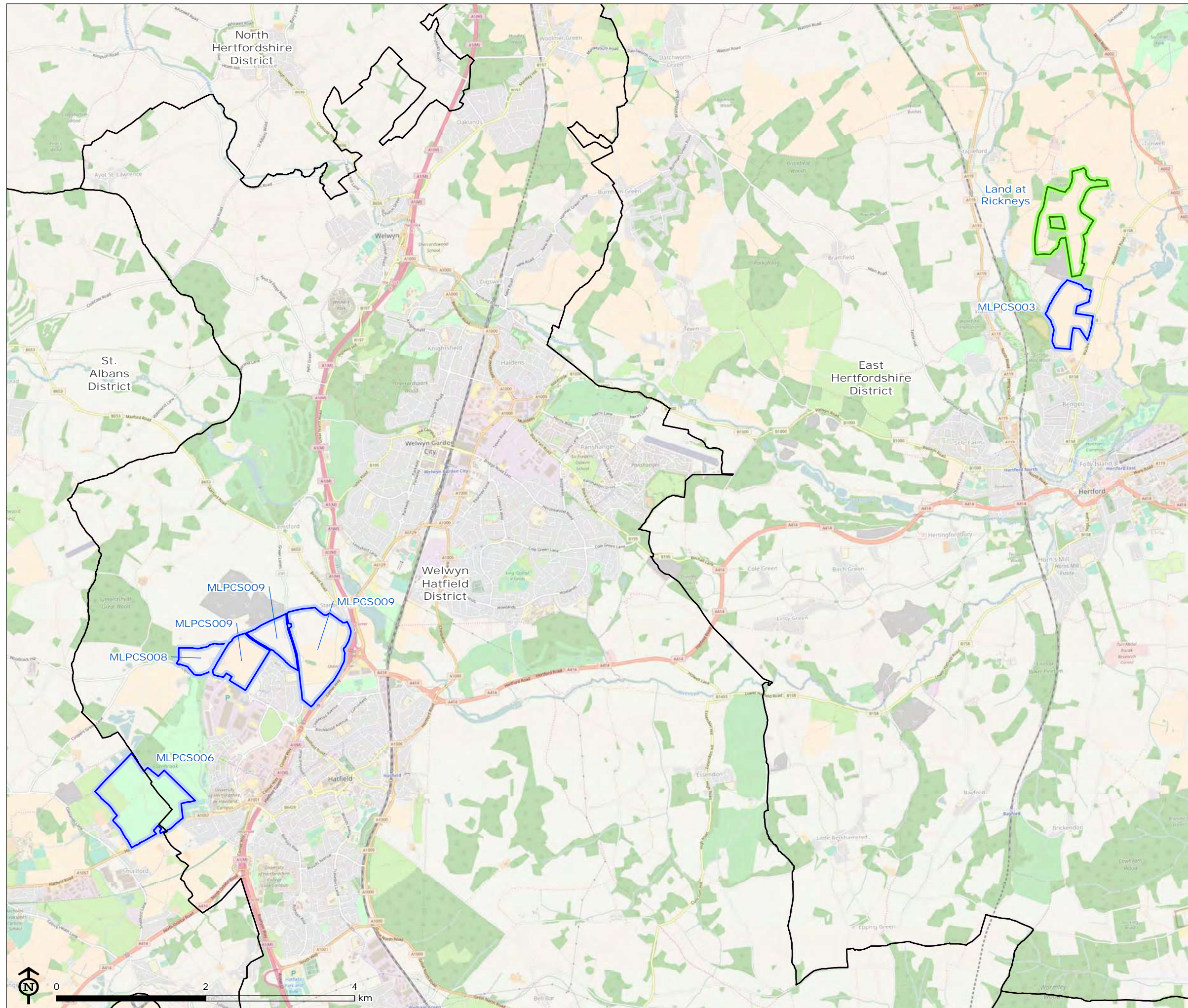


Map Scale @ A3: 1:50,000



Figure 8.4: Grouped Option 3





-  Hertfordshire County boundary
-  District boundary
-  Promoted site
-  Preferred Area

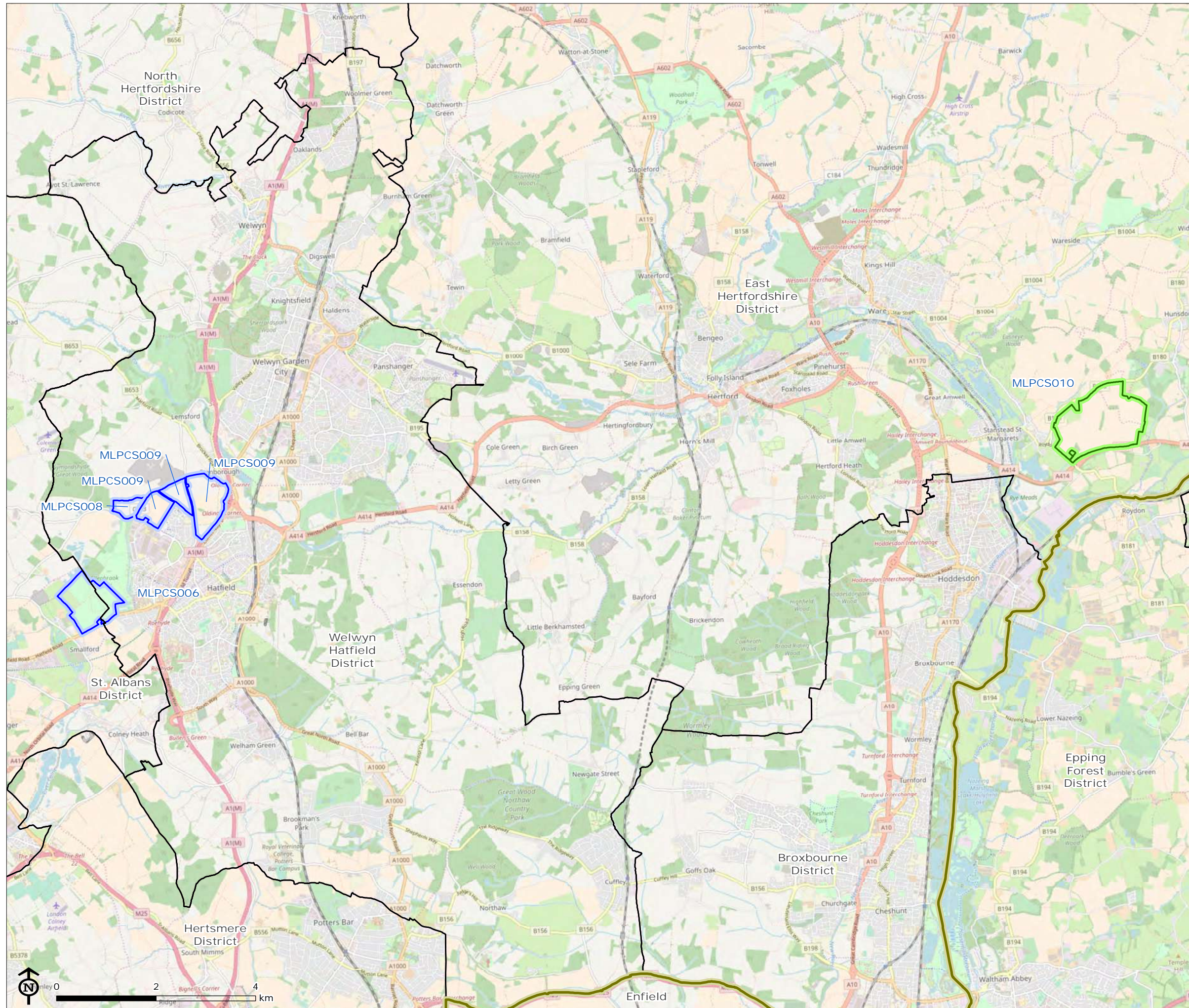


Map Scale @ A3: 1:50,000



Figure 8.5: Grouped Option 4
(MLP - Policy 4)

-  Hertfordshire County boundary
-  District boundary
-  Promoted site
-  Preferred area



Map Scale @ A3: 1:75,000



Environmental effects of grouped options

SA Objective 1: To protect, conserve and enhance natural habitats, species and geological features including those identified in s41 of the NERC Act 2006, consistent with the UK Post-2010 Biodiversity Framework, Biodiversity 2020 and the Local Nature Partnership aims.

1.1: To protect against the loss of priority habitats, biodiversity and species

- 8.50 All of the options could have a **significant negative effect** on this SA objective as all their constituent sites either contain or are within 250m of one or more national or local designated nature conservation sites, including SSSIs, SPAs and Local Wildlife Sites and therefore have the potential for adverse effects on biodiversity.
- 8.51 The potential for effects on biodiversity will depend on the exact nature and design of new sites, and many effects could be adequately mitigated through implementation of good operational practices, and requiring certain surveys or detailed assessments to be undertaken as part of the planning application process.
- 8.52 Site specific requirements for all allocated sites will need to be included either within policies in the MLP or within specific site development briefs.

1.2: To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site

- 8.53 All of the options could have a **minor positive, uncertain effect** on this SA objective as minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration which seeks to provide/ enhance biodiversity onsite and within the locality.
- 8.54 This effect is recorded as uncertain as the final restoration proposals of each site will not be known until the planning application stage.

1.3: To protect against the deposition of air and other pollutants on designated nature conservation sites

- 8.55 All options are assessed as having a **significant negative effect** on this SA objective. For all options, Heavy Duty Vehicles movements may travel along routes that pass within 200m of nature conservation designated sites. It is acknowledged that effects on European Sites generated by the sites allocated in Policy 4 of the MLP (which reflects the selected Grouped Option 4 see **Table 8.5**) have been subjected to Appropriate Assessment in the HRA Report and are considered to be negligible. However, other national and local nature designation have the potential to be affected. These effects are all acknowledged to be uncertain until the detailed routing and scale of extraction is defined.

1.4: To protect and enhance sites of geological conservation interest

- 8.56 All options are assessed as having a **negligible effect** on the protection and enhancement of geological conservation sites, as none of the constituent sites are located within 500m of a site designated for its geological interest.

SA Objective 2: To conserve and enhance the quality of the historic environment including landscape history, human history, archaeological history

2.1: To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting

- 8.57 All options have the potential to have a **significant negative effect** on this SA objective. This is because all options include sites or preferred areas that lie in close proximity to heritage assets, specifically listed buildings. Minerals development has potential to negatively affect the settings of these features.

- 8.58 All of these effects would be uncertain as the potential for effects on heritage will depend on the exact nature and design of new sites, and many effects could be adequately mitigated through implementation of good operational practices, additional landscape surveys or detailed landscape designs to be undertaken as part of the planning application process.

2.2: To conserve below ground archaeological assets

- 8.59 All of the options are assessed as having a **significant negative effect** on this SA objective because they all include areas of archaeological interest and non-designated assets.
- 8.60 All of these effects are uncertain as further assessment of the assets and their significance, as well as the magnitude of development impact would be required to properly understand the scale of effect and determine whether it may be appropriately mitigated.
- 8.61 It should be noted that the extraction of minerals offers the opportunity to help discover and conserve archaeological assets if found onsite (although this will not be *in situ*).

2.3: Seek to ensure the supply of locally distinctive building materials for historic building methods

- 8.62 All of the options are assessed as having a **negligible effect** on this SA objective as they are being promoted for sand and gravel extraction and would not contribute to the supply of locally distinctive building materials.

SA Objective 3: To conserve and enhance Hertfordshire's landscape assets such as landscapes of natural beauty and greenspaces

3.1: To conserve and enhance the character and quality of Hertfordshire's landscapes

- 8.63 All options could have a **minor negative effect** on this SA objective as their constituent sites are considered to have a 'moderate' or 'low-moderate' landscape sensitivity to mineral extraction as set out in the Hertfordshire MLP Landscape and Visual Sensitivity Study 2018.

SA Objective 4: To protect water resources, water quality and the function of the water environment from pollution and over abstraction

4.1: To protect the quality of ground and surface water

- 8.64 All options have the potential for **significant negative effects** on water quality because the majority of constituent sites contain, or are adjacent to, a water body. In addition, Preferred Area 2, which constitutes part of options 1, 2 and 3, includes areas of land within SPZ1 and SPZ2. Finally, sites MLPCS006, MLPCS008, MLPCS009 are located within a bromate plume. Site MLPCS003 is included in option 3 and also contains land within SPZ1 and SPZ2.
- 8.65 There are other regulatory regimes in place, such as the Environment Agency's Environmental Permitting regime, which require the minerals industry to obtain permits setting out thresholds for impacts on water supply and quality from minerals operations. Therefore, it is assumed that any minerals extraction operation that might occur in future on a site allocated in the MLP will be undertaken in line with the Environmental Permit, which should also help to minimise potential effects on water supply and quality.

4.2: To protect the quantity of ground and surface water from over abstraction

- 8.66 All of the options could have an **uncertain effect** on this SA objective as it will not be known until the planning application stage to what extent the proposed mineral activity will require the use of water resources.

SA Objective 5: To minimise the effects of climate change and reduce emissions of greenhouse gases

5.1: To reduce operational emissions through improved/enhanced technologies and sustainable transport

- 8.67 All of the options could have **minor positive effects** on this objective, as they are within close proximity to strategic development allocations in Local Plans and could potentially contribute to reducing transport distances of aggregates for construction.

5.2: To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site

- 8.68 All of the options could have a **mixed (minor positive uncertain and minor negative) effect** on this SA objective as all sites have the opportunity to use small-scale onsite renewable energy sources to power plant and machinery used in the extraction process and/or onsite infrastructure (e.g. buildings/offices). This is uncertain as this level of detail will not be known until the planning application stage.
- 8.69 All of the sites could also lead to the emission of carbon dioxide and other greenhouse gases from onsite plant, machinery and vehicles, although sand and gravel sites and the clay extraction site are likely to be less intensive than crushed rock sites, thus having more limited effects.

SA Objective 6: To avoid the risk of flooding, by directing development away from areas at highest risk and promote opportunities for implementing alleviation / mitigation during site restoration

6.1: To protect against the risk of flooding

- 8.70 All of the options are identified for sand and gravel extraction and could have a **negligible uncertain effect** on this SA objective because sand and gravel sites are considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere as they are classed as water-compatible development in the PPG. However, these effects are uncertain as it would not be known until a more detailed assessment (i.e. a site specific Flood Risk Assessment) has been undertaken once the specific proposals are known.

6.2: To provide opportunities for flood alleviation / mitigation during the restoration of the site

- 8.71 All options are likely to have a **negligible effect** on this SA objective as they generally do not contain land designated as flood zones 2, 3a or 3b, meaning that there is limited potential to reduce the risk of flooding. There is a small area of Flood Zone 2 within site MLPCS006, which is included in all options, but this is such a small proportion of land that this is considered to be negligible in relation to all options.

SA Objective 7: To protect and ensure the sustainable use of mineral resources

7.1: To encourage the use of recycled and secondary aggregates

- 8.72 All of the options could have a **minor negative uncertain effect** on this SA objective as they will contribute to the use of primary aggregates and not encourage the use of recycled and/or secondary aggregates.

Economic effects of grouped options

SA Objective 8: To maximise the potential economic benefits of mineral extraction for the economy in Hertfordshire

8.1: To provide opportunities for local people to access employment and skills both during and after extraction

- 8.73 All of the options could have a **minor positive effect** on this SA objective. The location of mineral sites is unlikely to directly affect local businesses in Hertfordshire, as it is unlikely that new sites will encourage further investment and growth in the industry. However, all of the sites could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed in the County will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.

8.2: To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs

- 8.74 All of the options could have a **significant positive effect** on this SA objective as they will contribute towards providing minerals to meet Hertfordshire's needs in full.

8.3: To ensure that mineral sterilisation is minimised

- 8.75 All of the options could have a **minor positive effect** on this SA objective as new potential mineral sites would not be inappropriate development as they are contributing to the extraction of mineral resources, not limiting the ability to extract resources. The allocation of sites for mineral extraction will provide a degree of protection to the resource from inappropriate non-mineral development until the resource has been fully worked.

8.4: Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality

- 8.76 All options are assessed as having a **significant negative effect** on this SA objective. This is because all options include MLPCS006 and MLPCS009, which are large sites that consist mostly of Grade 2 agricultural land, which could be temporarily lost to minerals extraction.

Social effects of grouped options

SA Objective 9: To protect and improve health and amenity for individuals and communities within Hertfordshire

9.1: To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport

- 8.77 All options could have **minor negative, uncertain effects** on SA Objective 9.1 as they are all within 100m of sensitive receptors, in particular residential properties and schools. Therefore, development at these sites has the potential to have a minor negative effect on the health and amenity of local residents and students, because all minerals development would result in some level of dust, noise, vibration and light pollution during site preparation, operation and restoration and associated with transport of minerals from the site.
- 8.78 However, the SA has assumed that mineral extraction at any of the potential sites will be well operated and that mitigation measures implemented as a result of the development management policies that are likely to be included in the Minerals Local Plan should be sufficient to avoid any potential long term effects on health and local amenity.

9.2: To protect against the loss of Public Rights of Way, access, recreation areas and open space

- 8.79 All options scored a **significant negative, uncertain effect** in relation to the protection against the loss of Public Rights of Way, access, recreation areas and open space. Most of the sites scoring a significant negative effect were due to the presence of Public Rights of Way (PRoW) or other recreational space on a number of constituent sites. Development could lead to loss of these recreational resources and/or adversely affect the amenity of users of these. Uncertainty arises from the fact that it is not possible to determine whether PRoW will be required to be diverted and/or any loss to be compensated, until the planning application stage.

9.3: To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site

- 8.80 Until the scale and quality of the restoration works are identified at the planning application stage all options are assessed as having **minor positive uncertain** effects with regards to SA objective 9.3. However, it is acknowledged that significant enhancements to existing public rights of way, open/green spaces or recreational facilities, could have significant positive effect on the amenity of users of users of the countryside in the County.
- 8.81 Options 3 and 4 were assessed as having **negligible uncertain effects** against this SA objective. This is because none of their constituent sites scored 'light green' or 'dark green' in the 'recreation' criterion of the MLP Site Assessment Study. As for options 1 and 2, the potential for enhancements to PRoW and other recreational resources remain uncertain.

9.4: To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes

- 8.82 The MLP Site Assessment Study identified sites MLPCS006 and MLPCS009 and Preferred Area 1 to be within the Luton Airport Safeguarding Zone. All options contain sites MLPCS006 and MLPCS009 and options 1 and 2 include Preferred Area 1, therefore all options were identified as having a **minor negative effect** on the potential to compromise the operation and safety of commercial/civil or military aerodromes. Restoring minerals sites to a water-based use could affect the safe operating of the airport, as this is likely to attract large numbers of birds and increase the risk of bird strike. However, this effect is uncertain as it is dependent on the type of restoration proposed and the eventual development of the sites.

Table 8.4: Summary of SA findings for the four grouped options

SA Objective	Site ID			
	Option 1	Option 2	Option 3	Option 4 (Policy 4: Working of Specific Sites)
Working of specific Sites)Environmental objectives				
1.1: Biodiversity (protection)	--?	--	--	--?
1.2: Biodiversity (enhancement)	+?	+?	+?	+?
1.3: Biodiversity (deposition of air and other pollutants)	--?	--?	--?	--?
1.4: Geology	0	0	0	0
2.1: Historic environment (above ground)	--?	--?	--?	--?
2.2: Historic environment (below ground)	--?	--?	--?	--?
2.3: Historic environment (locally distinctive building materials)	0	0	0	0
3.1: Landscape	-	-	-	-
4.1: Water quality	--?	--?	--?	--?
4.2: Water quantity (from over abstraction)	?	?	?	?
5.1: Sustainable transport and emissions	+?	+?	+?	+?
5.2: Climate change (energy efficiency and renewables)	+?/-	+?/-	+?/-	+?/-
6.1: Flooding (risk)	0?	0?	0?	0?
6.2: Flooding (prevention)	0	0	0	0
7.1: Recycling (recycled and secondary aggregates)	-?	-?	-?	-?
Economic objectives				
8.1: Local economy (employment)	+	+	+	+
8.2: Local Economy (supply of minerals)	++	++	++	++
8.3: Local Economy (mineral sterilisation)	+	+	+	+
8.4: Best and most versatile agricultural land	--	--	--	--
Social objectives				
9.1: Health, well-being and amenity of residents	-?	-?	-?	-?
9.2: Recreation (loss)	--?	--?	--?	--?
9.3: Recreation (provision)	+?	+?	+?	+?
9.4: Aerodrome safety	-?	-?	-?	-?

- 8.83 Following the appraisal of the four grouped options, grouped option 4 was selected for allocation in Policy 4: Working of Specific Sites in the plan. Policy 4 comprises three identified sites and one preferred area:
- MLPCS006: Hatfield Aerodrome
 - MLPCS008: Hatfield Quarry – Furze Field
 - MLPCS009: Hatfield Quarry – Land Adjoining Coopers Green Lane
 - Preferred area at site option MLPCS010: Briggens Estate – Olives Farm
- 8.84 Together the selected allocations could contribute 25.25 million tonnes of sand and gravel over the Plan Period.
- 8.85 **Table 8.5** explains the Council’s reasons for the allocation of the above sites both individually and as grouped option 4 in the plan and reasons for not selecting the reasonable alternatives identified.

Table 8.5: Reasons for selection or non-selection of site options and preferred areas

Potential Mineral Sites	Selected or not selected?	Hertfordshire Council's reasons for decision making
Individual site allocation options		
MLPCS001	Not selected	<p>Not included in any grouped options. This site has scored 'red' at Sieve 2 and therefore has not been included in the site options due to the lack of information to conclusively determine economic viability and deliverability.</p> <p>It is considered that development of the site could have a very high impact on heritage designations as the site is partly located within Brocket Hall Registered Park and Garden.</p> <p>In addition, the site could have a high impact on ancient woodland as the site is adjacent to two areas of ancient woodland; recreation as the site contains a PRoW and is adjacent to a number of additional PRoWs and the Brocket Park Golf Course; sensitive land uses as the site is immediately adjacent to a number of residential properties; and sustainable transport as the site is not located within close proximity to the rail network or a navigable waterway.</p> <p>The site is considered to have an overall moderate-high landscape and visual sensitivity to mineral extraction.</p> <p>The site is considered to raise significant concerns which are likely to attract highway objections.</p>
MLPCS002	Not selected	<p>Not included in any grouped options. It is considered that this site could have a high impact on the ecological status of water bodies as the site contains a water body; recreation as the site contains a PRoW and is immediately adjacent to a number of additional PRoWs and the Watford Football Club Training Ground; sensitive land uses as a number of residential properties are located adjacent to the site; and sustainable transport as the site is not located within close proximity to the rail network or a navigable waterway.</p> <p>HCC Highways has raised significant concerns which are likely to attract a highway objection which is the main reason this site has not been taken forward in the site options.</p>
MLPCS003	Not selected	<p>Included in grouped option 3 only. This site was not taken forward to option 4 due to the recent determination of the planning application with it not being considered acceptable in planning terms. A subsequent resubmission of the planning application has also been refused.</p>

Potential Mineral Sites	Selected or not selected?	Hertfordshire Council's reasons for decision making
MLPCS004	Not selected	Included in grouped option 1 only. It was granted permission on appeal on 18 January 2017 and therefore is included as permitted reserves and does not feature as a site in any further options.
MLPCS005	Not selected	<p>Not included in any grouped options. This site was withdrawn by the promoter and therefore has not been recommended as a potential site for inclusion in the plan for deliverability reasons.</p> <p>This site has scored 'red' at Sieve 2.</p> <p>It is considered that this site could have a high impact on the ancient woodland as the site is adjacent to one area of ancient woodland; recreation as the site contains a PRow and is adjacent to a number of additional PRows; sustainable transport as the site is not located within close proximity to the rail network or a navigable waterway; and sustainable transport and pollution to the environment as the site is not within close proximity to the strategic road network.</p> <p>The site is considered to have an overall moderate-high landscape and visual sensitivity to mineral extraction.</p> <p>The site is considered to raise significant concerns which are likely to attract highway objections.</p>
MLPCS006	Selected	<p>Included in all four grouped options. One of the sites based on LUC's recommendations from the Site Selection Report (March 2017) and does not score 'red' at Sieve 2 due to the lack of information to conclusively determine their economic viability and deliverability.</p> <p>The site has a committee resolution to grant planning permission subject to a Section 106 legal agreement. It is included in the options due to there being no certainty at this stage that the site will be worked under this permission.</p> <p>It allows for necessary tonnage to meet the plan requirement, flexibility in regards to timing of sites coming forward and identification of specific sites, preferred areas and/or areas of search in line with national policy.</p>
MLPCS007	Not selected	Not included in any grouped options. This site has scored 'red' at Sieve 2 and therefore has not been included in the site options due to the lack of information to conclusively determine economic viability and deliverability.

Potential Mineral Sites	Selected or not selected?	Hertfordshire Council's reasons for decision making
		<p>It is considered that this site could have a high impact on ancient woodland as the site is adjacent to an area of ancient woodland; the ecological status of water bodies as the site contains a watercourse; groundwater as part of the site is within Source Protection Zone 1; recreation as the site contains a PRow and is adjacent to a number of additional PRows; sensitive land uses as the site is adjacent to a number of residential properties; and sustainable transport as the site is not located within close proximity to the rail network or a navigable waterway.</p> <p>The site was also considered to have an overall moderate-high landscape and visual sensitivity to mineral extraction.</p>

Potential Mineral Sites	Selected or not selected?	Hertfordshire Council's reasons for decision making
MLPCS008	Selected	<p>Included in all four grouped options. One of the sites based on LUC's recommendations from the Site Selection Report (March 2017) and does not score 'red' at Sieve 2 due to the lack of information to conclusively determine their economic viability and deliverability.</p> <p>It allows for necessary tonnage to meet the plan requirement, flexibility in regards to timing of sites coming forward and identification of specific sites, preferred areas and/or areas of search in line with national policy.</p>
MLPCS009	Selected	<p>Included in all four grouped options. One of the sites based on LUC's recommendations from the Site Selection Report (March 2017) and does not score 'red' at Sieve 2 due to the lack of information to conclusively determine their economic viability and deliverability.</p> <p>It allows for necessary tonnage to meet the plan requirement, flexibility in regards to timing of sites coming forward and identification of specific sites, preferred areas and/or areas of search in line with national policy.</p> <p>There is an outstanding query on the quantity of minerals at this site and a revised figure has not been clarified, and therefore the figure remains at 6.6mt.</p>
MLPCS010	Selected	<p>Chosen to be included as a preferred area in grouped option 4 to make up the plan provision shortfall from specific sites. Briggens Estate – Olives Farm has been included as preferred area as opposed to a specific site against the definition in the NPPG and based upon some high scorings for Sieve 3 and current highways assessment. It could be considered that as this is a large area, opportunities exist for smaller areas to come forward which may overcome some of the issues raised.</p>
MLPCS011	Not selected	<p>Not included in any grouped options. This site has scored 'red' at Sieve 2 and therefore has not been included in the site options due to the lack of information to conclusively determine economic viability and deliverability.</p> <p>It is considered that this site could have a high impact on the ecological status of water bodies as the site contains one watercourse and is adjacent to another watercourse; recreation as the site is adjacent to a PRoW and within close proximity of three additional PRoW; sustainable transport as the site is not located within close proximity of the rail network or a navigable waterway; and sustainable transport and pollution to the environment as the site is not located</p>

Potential Mineral Sites	Selected or not selected?	Hertfordshire Council's reasons for decision making
		within close proximity of the strategic road network.
MLPCS012	Not selected	<p>Included in grouped options 1 & 2.</p> <p>Removed from option 3 due to uncertainty with a current enforcement case on Bunkers Hill Quarry and therefore uncertainty with deliverability for this site. Bunkers Hill is due to be restored by December 2017. This may restrict the use of an internal haul road leading to the processing plant which was suggested by the site promoter as the method for transporting minerals for processing. In addition, the existing plant is due to be removed by December 2019. A previous planning application on this site was refused by the county council and subject to appeal. The appeal was dismissed on grounds which include cumulative impact, noise and impacts of dust on sensitive land uses.</p>
MLPCS013	Not selected	Not included in any grouped options. This site has been put forward as a brick clay site and is not required to be identified as a specific site or preferred area for the extraction of brick clay.
MLPCS014	Not selected	<p>Not included in any grouped options. This site has scored 'red' at Sieve 2 and therefore has not been included in the site options due to the lack of information to conclusively determine economic viability and deliverability.</p> <p>It is considered that this site could have a high impact on ancient woodland as the site is adjacent to one area of ancient woodland; recreation as the site is adjacent to one PRoW; sensitive land uses as the site is adjacent to a number of residential properties; sustainable transport as the site is not located within close proximity of the rail network or a navigable waterway; and sustainable transport and pollution to the environment as the site is not located within close proximity to the strategic road network.</p>
MLPCS015	Not selected	<p>Not included in any grouped options. This site has scored 'red' at Sieve 2 and therefore has not been included in the site options due to the lack of information to conclusively determine economic viability and deliverability.</p> <p>In addition this site scored 'very high' for two criteria ancient woodland, as the site contains three areas and is adjacent to three additional areas of ancient woodland; and for international and national ecological designations as the site is adjacent to Plashes Wood SSSI (Site of Special Scientific Interest) in Sieve 3.</p>

Potential Mineral Sites	Selected or not selected?	Hertfordshire Council's reasons for decision making
		<p>The site is also considered likely to have a 'high' impact on recreation as the site contains three PRow; sensitive land uses as the site is adjacent to Plashes Farm; sustainable transport as the site is not located within close proximity of the rail network or a navigable waterway; and sustainable transport and pollution to the environment as the site is not located within close proximity to the strategic road network.</p> <p>The site is considered to have an overall moderate-high landscape and visual sensitivity to mineral extraction.</p>

Potential Mineral Sites	Selected or not selected?	Hertfordshire Council's reasons for decision making
MLPCS016	Not selected	<p>Not included in any grouped options. This site has scored 'red' at Sieve 2 and therefore has not been included in the site options due to the lack of information to conclusively determine economic viability and deliverability.</p> <p>It is considered that this site could have a high impact on the ecological status of water bodies as the site</p> <p>contains one watercourse which also runs down its eastern boundary; recreation as the site contains two PRoW and is within close proximity of an additional PRoW; sensitive land uses as the site is adjacent to residential properties; sustainable transport as the site is not located within close proximity to the rail network or a navigable waterway; and sustainable transport and pollution to the environment as the site is not located within close proximity of the strategic road network.</p>
MLPCS017	Not selected	<p>Included in grouped option 1. Not included in other options as a result of uncertainty regarding suitability, by scoring 'red' in Sieve 2 assessment due to a lack of information to conclusively determine their economic viability, landownership and deliverability.</p>
MLPCS018	Not selected	<p>Included in grouped option 1. Not included in other options as a result of uncertainty regarding suitability, by scoring 'red' in Sieve 2 assessment due to a lack of information to conclusively determine their economic viability, landownership and deliverability.</p>
MLPCS019	Not selected	<p>Not included in any grouped options. This site has scored 'red' at Sieve 2 and therefore has not been included in the site options due to the lack of information to conclusively determine economic viability and deliverability.</p> <p>It is considered that this site could have a high impact on the ecological status of water bodies as the site contains two watercourses and is adjacent to two additional watercourses; sensitive land uses as the site is adjacent to a number of residential properties; sustainable transport as the site is not located within close proximity to the rail network or a navigable waterway; and sustainable transport and pollution to the environment as the site is not located within close proximity to the strategic road network.</p>

Potential Mineral Sites	Selected or not selected?	Hertfordshire Council's reasons for decision making
		The site is considered to have an overall moderate landscape and visual sensitivity to mineral extraction.
MLPCS020	Not selected	Not included in any grouped options. This site has been put forward as a brick clay site and is not required to be identified as a specific site or preferred area for the extraction of brick clay.
MLPCS021	Not selected	<p>Not included in any grouped options. There are concerns about the deliverability of this site during the Plan period.</p> <p>It is considered that this site could have a high impact on ancient woodland as the site is adjacent to one area of ancient woodland and may have very high impacts on heritage assets and their setting.</p> <p>There are also some highways concerns that would need further information to fully assess the issues. The information currently suggests an access which would be hazardous.</p>
MLPCS022	Not selected	<p>Not included in any grouped options. There are concerns about the deliverability of this site during the Plan period.</p> <p>It is considered that this site could have a high impact on heritage assets and their setting. The site could also cause moderately high impacts relating to landscape and visual impact.</p> <p>There are also some highways concerns that would need further information to fully assess the issues. The information currently suggests an access which would be hazardous.</p>
MLPCS023	Not selected	<p>Not included in any grouped options. The site has scored 'red' at Sieve 2 and has therefore not been included in the site options due to the lack of information to conclusively determine economic viability and deliverability.</p> <p>It is considered that this site could have a high impact on ground water vulnerability and there are some highways concerns, including the suitability for HGVs on local roads. There has been limited information submitted regarding the potential workable reserve and no confirmation of a</p>

Potential Mineral Sites	Selected or not selected?	Hertfordshire Council's reasons for decision making
		mineral operator.
MLPCS001RS	Not selected	<p>Not included in any grouped options. The site scored a significant amount of 'red' scores in the Sieve 3, Highways and Landscape assessments. This included a 'very high' score for the impact on heritage designations within close proximity to the site.</p> <p>It is considered that development of the site could have a very high impact on heritage designations as the site is partly located within Brocket Hall Registered Park and Garden.</p> <p>In addition, the site could have a high impact on ancient woodland as the site is adjacent to two areas of ancient woodland; recreation as the site contains a PRow and is adjacent to a number of additional PRows and the Brocket Park Golf Course; sensitive land uses as the site is immediately adjacent to a number of residential properties; and sustainable transport as the site is not located within close proximity to the rail network or a navigable waterway.</p> <p>The site is considered to have an overall moderate-high landscape and visual sensitivity to mineral extraction.</p> <p>The site is considered to raise significant concerns which are likely to attract highway objections.</p>
Preferred Area 1	Not selected	<p>Included in grouped options 1 & 2. The remaining part (northern) adopted Preferred Area 1, Land at BAe (Land close to the existing Hatfield Quarry) has been removed from option 3 due to uncertainty with deliverability in regards to the bromate plume. This uncertainty has been confirmed by correspondence with the Environment Agency. In addition the borehole data shows a considerable level of overburden. Both of these were taken into consideration by the operator (Brett Aggregates) on promotion of the application at Hatfield Aerodrome, which was recently approved by the county council.</p>
Preferred Area 2	Not selected	<p>Included in grouped options 1, 2 & 3. The remaining part of the Preferred Area 2 Rickneys has been removed from option 4 to provide an alternative scenario from the preferred areas in the adopted Minerals Local Plan. Under the adopted Minerals Local Plan, it states that the working of the site would be considered as an extension to existing Rickneys Quarry. Circumstances have changed over time and the existing site at Rickneys Quarry has been mothballed with no plant and machinery remaining on site. The operator of Rickneys Quarry made representations at Draft Plan stage in support of this sites inclusion, however, the recent refusals, negative scores</p>

Potential Mineral Sites	Selected or not selected?	Hertfordshire Council's reasons for decision making
		and the long term absence of plant and machinery to work the area as an extension to the existing quarry still pose deliverability questions.
Preferred Area 3	Not selected	Not included in any grouped options. Preferred Area 3 comprises land to the south-east of the existing Tyttenhanger Quarry, almost all of which has now been worked and therefore will not be considered as a preferred area in the emerging Minerals Local Plan.
Grouped site options		
Option 1	Not selected	<p>This option is based on LUC recommendations from the Site Selection Report (March 2017).</p> <p>Pynesfield was granted permission on appeal 18 January 2017 and therefore in further options has been included as Permitted Reserves.</p> <p>There is an outstanding query on the quantity of minerals for MLPCS009, however a revised figure has not been clarified, and therefore the figure remains at 6.6mt.</p> <p>Estimated figures have been included for the remainder of the adopted preferred areas (Land at BAe/Land close to existing Hatfield Quarry (remaining northern section) and Land at Rickneys (existing northern part of preferred area 2)).</p>
Option 2	Not selected	<p>This option is refined from option 1, with the removal of MLP004 Pynesfield, MLP017 Robins Nest Hill and MLP018 Southfield Wood, all based on LUC recommendations from the site Selection Report (March 2017).</p> <p>Pynesfield was granted permission on appeal 18 January 2017 and therefore included as Permitted Reserves. It therefore does not feature as a site.</p> <p>Sites MLP017 (Robins Nest Hill) and 018 (Southfield Wood) have been removed in this and further options due to issues with economic viability and landownership constraints, scoring 'red' in Sieve 2.</p> <p>This and further options do not include sites which have scored 'red' at Sieve 2 due to the lack of information to conclusively determine their economic viability and deliverability.</p> <p>This option does include the remaining parts of those preferred areas 1 and 2 included in the</p>

Potential Mineral Sites	Selected or not selected?	Hertfordshire Council's reasons for decision making
		<p>adopted MLP as land which has not been subject to planning applications or put forward by industry in the call for sites.</p> <p>There is an outstanding query on the quantity of minerals for MLPCS009, however a revised figure has not been clarified, and therefore the figure remains at 6.6mt.</p>

Potential Mineral Sites	Selected or not selected?	Hertfordshire Council's reasons for decision making
Option 3	Not selected	<p>This option is based on option 2 with the removal of MLP012 Water Hall Quarry – Broad Green and Preferred Area 1 (northern) and the addition of MLP003 Land at Ware Park.</p> <p>Pynesfield was granted permission on appeal 18 January 2017 and therefore included as Permitted Reserves. It therefore does not feature as a site.</p> <p>MLP012 Broad Green has been removed from this option due to uncertainty with a current enforcement case on Bunkers Hill Quarry and therefore uncertainty with deliverability for this site. Bunkers Hill is due to be restored by December 2017. This may restrict the use of an internal haul road leading to the processing plant which was suggested by the site promoter as the method for transporting minerals for processing. In addition, the existing plant is due to be removed by December 2019. A previous planning application on this site was refused by the county council and subject to appeal. The appeal was dismissed on grounds which include cumulative impact, noise and impacts of dust on sensitive land uses.</p> <p>There is an outstanding query on the quantity of minerals for MLPCS009, however a revised figure has not been clarified, and therefore the figure remains at 6.6mt.</p> <p>The remaining part (northern) adopted Preferred Area 1 Land at BAe (Land close to the existing Hatfield Quarry) has been removed from this option due to uncertainty on deliverability in regards to the bromate plume. This uncertainty has been confirmed by correspondence with the Environment Agency. In addition the borehole data shows a considerable level of overburden. Both of these were taken into consideration by the operator (Brett Aggregates) on promotion of the application at Hatfield Aerodrome, which was recently approved by the county council.</p> <p>This option does not include sites which have scored 'red' at Sieve 2 due to the lack of information to conclusively determine their economic viability and deliverability.</p> <p>In the LUC ranking list, Salisbury Hall features as the next site to score 'Green' at Sieve 2 in the ranking. However highways comments for this site state that 'significant concerns have been identified for this site which are likely to attract highway objections', therefore this site has not been included in the option. As a result, Land at Ware Park is the next site in the ranking table (excluding sites which score 'Red' in Sieve 2) and has been included in this option.</p>

Potential Mineral Sites	Selected or not selected?	Hertfordshire Council's reasons for decision making
Option 4	Selected	<p>Based on option 3, however MLP003 Land at Ware Park has not been included in this option due to the recent determination of the planning application with it not being considered acceptable in planning terms. A subsequent resubmission of the planning application has also been refused.</p> <p>The remaining part of the Preferred Area 2 Rickneys has also been removed from this option to provide an alternative scenario from the preferred areas in the adopted Minerals Local Plan. Under the adopted Minerals Local Plan, it states that the working of the site would be considered as an extension to existing Rickneys Quarry. Circumstances have changed over time and the existing site at Rickneys Quarry has been mothballed with no plant and machinery remaining on site. This area was not put forward by the landowner(s) or industry in the most recent call for sites and therefore this may question its deliverability. This site was not put forward during the call for sites, however the operator of Rickneys has since submitted representations in support of the sites inclusion. The negative scores, long term absence of plant and machinery and recent planning decisions raise questions about the sites deliverability.</p> <p>This option does not include sites which have scored 'red' at Sieve 2 due to the lack of information to conclusively determine their economic viability and deliverability.</p> <p>The Briggens Estate – Olives Farm has been included as a new Preferred Area to make up the plan provision shortfall from specific sites. Briggens Estate – Olives Farm has been included as preferred area as opposed to a specific site against the definition in the NPPG and based upon some high scorings for Sieve 3 and current highways assessment. It could be considered that as this is a large area, opportunities exist for smaller areas to come forward which may overcome some of the issues raised.</p> <p>There is an outstanding query on the quantity of minerals for MLPCS009, however a revised figure has not been clarified, and therefore the figure remains at 6.6mt.</p>

9 Cumulative Effects, Recommendations, Mitigation and Monitoring

- 9.1 **Tables 7.1, 7.2 and 7.3** present a summary of the scores for all the policies set out in the Proposed Submission MLP. This enabled an assessment to be made of the likely duration of effects and the likely significant effects of the Proposed Submission MLP as a whole, i.e. an assessment of the secondary, cumulative and synergistic effects as required by the SEA Regulations. In addition, consideration has been given to the cumulative effects of the Proposed Submission MLP in-combination with other significant plans, policies and programmes planned within the County.
- 9.2 Policy 13: Cumulative Impact prohibits unacceptable adverse cumulative impacts on the environment and the health and amenity of the local community as a result of in-combination effects generated by individual proposals and effects generated by multiple proposals developments, including non-mineral development, occurring concurrently or successively.

Duration of Effects

- 9.3 The Proposed Submission MLP sets out how the future mineral industry in Hertfordshire should develop and operate over the Plan period. Effects may be experienced in the short-term (defined for this SA as over the next five years), medium-term (defined as over the next 10 years), or long-term effects (defined as over the whole plan period). Given the generic nature of the policies in the Proposed Submission MLP, it is difficult to be precise about when, where and in what form the effects will arise, and how one effect might relate to another. However, it is possible to draw some broad conclusions about the nature and interrelationship of the effects that the SA has identified:
- Most of the effects will be long-term, in that the Proposed Submission MLP aims to provide minerals facilities that will last over time. There will be some temporary and short or medium term effects during site preparation, construction or operation of facilities (see below).
 - The effects which have been identified in the appraisal of the Proposed Submission MLP, both positive and negative, are likely to increase over time, as the policies in the plan are implemented, and more mineral developments are delivered in Hertfordshire, although some operations may be completed as new sites are developed so some effects may balance out.

Short-term effects of the Proposed Submission MLP

- 9.4 The impacts of the Proposed Submission MLP in the short-term are mostly related to the initial impacts of commencing minerals extraction. These will include the removal of vegetation, soil, and provision of infrastructure required. Such works could have negative impacts on biodiversity, health and wellbeing, amenity of local communities (possible disruption to rights of way, traffic flows, noise generation, vibration, dust etc.), soil quality, and the landscape. However, these impacts are temporary in nature and some may be minimised through good design, adherence to the policies in the Proposed Submission MLP or reversed through restoration measures in the medium to long-term.

Medium-term effects of the Proposed Submission MLP

- 9.5 Medium-term positive impacts relate to the employment and economic benefits of the minerals sites. Negative impacts in the medium-term include the implications of operational minerals extraction sites on health and wellbeing, and the amenity of local communities (e.g. noise, dust, odour, increased traffic etc.), and on landscape quality. However, these impacts should be

avoided or mitigated through good practices by the minerals operators, and adherence to the policies in the Proposed Submission MLP when planning proposals are assessed and determined by Hertfordshire County Council.

Long-term effects of the Proposed Submission MLP

- 9.6 Long-term, permanent benefits that would result from the Proposed Submission MLP include the provision of sufficient mineral development to meet Hertfordshire's needs, potential flood alleviation, habitat creation and biodiversity enhancement, recreation enhancement opportunities through the restoration of former mineral sites, or the incorporation and preservation of important geological features within mineral sites. Long-term, permanent negative impacts of the Proposed Submission MLP are potentially: loss of habitats, areas of Best & Most Versatile Agricultural Land; climate change implications of the energy required to operate facilities and vehicle movements to and from mineral and waste sites; and, the disturbance and/or removal of archaeological remains. However, there may also be some long-term, permanent positive impacts for biodiversity and landscape through the creation of new habitats, and enhancement of landscape through well designed and implemented restoration of former mineral sites; and long term, permanent positive impacts for the historic environment as sites may benefit our understanding of the local archaeology which is found during minerals operations, and aggregates and building stone, for example, could also make a positive contribution towards local vernacular. Further long-term positive impacts may also include reduced consumption of resources and improvements, in terms of air quality and greenhouse gases, through general increases in aggregate recycling rates and the co-location mineral extraction and strategic development.

Secondary, Cumulative and Synergistic Effects

- 9.7 Secondary (or indirect) effects are effects that are not a direct result of a policy or site allocation, but occur away from the original effect or as a result of a complex pathway. Cumulative effects occur where two or more insignificant impacts combine to form a significant impact. Synergistic effects occur as the result of interactions between individual effects producing a total effect greater than the sum of each of the individual effects. Secondary, cumulative or synergistic effects may be either positive or negative.
- 9.8 The secondary, cumulative and synergistic effects of the policies and site allocations in the Proposed Submission MLP are summarised in the following paragraphs by SA objective.

SA Objective 1: To protect, conserve and enhance natural habitats, species and geological features including those identified in s41 of the NERC Act 2006, consistent with the UK Post-2010 Biodiversity Framework, Biodiversity 2020 and the Local Nature Partnership aims.

1.1: To protect against the loss of priority habitats, biodiversity and species

- 9.9 Strategic Policy 4 (Working of Specific Sites) in the MLP allocates three sites and one preferred area for sand and gravel extraction in locations in close proximity to sensitive to biodiversity designations giving rise to the potential for significant negative effects. Furthermore, strategic policies 3, 6, 7, 8, 10 and 11 record minor negative effects due to the potential for the operations they facilitate and promote having the potential to adversely affect the biodiversity of the county. However, Development Management policies 17 (Biodiversity) and 18 (Protection and Enhancement of Amenity) generate significant positive effects against this objective due to the requirements they put in place for mineral activities in the county. Combined with the minor positive effects recorded for other development management policies (notably 12, 14, 16, 19, 20, 21, 22, 23, 24 and 25), overall, the Proposed Submission MLP is likely to result in **mixed significant positive/minor negative** effects against this objective.

1.2: To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site

- 9.10 The vast majority of the strategic and development management policies set out in the Proposed Submission MLP acknowledge the opportunities that mineral extraction operations create for enhancing the green infrastructure of the county and generating positive effects on biodiversity in the county, most notably secondary positive effects generated following the restoration of mineral extraction sites. Strategic Policy 2: climate change and Development Management Policies 16: Landscape and Green Infrastructure and 17: Biodiversity record significant positive effects in acknowledgment of this. Therefore, overall the Proposed Submission MLP is considered to have the potential to generate **significant positive** effects on this objective.

1.3: To protect against the deposition of air and other pollutants on designated nature conservation sites

- 9.11 Strategic Policy 4 (Working of Specific Sites) in the Proposed Submission MLP allocates three sites and one preferred area for sand and gravel extraction in locations where Heavy Duty Vehicles movements may travel along routes that pass within 200m of nature conservation designated sites, giving rise to the potential for significant negative effects. It is acknowledged that effects on European Sites generated by the sites allocated in Policy 4 of the MLP have been subjected to Appropriate Assessment in the HRA Report and are considered to be negligible. However, other national and local nature designation have the potential to be affected. These effects are all acknowledged to be uncertain until the detailed routing and scale of extraction is defined. Development Management policies 17 (Biodiversity), 18 (Protection and Enhancement of Amenity) and 20 (Strategic Transport) generate significant positive effects against this objective due to the requirements they put in place to minimise road transportation in favour of more sustainable modes and mitigate the effects of mineral operations on local wildlife and the natural environment. Combined with the minor positive effects recorded for other development management policies (notably 19, 20 and 21), overall, the Proposed Submission MLP is likely to result in **mixed minor positive/minor negative** effects against this objective.

1.4: To protect and enhance sites of geological conservation interest

- 9.12 Although mineral activities have the potential to generate negative effects on designated geological assets in the county, none of the constituent sites identified in the Proposed Submission MLP are located within 500m of a site designated for its geological interest. Furthermore, several strategic and development management policies contain measures that will contribute to the protection of such assets where required. Consequently, overall, the Proposed Submission MLP is considered to have a **minor positive** effect on this objective. Furthermore, secondary positive effects may be experienced at mineral sites as extraction may expose more geological features making them visible and available for learning opportunities.

SA Objective 2: To conserve and enhance the quality of the historic environment including landscape history, human history, archaeological history

2.1: To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting

- 9.13 Strategic Policy 4 (Working of Specific Sites) in the Proposed Submission MLP allocates three sites and one preferred area for sand and gravel extraction in locations in close proximity to sensitive historic assets giving rise to the potential for significant negative effects. Furthermore, strategic policies 3, 6, 7, 8, 10 and 11 record minor negative effects due to the potential for the operations they facilitate and promote having the potential to adversely affect the built historic environment of the county. However, Development Management policies 15 (Historic Environment) and 18 (Protection and Enhancement of Amenity) generate significant positive effects against this objective due to the requirements they put in place for mineral activities in the county. Combined with the minor positive effects recorded for other development management policies (notably 12, 13, 16, 17, 20, 21 and 25), overall, the Proposed Submission MLP is likely to result in **mixed significant positive/minor negative** effects against this objective.

2.2: To conserve below ground archaeological assets

- 9.14 Strategic Policy 4 (Working of Specific Sites) in the Proposed Submission MLP may lead to significant negative effects with regards to this objective as sites MLPCS009 and Preferred Area: 010 Briggens Estate – Olives Farm both contain areas of archaeological interest and the HER has records of non-designated assets within each. The features found within each site are highly susceptible to physical change which could result in a significant negative effect. Further assessment of the assets and their significance, as well as the scale of development impact would be required to properly understand the scale of effect and determine whether it may be appropriately mitigated. Strategic policies 3, 6, 7, 8, 10 and 11 record minor negative effects due to the potential for the operations they facilitate and promote having the potential to adversely affect the archaeology of the county. However, Development Management Policy 15 (Historic Environment) generates a significant positive effect against this objective due to the requirements it puts on mineral activities in the county. Combined with the minor positive effects recorded for other development management policies (notably 13 and 18), overall, the Proposed Submission MLP is likely to result in **mixed minor positive/minor negative** effects against this objective.

2.3: Seek to ensure the supply of locally distinctive building materials for historic building methods

- 9.15 The Proposed Submission MLP acknowledges the value of locally distinctive building materials and promotes their recycling, extraction and safeguarding through strategic policies 5 (Secondary and Recycled Aggregates), 6 (Brick clay) and 8 (Mineral Safeguarding) respectively. Hertfordshire Brick Clay is considered to be a locally distinctive mineral used in the production of local bricks. However, the Proposed Submission minerals local plan does not allocate any new brick clay mineral extraction sites. Consequently, overall, the Proposed Submission MLP is considered to have a **minor positive** effect on this objective.

SA Objective 3: To conserve and enhance Hertfordshire's landscape assets such as landscapes of natural beauty and greenspaces

3.1: To conserve and enhance the character and quality of Hertfordshire's landscapes

- 9.16 Strategic Policy 4 (Working of Specific Sites) in the Proposed Submission MLP allocates three sites and one preferred area for sand and gravel extraction in locations considered to have low to moderate landscape sensitivity giving rise to the potential for minor negative effects. Furthermore, Strategic Policies 3, 6, 7, 8, 10 and 11 record minor negative effects due to the potential for the operations they facilitate and promote having the potential to adversely affect the local landscape. However, Development Management policies 12 (Green Belt), 15 (Historic Environment), 16 (Landscape and Green Infrastructure and 18 (Protection and Enhancement of Amenity) generate significant positive effects against this objective due to the requirements they put in place for mineral activities in the county. Combined with the minor positive effects recorded for other development management policies (notably 13, 14, 17, 20, 21, 22, 23, 24 and 25), overall, the Proposed Submission MLP is likely to result in **mixed significant positive/minor negative** effects against this objective.

SA Objective 4: To protect water resources, water quality and the function of the water environment from pollution and over abstraction

4.1: To protect the quality of ground and surface water

- 9.17 Strategic Policy 4 (Working of Specific Sites) in the Proposed Submission MLP allocates three sites and one preferred area for sand and gravel extraction in locations that contain, or are adjacent to, a water body, giving rise to the potential for significant negative effects. Furthermore, Strategic Policies 3, 6, 7, 8, 10 and 11 record minor negative effects due to the potential for the operations they facilitate and promote having the potential to adversely affect local water quality. However, Strategic Policy 2 (Climate Change) and Development Management Policy 14 (Water Management) generate significant positive effects against this objective due to the requirements they put in place for mineral activities in the county. Combined with the minor positive effects

recorded for other development management policies (notably 13, 17, 18 and 19), overall, the Proposed Submission MLP is likely to result in **mixed minor positive/minor negative** effects against this objective.

4.2: To protect the quantity of ground and surface water from over abstraction

- 9.18 It is unknown to what extent the new mineral extraction sites allocated within Strategic Policy 4 (Working of Specific Sites), or indeed the general mineral operations the Proposed Submission MLP promotes and facilitates in other strategic policies, will require the use of water resources. While some water will be required, Strategic Policy 2 (Climate Change) records a significant positive effect against this objective and Development Management Policies 13 (Cumulative Effects) and 18 (Protection and Enhancement of Amenity) minor positive effects. Overall, the Proposed Submission MLP is likely to result in **minor positive** effects against this objective.

SA Objective 5: To minimise the effects of climate change and reduce emissions of greenhouse gases

5.1: To reduce operational emissions through improved/enhanced technologies and sustainable transport

- 9.19 Strategic Policy 4 (Working of Specific Sites) in the Proposed Submission MLP allocates three sites and one preferred area for sand and gravel extraction in locations in close proximity to centres of growth, increasing the supply of minerals close to centres of need and reducing the carbon footprint from source to use. However, it is acknowledged that the general mineral operations the Proposed Submission MLP promotes and facilitates in the strategic policies will generate greenhouse gas emissions. For this reason minor negative effects are recorded for strategic policies 3, 4, 5, 6, 7, 8, 10 and 11. However, the same strategic policies acknowledge the potential for minor positive effects associated with the capacity of mineral operations to utilise sustainable means of transportation. For the same reason, Strategic Policies 2 (Climate Change) and 9 (Railheads and Wharves) and Development Management Policy 20 (Strategic Transport) generate significant positive effects against this objective. Overall, a **minor positive** effect is recorded against this objective.
- 9.20 Furthermore, depending on the type of restoration proposed for sites, there may be secondary impacts from an increase in visitor numbers to an area which is likely to increase traffic volumes and transport emissions. Potential positive synergistic impacts may be experienced from the co-locating of mineral sites and minerals sites and strategic site allocations, which presents an opportunity to use the same transportation and equipment for processing of aggregate.

5.2: To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site

- 9.21 It is unknown to what extent the new mineral extraction sites allocated within Strategic Policy 4 (Working of Specific Sites), or indeed the general mineral operations the Proposed Submission MLP promotes and facilitates in other strategic policies, will have on the opportunity to use renewable energy sources to power plant and machinery used in the extraction process and/or onsite infrastructure (e.g. buildings/offices). The potential is acknowledged with a minor positive effect. Strategic Policy 2 (Climate Change) records a significant positive effect against this objective due to the role it plays in promoting this potential. However, it is known that such operations will generate greenhouse gas emissions with some minor negative effects. Overall, a **mixed minor positive/minor negative** effect is recorded.

SA Objective 6: To avoid the risk of flooding, by directing development away from areas at highest risk and promote opportunities for implementing alleviation / mitigation during site restoration

6.1: To protect against the risk of flooding

- 9.22 None of the allocations named within Strategic Policy 4 (Working of Specific Sites) are at risk from flooding. Similarly, other mineral operations promoted and facilitated by the Proposed Submission plan are likely to increase flood risk. However, Strategic Policy 2 (Climate Change)

and Development Management Policy 14 (Water Management) acknowledge the potential for such operations to help reduce flood risk with significant positive effects on this objective. Consequently, overall, a **significant positive** effect is recorded against this objective.

6.2: To provide opportunities for flood alleviation / mitigation during the restoration of the site

- 9.23 None of the allocations named within Strategic Policy 4 (Working of Specific Sites) are at risk from flooding and therefore have limited potential to help alleviate flooding through flood alleviation works in flood prone areas. However, Strategic Policy 2 (Climate Change) and Development Management Policy 14 (Water Management) acknowledge the potential for such operations to help reduce flood risk with significant positive effects on this objective. Consequently, overall, a **significant positive** effect is recorded against this objective.

SA Objective 7: To protect and ensure the sustainable use of mineral resources

7.1: To encourage the use of recycled and secondary aggregates

- 9.24 The Proposed Submission MLP allocates three new sites and one preferred area for sand and gravel extraction in Strategic Policy 4 (Working of Specific Sites) and promotes the continued use of existing mineral extraction sites in the county in Strategic Policies 3, 6, 7, 8, 10 and 11. Consequently, by contributing to the use of primary aggregates minor negative effects are likely to be generated by the plan. However, Strategic Policies 2 (Climate Change) and 5 (Secondary and Recycled Aggregates) actively encourage recycling and the use of secondary aggregates with significant positive secondary effects against this objective. Overall, a **mixed minor positive/minor negative** effect is recorded.

SA Objective 8: To maximise the potential economic benefits of mineral extraction for the economy in Hertfordshire

8.1: To provide opportunities for local people to access employment and skills both during and after extraction

- 9.25 Encouraging investment in the minerals industry has the potential to have a secondary impact on rates of deprivation through economic growth and job creation. Furthermore, the restoration of former mineral sites as required by NPPF (2018) would have secondary positive impacts on investment in the county and consequently employment opportunities in Hertfordshire.
- 9.26 The Proposed Submission MLP actively promotes and facilitates the sustainable future of the mineral extraction industry in Hertfordshire, through maintenance and safeguarding of existing mineral operations in strategic policies 3-11, the allocation of three new sand and gravel extraction sites and the allocation of a preferred area for further extraction if necessary in Strategic Policy 4 (Working of Specific Sites) and the safeguarding of other industries such as agriculture in Development Management Policy 23 (Agricultural Land) and tourism in Policy 24 (Restoration). Overall, the Proposed Submission MLP is likely to generate **minor positive** effects on this SA objective.

8.2: To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs

- 9.27 The Proposed Submission MLP actively promotes and facilitates the sustainable future of the mineral extraction industry in Hertfordshire, through maintenance and safeguarding of existing mineral operations in strategic policies 3-6, 8 and 9-11 and the allocation of three new sand and gravel extraction sites and the allocation of a preferred area for further extraction if necessary in Strategic Policy 4 (Working of Specific Sites). Significant positive effects are recorded for strategic policies 3, 4 and 6. Overall a **significant positive** effect is recorded against this objective.

8.3: To ensure that mineral sterilisation is minimised

- 9.28 The Proposed Submission MLP actively safeguards the county's mineral reserves and promotes and facilitates its extraction through strategic policies 3, 4, 6, 7, 8, 10 and 11. Strategic Policy 8 (Mineral Safeguarding) has a significant positive effect on this objective, with the other strategic policies generating minor positive effects. Overall a **significant positive** effect is recorded against this objective.

8.4: Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality

- 9.29 Strategic Policy 4 (Working of Specific Sites) in the Proposed Submission MLP allocates three sites and one preferred area for sand and gravel extraction on land designated as Grade 2 and 3 agricultural land. Mineral extraction in these locations will result in the loss of some of the county's best and most versatile agricultural land with significant negative effects on this objective. Furthermore, strategic policies 3, 5, 6, 7, 8, 10 and 11 record minor negative effects due to the potential for the operations they facilitate and promote having the potential to result in further loss. However, Development Management Policies 13 (Cumulative Impact), 18 (Protection and Enhancement of Amenity), 23 (Agricultural Land) and 24 (restoration) all generating positive effects against this objective, including a significant positive effect for Policy 23. Overall, the Proposed Submission MLP is likely to result in **mixed significant negative/minor positive** effects against this objective.

SA Objective 9: To protect and improve health and amenity for individuals and communities within Hertfordshire

9.1: To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport

- 9.30 Strategic Policy 4 (Working of Specific Sites) in the Proposed Submission MLP allocates three sites and one preferred area for sand and gravel extraction on land within 100m of sensitive receptors, in particular residential properties and schools. Mineral extraction in close proximity to such sensitive receptors has the potential to generate negative effects on their amenity and health. Furthermore, Strategic Policies 3, 5, 6, 7, 8, 10 and 11 record minor negative effects due to the potential for the operations they facilitate and promote having the potential to result in similar adverse effects on the local population. However, all but two of the development management policies generate positive effects on this objective through requirements to mitigate adverse health effects and in the long term enhance amenity. Significant positive effects are recorded for Strategic Policies 14 (Water Management), 18 (Protection and Enhancement of Amenity) and 19 (Health and Well Being).
- 9.31 The SA has assumed that all mineral extraction will be well operated and that mitigation measures implemented should be sufficient to avoid any potential long term effects on health and local amenity. Overall, a **mixed minor positive/minor negative** effect is recorded.

9.2: To protect against the loss of Public Rights of Way, access, recreation areas and open space

- 9.32 Strategic Policy 4 (Working of Specific Sites) in the Proposed Submission MLP allocates three sites and one preferred area for sand and gravel extraction on land which contains Public Rights of Way and/or other open spaces which would be lost in the short term until such time as they could be appropriately relocated in close proximity. Consequently, a significant negative effect is recorded for Policy 4. Furthermore, Strategic Policies 3, 5, 6, 7, 8, 10 and 11 record minor negative effects due to the operations they facilitate and promote having the potential to result in similar adverse effects on existing recreational assets. However, Development Management Policies 12, 13, 16, 17, 18, 19, 22, 24 and 25 generate positive effects on this objective through requirements to protect such assets. Indeed, Development Management Policies 19 (Health and Well Being) and 22 (Public Rights of Way) generate significant positive effects. Overall, a **mixed minor positive/minor negative** effect is recorded; however, it is acknowledged that the restoration of minerals sites offers-up an opportunity to generate significant positive effects on the provision and enhancement of open/green spaces and recreational facilities.

9.3: To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site

- 9.33 The vast majority of the strategic and development management policies set out in the Proposed Submission MLP acknowledge the opportunities that mineral extraction operations create for enhancing the green infrastructure and recreation provision in the county. Development Management Policies 16 (Landscape and Green Infrastructure), 19 (Health and Well Being) and

22 (Public Rights of Way) record significant positive effects in acknowledgment of this. Therefore, overall the Proposed Submission MLP is considered to have the potential to generate **significant positive** effects on this objective.

9.4: To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes

9.34 Strategic Policy 4 (Working of Specific Sites) in the Proposed Submission MLP allocates three sites on land within the Luton Airport Safeguarding Zone which could have a secondary minor negative effect on the safe operation of the airport, particularly if the restoration of the sites involved water-based uses with the potential to attract large numbers of birds. Furthermore, Strategic Policies 3, 6, 7, 10 and 11 record minor negative effects due to the potential for the operations they facilitate and promote having the potential to result in similar adverse effects on airports. However, the significance and nature of these secondary impacts will be dependent on the type of restoration proposed and eventually developed on the sites. Furthermore, development Management Policies 13 (Cumulative Effects), 17 (Biodiversity) and 19 (Health and Well Being) generate minor positive effects. Overall, a **negligible** effect is recorded against this objective.

Potential cumulative effects with other plans, policies and programmes

9.35 The County of Hertfordshire is made-up of 10 Districts and Boroughs each of which plan for their respective housing and employment needs through their own Local Plans.

9.36 **Table 9.1** draws on the latest Local Plans of the 10 local planning authorities to summarise planned housing and employment growth within the County over the next 10 to 15 years.

Table 9.1: Planned growth in Hertfordshire's Boroughs and Districts

Borough / District	Plan Period	Housing Growth	Employment Growth
Broxbourne	2016-2031	8,096 Homes	Roughly 6,500 Jobs
Dacorum	2006-2031	10,750 Homes	10,000 Jobs
East Hertfordshire	2011-2033	18,913 Homes	10,800 Jobs
Hertsmere	2012-2027	3,990 Homes	3,600 Jobs
North Hertfordshire	2011-2031	15,950 Homes	Roughly 25ha
St Albans	2020-2036	14,608 Homes	Roughly 55ha; 10,000 Jobs
Stevenage	2011-2031	7,600 Homes	Roughly 14.5ha
Three Rivers	2017-2032	Up to 9,255 Homes	Roughly 9ha
Watford	2006-2031	6,500 Homes	7,000 Jobs
Welwyn Hatfield	2013-2032	12,000 Homes	16-18,000 Jobs

9.37 Relative to the scale of waste, housing and employment growth across the County, the planned mineral operations within the Proposed Submission MLP are not likely to significantly affect the significance or distribution of environmental, social and economic effects across the County as a whole.

9.38 Furthermore, the geographical spread of minerals, waste and transport operations within Hertfordshire and the neighbouring counties of Bedfordshire, Buckinghamshire, Cambridgeshire, Essex and the northern and western Boroughs of Greater London are considered to be disparate enough not to generate perceptibly significant environmental, social and economic effects in the south east.

9.39 **Appendix 2** contains greater detail on the contents of plans, policies and programmes with the potential to generate for in-combination effects with the Proposed Submission MLP.

Recommendations

9.40 The starting point for production of new policies and the revision of existing policies within a new Hertfordshire MLP was the County's adopted waste and mineral Local Plans which themselves had

been subject to SA. The SA process has run concurrently alongside the preparation of the Proposed Submission MLP appraising reasonable policy and site options from the preparation of the Initial Consultation Document, Draft MLP and Proposed Submission MLP. This process has highlighted the potential for policy options to generate significant effects and in addition, where appropriate, has made recommendations on how policies could be improved, i.e. enhance positive effects and mitigate negative effects. The significant effects and recommendations highlighted in **bold** in the main body of the SA Report have helped to work up the policies within the Plan to accord with the Plan and SA objectives and shape the planning issues to consider for specific sites and preferred area. Appropriate references have been made in **Chapter 7** to where recommendations made in relation to the SA of the Draft MLP resulted in changes to the Proposed Submission MLP. For example, during the SA of Draft Policy 13: Cumulative Impact in the Draft MLP in 2017, the SA Report recommended that a bullet point be added under the 'Natural Environment' heading in the supporting text to include biodiversity and flood risk protection and alleviation. Policy 13 in the subsequent Proposed Submission MLP was then revised accordingly.

- 9.41 The effects identified in the SA of site options were used to inform site selection as part of the County's Site Selection Methodology.
- 9.42 The recommendations as specified in this report in regards to the Proposed Submission Plan consultation document will be considered further alongside other consultation responses in preparation for the submission and subsequent examination of the Hertfordshire Minerals Local Plan.

Mitigation

- 9.43 It is a requirement of the SEA Regulations that consideration is given to "the measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme". For many of the potential negative effects identified for specific policies in the Proposed Submission MLP, mitigation will be provided through the implementation of other policies in the Proposed Submission MLP as explored in the cumulative effects section above.
- 9.44 Considering the Proposed Submission MLP as a whole, the only SA objective against which significant residual adverse effects are likely is SA Objective 8.4: Protect the County's best and most versatile agricultural land. This is due to Strategic Policy 4 (Working of Specific Sites) which allocates three sites and one preferred area for sand and gravel extraction on Grade 2 and 3 agricultural land which is considered to be some of the Country's the best and most versatile agricultural land. However, the vast majority (over 90%) of Hertfordshire's undeveloped/greenfield land is designated as Grade 2 and Grade 3 agricultural land offering little prospect of lower quality agricultural land being found to have mineral of sufficient quality and quantity to be considered as reasonable and sustainable alternatives. Furthermore, a proportion of the agricultural land lost during extraction will be restored as part of the restoration of each site.

Monitoring

- 9.45 The SEA Regulations require that "*The responsible authority shall monitor the significant environmental effects of the implementation of each plan or programme with the purpose of identifying unforeseen adverse effects at an early stage and being able to undertake appropriate remedial action*" (Regulation 17), and that the environmental report should provide information on "*a description of the measures envisaged concerning monitoring*" (Schedule 2).

- 9.46 The Government's latest SA Guidance in the National Planning Practice Guidance²⁴ states that details of the proposals for monitoring the significant effects of implementing the adopted local plan should be included in the Sustainability Appraisal report, or the post-adoption statement.
- 9.47 The Planning Advisory Service guidance on SA states that it is not necessary to monitor everything and monitoring should be focused on the significant sustainability effects, including significant effects where there is uncertainty and where monitoring would enable preventative or mitigation measures to be taken. It could therefore be argued that monitoring measures are not required for SA sub-objective 9.4: Aerodrome Safety. However, in order to address the requirement in SEA Regulation 17 noted above to *'identify unforeseen adverse effects at an early stage and be able to undertake appropriate remedial action'*, it is considered more precautionary for the Council to monitor all the potential sustainability effects. Therefore, monitoring indicators are suggested for all of the SA Objectives.
- 9.48 **Table 9.2** sets out a number of suggested indicators for monitoring the potential effects of implementing the MLP. In order to make best use of existing monitoring arrangements, a number of indicators have been drawn from the MLP itself. A number of the indicators proposed are included as suggestions from the SA team where no relevant indicator has already been included in the MLP; therefore the indicators included in **Table 9.2** may change at subsequent stages of the MLP preparation as the monitoring framework is finalised.
- 9.49 It should be noted that the site allocations set out within Policy 4 (Working of Specific Sites) are located on greenfield land registered as some of the County's best and most versatile agricultural land. Development in these locations will result in the loss of this land, which cannot be mitigated. Therefore, in terms of meeting the SEA Regulations, the Council may only be required to monitor specifically how much greenfield land and of what grade of agricultural land is lost due to implementation of the MLP policies.
- 9.50 To achieve efficiencies, and ensure environmental effects of implementing the MLP policies are monitored, SA monitoring should be conducted as part of the overall approach to monitoring achievement of the MLP objectives.
- 9.51 The data used for monitoring in many cases will be provided by outside bodies. Information collected by other organisations (e.g. the Environment Agency) can also be used as a source of indicators. It is therefore recommended that the Council continues the dialogue with statutory environmental consultees and other stakeholders that has already been commenced, and works with them to agree the relevant sustainability effects to be monitored and to obtain information that is appropriate, up to date and reliable.

²⁴ <http://planningguidance.planningportal.gov.uk/blog/guidance/strategic-environmental-assessment-and-sustainability-appraisal/sustainability-appraisal-requirements-for-local-plans/>

Table 9.2 Framework for monitoring significant sustainability effects arising from implementation of the Proposed Submission MLP

Headline SA Objectives	Suggested indicators (those taken from the Proposed Submission MLP shown in <i>italics</i>)
Environmental SA Objectives	
<p>1. To protect, conserve and enhance natural habitats, species and geological features including those requiring conservation action under the UK Biodiversity Action Plan (UK BAP) and Biodiversity 2020.</p>	<ul style="list-style-type: none"> • Number and % of mineral applications refused on biodiversity and geodiversity grounds. • Number and % of mineral applications with associated mitigation measures provided. • <i>Used and unused MLP policies against determined planning applications.</i>
<p>2. To conserve and enhance the quality of the historic environment including landscape history, human history, archaeological history.</p>	<ul style="list-style-type: none"> • Number and % of mineral applications refused on historic grounds. • Number and % of all permitted minerals applications that included conditions related to archaeology. • Number and % of Listed Buildings and Scheduled Ancient Monuments on Buildings at Risk Register (Historic England). • <i>Used and unused MLP policies against determined planning applications.</i>
<p>3. To conserve and enhance Hertfordshire's landscape assets such as landscapes of natural beauty and greenspaces.</p>	<ul style="list-style-type: none"> • Number and % of mineral applications refused in AONB. • Number and % of applications for minerals facilities permitted per annum within protected landscapes. • Number of applications refused on landscape sensitivity/character grounds per annum. • <i>Used and unused MLP policies against determined planning applications.</i>
<p>4. To protect water resources, water quality and the function of the water environment from pollution and over abstraction.</p>	<ul style="list-style-type: none"> • The number and % of minerals applications refused on water quality/safeguarding grounds. • The number and % of minerals approvals that included conditions concerning water pollution control. • <i>Used and unused MLP policies against determined planning applications.</i>
<p>5. To minimise the effects of climate change and reduce emissions of greenhouse gases.</p>	<ul style="list-style-type: none"> • The number and % of applications refused on transport grounds. • The number and % of minerals permissions that included non-road based transport. • The number and % of applications permitted that include low carbon energy initiatives/sources. • The number and % of minerals approvals that included conditions concerning air pollution control. • The number and % of minerals permissions that included one or more of the following highway conditions: restricted vehicle numbers; restricted tonnages; restricted routeings; and highway mitigation measures – the need for wheel washing, lorry sheeting etc. • <i>Used and unused MLP policies against determined planning applications.</i>
<p>6. To avoid the risk of flooding, by directing development away from areas at highest risk and promote opportunities for implementing alleviation / mitigation during site restoration.</p>	<ul style="list-style-type: none"> • The number and % of applications refused on flooding grounds. • The number and % of approvals that included conditions to mitigate flood risk. • The number and % of applications refused/permitted in flood risk zones 2b and 3. • <i>Used and unused MLP policies against determined planning applications.</i>
<p>7. To protect and ensure the sustainable</p>	<ul style="list-style-type: none"> • The number and % of approvals on existing mineral sites or preferred areas identified within the

Headline SA Objectives	Suggested indicators (those taken from the Proposed Submission MLP shown in <i>italics</i>)
<p>use of mineral resources.</p>	<p>Minerals Plan.</p> <ul style="list-style-type: none"> • <i>Location of approved extraction sites.</i> • <i>Amount of permitted sand and gravel reserves.</i> • <i>Number of planning applications responded to which fall with the identified Minerals Safeguarding Areas.</i> • Number and % of approvals per annum where the use of recycled and secondary aggregate has been considered as part of the proposal. • The number and % of approvals for non-minerals development permitted upon preferred areas. • The number and % of approvals for non-minerals development permitted within Mineral Safeguarding Areas, which required a minerals consultation. • Rates of recycling of inert waste (capacity, tonnes per annum, and % of total arisings). • <i>Number of planning applications determined using Policies 8, 9, 10 and 11. Number of planning applications responded to which fall within the Mineral Infrastructure Consultation Areas.</i>
<p>Economic SA objectives</p>	
<p>To maximise the potential economic benefits of mineral extraction for the economy in Hertfordshire.</p>	<ul style="list-style-type: none"> • Total annual production of primary aggregates in the county (tonnes per annum). • Permitted reserves of minerals by aggregate type. • The number and % of minerals consumed locally, exported and imported per year by aggregate type. • Number of new minerals developments permitted per annum. 'New' in this context only relates to brand new facilities and does not include extended, expanded or revised minerals operations. • Employment in the Minerals sector in Hertfordshire. • The number and % of applications refused (on all grounds).
<p>Social SA Objectives</p>	
<p>To protect and improve health and amenity for individuals and communities within Hertfordshire.</p>	<ul style="list-style-type: none"> • The number and % of approvals that were for operational 'improvements' to existing sites to mitigate adverse effects on public health and/or enhance local amenity. • The number and % of applications refused where concerns over public health acted as part of the reason for refusal. • The number and % of approvals that included conditions concerning noise, hours of operations, traffic and lighting. • The number and % of applications refused on cumulative impact grounds. • The number and % of applications refused on more general health and amenity grounds. • <i>Used and unused MLP policies against determined planning applications.</i>

10 Conclusions

- 10.1 The policies and site allocations in the MLP have been subject to a detailed appraisal against the SA objectives which were developed at the scoping stage of the SA process.
- 10.2 The vision for the MLP is assessed as performing positively against most SA objectives, as this promotes a sustainable future for minerals extraction in Hertfordshire, which would contribute to environmental, economic and social prosperity. The objectives of the MLP are generally expected to have either positive or negligible sustainability effects, with the exception of MLP objective 6, climate change, for which effects are largely uncertain due to the high level wording of the objective.
- 10.3 The policies of the MLP are generally expected to result in a wide range of positive effects on the SA objectives, although significant negative and a number of minor negative effects have also been identified. In particular, a number of significant positive effects have been identified in relation to Strategic Policy 2: Climate Change, as this policy encourages minerals extraction proposals to maximise benefits from restoration, particularly in terms of environmental benefits. This policy contributes to ensuring that MLP objective 6 (climate change) is implemented in a sustainable way. Strategic Policy 1: Sustainable Development and Policy 5: Substitute or Secondary Materials performed positively against most SA objectives, whereas other policies had more mixed effects. Strategic Policy 3: Aggregate Supply, Policy 4: Working of Specific Sites, 6: Brick Clay and 8: Mineral Safeguarding are all expected to have significant positive effects on the local economy through the contribution they make to the safeguarding of a sustainable supply of minerals.
- 10.4 Only one Strategic Policy (Policy 4: Working of Specific Sites) is considered to have the potential for significant negative effects. Strategic Policy 4 is the only policy within the Proposed Submission MLP that allocates new sites for mineral extraction, specifically three sites and one preferred area for sand and gravel extraction. These sites have been identified for minerals development through a comprehensive site selection study undertaken by LUC and Cuesta Consulting Ltd. on behalf of Hertfordshire County Council. Through this study and the SA process the Council has sought to minimise the potential sustainability effects of minerals development in Hertfordshire.
- 10.5 The SA objectives against which significant negative effects are recorded are:
- 1.1: Biodiversity Protection – due to proximity to ecological designations;
 - 1.3: Biodiversity & Air Pollution – due proximity of strategic highway network to ecological designations vulnerable to poor air quality;
 - 2.1: Built Historic Environment – due to proximity to historic designations;
 - 2.2: Archaeology – due to proximity to areas of archaeological interest;
 - 4.1: Water Quality – due to the presence of water bodies in the site allocations;
 - 8.4: Agricultural Land – due to the new sites and preferred area being located on greenfield land designated as Grade 2 and 3 agricultural land; and,
 - 9.2: Recreation Loss – due to the presence of Public Rights of Way within or in close proximity to new sites.
- 10.6 There is one major area of uncertainty regarding the effects of Strategic Policy 4. The effects on water quantity are unlikely to be known until the planning application stage, when details of water requirements for abstraction sites will be clarified.
- 10.7 However, Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the rest of the Proposed

Submission MLP. The other policies in the Proposed Submission MLP mitigate all but one of the significant negative effects recorded against Policy 4 in relation to SA Objective 8.4 – Agricultural Land.

- 10.8 The significant negative effect recorded against SA Objective 8.4 cannot be reasonably mitigated due to the fact that the vast majority (over 90%) of Hertfordshire's undeveloped / greenfield land is designated as Grade 2 and Grade 3 agricultural land. Consequently, there is little prospect of lower quality agricultural land being found to have mineral of sufficient quality and quantity to be considered as reasonable and sustainable alternatives. It should also be noted that it is highly likely that a significant proportion of the agricultural land lost during extraction will be restored as part of the restoration of each site.
- 10.9 The development management policies of the MLP are generally assessed as having neutral or positive sustainability effects. In particular, almost all policies are likely to have positive effects with regards to SA objectives 1.1, 1.2, 3.1 and 9.1. Uncertain effects were recorded against objectives 2.1 and 2.2 (historic environment) for Policy 24: Restoration and 27: Aftercare and Afteruse, as these are largely dependent on how these are implemented, which cannot be known until the planning application stage. None of the development management policies are expected to result in significant negative effects.
- 10.10 In addition to the SA, work undertaken for the Habitats Regulations Assessment (HRA) is important for determining potential for significant effects. The HRA accompanying the Proposed Submission MLP considered the effects of the proposed MLP policies (including site allocations) on European biodiversity sites in and around Hertfordshire, alone and in combination with neighbouring authorities' Plans. It was possible to rule out recreation impacts in the initial screening, as the type of development proposed by the MLP will not result in significant increase in recreation. Effects on European sites caused by physical loss of habitat (on-site and off-site), noise, vibration and light pollution and changes to water quantity and quality were discounted in the Appropriate Assessment due to the mitigation set out in the policies within the MLP. Effects on European Sites caused by air pollution were also discounted in the Appropriate Assessment following consideration of the habitats within close proximity to the affected roads, mitigating factors and policies and the publication of a Memorandum of Understanding (MoU) related to 'Managing the impacts of growth within the West Essex/East Hertfordshire Housing Market Area on Epping Forest Special Area of Conservation.'

Next Steps

- 10.11 This SA Report will be available for consultation alongside the Proposed Submission Minerals Local Plan.
- 10.12 After the public consultation, comments received on the Proposed Submission MLP will be reviewed before submission of the Proposed Submission MLP to the Secretary of State for Examination. Necessary changes to the Proposed Submission MLP will be organised in a schedule of Minor and Main Modifications for consideration by an Independent Examiner. In addition, the Independent Examiner may be invited to make recommendations on any further Minor or Main Modifications if required. Depending on the scale of modifications proposed, an SA Addendum or updated SA Report will be prepared and made available alongside any consultation on Main Modifications if required.

LUC

December 2018

Appendix 1

Consultation record

A workshop for interested parties was held on 19th March 2015. The SA objectives were presented at this event, and feedback sought from a range of stakeholders who attended. **Table A1.1** presents stakeholder feedback on SA objectives from this event.

Table A1.2 presents the responses received in response to consultation on the SA Scoping Report.

Table A1.3 presents the issues and options presented in the Minerals Local Plan Initial Consultation Document and whether or not they have been subject to SA.

Table A1.4 presents the responses received in response to consultation on the SA Report which accompanied the Draft MLP.

Table A1.1: Stakeholder feedback from the Interested Parties Event

HEADLINE SA OBJECTIVES	Sub-objectives	
Environmental		
<p>1. To protect, conserve and enhance geological features, natural habitats and species including those requiring conservation action under the UK Biodiversity Action Plan (UK BAP).</p> <p>Comments:</p> <ul style="list-style-type: none"> • Check biodiversity 2020 as well as UK BAP • Put 'natural habitats' before 'geological features' (to maintain consistency in order. Geo-diversity is included last in 1.4) • Should the SA objectives mention something about working together with other organisations/authorities or should that be in MLP Objectives? • Add 'enhancing geodiversity' somewhere within these sub-objectives or create a new one? • Soil to be included • Potential conflict between sieving and objective 1. • Should we consider the green belt within this objective? 	1.1	<p>To protect against the loss of habitats (including woodland trees, grasslands and hedgerows) and species</p> <p><i>"To protect against the loss of priority habitats and biodiversity...."</i></p> <p>Comments:</p> <ul style="list-style-type: none"> • Discussion of including Chalk Rivers within this objective, as they are local specific to Hertfordshire. • Some different types of grasslands are protected. Why not state: "To protect against the loss of protected species and habitats?" • Remove list in brackets and leave as catch all reference to habitats and species. • To prevent/avoid the loss of habitats and species • Alternatively, could state that the sub-objective reads that there is a need to conserve and enhance habitats and species. • What kind of natural habitats – are these priority habitats as identified in the UK BAP? What are these for Hertfordshire? • Discussion was had around the need to conserve and enhance habitats and whether reference should be made to the 'key priority' habitats for Herts such as AONB. • Could enhancing through restoration be included – merging of 1.1 and 1.2? • Priority habitats...'
	1.2	<p>To provide opportunities for enhancing biodiversity and achieving net gains as part of the development or restoration of a site</p> <p><i>"To enhance biodiversity and achieve net gains as part of the development or restoration of a site".</i></p> <ul style="list-style-type: none"> • Development AND restoration • Should include reference to green infrastructure. • Net gains is really important to include in the objective

HEADLINE SA OBJECTIVES	Sub-objectives	
		<ul style="list-style-type: none"> • Include wording 'biodiversity-led restoration of best agricultural land.'
	1.3	<p>To protect against the deposition of air pollutants on sensitive designated nature conservation sites</p> <p><i>"to avoid the deposition of air pollutants on designated nature conservation sites"</i></p> <ul style="list-style-type: none"> • This is an EIA topic. Propose reword to have 'locational criteria,' for example "in close proximity to sensitive sites." Or other suggested wording includes "If there are sensitive features that require protection against impacts of pollution" or "guard against likely significant effects on sensitive sites ..." • It was discussed that all nature conservation sites that warrant designation are therefore sensitive • 'air and other pollutants' • What does air pollutants cover? • What about the inclusion of all other impacts (water environment, pathways etc.)
	1.4	<p>To protect against the loss of geo-diversity</p> <ul style="list-style-type: none"> • Suggest extend this Ob to include enhance/create/preserve/allow access to and interpretation of geo-diversity. • Suggested wording "to promote enhancement of the geo-diversity through minerals working and restoration" • Wording should be consistent with NPPF, improve "where possible" (check NPPF) • Suggested alternative wording: To conserve/preserve geo-diversity features • The definition of this term is sufficient to understand what is meant by it • Protect and enhance....
<p>2. To protect and where possible, enhance the quality of the historic environment</p> <p>Comments:</p> <ul style="list-style-type: none"> • Expand on what the historic environment is (landscape history, 	2.1	<p>To protect and enhance the County's cultural heritage, including heritage assets and their setting.</p> <p><i>"Protect enhance and promote..."</i></p> <ul style="list-style-type: none"> • Cultural heritage is a separate issue to the those above and should be a new sub-objective • Need to take into account Landscape Character Assessment

HEADLINE SA OBJECTIVES	Sub-objectives	
<p>human history, archaeological history). Ensure that all aspects of the historic environment are portrayed in the sub-objectives.</p> <ul style="list-style-type: none"> Remove "where possible" x3 Preserve or enhance wording relates to the wording within the Act. 	2.2	<p>To enable the conservation of archaeological assets</p> <p><i>"To ensure" / 'to conserve' instead of 'to enable the conservation of..."</i></p> <p><i>'To enable the conservation of heritage assets'</i></p> <ul style="list-style-type: none"> Suggested alternative wording: To conserve heritage and archaeological assets The group questioned whether heritage assets are the same as archaeological assets?
	2.3	<p>To help ensure the supply of local building materials</p> <p><i>"To help ensure the supply of local building materials for historic building"?</i></p> <p><i>"to seek to ensure the supply of local building material".</i></p> <p>Comments:</p> <ul style="list-style-type: none"> Unclear as to how the local building materials are linked to historic environment. Could be expanded to make clearer. S&G just makes concrete, not historical building materials. Will the MLP promote the use of appropriate building materials and, if not, is this relevant here? add reference to <u>distinctive</u> building materials, Hertfordshire vernacular It was considered that 'seek to ensure' was a bit more positive.
<p>3. To protect and enhance Hertfordshire's most valuable landscape assets such as landscapes of natural beauty and greenspaces.</p> <p><i>'To protect and enhance Hertfordshire's landscape'.</i></p> <p>Comments:</p> <ul style="list-style-type: none"> Recreation, urban spaces, parks? Ecological network mapping (which is available to HCC) could be used. Remove 'assets such as landscapes of 	3.1	<p>To protect and enhance the landscape, and to reflect and respect landscape character</p> <p><i>"to conserve and enhance the landscape features, and to reflect and respect landscape character".</i></p> <p>Comments:</p> <ul style="list-style-type: none"> Include recreation, urban space and parks. Change wording consistent with NPPF to conserve and enhance landscape character and quality. There needs to be more objectives under the main SA objective, suggestions: <p>3.1 To conserve and enhance the landscape features and reflect and respect landscape character</p>

HEADLINE SA OBJECTIVES	Sub-objectives	
<p>natural beauty and greenspaces’ ‘most valuable’ is very subjective from place to place. There has to be some judgement involved but think about the wording.</p> <ul style="list-style-type: none"> • Need reference to <u>character and quality</u> of Hertfordshire’s landscapes • Remove reference to natural beauty and greenspaces (all Landscapes Matter (NE)) Suggest “To conserve and enhance Hertfordshire’s most valuable landscapes.” • Perhaps use the word conserve instead of protect • Can examples be provided such AONB? • Remove greenspaces to clarify. <p>Comments:</p> <ul style="list-style-type: none"> • Scrap the ‘most valuable landscape’ because there is no one to identify what are the most valuable landscapes. • Again consider soils within this objective. 		<p>3.2 To conserve and enhance: (two elements reflecting different scales)</p> <ul style="list-style-type: none"> - the protection of designated sites (national level) and - locally recognised spaces - green spaces and landscape character areas <ul style="list-style-type: none"> • It maybe that these are better reflected under objective 1? • Short term quarry, but long term restoration opportunities. Add 3.2 to split these 2 areas. • ‘To conserve and enhance....’
<p>4. To protect and where possible, enhance water resources, water quality and the function of the water environment infrastructure.</p> <p><i>‘To protect and enhance water resources and</i></p>	<p>4.1</p>	<p>To protect the quality of ground and / or surface water</p> <p><i>“To protect the quality of ground and surface water”</i></p> <p><i>“To protect and enhance where possible the quality of the groundwater and surface water.”</i></p> <p><i>“To enhance the quality of ground and surface water to achieve the Water Directive Framework aims; or “To achieve the quality of ground and surface water in accordance with the Water</i></p>

HEADLINE SA OBJECTIVES	Sub-objectives	
<p><i>water quality</i></p> <p>Comment:</p> <ul style="list-style-type: none"> • Again mention chalk rivers here? Locally important. • Do not agree that you can enhance water resources? Agree that you can enhance water quality. Suggest rewording "Conserve water resources and where possible enhance water quality and the function of the water environment." • These objectives need to reflect efficient use of water resources and sustainable management of water to maintain a sufficient supply. • Issues of pathways for water and mixing 'quantity of water resources' – better wording • Should mention Chalk streams as they are specific to Hertfordshire. • Add water efficiency. 		<p><i>Framework Directive"</i></p> <p><i>"To protect and enhance quality of ground water and surface water"</i></p> <ul style="list-style-type: none"> • need to achieve a good quality/standard – there is no point protecting a bad standard
	4.2	<p>To protect the quantity of ground and / or surface water (including flows of water)</p> <p><i>"Protect the quantity and quality...."</i></p> <p><i>"To promote sustainable management of water resources, groundwater levels and surface water flows."</i></p> <p><i>"To enhance the quantity of ground and surface water (including flows of water)"; or</i></p> <p><i>"To achieve sufficient quantity of ground and surface water (including flows of water) to supply the environment"</i></p> <p><i>"To promote the sustainable management of groundwater levels and surface water flows".</i></p> <p>Comments:</p> <ul style="list-style-type: none"> • Look at catchment management plans. • Could be changed to <u>protect</u> the flows of ground and surface water. • It was considered that both the surface and ground water sources needed equal protection • The group questioned whether there is the need for an additional sub-objective to avoid over abstraction?
<p>5. To minimise the effects of climate change and reduce emissions of greenhouse gases</p> <p>Comment: <i>maybe make more positive and</i></p>	5.1	<p>To reduce transport emissions, through reducing transport distances, by supporting the location of mineral extraction sites in proximity to surrounding markets for minerals and to serve local needs</p>

HEADLINE SA OBJECTIVES	Sub-objectives	
<p>include the <i>promotion</i> of opportunities for lower emissions, such as cycle opportunities, or carbon offsets.</p> <p>No biodegradable land-fill to reduce production of CO2: check link to Waste Plans and greenhouse gasses when restoring sites?</p> <p>Energy Efficiency and renewables are two separate issues.</p>		<p><i>"To MINIMISE transport emissions..."</i></p> <p><i>"To reduce operational emissions through improved/enhanced technologies and reduce transport emissions where possible."</i></p> <p><i>"To reduce transport emissions, through reducing transport distances by limiting the movement of minerals"</i></p> <p>Comment:</p> <ul style="list-style-type: none"> • No evidence of road, rail or water at all. Should be addressed to show we have considered it. • Secondary aggregates sites want to be close to their source. • Add in mitigating against climate change in restoration (i.e. maybe flooding) • Should be reflected in the vision and objectives. • Concern that can only support location of minerals extraction sites 'where possible' and where demand exists • Transport not only aspect, plant results in operational emissions too and need to be included in this Ob. • The group considered it may be necessary to simplify the sub-objective • Add 'e.g.' after 'reduce transport emissions' and include sustainable transport.
	5.2	<p>To promote energy efficiency, i.e. by encouraging the use of <i>appropriate</i> renewable or lower carbon energy sources on site (e.g. small-scale wind turbines/solar panels)</p> <p>Comments:</p> <ul style="list-style-type: none"> • There is an issue with delivering the objective as it is up to the operator. • Encouraging the use and generation of? Possibly aspire to?
<p>6. To minimise the risk of flooding, in particular preventing inappropriate development in floodplains</p> <ul style="list-style-type: none"> • To minimise the risk of flooding 	6.1	<p>To protect against the risk of flooding</p> <p><i>"To avoid increasing risk of flooding."</i></p> <p>Comments:</p> <ul style="list-style-type: none"> • The risk to whom? Mineral site or local people? • protecting isn't the same as minimising (consistency of wording to 6)

HEADLINE SA OBJECTIVES	Sub-objectives	
<p>Comments:</p> <ul style="list-style-type: none"> Minimising isn't the same as protecting (consistency of wording to 6.1) Reduce wording to say "To minimise the risk of flooding." 		<ul style="list-style-type: none"> Not sure how groundwater flooding can be protected. To avoid increase in risk of flooding (check NPPF) and where possible employ measures to reduce the flood risk. The group thought that flooding from all sources would be covered by the term flooding
	6.2	<p>To provide opportunities for flood alleviation / mitigation</p> <p>Comments:</p> <ul style="list-style-type: none"> Unclear as to what the opportunities are for flood alleviation/mitigation? It was suggested this needs to be site specific but not sure how to achieve this. Perhaps give specific examples. Not mentioned in 6.0 Sequential approach?
<p>7. To protect and ensure the sustainable use of mineral resources</p> <p>Comments:</p> <ul style="list-style-type: none"> Consider clay? Refer to 'best and most versatile' 7.1 (Recycling) and 7.2 (Agricultural Land) are economic objectives, not environmental. An environmental recycling objective would be 'to minimise the use of land-won aggregates by encouraging the use of secondary and recycled aggregates instead'. 	7.1	<p>To encourage the use of recycled and secondary aggregates to reduce waste</p> <p><i>"To encourage the use of recycled and secondary aggregate to reduce <u>the need for primary aggregate extraction.</u>"</i></p> <p>Comments:</p> <ul style="list-style-type: none"> Not just reducing waste by using secondary and recycled aggregates – you are reducing the reliance on primary aggregate as well as reducing waste. Could go into economic? It was questioned whether there is the need to refer to the contribution this has in reducing waste And reduce primary land one minerals.
	7.2	<p>To protect the County's best and most versatile agricultural land</p> <p>Comments:</p> <ul style="list-style-type: none"> Because you frequently just stockpile and then re-use the topsoil, you don't normally lose

HEADLINE SA OBJECTIVES	Sub-objectives	
		<p>the mineral. Degrade perhaps, but not lose.</p> <ul style="list-style-type: none"> • This isn't really the sustainable use of minerals. Could be put under landscape or maybe even economic (sustainable farming) • Should go under landscape? • Should this be separate Ob? • The group questioned the need to include soils above and beyond the agricultural land • Not sure if the versatile agricultural land fits within this sub-objective.
Economic		
<p>8. To maximise the potential economic benefits of mineral extraction for the economy in Hertfordshire</p> <p>Comment:</p> <p>Have an extra sub-objective about not sterilising important land for non-mineral development</p> <p>Add in: added value of downstream activities e.g. not just extraction, but other associated activities (perhaps sub-objective).</p> <p>Suggest additional Ob that seeks to maintain the operation of <i>associated</i> industries.</p> <p>Questioning whether 8.3 and 8.4 are really economic objectives?</p> <p>Discussed the need to reduce operating costs of an extraction business to make it more efficient such as reducing costs associated</p>	8.1	<p>To provide opportunities for local people to access employment and skills</p> <p><i>"To provide opportunities for local people to access employment and skills both during and after extraction"</i></p>
	8.2	<p>To ensure an adequate and steady supply of minerals to meet society's needs</p> <ul style="list-style-type: none"> • Put 8.2 at top of the list • What is meant by 'society's needs' – is this local or national. The terms is not consistency with phrases used at other sessions (site selection methodology and vision and objectives) • Should we be meeting the 'county's obligations' rather than 'society's needs'? • Society's needs should link back to the terms used in the vision • Include wording 'primary and secondary minerals'
	8.3	<p>To ensure that mineral sterilisation is minimised/avoided</p> <p><i>"ensure that needless mineral sterilisation is minimised".</i></p> <ul style="list-style-type: none"> • emphasise that mineral is not needlessly sterilised. • Questioned whether 'unnecessarily sterilising' of minerals would be more appropriate • Also wondered if the term 'avoided' could replace 'minimised'
	8.4	<p>To ensure that mineral sites do not compromise the safety of commercial/civil or military aerodromes</p>

HEADLINE SA OBJECTIVES	Sub-objectives	
<p>with the plant site, location of the site, access arrangements etc.</p> <ul style="list-style-type: none"> • Not just Hertfordshire, what about mineral extraction that is a wider contribution to the economy. • A caveat to the Economic objective could recognise that restoration of a site to benefit ecology following extraction may not be seen as maximising the potential economic benefits of mineral extraction, which would otherwise seek to derive a more productive economic after-use of a site. Equally, depending on management requirements, land use would have to be supported by having some economic basis for it to be undertaken or be sustainable, unless it was delivered by an organisation capable of providing such management. • Consequently a sub-objective could state: 'Seek to ensure the agreed aftercare and land use of restored mineral sites is economically sustainable'. 		<p>"...do not compromise the operation and safety."</p> <p><i>"....safety and operation of ..."</i></p> <p>Comments:</p> <ul style="list-style-type: none"> • This is a long winded sub-objective for benefiting the economy – could this objective not be moved to the social headline objective? • Suggested wording is 'catch all' "...do not compromise the safety of aircraft." • Adequate wording, although unclear whether this is an economic objective of the plan • This sub-objective should be moved to objective 9. • Safety' is not an economic objective, but a social one.

HEADLINE SA OBJECTIVES	Sub-objectives	
Social		
<p>9. To protect and improve the health and living conditions for individuals and communities within Hertfordshire</p> <p>Comment:</p> <ul style="list-style-type: none"> Is 'living conditions' 'amenity' or is 9.1 referring to something else? Is living conditions the wrong term? Could social aspects include those relating to health and well-being; these include perceptual aspects such as the sense of wildness and tranquillity etc. 	9.1	<p>To protect the health and amenity of local residents and communities from the impacts of noise, dust, odour and traffic (including air pollution)</p> <p>Comments:</p> <ul style="list-style-type: none"> What about visual intrusions? Air quality should be mentioned in BOTH social objectives and achieving sustainable transport. Distinction between air quality for health purposes and for traffic/transport objectives. 'local residents and communities' do not include people who come from other areas to use the facilitators. 'amenity of the people'? 'local residents, communities (or other term based on previous bullet point) AND BUSINESS' This is about control rather than enhancement during operation of sites The traffic element of this sub-objective needs to cover all transport issues.
	9.2	<p>To protect against the loss of Public Rights of Way, recreation areas and open space</p> <p><i>"Protect and enhance..."</i></p> <p><i>"loss and impact"</i></p> <ul style="list-style-type: none"> The objective does not cover 'adding to or enhancing' just protecting what is there currently – should be more positive Discussed the legislation referring to protecting and serving such spaces for the community, although preventing their loss and enhancing them are stronger terms
	9.3	<p>To provide opportunities for delivery of green infrastructure and to enhance access to recreation as part of the development or restoration of a site</p> <p><i>"Enhance and promote..."</i></p> <p><i>"To provide opportunities to health and living conditions for delivery of green infrastructure and to enhance access to recreation as part of the development or restoration of a site"</i></p>

HEADLINE SA OBJECTIVES	Sub-objectives	
		<ul style="list-style-type: none"> • Green infrastructure means something completely different in district level plans. Maybe say something like 'non-motorised transport' • Add in the term 'high quality' • Add 'enhance' rather than just 'protect' to make seem more aspirational, like in the headline 'provide recreation; • 9.2 and 9.3 looks like they may overlap (could be in one objective) and • Need to talk about the short term and long term elements of it. • Sub-objective needs to be more direct rather than 'providing the opportunity for ...' • Need to encourage the delivery of Rights of Way which could lead to the improvement of health • Include wording 'integrated network of green infrastructure...'- refer to strategic county G.I plans/Ship? • Potential long term amenity improvements from changes of land use?

Table A1.2: Consultation responses received in relation to the SA Scoping Report

The responses summarised in the table below were submitted in response to the following question, posed by HCC in the Initial Consultation document (August 2015). Note that HCC's Response is also included, and this has been superseded by the table below prepared by the SA Consultants, which shows how specific comments have been addressed within this SA Report:

Issue 24

Are the headline objectives of the Sustainability Appraisal appropriate as a framework to determine the sustainability of the Minerals Local Plan?

(Please select one answer)

- Yes
- No

General Statement of Reps and HCC Response:

Of the small number of comments submitted on this issue, there was overwhelming support that the headline objectives of the Sustainability Appraisal (SA) are appropriate as a framework to determine the sustainability of the Minerals Local Plan (MLP).

Given that there were some suggestions for additions to the list of SA objectives with reasoning provided, there will be further consideration of these with the external consultants carrying out the SA of the MLP. In addition there were some technical responses received in relation to conducting the SA and Habitats Regulations Assessment which will also be provided to the consultants and further consideration of these to ensure that the most up to date information, Acts and guidance are referred to so that the SA and HRA process is carried out effectively and sustainability is considered appropriately.

Comments were received relating to the suggestion that air quality should be included as an SA objective. Air quality is not specifically referenced in the list of SA objectives but it would be considered during the appraisal under sub-objectives 5.1 (in relation to greenhouse gas emissions) and 9.1 (human health and amenity). The objectives will be underpinned by a detailed set of assumptions which will highlight the more detailed information to be taken into account in the appraisals and this will include air quality (see paragraph 5.9 to 5.11 of the SA Scoping Report). The issue will also feature in the commentary to accompany each appraisal. The SA objectives will be revisited to determine whether specific reference to air quality in the objectives would be beneficial.

In some cases, the 'LUC Response' in the final column states that SA objectives will be amended or baseline information will be updated. The updated baseline information, review of plans, policies and programmes, key sustainability issues and SA Framework and Assumptions can be found in this full SA Report.

The consultation comments and associated responses set out in the table below represent a point in time. Since consultation of the SA Scoping Report, the National Planning Policy Framework has been revised. Consequently, references to the NPPF set out in the table below refer to the contents of the original 2012 NPPF. References to the NPPF in the main body of the SA Report and consultations following publication of the revised NPPF in July 2018 refer to the revised 2018 NPPF.

Comment ID.	Name of Consultee	Summary of Representation	HCC Response	LUC Response re how addressed in SA objectives framework
MLPIC13	Trustees of the Brocket Estate (Stuart Gray)	Yes - The convenience of sites adjacent to existing reserves could be given careful consideration, where existing infrastructure could reduce the impact of further extraction on adjoining land.	New extraction sites adjacent to existing ones and extensions to existing sites may be put forward during Call for Sites and/or could be identified through the site selection process. All such sites will be sieved against the criteria in the site selection methodology. The use of existing infrastructure and continuation of extraction in a particular area may have environmental, economic and social benefits.	No changes considered necessary.
MLPIC18	Herts and Middx Wildlife Trust (Matt Dodds)	No - NPPF states that development should conserve and enhance biodiversity, resulting in net gains, rather than just seek to protect and enhance designated sites or priority species and habitats. The first headline objective should state: 1. To conserve and enhance biodiversity and geological features leading to net gains in species and habitats, with particular attention to those requiring conservation action under the UK Biodiversity Action Plan (UK BAP) and Biodiversity 2020. The mechanism to determine if enhancements can be achieved should be the Biodiversity Impact	Paragraph 152 of the NPPF states that ' <i>Local planning authorities should seek opportunities to achieve each of the economic, social and environmental dimensions of sustainable development, and net gains across all three.</i> ' In pursuing sustainable development the NPPF in paragraph 9 refers to 'moving from a net loss of bio-diversity to achieving net gains for nature'. All biodiversity is included. The SA objective distinguishes what is meant by the term biodiversity using the terms species and natural habitats. There is specific reference to the UK Biodiversity Action Plan and Biodiversity 2020 which reinforces the importance of the biodiversity requiring conservation action. Will consider addition	Sub-objective 1.2 refers to achieving net gains in biodiversity and as such this will be factored into the SA. It is therefore not considered necessary to amend the headline objective.

Comment ID.	Name of Consultee	Summary of Representation	HCC Response	LUC Response re how addressed in SA objectives framework
		<p>Assessment Calculator. This should be explicitly referenced in the text to avoid confusion and dispute later.</p> <p>There is confusion over the terminology for Local Wildlife sites - no other term should be used.</p>	<p>of reference to net gains in the over-arching objective 1, although this is included in sub-objective 1.2 and therefore will still feature heavily in the appraisal.</p> <p>Where applicable the SA and MLP should refer to Local Wildlife Sites.</p> <p>Reference to the Biodiversity Impact Assessment Calculator will be included within supporting text of the MLP as an example of a tool that can be used to determine if enhancements can be achieved. This would only be appropriate for use at a later stage when specific sites are to be developed. The Calculator is not an appropriate tool for the strategic appraisal of sites and will not be used in the SA.</p>	
MLPIC32	North Hertfordshire & Stevenage Green Party (Karen Harmel)	<p>The wording of key sustainability issues identified in the LUC SA Report 2015 has been weakened from "preventing harm" to "mitigating against excess harm, and trying to redress harm done". The Consultee has enclosed a table comparing SA headline objectives to the MLP objectives to show</p>	<p>The key sustainability issues as listed in Table 4.1 of the SA scoping report June 2015, have been drawn up from baseline data including the SEA Directive requirements. These are the significant sustainability issues relevant to Hertfordshire and the implications for the Minerals Local Plan have been translated</p>	<p>No changes considered necessary.</p>

Comment ID.	Name of Consultee	Summary of Representation	HCC Response	LUC Response re how addressed in SA objectives framework
		<p>where wording needs to be strengthened. This is summarised below:</p> <p>SA Objective 1 compared to HCC Objective 5.</p> <p>SA Objective 2 and 3 compared to HCC Objective 7.</p> <p>SA Objective 4 no comparison made to HCC Objectives.</p> <p>SA Objective 5 compared to HCC Objective 6.</p> <p>SA Objective 6 no comparison made to HCC Objectives.</p> <p>SA Objective 7 compared to HCC Objectives 1, 3 and 4.</p> <p>SA Objective 8 compared to HCC Objectives 2 and 8.</p> <p>SA Objectives 9 compared to HCC Objective 9.</p> <p>Water is not mentioned in the MLP Objectives although it was discussed at the meeting in March 2015 but dropped from the final MLP draft. Loss of water from abstraction, pollution and climate change are our main threats, and need to be properly protected against.</p>	<p>into SA objectives.</p> <p>The SA objectives have been worded 'to protect, conserve and enhance', 'minimise effects' and 'avoid risk'. It is not considered that there is any less protection afforded to the issues set out in the SA objectives than previously.</p> <p>Reference to water management is required within the Plan objectives as it is mentioned in the vision. This is dealt with under issue number 4 of the MLP Initial Consultation document</p>	

Comment ID.	Name of Consultee	Summary of Representation	HCC Response	LUC Response re how addressed in SA objectives framework
MLPIC43	Hertsmere Borough Council (Richard Blackburn)	Yes - Appropriate headline objectives of SA.	Selection noted. No response necessary.	No changes considered necessary.
MLPIC56	Wheathampstead Parish Council (Julia Warren)	Yes - But maximising economic benefits should have regard to environmental and social factors	Selection noted. It is acknowledged that the economic SA objective could in turn have indirect effects on the environmental and social dimensions of sustainable development. The environmental and social SA objectives are considered sufficiently robust to ensure sustainable development is achieved in all three dimensions.	No changes considered necessary.
MLPIC76	Three Rivers District Council (Martin Wells)	Yes - headline objectives of the SA are appropriate to determine sustainability.	Selection noted. No response necessary.	No changes considered necessary.
MLPIC103	Historic England (Kayleigh Wood)	Yes - Historic England welcomes draft sustainability appraisal headline Objective 2 which covers the Historic Environment and look forward to being consulted on the relevant stages of the development of the full report. Attached in the response is a link to Strategic Environmental Assessment, Sustainability Appraisal and the Historic Environment, Historic England, for guidance on how to ensure adequate consideration of	Selection noted. The web link will be forwarded onto consultants carrying out the SA/SEA/HRA work to ensure the historic environment is covered adequately. https://www.historicengland.org.uk/images-books/publications/strategic-environmental-assessment-sustainability-appraisal-	No changes considered necessary. HE guidance to be reviewed to ensure adequate consideration of the historic environment.

Comment ID.	Name of Consultee	Summary of Representation	HCC Response	LUC Response re how addressed in SA objectives framework
		the Historic Environment is covered within Sustainability Appraisals.	historic-environment/	
MLPIC107	SLR Consulting Ltd on behalf of Brett Aggregates Ltd (Chris Lowden)	Yes - headline objectives of the SA are appropriate to determine sustainability.	Selection noted. No response necessary.	No changes considered necessary.
MLPIC125	Central Bedfordshire Council (Natalie Chillcott)	Yes - headline objectives of the SA are appropriate to determine sustainability.	Selection noted. No response necessary.	No changes considered necessary.
MLPIC137	Hertfordshire County Council - Highways (Manjinder Sehmi)	No - Consideration needs to be given to sustainable transportation of minerals and waste.	Sustainable transport is included in SA sub-objective 5.1 (under headline objective 5 'To minimise the effects of climate change and reduce emissions of greenhouse gases') (environmental) and will be considered in the appraisal. The Minerals Local Plan will include a policy which covers sustainable transport.	No changes considered necessary as sustainable transport covered by sub-objective 5.1.
MLPIC159	Cemex UK Operations Ltd (Kirsten Hannaford-Hill)	Yes - headline objectives of the SA are appropriate to determine sustainability.	Selection noted. No response necessary.	No changes considered necessary.

Comment ID.	Name of Consultee	Summary of Representation	HCC Response	LUC Response re how addressed in SA objectives framework
MLPIC164	Transport for London (Andrew Hiley)	Encouragement of sustainable transport links to SA objective 9 (social) in terms of road safety and air pollution. Would also benefit people in London. Suggest the link is emphasised.	<p>Sustainable transport is included in SA sub-objective 5.1 (under headline objective 5 'To minimise the effects of climate change and reduce emissions of greenhouse gases') (environmental) and will be considered in the appraisal. It is acknowledged that transport can have impacts in terms of road safety and air pollution (social). SA sub-objective 9.1 will be revisited to determine whether it is suitable to make more specific reference to the impacts of transport in the wording of this objective to link to air quality and road safety, or whether this is more appropriate in the assumptions that will underpin the assessment.</p> <p>Sustainable transport is also covered in Plan objective 4 and this will feature as a policy in the Minerals Local Plan.</p>	<p>Sub-objective 9.1 reworded: To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport.</p> <p>Air quality and road safety also to be factored into the SA assumptions to underpin the assessment.</p>

Comment ID.	Name of Consultee	Summary of Representation	HCC Response	LUC Response re how addressed in SA objectives framework
MLPIC177	Mineral Products Association (David Payne)	Yes - The balance is clearly heavily towards environmental objectives. In undertaking appraisal and using its outcome to develop the Plan, appropriate weight needs to be given to the economic benefits and necessity of providing for a steady and adequate supply of minerals, reflecting the NPPF.	<p>Each of the three aspects of sustainability: environmental, economic and social are dealt with on equal terms. However, there are numerous different aspects within the environment that need to be appraised, as a result these are listed separately.</p> <p>The means of maximising the economic benefits of mineral extraction is by way of maintaining a steady and adequate supply of minerals which is a requirement within national policy. Therefore the overall SA objective captures the economic requirement.</p>	No changes considered necessary.
MLPIC194	Codicote Parish Council (Lorraine Ellis)	Yes - Objectives are fine providing they are monitored, controlled and enforced	Selection noted. The Sustainability Appraisal, Strategic Environmental Assessment and Habitats Regulations Assessment will be carried out at all stages of plan production to ensure sustainability is considered throughout.	No changes considered necessary.

Comment ID.	Name of Consultee	Summary of Representation	HCC Response	LUC Response re how addressed in SA objectives framework
MLPIC226	D K Symes Associates (D K Symes)	No - SA objectives are not appropriate. In terms of SA objective 6, sand and gravel extraction is defined as 'water compatible' and can result in an improvement/reduction to flood risk through restoration design.	The NPPG lists sand and gravel extraction as water compatible and are potentially suitable for all flood zones. The Environment Agency has standing advice that needs to be referred to dependent upon the flood risk where applicable. The flood risk will be considered in sieve 3 of the site selection methodology. Extraction should not increase flood risk elsewhere and needs to be designed, worked and restored appropriately. 'Directing development away from areas at highest risk' is not required due to water compatibility of extraction. A Strategic Flood Risk Assessment will be produced to support the plan and policies on flood risk and wording will be inserted into a policy. This SA objective will be underpinned by a detailed set of assumptions which will highlight the more detailed nuances associated with mineral extraction to be considered in the appraisal and the potential benefits outlined in the comment will be considered. These will be reflected in the commentary accompanying each appraisal. Headline objective 6 will be revisited to determine whether it would benefit from revised wording to make this clearer.	No changes to the SA objectives are considered necessary. The SA assumptions which will underpin the assessment will go into more detail on the nuances associated with mineral extraction and flood risk.

Comment ID.	Name of Consultee	Summary of Representation	HCC Response	LUC Response re how addressed in SA objectives framework
MLPIC236	North Herts District Council (David Hill)	The headline objectives from the SA/SEA appear to meet the SEA Directive and provide a sound basis for assessment of the plan, however, the sub-objectives will also be important, to ensure all relevant issues are covered.	Comment noted. The sub-objectives are additional components of the main SA objectives which will be considered when assessing the MLP at each stage of its production.	No changes considered necessary.
MLPIC262	Buckinghamshire County Council (Emily Hodgson)	SA objectives are appropriate. Should include objectives for air quality and restoration and afteruse of mineral sites.	See General Statement for air quality. Restoration and afteruse are covered in SA sub-objectives 1.2, 6.2, and 9.3. The Plan objectives will also cover restoration and afteruse of mineral sites.	No changes considered necessary. Air quality to be factored into the SA assumptions to underpin the assessment.

Comment ID.	Name of Consultee	Summary of Representation	HCC Response	LUC Response re how addressed in SA objectives framework
MLPIC266	Public Health (HCC) (Bethan Clemence)	Background information submitted regarding the Public Health responsibilities. Support SA social objective, although underlying detail could be improved with reference to the relevant indicators in the national Public Health Outcomes Framework. Plans and policies reviewed by SA should include Herts Public Health Strategy and Herts Air Quality Strategy (which requires the need to measure, monitor and reduce Particulate Matter PM2.5. Baseline data needs to pick up on PM2.5. MLP should be more specific in its requirements around Air Quality and PM2.5 and demonstrate consideration of health inequalities - direct impact on health, mental health and wellbeing; - impact on social, economic and environmental living conditions that would indirectly affect health; - affect individual's ability to improve own health and wellbeing.	The Public Health Strategy and Herts Air Quality Strategy were not included in the review of other plans and policies undertaken for and presented in the SA Scoping Report. Consultants will be made aware of these documents to ensure that they are referred to when conducting the sustainability appraisal of the document. PM2.5 will also be reflected in the SA. See General Statement for air quality. It is anticipated that air quality will be included within a policy in the Minerals Local Plan.	Local plans, policies and programmes are not reviewed in the SA as the SEA Regulations only require that plans, policies and programmes at an international and member state level need to be considered. The baseline data will be updated to factor in PM2.5. Air quality to be factored into the SA assumptions to underpin the assessment.
MLPIC279	Natural England (Gordon Wyatt)	Yes - headline objectives of the SA are appropriate to determine sustainability.	Selection noted. No response necessary.	No changes considered necessary.

Comment ID.	Name of Consultee	Summary of Representation	HCC Response	LUC Response re how addressed in SA objectives framework
MLPIC293	HCC Ecology (Martin Hicks)	<p>No - The BAP has technically been succeeded by the UK Post-2010 Biodiversity Framework 2012 which may be better referred to along with the aim of maintaining and enhancing Priority Habitats and Species. Suggest:</p> <p>"To protect, conserve and enhance natural habitats, species and geological features including those identified in s41 of the NERC Act 2006, consistent with the UK Post-2010 Biodiversity Framework, Biodiversity 2020 and the Local nature Partnership aims."</p>	<p>The SA is required to use valid and up to date information to assess potential impacts on natural habitats, species and geological features which includes technical work. This comment will be forwarded to the external consultants carrying out the SA to ensure the correct information is being used where applicable.</p> <p>The Local Nature Partnership will be consulted at each stage in the production of the Minerals Local Plan to provide comments on the acceptability of the options within the Minerals Local Plan in relation to LNP aims.</p> <p>The rewording of SA objective 1 will be considered with the consultants, although a succinct objective would be preferred where possible, with references to documents made explicit within the SA report itself.</p>	<p>No changes to the SA objectives are considered necessary as it is preferable to keep objectives succinct. However the SA and associated assumptions will be revisited to ensure the most up to date references to the BAP and its successors are included.</p>
MLPIC293	HCC Ecology (Martin Hicks)	<p>The SA omits any reference to the statutory need for a Habitats Regulations Assessment (HRA). It is vital that it is properly referenced and explained in this</p>	<p>The comments refer specifically to the SA scoping report and the HRA, not the SA objectives. The comments will be forwarded to the external consultants carrying out the SA and HRA for further consideration. A Habitats Regulations Assessment scoping</p>	<p>No changes to the SA objectives are considered necessary. The SA report will be checked to ensure detailed reference to</p>

Comment ID.	Name of Consultee	Summary of Representation	HCC Response	LUC Response re how addressed in SA objectives framework
		<p>document.</p> <p>Technical details were provided regarding the HRA, including:</p> <ul style="list-style-type: none"> the need to use up to date guidance with clear process, an explanation regarding the 500m threshold around European sites regarding noise, vibration and light pollution; the need to consider the effects of ammonia in terms of nitrogen deposition on and around European sites; the need to explain the influence and evaluate air pollution emissions on local roads in the vicinity of existing or proposed mineral extraction sites; the need to explain the outcomes of screening; & further explanation of in-combination' effects. 	<p>report has been prepared and was on consultation alongside the Minerals Local Plan Initial Consultation document.</p>	<p>HRA is made. The HRA will continue to run alongside the SA.</p>
MLPIC310	Bedford Borough Council (Natalie Chillcott)	Yes - headline objectives of the SA are appropriate to determine sustainability.	Selection noted. No response necessary.	No changes considered necessary.

Comment ID.	Name of Consultee	Summary of Representation	HCC Response	LUC Response re how addressed in SA objectives framework
MLPIC319	Environment Agency (Kai Mitchell)	Yes - We are pleased to see the inclusion of points 1, 4 and 6 and the inclusion of GP3 within the relevant plans, policies and programs.	Comment noted.	No changes considered necessary.
MLPIC293	Martin Hicks (HCC Ecology)	<p>No - The BAP is no longer recognised or supported as a delivery mechanism by Government having effectively been replaced by the Local Nature Partnerships. However, the technical work which went towards identifying Priority Habitats and Species as part of the BAP remains valid (Section 41 of the NERC Act), as does the information associated with various national and local Action Plans.</p> <p>The BAP has technically been succeeded by the UK Post-2010 Biodiversity Framework 2012 which may be better referred to along with the aim of maintaining and enhancing Priority Habitats and Species. Suggest:</p> <p>"To protect, conserve and enhance natural habitats, species and geological features including those identified in s41 of the NERC Act 2006, consistent with the UK Post-</p>	<p>The SA is required to use valid and up to date information to assess potential impacts on natural habitats, species and geological features which includes technical work. This comment will be forwarded to the external consultants carrying out the SA to ensure the correct information is being used where applicable.</p> <p>The Local Nature Partnership will be consulted at each stage in the production of the Minerals Local Plan to provide comments on the acceptability of the options within the Minerals Local Plan in relation to LNP aims.</p> <p>The rewording of SA objective 1 will be considered with the consultants, although a succinct objective would be preferred where possible, with references to documents made explicit within the SA report itself.</p>	Wording of headline objective 1 has been amended accordingly.

Comment ID.	Name of Consultee	Summary of Representation	HCC Response	LUC Response re how addressed in SA objectives framework
		2010 Biodiversity Framework, Biodiversity 2020 and the Local nature Partnership aims."		
MLPIC293	Martin Hicks (HCC Ecology)	The SA omits any reference to the statutory need for a Habitats Regulations Assessment (HRA), under Reg. 102 of the Habitats Regulations 2010 as amended. One is being undertaken but it is vital that it is properly referenced and explained in this document. Appendix 1 refers to the HRA as a source of information to evaluate impacts on Local Nature Reserves, bap species and habitats, and Water Framework Directive issues. Whilst the latter can be retained, it should be removed from the others (being replaced with reference to the SA) and introduced alongside 'International...ecological designations' (criterion2)	The comments refer specifically to the SA scoping report and the HRA, not the SA objectives. The comments will be forwarded to the external consultants carrying out the SA and HRA for further consideration. A Habitats Regulations Assessment scoping report has been prepared and was on consultation alongside the Minerals Local Plan Initial Consultation document.	Addressed in this SA report (see paragraph 1.11)

Table A1.3 List of MLP Issues and Options showing which Options were subject to SA and why

MLP Issue		Options	Has the Option been subject to SA?
Vision	1	Which aspects of national policy and Hertfordshire County Council priorities does Vision 1 cover adequately?	Yes
	2	Which aspects of national policy and Hertfordshire County Council priorities does Vision 2 cover adequately?	Yes
	3	Which style of vision do you prefer?	No, this is an opinion-seeking question rather than a proposed policy option.
Objectives	4	Nine objectives have been identified in the Hertfordshire Mineral Local Plan Initial Consultation Document.	Yes
	5	Do you think the county council has developed the correct set of objectives?	No, this is an opinion-seeking question rather than a proposed policy option.
Plan length	6	How long should the duration of the Minerals Local Plan be?	No, this is an opinion-seeking question relating to the length of time the MLP should cover, and has little bearing on sustainability as it is assumed there will always be an MLP or equivalent in place.
Quantity of Sand and Gravel Provision	7	<p>The Initial Consultation Document considers two options on how the Hertfordshire Mineral Local Plan can support the prevention of mineral sterilisation in Hertfordshire. A third option was considered following the publication of the document:</p> <p>A. 1.39 million tonnes, as specified by the East of England Aggregate Working Party apportionment figure (identified in Issue 7).</p> <p>B. 1.12 million tonnes, based on 10-year average sales figures (identified in Issue 7).</p>	Yes

MLP Issue	Options	Has the Option been subject to SA?
	C. 1.17 million tonnes, based on the 3-year average sales figures (additional option considered after the publication of the Initial Consultation Document, based on the alternative sales figure set out in the Hertfordshire Local Aggregate Assessment 2014).	
Site selection for sand and gravel extraction	8 Is the proposed idea to split the site selection methodology into three 'sieves', with an additional Call for Sites exercise the right approach to take?	No, this is an opinion-seeking question rather than a proposed policy option.
	9 Is the proposed desk-based methodology for Sieve 1 appropriate?	No, this is an opinion-seeking question rather than a proposed policy option.
	10 Is the limited depth of analysis proposed for Sieve 2 appropriate?	No, this is an opinion-seeking question rather than a proposed policy option.
	11 Is the detailed assessment proposed for Sieve 3 appropriate?	No, this is an opinion-seeking question rather than a proposed policy option.
Sterilisation and windfall sites	<p>12 The Initial Consultation Document considers five options on how the MLP can support the prevention of mineral sterilisation in Hertfordshire (specifically sand and gravel as other materials are covered by subsequent issues in the Consultation Document):</p> <p>A. Include a policy that identifies the Minerals Safeguarding Areas and Minerals Consultation Areas and sets the thresholds for non-mineral proposals in these areas which the County Council wishes to be consulted on.</p> <p>B. Include a policy on minerals sterilisation which encourages the prior extraction of minerals before non-mineral developments.</p> <p>C. Include a policy that combines the identification of Minerals Safeguarding Areas and Minerals Consultation Areas with the encouragement of prior extraction to avoid the sterilisation of minerals by non-minerals development.</p> <p>D. Include two separate policies. One policy identifying the Minerals Safeguarding Areas and Minerals Consultation Areas and the thresholds for non-minerals</p>	Yes

MLP Issue	Options	Has the Option been subject to SA?
	<p>proposals which ensure consultation with the County Council, and one policy encouraging the prior extraction of minerals to avoid the sterilisation of minerals by non-mineral developments.</p> <p>E. Deal with proposals on a site-by-site basis as a windfall site.</p>	
	<p>13 Should the Minerals Local Plan continue to use the formal consultation procedure?</p>	<p>No, this is an opinion-seeking question on the consultation process rather than a proposed policy option and has little bearing on sustainability as it is assumed there will consultation will occur.</p>
	<p>14 The Initial Consultation Document sets out two options for how the MLP should cover the topic of windfall sites, i.e. proposals for sand and gravel extraction that come forward on sites outside of the Specific Sites and preferred areas that will be allocated in the MLP:</p> <p>A. Incorporate windfall sites into a policy related to mineral extraction applications for sites outside of Specific Sites and preferred areas.</p> <p>B. Include a policy specifically about the use of windfall sites for mineral extraction, promoting a phased approach to development to allow the gradual extraction of minerals in sync with the non-mineral development.</p>	<p>Yes</p>
<p>Minerals Safeguarding Areas and Minerals Consultation Areas Site Selection</p>	<p>15 Is the proposed selection procedure for Minerals Safeguarding Areas and Minerals Consultation Areas appropriate?</p>	<p>No, the national guidance for the Minerals Safeguarding Area Selection Procedure outlined in the MLP Initial Consultation Document has not been subject to SA/SEA as it sets out a procedure for the County Council to follow, rather than specific options for the proposed areas to be identified as MSAs/MCAs.</p>

MLP Issue	Options	Has the Option been subject to SA?
Clay	<p>16 The Initial Consultation Document sets out three options for how the MLP can encourage and support the extraction of brick clay in Hertfordshire:</p> <p>A. Identify Minerals Safeguarding Areas and Minerals Consultation Areas to safeguard clay resources from sterilisation by non-mineral development.</p> <p>B. Identify preferred areas where the County Council would ideally like clay extraction to occur.</p> <p>C. Include a policy that provides general support to planning applications that proposes to extract brick clay.</p>	Yes
Chalk	<p>17 Should the Minerals Local Plan support the safeguarding of chalk resources by identifying Minerals Safeguarding Areas and Minerals Consultation Areas?</p>	No, this is an opinion-seeking question rather than a proposed policy option.
	<p>18 The Initial Consultation document identified four options:</p> <p>A. It shouldn't - current extraction levels are appropriate for the use of chalk in the county.</p> <p>B. It should include policy to support the safeguarding of active extraction sites.</p> <p>C. It should keep the existing non-energy mineral policy which would only grant permission to chalk extraction if the need for minerals cannot be met by existing reserves.</p> <p>D. It should include policy to encourage new, small scale extraction operations.</p>	Yes
Secondary recycled aggregate	<p>19 The Initial Consultation Document considers five options on how the MLP can encourage and support the production of secondary and recycled aggregate for use as an alternative to primary, land-won minerals in Hertfordshire:</p> <p>A. It should not provide any support.</p> <p>B. Maintain the same stance as the existing Minerals Local Plan and provide support to the installation of secondary and recycled aggregate processing facilities in appropriate locations.</p>	Yes

MLP Issue	Options	Has the Option been subject to SA?
	<p>C. Encourage the provision of secondary and recycled aggregates but refer applicants to the Waste Local Plan for further information and guiding policy.</p> <p>D. Strengthen policy and text to complement the Waste Local Plan by encouraging the installation of secondary and recycled aggregates facilities to produce alternative materials.</p> <p>E. Identify sites that may currently be being used to produce secondary and recycled aggregates as well as strengthening policy and text to encourage the installation of secondary and recycled aggregate facilities.</p>	
	<p>20 The Initial Consultation Document considers two options on how the MLP can encourage the installation of secondary and recycled aggregate facilities on existing mineral sites rather than at new sites in Hertfordshire (please note the table of likely effects was shown in the same table as Issue 19):</p> <p>F. Yes the Minerals Local Plan should encourage the installation of secondary and recycled aggregate facilities on existing mineral sites rather than at new sites.</p> <p>G. No the Minerals Local Plan should encourage the installation of secondary and recycled aggregate facilities on existing mineral sites rather than at new sites.</p>	Yes
Policies Used to Determine Applications	<p>21 Does the list of strategic policy headings cover all the topics that should be included in the Minerals Local Plan?</p>	No, this is an opinion-seeking question rather than a proposed policy option.
	<p>22 Does the list of development management policy headings cover all the topics that should be included in the Minerals Local Plan?</p>	No, this is an opinion-seeking question rather than a proposed policy option.
	<p>23 Referring back to Chapter 5: Objectives, does the draft list of policy headings meet the objectives which will be included in the Minerals Local Plan?</p>	No, this is an opinion-seeking question rather than a proposed policy option.
Sustainability Appraisal	<p>24 Are the headline objectives of the Sustainability Appraisal appropriate as a framework to determine the sustainability of the Minerals Local Plan?</p>	No, this is an opinion-seeking question rather than a proposed policy option.

Table A1.4: Consultation responses received in relation to the SA Report published alongside the Draft MLP

The responses summarised in the table below were submitted in response to the consultation on the Draft MLP in January and February 2017.

In some cases, the 'LUC Response' in the final column states that SA objectives will be amended or baseline information will be updated. The updated baseline information, review of plans, policies and programmes, key sustainability issues and SA Framework and Assumptions can be found in this full SA Report.

Representation ID	Organisation	Draft MLP and/or SA Report Reference	Consultation comments – summarised where appropriate	Response/action taken to address consultation comment
DMLP0340	GP Planning Ltd.	Policy 4	<p>Objection to Proposed Preferred Area 1: Briggens Estate – Olives Farm for the following reasons. Comparisons are made between the site assessment scores in the Site Selection Report and the SA, specifically:</p> <ul style="list-style-type: none"> The Briggens Estate – Olives Farm allocation scored 5 reds in the Sieve 3 assessment. However, this score is higher than for several of the sites discarded in the East Herts district alone. Also, some of the scores do not reflect the markings of the SA. With regards to the Site's heritage assessment in the Site Selection Report, the Site scores amber, but the SA scores Historic Environment (above ground) as red. Also, the District Plan on-line policies and constraints map shows a large area of archaeological interest in the northern part of the Site. This is not mentioned in the MPA assessment. Given the SA marking and the potential for 	<p>The purposes of the Site Selection Study and the Sustainability Appraisal are different; therefore, they have different assessment methodologies which generate different scores. The detailed reasoning and justification behind both assessment frameworks are set out in Table 3.1 in the Site Selection Study Report and Appendix 4 of the SA Report.</p> <p>The Site Selection Study is an evidence base document designed to identify suitable sites for the extraction of sand and gravel and brick clay. The selection methodology consisted of three stages referred to as 'sieves', with the intention of sites being screened out of further detailed assessment if they did not meet the sieving criteria.</p> <p>The statutory appraisal processes of Sustainability Appraisal (SA) and Strategic Environmental Assessment</p>

Representation ID	Organisation	Draft MLP and/or SA Report Reference	Consultation comments – summarised where appropriate	Response/action taken to address consultation comment
			<p>archaeological interest, the heritage designation on the proforma should score red.</p> <p>In summary, the proforma underestimates the potential impact of PPA1 for several categories and in some cases ignores the findings of the SA. Four categories which have been scored amber or green should be scored red. This would bring the total reds to 9.</p>	<p>(SEA) are mandatory for Mineral Plans prepared by County Councils. Both are designed to identify the significant effects of such Plans throughout their preparation with a view to maximising positive effects and minimising adverse effects from the Plan and in-combination with other relevant Plans.</p> <p>To this end, the proposed site selection methodologies which were subject to initial consultation were reviewed against the SA/SEA framework. Further information regarding this can be found in the Hertfordshire Minerals Local Plan Sustainability Appraisal and Strategic Environmental Assessment Scoping Report (May 2015). The latest stage of the SA/SEA has appraised the sustainability effects of all the potential mineral site options once they have been put through Sieves 1 and 2 of the site selection methodology.</p> <p>A summary of the significant negative effects identified through the Sustainability Appraisal (SA) process are included in each Site Selection Proforma alongside the Sieve 1, 2 and 3 assessments findings in Appendix 1</p>

Representation ID	Organisation	Draft MLP and/or SA Report Reference	Consultation comments – summarised where appropriate	Response/action taken to address consultation comment
				of the Site Selection Study Report. Together both assessments have informed the selection and refinement of the preferred minerals allocations.
DMLP0377	MNResAssoc	Policy 1	<p>All 3 site specific areas for sand/gravel extraction are in a small area, adjacent to Sandridge Parish/Marshalswick North. However, it's not economically sustainable to transport minerals and reclamation material to and from just one point in the county.</p> <p>The minerals extraction work makes no social contribution to the area. Extraction work so far has created:</p> <ul style="list-style-type: none"> • dust and noise (HGVs travelling along residential roads); • increased traffic congestion from HGV use on unclassified residential roads; • footpaths made impassable; and • muddy roads. <p>In summary, the Site Selection Report (including the highways assessment) is flawed in that it fails to identify the full cumulative adverse effects on surrounding neighbourhoods. Although the highways report mentions the issue, there are no suggestions as to how it might be addressed.</p>	<p>Table 3.1 in the Site Selection Study Report sets out the Sieve 3 Evaluation Framework. The cumulative effects criterion in the Sieve 3 Site Selection Study assessment assesses the potential for cumulative effects of potential new specific sites and preferred areas in combination with existing extraction sites.</p> <p>The outputs of the Site Selection Study have been used alongside other evidence bases collected by the Council to define four 'grouped options' made up of multiple site and preferred area options. Each grouped option represents a combination of sites and preferred areas that would meet the County's mineral requirements if allocated in the new MLP.</p> <p>Chapter 8 of the SA Report sets out the Council's reasoning behind the definition of the four grouped options and appraises each grouped option against the SA framework. The SA</p>

Representation ID	Organisation	Draft MLP and/or SA Report Reference	Consultation comments – summarised where appropriate	Response/action taken to address consultation comment
				<p>findings for each grouped option represent the cumulative effects of the specific sites and preferred areas considered in each grouped option. Furthermore, Chapter 9 of the SA Report considers the cumulative effects of the minerals Local Plan as a whole, in-combination with other relevant plans.</p> <p>Reference to the bromate plume has been made in both the Site Selection Study and the SA Report.</p>
DMLP0378	MNResAssoc	Policy 3	Further sites should be selected as part of the Plan. For example, the sites identified in para 7.11 (page 73) of the Report could be included. HCC risks predetermining any future planning applications if it has no alternatives for back up.	Table 8.5 in Chapter 8 of the SA Report sets out the Council's reasons for the selection and non-selection of all site specific and preferred areas appraised.
DMLP0399	Individual	Policy 4	Respondent objects to the inclusion of Proposed Preferred Area 1: Briggens Estate – Olives Farm in the Plan for reasons mentioned in row DMLP0399 of the Site Selection consultation comments table. They contend that cumulative impacts have not been considered fully. For example, reference has not been made to the impact the Gilston/Harlow North development and the incinerator at Hoddesdon will have on the area, in combination with the Briggens	Noted. Consideration will be given to allocations brought forward through Local Plans which have been adopted or are significantly closer to adoption since the completion of the Site Selection Study Report. Where necessary, site selection scores will be changed.

Representation ID	Organisation	Draft MLP and/or SA Report Reference	Consultation comments – summarised where appropriate	Response/action taken to address consultation comment
			Estate – Olives Farm development.	
DMLP0412	Individual	12.7	The Plan states " <i>National policy is very clear that cumulative impacts should be a material consideration</i> " in connection with impact on all areas addressed by the impact assessment (including but not limited to environment, traffic, human health, amenity). However, the cumulative impact of substantial housing development at Gilston/Harlow North (10,000 homes or more), the incinerator at Hoddesdon (which the County Council has approved in principle) and the quarry at the Briggens Estate – Olives Farm has not been recognised. As such, the Sieve 3 assessments are understated across a number of categories.	Noted. Consideration will be given to allocations brought forward through Local Plans which have been adopted or are significantly closer to adoption since the completion of the Site Selection Study Report. Where necessary, site selection scores will be changed.
DMLP0476	Ellenbrook Area Residents Association	Policy 4	<p>The Selected Sites (SS1, SS2, SS3 and Cemex's existing site) would form one vast quarry through a single swathe of the St Albans/Welwyn Hatfield Green Belt which is not reflected in the Plan. The cumulative effects have not been properly evaluated.</p> <p>The traffic impacts along with the air and noise pollution implications, of the combination of quarries, have not been assessed. Proper assessment of the cumulative traffic would lead to rejection of</p>	<p>The cumulative effects criterion in the Sieve 3 Site Selection Study assessment assesses the potential for cumulative effects of potential new specific sites and preferred areas in combination with existing extraction sites.</p> <p>The outputs of the Site Selection Study have been used alongside other evidence bases collected by the Council to define four 'grouped options' made up of multiple site and</p>

Representation ID	Organisation	Draft MLP and/or SA Report Reference	Consultation comments – summarised where appropriate	Response/action taken to address consultation comment
			the combination of sites.	<p>preferred area options. Each grouped option represents a combination of sites and preferred areas that would meet the County's mineral requirements if allocated in the new MLP.</p> <p>Chapter 8 of the SA Report sets out the Council's reasoning behind the definition of the four grouped options and appraises each grouped option against the SA framework. The SA findings for each grouped option represent the cumulative effects of the specific sites and preferred areas considered in each grouped option. Furthermore, Chapter 9 of the SA Report considers the cumulative effects of the minerals Local Plan as a whole, in-combination with other relevant plans.</p> <p>Table 3.1 in the Site Selection Study Report sets out the Sieve 3 Evaluation Framework. All specific site options and preferred areas have been assessed to the same level of detail, and not all sites have detailed information as to how mineral will be moved around within and in close proximity to the site.</p> <p>Hertfordshire County Council's</p>

Representation ID	Organisation	Draft MLP and/or SA Report Reference	Consultation comments – summarised where appropriate	Response/action taken to address consultation comment
				Highways Officers reviewed all Minerals sites and preferred areas assessed in Sieve 3 of the Site Selection Study. Appendix 2 sets out the highways assessment methodology applied as well as the results incorporated into the Site Selection Study.
DMLP0561	Smallford Residents Association	Policy 4	Other areas of the county should take some quarrying, to spread the adverse effects of road transport which are currently proposed in one place. The Site Selection Report covered 14 other sites, some of which scored no worse than selected sites. Some of these other sites should be included as specific sites.	Table 8.5 in Chapter 8 of the SA Report sets out the Council's reasons for the selection and non-selection of all site specific and preferred areas appraised.
DMLP0564	Smallford Residents Association	Policy 4	<p>Concern expressed over risks to the public water supply arising from a change in level and direction of flow of the bromate pollution plume during any quarrying operation at the Aerodrome site.</p> <p>To compound this concern the SA states (para 7.21) "...While it may not have a negative effect, at this stage in the planning process it is not possible to determine the impacts of minerals sites on water quality (surface or groundwater) or water use and efficient as it will very much depend on the proposal (mineral type, design, method of</p>	<p>Noted. It is appropriate to acknowledge the uncertainty attached to effects on water quality as a result of mineral extraction, until the details including full extent, design and method of working are known at the planning application stage.</p> <p>Furthermore, there are other regulatory regimes in place, such as the Environment Agency's Environmental Permitting regime, which require the minerals industry to obtain permits setting out thresholds</p>

Representation ID	Organisation	Draft MLP and/or SA Report Reference	Consultation comments – summarised where appropriate	Response/action taken to address consultation comment
			<p><i>working etc.), which would be assessed at the planning application stage.” The SA further attempts to justify this strategy through para 7.23.</i></p> <p>If the Aerodrome site was ever quarried, any extraction should wait until the bromate extraction is complete.</p>	<p>for impacts on water supply and quality from minerals operations. Therefore, it is assumed that any minerals extraction operation that might occur in future on a site allocated in the MLP will be undertaken in line with the Environmental Permit, which should minimise potential effects on water supply and quality.</p> <p>Reference to the bromate plume has been made in the appraisal of site options in the SA Report.</p>
DMLP1054	Dentons (on behalf of Places for People)	Policy 4	Objection to the inclusion of Proposed Preferred Area 1: Briggens Estate – Olives Farm in the Plan:	
			<p>The nature and range of constraints identified in the Plan suggest PPA1 does not reach the threshold that planning permission might “<i>reasonably be anticipated</i>”.</p> <p>The SA does not contain an appropriate level of information relating to the issues identified above meaning that the SA is incomplete and not a sound basis on which to make an allocation.</p>	The detailed reasoning behind the constraints considered in the SA are set out in Appendix 4 of the SA Report.
			A clear strategy and appropriate mitigation should be identified to deal with transport and access issues, taking account of	Noted. Consideration will be given to allocations brought forward through Local Plans which have been adopted

Representation ID	Organisation	Draft MLP and/or SA Report Reference	Consultation comments – summarised where appropriate	Response/action taken to address consultation comment
			development at the Gilston area (and the changes in traffic flows that will occur).	or are significantly closer to adoption since the completion of the Site Selection Study Report. Where necessary, site selection scores will be changed. Hertfordshire County Council's Highways Officers reviewed all Minerals sites and preferred areas assessed in Sieve 3 of the Site Selection Study. Appendix 2 sets out the highways assessment methodology applied as well as the results incorporated into the Site Selection Study.
			There are available alternatives and it is not clear why the Briggens Estate – Olives Farm has been included.	All reasonable alternatives have been appraised in the SA. Table 8.5 in Chapter 8 of the SA Report sets out the Council's reasons for the selection and non-selection of all site specific and preferred areas appraised.
DMLP1170	D.K. Symes Associates (on behalf of Gowling WLG Trust Corporation Limited and RJD Ltd)	Policy 4	The reasons for removing Rickneys Quarry and Proposed Preferred Area 2 are not sound and consequently the conclusion to take forward Option 4 should be removed and replaced by Option 3. The SA does not refer to the shortly to be adopted East Herts District Plan or to the specific comments supporting mineral	Noted. Consideration will be given to allocations brought forward through Local Plans which have been adopted or are significantly closer to adoption since the completion of the Site Selection Study Report. Where necessary, site selection scores will be changed.

Representation ID	Organisation	Draft MLP and/or SA Report Reference	Consultation comments – summarised where appropriate	Response/action taken to address consultation comment
			<p>extraction from the Preferred Area.</p> <p>No assessment has been made of the potential impact the removal of Proposed Preferred Area 2 may have on the integrity of the delivery of the housing requirements for East Herts, or whether it will result in unnecessary sterilisation of known mineral deposits.</p> <p>There have been no material changes in the locality of Rickneys/PPA2 since the adoption of the Minerals Local Plan. As such, weight should be given to retaining the allocation thereby demonstrating consistency as well as ensuring the East Herts District Plan is not in conflict with the Minerals Plan.</p>	<p>Table 8.5 in Chapter 8 of the SA Report sets out the Council's reasons for the selection and non-selection of all site specific and preferred areas appraised.</p>
DMLP1171	D.K. Symes Associates (on behalf of Gowling WLG Trust Corporation Limited and RJD Ltd)	Policy 4	<p>The reasons for removing Rickneys Quarry and Proposed Preferred Area 2 are not sound.</p> <p>The sites in Policy 4 are the result of a detailed Sustainability Appraisal including Strategic Environmental Assessment which informed the Herts Minerals Local Plan Site Selection Report, both prepared by LUC.</p> <p>The SA/SEA did not appear to address the question of suitability of access. The supply of minerals generates high levels of HGV movements and is one of the major impacts of maintaining a steady supply.</p>	<p>The detailed reasoning behind the appraisal of effects on the County's highway network are set out in the SA are set out in Appendix 4 of the SA Report.</p> <p>Table 8.5 in Chapter 8 of the SA Report sets out the Council's reasons for the selection and non-selection of all site specific and preferred areas appraised.</p>

Representation ID	Organisation	Draft MLP and/or SA Report Reference	Consultation comments – summarised where appropriate	Response/action taken to address consultation comment
DMLP1250	Welwyn Hatfield Borough Council	Policy 4	<p>The three sites identified in the draft Minerals Local Plan all lie within close proximity to one another, to the west of Hatfield. As such, there is potential for cumulative effects. Extraction at these three sites could cause significant disruption to the lives of those living in this part of Hatfield. Yet this has not formed part of the consideration in the SA. The cumulative impacts have not been factored into the preparation of the Minerals Local Plan. Whilst Welwyn Hatfield Borough Council accepts the principle of prior extraction it has significant concerns relating to the scale of extraction concentrated in one area.</p> <p>These effects could potentially be mitigated on Site 3 through the use of the minerals in the construction of new housing on the site, by reducing the tonnage of minerals to be extracted from the site and through the use of existing infrastructure such as the conveyor belt thereby reducing the movement of HGVs. Whilst Policy 14 is designed to address such impacts it could however result in extending the period for extraction thereby delaying the delivery of a strategic housing site in Welwyn Hatfield beyond the plan period which would be unacceptable to Welwyn Hatfield Borough Council.</p>	<p>The cumulative effects criterion in the Sieve 3 Site Selection Study assessment assesses the potential for cumulative effects of potential new specific sites and preferred areas in combination with existing extraction sites.</p> <p>The outputs of the Site Selection Study have been used alongside other evidence bases collected by the Council to define four 'grouped options' made up of multiple site and preferred area options. Each grouped option represents a combination of sites and preferred areas that would meet the County's mineral requirements if allocated in the new MLP.</p> <p>Chapter 8 of the SA Report sets out the Council's reasoning behind the definition of the four grouped options and appraises each grouped option against the SA framework. Table 8.5 in Chapter 8 of the SA Report sets out the Council's reasons for the selection and non-selection of all site specific and preferred areas appraised. The SA findings for each grouped option represent the cumulative effects of the specific sites and preferred areas</p>

Representation ID	Organisation	Draft MLP and/or SA Report Reference	Consultation comments – summarised where appropriate	Response/action taken to address consultation comment
				<p>considered in each grouped option. Furthermore, Chapter 9 of the SA Report considers the cumulative effects of the minerals Local Plan as a whole, in-combination with other relevant plans.</p> <p>With regard to Policy 14, this policy addresses the cumulative effects of minerals development and does not influence the period of time allocations will be in operation.</p>
DMLP1270	East Herts District Council	Policy 4	A large quantum of non-minerals development is allocated within the area to the east of Briggens Quarry, known as Briggens Estate – Olives Farm. Concern expressed by the Council over the lack of consideration given to cumulative effects.	Noted. Consideration will be given to allocations brought forward through Local Plans which have been adopted or are significantly closer to adoption since the completion of the Site Selection Study Report. Where necessary, site selection scores will be changed.
DMLP1318	Hanson Quarry Products Europe Ltd (on behalf of Hanson and adjoining landowner Mr Hodge (advised by Strutt and Parker)	Policy 4	<p>The reasons for removing Rickneys Quarry and Proposed Preferred Area 2 are not sound.</p> <p>The sites in Policy 4 are the result of a detailed Sustainability Appraisal including Strategic Environmental Assessment which informed the Herts Minerals Local Plan Site Selection Report, both prepared by LUC.</p> <p>The SA/SEA did not appear to address the</p>	<p>The detailed reasoning behind the appraisal of effects on the County's highway network are set out in the SA are set out in Appendix 4 of the SA Report.</p> <p>Table 8.5 in Chapter 8 of the SA Report sets out the Council's reasons for the selection and non-selection of all site specific and preferred areas</p>

Representation ID	Organisation	Draft MLP and/or SA Report Reference	Consultation comments – summarised where appropriate	Response/action taken to address consultation comment
			question of suitability of access. The supply of minerals generates high levels of HGV movements and is one of the major impacts of maintaining a steady supply.	appraised.
DMLP1392	Jersey Farm Residents' Association	Objectives	<p>With regard to Objective 1, more sites should be identified to provide leeway/flexibility of supply.</p> <p>With regard to Objective 5, the selection of three sites in one small area with no rail or water links means complete reliance on site vehicles using public roads. HGVs will travel to and from one area rather than from dispersed sites.</p> <p>HGVs leaving the Cemex processing plant used to be obliged to turn left. The Minerals Local Plan should reinstate this measure.</p>	Noted. Table 8.5 in Chapter 8 of the SA Report sets out the Council's reasons for the selection and non-selection of all site specific and preferred areas appraised.
DMLP1400	Jersey Farm Residents' Association	Policy 4	The cumulative effects associated with the three sand and gravel extraction sites have not been considered.	<p>The cumulative effects criterion in the Sieve 3 Site Selection Study assessment assesses the potential for cumulative effects of potential new specific sites and preferred areas in combination with existing extraction sites.</p> <p>The outputs of the Site Selection Study have been used alongside other evidence bases collected by the Council to define four 'grouped options' made up of multiple site and</p>

Representation ID	Organisation	Draft MLP and/or SA Report Reference	Consultation comments – summarised where appropriate	Response/action taken to address consultation comment
				<p>preferred area options. Each grouped option represents a combination of sites and preferred areas that would meet the County's mineral requirements if allocated in the new MLP.</p> <p>Chapter 8 of the SA Report sets out the Council's reasoning behind the definition of the four grouped options and appraises each grouped option against the SA framework. Table 8.5 in Chapter 8 of the SA Report sets out the Council's reasons for the selection and non-selection of all site specific and preferred areas appraised. The SA findings for each grouped option represent the cumulative effects of the specific sites and preferred areas considered in each grouped option. Furthermore, Chapter 9 of the SA Report considers the cumulative effects of the minerals Local Plan as a whole, in-combination with other relevant plans.</p>
DMLP1408	Eastwick & Gilston Parish Council	Policy 5	The Plan contains a policy that seeks to increase secondary and recycled resources (Policy 5). However, it is woefully short on application and consequently the land bank reserve makes no allowance for increasing such resources and therefore reducing	Noted.

Representation ID	Organisation	Draft MLP and/or SA Report Reference	Consultation comments – summarised where appropriate	Response/action taken to address consultation comment
			demand for primary sources. The SA underscores the point that plumbing for the highest of the alternative supply figures will reduce the demand for secondary and recycled sources.	
DMLP1409	Eastwick & Gilston Parish Council	Policy 4	The Briggens Estate – Olives Farm appears as a preferred area in 7.44 of the SA as part of Option 4 which is then the core of Policy 4 in the Plan. The reasoning behind this is not explained and there is no analysis of possible alternatives as preferred areas to meet supply.	Chapter 8 of the SA Report sets out the SA of the mineral site preferred options and their reasonable alternatives. Chapter 8 includes the Council's reasoning behind the definition of the four grouped options and appraises each grouped option against the SA framework. Table 8.5 in Chapter 8 of the SA Report sets out the Council's reasons for the selection and non-selection of all site specific and preferred areas appraised.
DMLP1411	Eastwick & Gilston Parish Council	Policy 4	The SA recognises that housing development in Herts will increase demand for gravel and consequently adopts the highest supply demand figures of 1.39m tonnes/annum. The inclusion of the Briggens Estate – Olives Farm as the preferred area is clearly convenient for the supply of concrete aggregate for the Gilston area housing allocation should this be confirmed in the District Plan. However, Village 7 of the proposed development adjoins the quarry area and thus seriously jeopardises the	Noted. Consideration will be given to allocations brought forward through Local Plans which have been adopted or are significantly closer to adoption since the completion of the Site Selection Study Report. Where necessary, site selection scores will be changed.

Representation ID	Organisation	Draft MLP and/or SA Report Reference	Consultation comments – summarised where appropriate	Response/action taken to address consultation comment
			viability of Village 7. The draft Minerals Plan is therefore in direct conflict with the emerging District Plan.	
DMLP1473	Historic England	Table 4.1	<p>The objectives and questions in the SA framework are generally appropriate. However:</p> <ul style="list-style-type: none"> • It would be helpful if 2.1 referred to both designated and non-designated heritage assets. • 2.2 is not necessary, provided the phrase <i>"above ground heritage assets"</i> in sub-objective 2.1 is amended to refer to <i>"above and below ground heritage assets"</i> or simply <i>"heritage assets"</i>. • SA Objective 3 will benefit the historic environment in terms of designated landscapes and the setting of individual heritage assets. • Paragraph 6.11 of the SA states that Objective 8 will not have any effect on or relationship with, the social and economic SA objectives. There are a number of ways where the conservation and enhancement of the historic environment can help in the pursuit of wider spatial planning goals, including upon social and economic objectives. It is recommended that this is acknowledged in the SA and Minerals 	<p>Noted. Consideration will be given to local and undesignated historic assets as well as heritage at risk. Given the fact that a considerable amount of appraisal work has already been carried out SA objective 2.2 has been retained. Where necessary, effects recorded against SA objectives 2.1 and 2.2 will be changed.</p> <p>The plans and programmes recorded will be reviewed and updated where appropriate.</p>

Representation ID	Organisation	Draft MLP and/or SA Report Reference	Consultation comments – summarised where appropriate	Response/action taken to address consultation comment
			Local Plan.	
DMLP1475	Historic England	Appendix 3	<ul style="list-style-type: none"> Pages 188 and 189 of the SA list the numbers of different types of designated heritage assets within the County. It is advised that the local heritage assets and Heritage at Risk (see 2017 Heritage at Risk Register) are also mentioned. It would be helpful to identify which Grade II buildings and buildings of local importance are 'At risk'. HCC maintains a Historic Environment Service and they should be consulted. The Hertfordshire Archaeology and History Journal will also contain useful archaeological information. 	
DMLP1476	Historic England	Appendix 3	<p>There are a number of other relevant plans and programmes that should be included:</p> <ul style="list-style-type: none"> UNESCO World Heritage Convention; European Landscape Convention (2006); The European Convention on the Protection of Archaeological Heritage; Convention for the Protection of the Architectural Heritage of Europe; Planning (Listed Buildings & Conservation Areas) Act 1990; Ancient Monuments & Archaeological Areas Act 1979. 	

Representation ID	Organisation	Draft MLP and/or SA Report Reference	Consultation comments – summarised where appropriate	Response/action taken to address consultation comment
DMLP1508	Fuller Long (on behalf of Stop Briggens Quarry Group)	Policy 4	The SA notes that the use of the apportionment figure has significant negative environmental impacts as it will discourage use of secondary and recycled aggregates for which there was an increasing trend of use between 2009 and 2013, alongside a decrease in primary aggregates. Therefore, the justification for allocating such a large preferred area at the Briggens Estate – Olives Farm is flawed.	Table 5.10 in Chapter 5 of the SA Report sets out the reasons for the selection of the preferred options over the reasonable alternatives at the earlier options stage. Table 7.2 in Chapter 7 provides a summary of the SA findings for the latest set of strategic policies in the Minerals Local Plan, with detailed appraisal matrices in Appendix 6.

Appendix 2

Review of relevant plans, policies and programmes

Table A2.1: Review of relevant plans, policies and programmes

Strategy / Plan / Programme	Key objectives relevant to the Minerals Local Plan and SA	Key targets and indicators relevant to the Minerals Local Plan and SA	Implications for the Minerals Local Plan	Implications for SA
INTERNATIONAL				
EU Directives				
<i>SEA Directive 2001</i> Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment	Provides for a high level of protection of the environment and contributes to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development.	The Directive must be applied to plans or programmes whose formal preparation begins after 21 July 2004 and to those already in preparation by that date.	Develop policies that take account of the Directive as well as more detailed policies derived from the Directive at the national level.	Requirements of the SEA Directive must be met in Sustainability Appraisals.
<i>The Birds Directive 2009</i> Directive 2009/147/EC is a codified version of Directive 79/409/EEC as amended	Requires the preservation, maintenance, and re-establishment of biotopes and habitats to include the following measures: <ul style="list-style-type: none"> • Creation of protected areas. • Upkeep and management in accordance with the ecological needs of habitats inside and outside the protected zones. • Re-establishment of destroyed biotopes. • Creation of biotopes. 	No targets or indicators.	Policies should make sure that the upkeep of recognised habitats is maintained and not damaged from development. Should also avoid pollution or deterioration of habitats or any other disturbances affecting birds.	Include sustainability objectives for the protection of birds.
<i>The Waste Framework Directive 2008</i> Directive 2008/98/EC on waste	Aims to reduce landfill and associated greenhouse gas emissions through increasing waste prevention and recycling rates and encouraging use of waste as a secondary resource. Applies a 5-step hierarchy of waste: prevention – reuse – recycling –recovery – disposal.	Sets targets for recycling rates; 50% recycling rates for household waste and 70% for C&D waste by 2020.	Plan should reflect the waste hierarchy. Plan should make provision for sufficient recycling facilities to ensure targets can be met and encourage the use of secondary aggregates.	Consider objectives to reduce waste , and to reduce waste sent to landfill.
<i>The Water Framework Directive 2000</i>	Protection of inland surface waters, transitional waters, coastal waters and groundwaters.	No targets or indicators.	Develop policies that take account of the Directive as	Include sustainability objectives to protect

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Directive 2000/60/EC establishing a framework for community action in the field of water policy			well as more detailed policies derived from the Directive contained in the NPPF.	and minimise the impact on water quality.
<i>The Bathing Water Quality Directive 2006</i> Directive 2006/7/EC on protection of public health in bathing waters	The revised Bathing Water Directive entered into force in March 2006. The overall objective of the revised Directive remains the protection of public health whilst bathing in both inland and coastal waters.	There is a requirement for all bathing waters to be classed as 'sufficient' by 2015.	Plan must adhere to the requirements of the Directive, as appropriate.	Sustainability objectives should reflect the Directive requirements and protect the quality of bathing waters.
<i>The Drinking Water Directive 1998</i> Directive 98/83/EC on the quality of water intended for human consumption	Protect human health from the adverse effects of any contamination of water intended for human consumption by ensuring that it is wholesome and clean.	Member States must set values for water intended for human consumption.	Develop policies that take account of the Directive as well as more detailed policies derived from the Directive contained in the NPPF.	Include sustainability objectives to protect and enhance water quality.
<i>The Air Quality Framework Directive 2008</i> Directive 2008/50/EC on ambient air quality assessment and management	Avoid, prevent and reduce harmful effects of ambient noise pollution on human health and the environment.	No targets or indicators.	Develop policies that take account of the Directive as well as more detailed policies derived from the Directive contained in the NPPF.	Include sustainability objectives to maintain and enhance air quality.
<i>The Floods Directive 2007</i> Directive 2007/60/EC on the assessment and management of flood risks	Establish a framework for the assessment and management of flood risks, aiming at the reduction of the adverse consequences for human health, the environment, cultural heritage and economic activity associated with floods.	No targets or indicators.	Allocate sites and develop policies that take account of the Directive as well as more detailed policies derived from the Directive contained in the NPPF.	Include sustainability objectives that relate to flood management and reduction of risk.
<i>The Habitats Directive 1992</i>	Promote the maintenance of biodiversity taking account of economic, social, cultural and	No targets or indicators.	Develop policies that take account of the Directive as	Include sustainability objectives to protect

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Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora	regional requirements. Conservation of natural habitats and maintain landscape features of importance to wildlife and fauna.		well as more detailed policies derived from the Directive contained in the NPPF.	and maintain the natural environment and important landscape features.
<i>EU Management of Waste from Extractive Industries</i> (2006/21/EC)	The purpose of the Directive is to prevent water and soil pollution from the deposition of waste into heaps or ponds and puts emphasis on the long-term stability of waste facilities to help avoid major accidents. The main elements of the Directive are: <ul style="list-style-type: none"> • Conditions for operating permits. • General obligations concerning waste management. • The obligation to characterise waste before disposing of it or treating it. • Measures to ensure the safety of waste management facilities. • A requirement to draw up closure plans. • An obligation to provide for an appropriate level of financial security. 	No targets or indicators.	Plans should clearly recognise that some minerals development can cause pollution and harm human health where they produce dangerous substances.	Include sustainability objectives that encourage recycling and the prudent use of natural resources and the protection of the environment . Also promote a reduction in water and soil pollution .
<i>The Industrial Emissions Directive 2010</i> Directive 2010/75/EU on industrial emissions (integrated pollution prevention and control)	This Directive lays down rules on integrated prevention and control of pollution arising from industrial activities. It also lays down rules designed to prevent or, where that is not practicable, to reduce emissions into air, water and land and to prevent the generation of waste, in order to achieve a high level of protection of the environment taken as a whole.	The Directive sets emission limit values for substances that are harmful to air or water.	Allocate sites and develop policies that take account of the Directive as well as more detailed policies derived from the Directive contained in the NPPF.	Include sustainability objective for reducing pollution .
<i>The Noise Directive</i>	<ul style="list-style-type: none"> • Monitor the environmental problem by 	No targets or indicators.	Allocate sites and develop	Include sustainability

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2000/14/EC	<p>drawing up strategic noise maps.</p> <ul style="list-style-type: none"> Informing and consulting the public about noise exposure, its effects and the measures considered to address noise. <p>Addressing local noise issues by requiring authorities to draw up action Plan to reduce noise where necessary and maintain environmental noise where it is good.</p>		policies that take account of the Directive as well as more detailed policies derived from the Directive contained in the NPPF.	objectives to reduce noise pollution .
European plans, policies and programmes				
<i>EU Biodiversity Strategy to 2020</i>	<p>The European Commission has adopted an ambitious new strategy to halt the loss of biodiversity and ecosystem services in the EU by 2020. The six targets cover:</p> <ul style="list-style-type: none"> Full implementation of EU nature legislation to protect biodiversity Better protection for ecosystems, and more use of green infrastructure More sustainable agriculture and forestry Better management of fish stocks Tighter controls on invasive alien species A bigger EU contribution to averting global biodiversity loss 	Biodiversity loss is an enormous challenge in the EU, with around one in four species currently threatened with extinction and 88% of fish stocks over-exploited or significantly depleted.	Include policies that protect biodiversity.	Check to ensure that the requirements of the strategy is covered in the SA Framework objectives and appraisal criteria
<i>EU Seventh Environmental Action Programme (2014)</i>	<p>The EU's objectives in implementing the programme are:</p> <p>(a) To protect, conserve and enhance the Union's natural capital;</p> <p>(b) To turn the Union into a resource-efficient, green and competitive low-carbon economy;</p> <p>(c) To safeguard the Union's citizens from environment-related pressures and risks to</p>	No targets or indicators.	Develop policies that take account of the Directive as well as more detailed policies derived from the Directive contained in the NPPF.	Include sustainability objectives to protect and enhance the natural environment and promote energy efficiency .

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	<p>health and wellbeing;</p> <p>(d) To maximise the benefits of the Union's environment legislation by improving implementation;</p> <p>(e) To improve the knowledge and evidence base for Union environment policy;</p> <p>(f) To secure investment for environment and climate policy and address environmental externalities;</p> <p>(g) To improve environmental integration and policy coherence;</p> <p>(h) To enhance the sustainability of the Union's cities;</p> <p>(i) To increase the Union's effectiveness in addressing environmental and climate-related challenges.</p>			
<i>European Landscape Convention 2000</i> (signed by the UK government in 2006)	To promote landscape protection, management and planning, and to organise European co-operation on landscape issues.	No targets or indicators.	Plan should support the protection, management and planning of landscape, recognising landscape as an essential component of people's surroundings.	Include sustainability objectives to protect, manage and plan for landscape provision.
<i>European Convention on the Protection of the Archaeological Heritage</i> (Valetta, 1992) <i>Revision of the 1985 Granada Convention</i>	Protection of the archaeological heritage, including any physical evidence of the human past that can be investigated archaeologically both on land and underwater. Creation of archaeological reserves and conservation of excavated sites.	No targets or indicators.	Plan should help preserve the archaeological heritage of Hertsmere.	Include sustainability objectives to protect archaeological heritage.
<i>European Spatial Development Perspective</i>	Economic and social cohesion across the community. Conservation of natural resources	No targets or indicators.	Allocate sites and develop policies that take account of	Include sustainability objectives to

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(1999)	and cultural heritage. Balanced competitiveness between different tiers of government.		the Plan as well as more detailed policies contained in the NPPF.	conserve natural resources and cultural heritage.
Other international plans, policies and programmes				
IPCC's Fifth Assessment Report on Climate Change (IPCC, 2014) ²⁵	To limit and/or reduce all greenhouse gas emissions which contribute to climate change.	None	Plan should support reduction in emissions of greenhouse gases.	Consider inclusion of objectives to support reduction in emissions of greenhouse gases.
Johannesburg Declaration on Sustainable Development (2002)	Commitment to building a humane, equitable and caring global society aware of the need for human dignity for all. Areas of focus include: <ul style="list-style-type: none"> • Sustainable consumption and production patterns. • Accelerate shift towards sustainable consumption and production – 10 year framework of programmes of action. • Reverse trend in loss of natural Resources. • Renewable Energy and Energy Efficiency. • Urgently and substantially increase Global share of renewable energy. • Significantly reduce the rate of biodiversity loss by 2010. 	To promote greater resource efficiency and increase energy efficiency.	Develop policies that take account of the Declaration.	Include sustainability objectives to enhance the natural environment and promote renewable energy and energy/resource efficiency.
Aarhus Convention (1998)	Established a number of rights of the public with regard to the environment. Local authorities should provide for: <ul style="list-style-type: none"> • The right of everyone to receive environmental information 	No targets or indicators.	Develop policies that take account of the Convention.	Ensure that the public are involved and consulted at all relevant stages of SA production.

²⁵ IPCC (2014) Fifth Assessment Report on Climate Change.

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	<ul style="list-style-type: none"> The right to participate from an early stage in environmental decision making The right to challenge in a court of law public decisions that have been made without respecting the two rights above or environmental law in general. 			
Bern Convention (1979)	The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) was adopted in Bern, Switzerland in 1979, and came into force in 1982. The principal aims of the Convention are to ensure conservation and protection of wild plant and animal species and their natural habitats (listed in Appendices I and II of the Convention), to increase cooperation between contracting parties, and to regulate the exploitation of those species (including migratory species) listed in Appendix III. To this end the Convention imposes legal obligations on contracting parties, protecting over 500 wild plant species and more than 1,000 wild animal species.	No targets or indicators.	Allocate sites and develop policies that take account of the Convention.	Include sustainability objective to protect and enhance biodiversity.
Ramsar Convention-Convention on Wetlands of International Importance (1971)	To promote the conservation and wise use of all wetlands through local, regional and national actions and international co-operation, as a contribution towards achieving sustainable development throughout the world.	The number of Ramsar sites being designated in the UK.	Plan should promote the conservation and make wise use of all wetland areas.	Consider inclusion of objectives which aim to promote conservation and wise use of wetland areas.
UNESCO World Heritage Convention (1972)	To protect the world's cultural heritage and natural heritage for future generations.	No targets or indicators.	Plan should promote the protection of the world's cultural and natural heritage.	Consider inclusion of objectives which aim to protect the world's cultural and natural heritage.

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NATIONAL				
White Papers				
Natural Environment White Paper, 2011 <i>The Natural Choice: securing the value of nature</i> (note that there are a number of implementation updates from 2011-2014 which explain government progress on the 92 commitments)	The White paper contains 92 commitments related to the natural environment under several themes including the following: <ul style="list-style-type: none"> Protecting and improving our natural environment; Growing a green economy; and Reconnecting people and nature. 	No targets or indicators.	Protect the intrinsic value of nature and recognise the multiple benefits it could have for communities.	Include a sustainability objective relating to the enhancement of the natural environment.
Policies and Strategies				
MHCLG (2018) National Planning Policy Framework	Presumption in favour of sustainable development. Achieving sustainable development by:	No targets or indicators.	Development plan has a statutory status as the starting point for decision making.	Sustainability appraisal should be an integral part of the plan preparation process, and should consider all the likely significant effects on the environment, economic and social factors.
	Delivering a sufficient supply of homes	No targets or indicators.	Development plans should be informed by a local housing need assessment, conducted using the standard method in national	Include a sustainability objective / appraisal question relating to the supply of

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			planning guidance ²⁶ .	housing.
	Building a strong, competitive economy.	No targets or indicators.	Set out clear economic visions for that particular area.	Include a sustainability objective relating to strengthening the economy.
	Ensuring vitality of town centres.	No targets or indicators.	Recognise town centres as the heart of their communities.	Include a sustainability objective / appraisal question relating to the vitality of town centres.
	Promoting healthy and safe communities.	No targets or indicators.	Achieve healthy, inclusive and safe places which promote social interaction, are safe and accessible and enable and support healthy lifestyles.	Include a sustainability objective / appraisal question relating to the promotion of healthy and safe communities.
	Promoting sustainable transport.	No targets or indicators.	Consider transport issues from the earliest stages of plan-making.	Include a sustainability objective / appraisal question relating to sustainable transport and patterns of growth.
	Supporting high quality communications.	No targets or indicators.	Enhance the provision of local community facilities	Include a sustainability

²⁶ MHCLG (2018) Housing Delivery Test Measurement Rule Book

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			and services by supporting the expansion of electronic communications networks including next generation mobile technology and full fibre broadband connections.	objective / appraisal question relating to improving communications infrastructure.
	Making effective use of land.	No targets or indicators.	Promote an effective use of land in meeting the need for homes and other uses, while safeguarding and improving the environment and ensuring safe and healthy living conditions.	Include a sustainability objective / appraisal question relating to the use of previously developed land.
	Achieving well-designed places.	No targets or indicators.	Set out a clear design vision – design policies should reflect local aspirations and be grounded in an understanding of each area’s defining characteristics.	Include a sustainability objective / appraisal question relating to good design.
	Protecting Green Belt land.	No targets or indicators.	To prevent urban sprawl by keeping land permanently open.	Include a sustainability objective relating to urban sprawl.
	Meeting the challenge of climate change, flooding, and coastal change.	No targets or indicators.	Take into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of	Include a sustainability objective / appraisal question relating to climate change

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			overheating from rising temperatures.	mitigation and adaption.
	Conserving and enhancing the natural environment.	No targets or indicators.	Distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.	Include a sustainability objective / appraisal question relating to the conservation and enhancement of the natural environment.
	Conserving and enhancing the historic environment.	No targets or indicators.	Set out a positive strategy for the conservation and enjoyment of the historic environment, including heritage assets most at risk through neglect, decay or other threats. A local plan may be considered unsound if there has been no proper assessment of the significance of heritage assets in the area, and the	Include a sustainability objective / appraisal question relating to the conservation and enhancement of historic features.

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			plan does not contain a positive strategy for the conservation, enhancement and enjoyment of the historic environment.	
	Facilitating the sustainable use of minerals.	No targets or indicators.	Encourage prior extraction of minerals where practicable and environmentally feasible.	Include a sustainability objective / appraisal question relating to avoiding sterilisation of identified, viable mineral reserves.
The Conservation of Habitats and Species Regulations 2017	The Regulations provide for the designation and protection of 'European sites', the protection of 'European protected species' and the adaptation of planning and other controls for the protection of European sites.	No targets or indicators.	Development should not have an adverse effect on any European sites and European protected species.	Include a sustainability objective / appraisal question regarding the protection of European sites and species.
DEFRA (2011) <i>Biodiversity 2020: A strategy for England's wildlife and ecosystem services</i>	The strategy aims to guide conservation efforts in England up to 2020, and move from a net biodiversity loss to gain. The strategy includes 22 priorities which include actions for the following sectors: <ul style="list-style-type: none"> • Planning and Development; • Water Management; • Marine Management and • Air Pollution 	The strategy develops goals for 2020 and 2050, based on Aichi Targets set at the Nagoya UN Biodiversity Summit in October 2010.	Develop policies that promote conservation and enhancements of biodiversity.	Include sustainability objective that relates to conservation and enhancement of biodiversity.
DEFRA (2018) <i>A Green Future: Our 25 Year Plan</i>	Sets out goals for improving the environment within the next 25 years. It details how the	To achieve: <ul style="list-style-type: none"> • Clean air. 	Develop policies that encourage the protection	Include sustainability objective / appraisal

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<i>to Improve the Environment</i>	Government will work with communities and businesses to leave the environment in a better state than it is presently.	<ul style="list-style-type: none"> • Clean and plentiful water. • Thriving plants and wildlife. • A reduced risk of harm from environmental hazards such as flooding and drought. • Using resources from nature more sustainably and efficiently. • Enhanced beauty, heritage and engagement with the natural environment. 	and enhancement of the natural environment.	question that relates to the protection and enhancement of the natural environment.
DEFRA (2011) <i>Securing the Future: Delivering UK Sustainable Development Strategy</i>	<p>Enable all people throughout the world to satisfy their basic needs and enjoy a better quality of life without compromising the quality of life for future generations. There are 4 shared priorities:</p> <ul style="list-style-type: none"> • Sustainable consumption and production; • Climate change and energy; • Natural resource protection and environmental enhancement; and • Sustainable communities. 	Sets out indicators to give an overview of sustainable development and priority areas in the UK. They include 20 of the UK Framework indicators and a further 48 indicators related to the priority areas.	Develop policies that meet the aims of the Sustainable Development Strategy.	Include sustainability objectives to cover the shared priorities of sustainable development.
DEFRA (2007) <i>The Air Quality Strategy for England, Scotland, Wales and Northern Ireland</i>	<p>Make sure that everyone can enjoy a level of ambient air quality in public spaces, which poses no significant risk to health or quality of life.</p> <p>Render polluting emissions harmless.</p>	Sets air quality standards for 13 air pollutants.	Develop policies that aim to meet the standards.	Include sustainability objectives to reduce pollution and protect and

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				improve air quality.
DEFRA (2006) <i>Natural Environments and Rural Communities Act – Section 41: List of Habitats and Species of Principal Importance in England 2008.</i>	The lists have been prepared by the Secretary of State for Environment, Food and Rural Affairs as required under section 41(1) of the Natural Environment and Rural Communities (NERC) Act 2006. They identify the living organisms (species) and types of habitat which the Secretary of State considers are of principal importance for the purpose of conserving biodiversity in England. In accordance with section 41(2) of the NERC Act, the Secretary of State has consulted Natural England on the species and habitats to be included on the list. Under section 41(3) of the NERC Act the Secretary of State must take steps (where they are reasonably practicable), and promote the taking of steps by others, to further the conservation of the habitats and species on the list. In light of this duty, seven sectors have been identified where actions taken by public bodies and other stakeholders could deliver significant conservation benefits for habitats and species on the list.	The extensive lists of habitats and species are available on the DEFRA website at: http://www.defra.gov.uk/wildlife-countryside/biodiversity/sect41-nerc.htm	The plan should further the conservation of the habitats and species on the list.	The SA Framework and particularly the SA Objectives and sub-objectives focusing on biodiversity should reflect the requirements of the NERC Act.
The Conservation of Habitats and Species Regulations (2010) (as amended)	The Regulations provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites.	No targets or indicators specifically, or directly relevant to minerals plans.	Consider how the plan can contribute to meeting the regulations.	Include sustainability objectives relating to protection of European sites.
English Heritage (2008): <i>Minerals Extraction and the Historic Environment</i>	The document sets out English Heritage's position on mineral extraction and the high-level policies that will form the basis for responses and views put forward by English Heritage on	No key targets (as yet).	Ensure English Heritage's formal policy on mineral extraction is taken into account in the development	Include sustainability objectives that consider the impacts

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	<p>any matter relating to the winning, working and safeguarding of minerals. Although it was produced before the NPPF English Heritage consider the document and a majority of the contents are still relevant. Its principal purpose is to guide the work of English Heritage, but it will also be of interest to the wider historic environment sector, government, local authorities, the minerals industry and other organisations that care for the environment. The document sets out English Heritage's formal policy on mineral extraction, including:</p> <ul style="list-style-type: none"> • Sustainability and supply • Safeguarding the industry's heritage • Impacts and mitigating of current and future extraction • Maintaining historic fabric and local distinctiveness 		of the MLP.	upon the historic environment.
<i>Planning (Listed Buildings and Conservation Areas) Act 1990</i>	To protect listed buildings and buildings in conservation areas.	No targets or indicators specifically, or directly relevant to minerals plans.	Ensure consideration is given to the protection of listed buildings.	Include sustainability objectives that consider the impacts upon listed buildings.
<i>Ancient Monuments and Archaeological Areas Act 1979</i>	To ensure the protection of scheduled ancient monuments.	No targets or indicators specifically, or directly relevant to minerals plans.	Ensure consideration is given to the protection of scheduled monuments.	Include sustainability objectives that consider the impacts upon scheduled monuments.
English Heritage (2008): <i>Mineral Extraction and Archaeology: A Practice</i>	The document provides guidance specifically for dealing with archaeological remains as part of mineral development through the planning	No key targets (as yet).	Ensure the best practice is taken into account in the development of the LDF.	Include sustainability objectives that consider the impacts

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<i>Guide</i>	<p>process. Although it was produced before the NPPF English Heritage consider the document and a majority of the contents are still relevant. The principal purpose of this Practice Guide is to provide clear and practical guidance on the archaeological evaluation of mineral development sites. The guide seeks to ensure that:</p> <ul style="list-style-type: none"> • The best-informed decisions are made regarding the level of archaeological knowledge needed at each stage of the planning process • The use of the full range of up to date and appropriate investigative techniques is considered • There is consistency in planning authority responses, proportionate to the archaeological potential of the site and reasonable in all other respects. 			upon archaeology.
UK Minerals Strategy (2018)	A Strategy prepared by the UK minerals and mineral products industry, facilitated by members of the CBI Minerals Group and the Mineral Products Association. The strategy aims to ensure that UK demand for minerals and mineral products is supplied sustainably for the next 25 years. The Strategy explains that the country is approaching a critical period, particularly for aggregate supply, as permitted reserves nationwide are declining steadily and are not being replenished at an equivalent rate.	No key targets	Need to maintain aggregate supply in cooperation with neighbouring mineral plan areas.	Include a sustainability objective that ensures sufficient mineral provision for the County.
DCLG (2014) Planning Practice Guidance on Minerals	Guidance on the planning system, including minerals	None	Mineral planning authorities are expected to prepare Local Aggregate Assessments, to assess the	Include a sustainability objective that considers the

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			demand for and supply of aggregates.	impacts of the plan on the mineral resource. This will help predict and evaluate the effects of the preferred approach and reasonable alternatives and should clearly identify the significant positive and negative effects of each alternative.
Collation of the Results of the 2009 Aggregate Mineral Survey for England and Wales.	The report provides comprehensive information for monitoring and facilitating aggregates provision at local, regional and national level. Aggregate Minerals surveys, based at four-yearly intervals since 1973, provide an in depth and up-to-date understanding of regional and national sales, inter-regional flows, transportation, consumption and permitted reserves of primary aggregates. The Aggregate Minerals 2009 survey report also presents data on the movement and consumption of primary aggregates by sub region. Information is also presented on the quantity of aggregate minerals granted and refused planning permission and, for the first time, planning permission applications withdrawn or awaiting a decision, between 2006 and 2009, by site type and environmental designation.	No targets, but indicates that the East is the second largest producer of sand and gravel.	Develop appropriate and sustainable policies in the light of the survey results.	Include a sustainability objective that ensures sufficient mineral provision for the County.

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HM Government (2009): <i>The UK Low Carbon Transition Plan</i>	Plan plots how the UK will meet the 34 percent cut in emissions on 1990 levels by 2020. The Plan shows how reductions in the power sector and heavy industry; transport; homes and communities; workplaces and jobs; and farming, land and waste sectors could enable carbon budgets to 2022 to be met.	The plan includes a 5-point Action Plan covering the following areas: <ul style="list-style-type: none"> • Protecting the public from immediate risk; • Preparing for the future; • Limiting the severity of future climate change through a new international climate agreement; • Building a low carbon UK; • Supporting individuals, communities and businesses to play their part. 	Plan should include policies that contribute towards achieving lower carbon emissions.	Objectives should reflect the aims set in the UK Low Carbon Transition Plan to reduce carbon emissions .
HM Government (2011): <i>The Carbon Plan: Delivering our low carbon future</i>	The Carbon Plan is a Government wide plan of action on climate change, including domestic and international activity.	The plan includes a range of sectorial plans and targets including low carbon industry.	Plan should include policies that contribute towards achieving lower carbon emissions.	Objectives should reflect the aims set in the Plan.
Natural England (2010): <i>England's statutory landscape designations: a practical guide to your duty of regard</i>	Conservation and enhancement of the Chilterns AONB and their wildlife and cultural heritage and promotion of opportunities for the understanding and enjoyment of the special qualities of the AONB by the public.	None	Plan should have regard to the duties and policies of the relevant authorities responsible for the AONB. Key considerations include conservation and	Objectives should reflect the vision and objectives of the AONB .

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			enhancement of the natural beauty, wildlife and cultural heritage and promotion of opportunities for the understanding and enjoyment of the special qualities by the public.	
DEFRA(2007): <i>A Strategy for England's Trees, Woods and Forests</i>	<p>To provide, in England, a resource of trees, woods and forests in places where they can contribute most in terms of environmental, economic and social benefit now and for future generations;</p> <p>Ensure that existing and newly planted trees, woods and forests are resilient to the impacts of climate change and also contribute to the way in which biodiversity and natural resources adjust to a changing climate.</p> <p>Protect and enhance the environmental resources of water, soil, air, biodiversity and landscapes (both woodland and non-woodland), and the cultural and amenity values of trees and woodland.</p> <p>Increase the contribution that trees, woods and forests make to the quality of life for those living in, working in or visiting England.</p> <p>Improve the competitiveness of woodland businesses and promote the development of new or improved markets for sustainable woodland products and ecosystem services where this will</p>	<p>The strategy identifies some possible indicators including:</p> <p>Proportion of woodland Sites of Special Scientific Interest (SSSIs) in favourable condition;</p> <p>Woodland bird indicator – bird population associated with woodland;</p> <p>Access to and use of woodland;</p> <p>Trends in all plants and ancient woodland indicator plants.</p>	<p>Plan should to promote the sustainable management of our existing woods and forests.</p> <p>Plan should, where appropriate, seek a steady expansion of woodland areas to provide more benefits for society and our environment.</p>	<p>Consider inclusion of objectives to promote sustainable management of our existing woods and forests.</p> <p>Consider inclusion of objectives which aim to promote the expansion, enjoyment and understanding of woodland areas.</p>

Strategy / Plan / Programme	Key objectives relevant to the Minerals Local Plan and SA	Key targets and indicators relevant to the Minerals Local Plan and SA	Implications for the Minerals Local Plan	Implications for SA
	deliver identifiable public benefits, nationally or locally, including the reduction of carbon emissions.			
DEFRA (GP3): <i>Underground, Under threat – Groundwater Protection: Policy and Practice</i>	To prevent pollution of groundwater.	To meet Water Framework Directive requirements for groundwater quality.	Plan should recognise the importance and vulnerability of groundwater resources and ensure that they are not detrimentally affected by waste development.	Include an objective to protect groundwater quality .
JNCC (2011) <i>The Geological Conservation Review in the Context of the Wider Earth Heritage Conservation Effort</i>	To identify and describe the most important geological sites in Britain by: <ul style="list-style-type: none"> • Maintaining geological SSSIs • Expanding the RIGS network • Developing conservation techniques • Improving documentation 	None	Plan should take account of the importance of both designated and non-designated notable geological sites and features.	Objectives should protect and conserve sites of geological conservation importance .
DEFRA (2008) <i>Future Water: The Government's Water Strategy for England</i>	Sets out how the Government want the water sector to look by 2030 and an outline of the steps which need to be taken to get there. The vision for 2030 is one where we, as a country have: <ul style="list-style-type: none"> • <i>“improved the quality of our water environment and the ecology it supports, and continue to maintain high standards of drinking water quality from taps;</i> • <i>Sustainably managed risks from flooding and coastal erosion, with greater understanding and more effective management of surface water;</i> • <i>Ensure a sustainable use of water resources, and implement fair, affordable and cost-</i> 	No targets or indicators.	Policies should aim to contribute to the vision set out in this Strategy.	Include SA objectives which seek to protect, manage and enhance the water environment .

Strategy / Plan / Programme	Key objectives relevant to the Minerals Local Plan and SA	Key targets and indicators relevant to the Minerals Local Plan and SA	Implications for the Minerals Local Plan	Implications for SA
	<p><i>reflective water charges;</i></p> <ul style="list-style-type: none"> <i>Cut greenhouse gas emissions; and Embed continuous adaptation to climate change and other pressures across the water industry and water users".</i> 			
<p>Environment Agency (2009) <i>Water for People and the Environment: Water Resources Strategy for England and Wales</i></p>	<p>The Strategy vision for water resource "is for there to be enough water for people and the environment, meeting legitimate needs".</p> <p>Its aims include:</p> <ul style="list-style-type: none"> To manage water resource and protect the water environment from climate change. Restore, protect, improve and value species and habitats that depend on water. <p>To contribute to sustainable development through good water management. People to understand how water and the water environment contribute to their quality of life.</p>	<p>No targets or indicators.</p>	<p>Policies should reflect the aims of the strategy where relevant.</p>	<p>Include SA objective which seeks to promote water management and efficiency.</p>
<p>DEFRA (2009) <i>Safeguarding our Soils: A Strategy for England</i></p>	<p>The vision is "<i>by 2030, all England's soils will be managed sustainability and degradation threats tackled successfully. This will improve the quality of England's soils and safeguard their ability to provide essential services for future generations</i>".</p> <p>The Strategy highlights the areas for priority including:</p> <ul style="list-style-type: none"> Better protection for agricultural soils. Protecting and enhancing stores of soil carbon. Building the resilience of soils to a changing 	<p>No targets or indicators.</p>	<p>Ensure that site allocations and policies will help protect and enhance the quality of soils and seek to sustainably manage their quality for future generations.</p>	<p>Include SA objective which seeks to safeguard and enhance the quality of soil.</p>

Strategy / Plan / Programme	Key objectives relevant to the Minerals Local Plan and SA	Key targets and indicators relevant to the Minerals Local Plan and SA	Implications for the Minerals Local Plan	Implications for SA
	<p>climate.</p> <ul style="list-style-type: none"> • Preventing soil pollution. • Effective soil protection during construction and development. • Dealing with our legacy of contaminated land. 			
DEFRA (2007) <i>The Air Quality Strategy for England, Scotland, Wales and Northern Ireland</i>	<p>Make sure that everyone can enjoy a level of ambient air quality in public spaces, which poses no significant risk to health or quality of life.</p> <p>Render polluting emissions harmless.</p>	Sets air quality standards for 13 air pollutants.	Develop policies that aim to meet the standards.	Include sustainability objectives to reduce pollution and protect and improve air quality.
DEFRA (2011) Biodiversity 2020: A strategy for England's wildlife and ecosystem services	<p>The strategy aims to guide conservation efforts in England up to 2020, and move from a net biodiversity loss to gain. The strategy includes 22 priorities which include actions for the following sectors:</p> <ul style="list-style-type: none"> • Agriculture; • Forestry; • Planning and Development; • Water Management; • Marine Management; • Fisheries; • Air pollution; and • Invasive Non-Native Species. 	The strategy develops ambitious yet achievable goals for 2020 and 2050, based on Aichi Targets set at the Nagoya UN Biodiversity Summit in October 2010.	Develop policies that promote conservation and enhancements of biodiversity and ensure that minerals allocations take account of the aims of the strategy.	Include sustainability objective that relates to biodiversity.
Legislation				
<i>Flood and Water Management Act 2010</i>	<p>To improve the management of flood risk for people, homes and businesses.</p> <p>To protect water supplies.</p>	<p>Local Authorities to prepare flood risk assessments, flood maps and plans.</p> <p>Lead Local Flood Authorities to prepare</p>	Plan should take account of flooding and water management issues and strategies.	Consider inclusion of objective to reduce flood risk and other impacts on the water environment.

Strategy / Plan / Programme	Key objectives relevant to the Minerals Local Plan and SA	Key targets and indicators relevant to the Minerals Local Plan and SA	Implications for the Minerals Local Plan	Implications for SA
		Local flood risk management strategies.		
<i>Climate Change Act 2008</i>	The Climate Change Act 2008 introduced a statutory target of reducing carbon emissions.	Target of reducing carbon emissions by 80 per cent below 1990 levels by 2050, with an interim target of 34% by 2020.	Planning makes a significant contribution to both mitigating and adapting to climate change through its ability to influence the location, scale, mix and character of development. The plan should include policies that contribute towards achieving lower carbon emissions and greater resilience to the impacts of climate change.	Objectives should reflect the aims set in the Climate Change Act to reduce carbon emissions .

Plans, Policies and programmes with the Potential for In-Combination Effects

Hertfordshire-wide Plans and Strategies

Hertfordshire Waste Development Framework: Waste Core Strategy & Development Management Policies - Development Plan Document 2011-2026, and Waste Site Allocations 2011-2026²⁷

Status

Waste Core Strategy & Development Management Policies - Development Plan Document 2011-2026 adopted in November 2012.

Waste Site Allocations 2011-2026 adopted in July 2014.

Development quantum

Provision for new Local Authority Collected waste management facilities within 5 Broad Areas of Search focuses mainly around:

- Letchworth, Hitchin and Stevenage
- Ware
- Welwyn Garden City, Hertford, Were and Hoddesdon
- Hatfield
- Hemel Hempstead, Watford and Bushey

Provision of a mixture of new small, medium and large non-Local Authority Collected waste management facilities within a total of 17 sites:

- 5 existing strategic sites
- 4 Employment Land Areas of Search
- 8 allocated sites

²⁷ Waste Planning: <https://www.hertfordshire.gov.uk/services/recycling-waste-and-environment/planning/planning-in-hertfordshire/minerals-and-waste-planning/waste-planning/waste-planning.aspx>

Hertfordshire's Local Transport Plan²⁸

Status

Adopted in May 2018.

Development quantum

Corridors that are the focus for improved connectivity within the county:

- Corridor 1: Aylesbury – Watford – London
- Corridor 2: London – Watford – Luton – Milton Keynes
- Corridor 3: London – Stevenage – Peterborough
- Corridor 4: London – Harlow – Stansted – Cambridge
- Corridor 5: Hemel & Watford – St Albans – Harlow
- Corridor 6: Luton – Stevenage
- Corridor 7: Stevenage – Cambridge
- Corridor 8: Stevenage - Stansted

Major schemes:

- Cycle Infrastructure Improvement Towns
- Sustainable Travel Towns
- Passenger Transport Hub/Coachway to Investigate: M1 J8 and A1(M) J8
- A414 Bus Rapid Transit
- Hertford Bypass
- New M1 Junction 8a (additional junction)
- New Rail Stations to Investigate

10.13 Strategies include: Active Travel Strategy; Bus Strategy; Intalink Strategy; Intelligent Transport Systems (ITS) Strategy; Inter-urban Route Strategy;

²⁸ Hertfordshire's Local Transport Plan: <https://www.hertfordshire.gov.uk/media-library/documents/about-the-council/consultations/ltp4-2018.pdf>

Rail Strategy; Rights of Way Improvement Plan; Road Safety Strategy; Rural Transport Strategy; and Speed Management Strategy.

Hertfordshire District and Borough Plans

Broxbourne Borough Council

The Broxbourne Local Plan 2018-2033: A Framework For The Future Development Of The Borough - Regulation 19 Pre-Submission Consultation Document²⁹

Status

The Regulation 19 Pre-Submission Consultation closed on 21 December 2017.

This is replacing the Borough of Broxbourne Local Plan Second Review 2001-2011³⁰ which was adopted in December 2005. This was originally due to be replaced by the Core Strategy³¹, however when this strategy was submitted to the Government in 2010 many of its policies were found to be unsound. Therefore, the Council decided to not adopt the Core Strategy and instead decided to prepare a new-style Local Plan that combines strategic policies and site allocations.

Development quantum

Housing

Provision will be made for 8,098 homes in the plan period at strategic development locations:

- Brookfield Garden Village - 1,250 homes
- Cheshunt Lakeside - mixed-use urban village including 1,750 homes as well as businesses and a primary school
- Rosedale Park - 790 homes and a primary school at linked developments
- The remainder of homes to be provided at smaller sites

Employment Land Provision

Provision will be made for between 6,000 and 7,000 net additional jobs, focusing on three key employment locations:

- Brookfield – 3,000 jobs

²⁹ Broxbourne Local Plan Consultation: <http://www.broxbourne.gov.uk/resident-planning-and-building-planning-policy-development-plan-conservation/local-plan-consultation>

³⁰ Broxbourne Local Plan 2005: <http://www.broxbourne.gov.uk/localplan2005>

³¹ Broxbourne Core Strategy Process: <http://www.broxbourne.gov.uk/resident-planning-and-building-planning-policy-development-plan/core-strategy-process>

- Park Plaza West – 4,500 new office jobs
- Park Plaza North – will accommodate the relocation of businesses from regeneration sites including those in Waltham Cross, Brookfield, and Delamare Road
- Also focus on provision within town centres

Dacorum Borough Council

Dacorum Borough Council Core Strategy 2006-2031³²

Status

Adopted in September 2013.

Due to be replaced by the Dacorum Borough Council New Single Local Plan³³, the Regulation 18 Issues and Options version of which was consulted on between 1 November 2018 and 13 December 2017.

Prior to this was the Dacorum Borough Council Local Plan 1991-2011³⁴. The Core Strategy does not replace all of the policies contained within the Local Plan 1991-2011. Many of the policies within the Local Plan have been 'saved' and will continue to inform planning policy until they are formally superseded or cancelled. However, the policies regarding the housing and employment land supply and allocations have been superseded by the Core Strategy.

Development quantum

Housing

Total of at least 10,750 new dwellings required from 2006-2031, including those at strategic sites and local allocations.

Strategic Sites:

- Berkhamsted
- Durrants Land / Shootersway – 180 homes
- Markyate
- Hicks Road – 90 homes

³² Dacorum Core Strategy: <http://www.dacorum.gov.uk/home/planning-development/planning-strategic-planning/local-planning-framework/core-strategy>

³³ Dacorum New Single Local Plan: <http://www.dacorum.gov.uk/home/planning-development/planning-strategic-planning/new-single-local-plan>

³⁴ Dacorum Borough Council Local Plan 1991-2011: <http://www.dacorum.gov.uk/home/planning-development/planning-strategic-planning/local-plan-1991-2011>

Local Allocations:

- Hemel Hempstead
- Marchmont Farm – 300 homes
- Old Town – 80 homes
- West Hemel Hempstead – up to 900 homes
- Berkhamsted
- Hanburys, Shootersway – 60 homes
- Tring
- Icknield Way, west of Tring – 150 homes
- Bovingdon
- Chesham Road / Molyneaux Avenue – 60 homes

Employment Land Provision

Sufficient land to be allocated to provide approximately 10,000 new jobs between 2006-2031, including a target of an additional 131,000sq m office floorspace.

Dacorum Borough Council – Regulation 18 Issues and Options Consultation Document³⁵

Status

The Regulation 18 Issues and Options Consultation closed on 13th December 2017.

This will replace the Core Strategy and Site Allocations DPDs and 'saved' policies from the 2004 Local Plan.

Development quantum

The plan is in the early stages of development and it is not yet decided how much development will be provided and where. However, the Council's local assessment indicates a total need for 756 homes a year in Dacorum and 3,151 new homes a year in South West Hertfordshire between 2013 and 2036.

³⁵ Dacorum Issues and Options: <http://www.dacorum.gov.uk/docs/default-source/strategic-planning/local-plan---issues-and-options---consultation-final---13-november-2017.pdf?sfvrsn=21>

Status

The East Herts District Plan was subject to an Examination in Public with hearing sessions held between October 2017 and January 2018 followed by a period of public consultation on the Main Modifications agreed through the Examination between February and March 2018.

Following this, the Inspector issued her Final Report on the Examination of the East Herts District Plan on the 9th July 2018 and the Plan was formally adopted in October 2018.

Development quantum

Housing

According to the Main Modifications consultation document, over the period of 2011-2033 a total of 18,458 new homes will be delivered.

The strategy of the District Plan is to deliver sustainable development in accordance with the following hierarchy:

- Sustainable brownfield sites;
- Sites within the urban areas of Bishop's Stortford, Buntingford, Hertford, Sawbridgeworth and Ware;
- Urban extensions to Bishop's Stortford, Hertford, Sawbridgeworth and Ware, and to the east of Stevenage, east of Welwyn Garden City and in the Gilston Area; and
- Limited development in the villages.

The 5-year housing land supply will comprise the following elements:

- The projected housing need for 839 dwellings per annum;
- Any shortfall in delivery since the start of the Plan period (to be met over the ten year period 2017-2027)
- A 20% buffer for choice and flexibility brought forward from later in the Plan period.

According to the Main Modifications consultation document, the minimum housing supply will meet projected housing need over the plan period 2011 to 2033. Supply Sources will total 18,913 homes including through windfall allowance, completions, commitments, sustainable brownfield sites, urban extensions and villages.

³⁶ District Planning - Shaping the Future of East Herts: <http://www.eastherts.gov.uk/districtplan>

Employment Land Provision

Aim to achieve 10,800 new jobs in the District up to 2033. This will include making provision for 19-20 hectares of new employment land for B1/B2/B8 uses.

Hertsmere Borough Council

Hertsmere Local Plan Issues and Options 2017³⁷

Status

The Regulation 18 Issues and Options document was consulted on between 27th September 2017 and 30th November 2017.

This will replace the Hertsmere Local Plan (2012-2027)³⁸ (see below).

Development quantum

Housing

Provision of 3,000 homes, including the continued regeneration of the Elstree Way Corridor in Borehamwood, and potentially an additional 6,000 homes to meet the needs of local people and communities.

Employment Land Provision

Provision for an estimated 9,000 additional jobs over the next 15 years, of which around 3,650 are anticipated to be within high-quality industrial and commercial premises.

Hertsmere Local Plan (2012-2027): Core Strategy, Elstree Way Corridor Area Action Plan and Site Allocations and Development Management Policies Plan³⁹

Status

Core Strategy: Adopted in January 2013.

Elstree Way Corridor Area Action Plan : Adopted in July 2015

Site Allocations and Development Management Policies Plan: Adopted in November 2016

³⁷ Planning for Growth - a new Local Plan for Hertsmere: <https://www.hertsmere.gov.uk/Planning--Building-Control/Planning-Policy/Local-Plan/New-Local-Plan-Planning-for-Growth.aspx>

³⁸ Hertsmere Local Plan (2012-2027): <https://www.hertsmere.gov.uk/Planning--Building-Control/Planning-Policy/Local-Plan/Local-Plan-12-27.aspx>

³⁹ Hertsmere Local Plan (2012-2027): <https://www.hertsmere.gov.uk/Planning--Building-Control/Planning-Policy/Local-Plan/Local-Plan-12-27.aspx>

This replaces the Hertsmere Local Plan 2003⁴⁰ which was adopted in 2003.

This will be replaced by the Hertsmere New Local Plan⁴¹ which is currently undergoing consultation of its Issues and Options Report.

Development quantum

Housing

Provision of at least 3,990 additional dwellings between 2012-2027.

Priority will be given to locating the majority of residential development within the main settlements of:

- Borehamwood
- Potters Bar
- Bushey

Windfall developments will be supported on appropriate sites in all towns, subject to local environmental constraints, the relationship with the surrounding pattern of development and the requirements of planning policies. Within rural locations and in particular, Shenley, Elstree and South Mimms limited, small scale infilling on suitable sites will be supported. At least 1,000 residential units will be provided across the Elstree Way Corridor, with the potential for 1,500 units to be provided within the plan period. The main focus for development will be within the 'identified opportunity area' , which has the potential to accommodate up to 800 residential units in total

This will be replaced by the Hertsmere New Local Plan⁴² which is not yet drafted but suggests around 9,000 new homes will require provision over the next 15 years.

Employment Land Provision

Employment growth during the plan period, equates to approximately 2,700 new office jobs and 240 new warehousing jobs and 660 fewer industrial jobs over 15 years; it is anticipated that this level of growth would be accommodated within existing town centres and through new provision on larger sites currently planned in adjoining Boroughs.

Provision will be made for the supply of at least 110 ha of designated employment land for B-class development within the Borough up to 2027, focused on the following locations:

- Employment Areas

⁴⁰ Hertsmere Local Plan 2003: <https://www.hertsmere.gov.uk/Planning--Building-Control/Planning-Policy/Local-Plan/2003-Local-Plan.aspx>

⁴¹ A new Local Plan for Hertsmere: <https://www.hertsmere.gov.uk/Planning--Building-Control/Planning-Policy/Local-Plan/New-Local-Plan-Planning-for-Growth.aspx>

⁴² A new Local Plan for Hertsmere: <https://www.hertsmere.gov.uk/Planning--Building-Control/Planning-Policy/Local-Plan/New-Local-Plan-Planning-for-Growth.aspx>

- Elstree Way, Borehamwood
- Stirling Way, Borehamwood
- Cranborne Road, Potters Bar
- Station Close, Potters Bar
- Otterspool Way, Bushey Key
- Employment Site
- Centennial Park, Elstree

Designated local significant employment sites which are focused on employment generating uses are located at:

- Wrotham Business Park
- Borehamwood Enterprise Centre and adjoining sites
- Theobald Court and adjoining site, Borehamwood
- Lismirrane Industrial Park, Elstree
- Hollies Way Business Park, Potters Bar
- Beaumont Gate, Radlett
- Farm Close sites, Shenley

This will be replaced by the Hertsmere New Local Plan⁴³ which is not yet drafted but suggests around 9,000 new jobs will require provision over the next 15 years.

North Hertfordshire District Council

⁴³ A new Local Plan for Hertsmere: <https://www.hertsmere.gov.uk/Planning--Building-Control/Planning-Policy/Local-Plan/New-Local-Plan-Planning-for-Growth.aspx>

North Hertfordshire Local Plan 2011 – 2031: Proposed Submission October 2016⁴⁴

Status

Draft plan and consultation completed. Submitted to Government on 9 June 2017.

This follows the North Hertfordshire District Local Plan No.2 With Alterations⁴⁵ which was adopted in 1996.

Development quantum

Housing

A total of at least 15,950 homes will be delivered within North Hertfordshire over the period 2011-2031.

Of these, a total of 14,000 homes will be for North Hertfordshire's own needs:

- Around 13,800 of these within the Stevenage Housing Market Area
- Around 200 of these within the Luton Housing Market Area

And 1,950 homes will be for the unmet housing needs arising from Luton.

Employment Land Provision

Provide an adequate supply and range of employment land to meet the requirements of the local economy over the plan period to 2031, including land in:

- Hitchin
- Letchworth Garden City
- Baldock
- Royston

Existing employment areas within the main settlements will also be designated.

New employment land will be provided through designations at:

- The former Power Station
- Letchworth Garden City (1.5ha)

⁴⁴ Proposed Submission Local Plan 2011-2031: <http://www.north-herts.gov.uk/home/planning/planning-policy/local-plan/proposed-submission-local-plan-2011-2031>

⁴⁵ District Local Plan No.2 With Alterations: <http://www.north-herts.gov.uk/planning/planning-policy/local-plan/local-plan-current-policy/district-local-plan-no2-alterations>

- East of Baldock (19.6ha)
- West of Royston (10.9ha)

St Albans City and District Council

St Albans City and District Local Plan 2020-2036 Publication Draft (2018) Saved Policies⁴⁶

Status

The current adopted Local Plan is The District Local Plan Review 1994. However, this expired after 27th September 2007.

A publication draft for the new Local Plan has been submitted and is now undergoing consultation from 4 September 2018 to 17 October 2018.

Development quantum

Housing

Provision of 14,608 additional homes between 2020-2036.

Development at the Broad Locations is required to provide the specific locally needed mix of housing needed.

Further policies and detailed site allocations to support delivery of the Housing Target will be set out in the Detailed Local Plan. Within designated Primarily Residential Areas, priority will be given to residential use.

Employment Land Provision

Provision for significant new employment development will be made within the East Hemel Hempstead Broad Location (55ha, up to circa 10,000 jobs).

Provision for significant development and redevelopment opportunities is also made in the Special Employment Locations in the Green Belt.

Existing employment sites should be retained in employment use.

Development, redevelopment and possible expansion of the following Special Employment locations to also provide employment land:

- Building Research Establishment (BRE) in Bricket Wood
- Rothamsted Research in Harpenden

⁴⁶ Saved Policies: http://www.stalbans.gov.uk/Images/Saved%20Policies,%20Direction%20and%20Correction_tcm15-9515.pdf

Stevenage Borough Council

Stevenage Borough Local Plan 2011- 2031⁴⁷

Status

In draft, submitted to the Secretary of State in July 2016 for examination. Proposed main modification to this plan have been consulted on. This follows the Stevenage District Plan, Second Review (2004)⁴⁸ in which the development quantum has now expired.

Development quantum

Housing

Provision of 7,600 homes between 2011-2031, 2,350 homes already built or have planning permission.

Therefore provision will also be made at 18 sites, within town centres, at urban extensions and at windfall sites for a total of 5,804 homes.

Employment Land Provision

Allocated 7 sites for employment development, totalling 143,500 m² floorspace.

Three Rivers District Council

Three Rivers District Council New Local Plan: Issues & Options and Call for Sites Consultation July 2017⁴⁹

Status

The Issues & Options has recently been prepared and the Call for Sites Consultation completed.

The Local Plan will replace the Local Plan 2014 (see below)⁵⁰.

Development quantum

Housing

⁴⁷ Stevenage Borough Emerging Local Plan: <http://www.stevenage.gov.uk/149690/planning-policy/90175/>

⁴⁸ The Stevenage Adopted Local Plan: <http://www.stevenage.gov.uk/149690/planning-policy/90238/>

⁴⁹ Three Rivers District New Local Plan: <http://www.threerivers.gov.uk/egcl-page/new-local-plan>

⁵⁰ Three Rivers District Local Plan: <http://www.threerivers.gov.uk/egcl-page/local-development-framework>

Provision of approximately 514 dwellings per annum over the plan period from 2017-2032.

Employment Land Provision

The Plan safeguards existing allocated employment areas and allocates an additional 8.6ha of land from employment usage.

Three Rivers District Council Local Plan: Core Strategy (2011) and Site Allocations Development Plan (2014)⁵¹

Status

Core Strategy: Adopted in 2011.

Site Allocations Development Plan: Adopted 2014.

This is due to be replaced by the New Local Plan which is at the Issues & Options stage and has recently undergone a Call for Sites public consultation (see above)⁵².

Development quantum

Housing

Provision of 4,500 dwellings between 2001-2026 located:

- Approximately 15% should be provided in the principal town (Rickmansworth)
- Approximately 60% should be provided in the Key Centres (South Oxhey, Croxley Green, Abbots Langley, Chorleywood, Leavesden and Garston and Mill End)
- Approximately 24% should be provided in the Secondary Centres (Kings Langley, Carpenders Park, Eastbury, Maple Cross, Moor Park and Oxhey Hall)
- Approximately 1% in the Villages (Bedmond and Sarratt).

34 housing sites allocated.

Employment Land Provision

Provision for 2,378 additional jobs between 2006-2026, including:

- Business class activities - 1,268 jobs

⁵¹ Three Rivers Local Plan: <http://www.threerivers.gov.uk/egcl-page/development-plan>

⁵² Three Rivers District New Local Plan: <http://www.threerivers.gov.uk/egcl-page/new-local-plan>

Offices

Factories and warehousing

- Non-Business Class activities – 810 jobs

Hotels and catering

Transport and communications

Trailing

Education and health

Deal with floorspace surplus and demand. It is predicted that by 2026 there may be:

- There is a slight under supply of industrial and warehousing space amounting to 3.5ha. Industrial and warehousing space should generally be retained in employment use.
- There is an oversupply of office floorspace in the District, in particular as a result of land at Leavesden. Office space may be released from employment use where it is expected to be surplus to employment needs across the plan period.

There will be a continuing focus of employment use within the key employment areas within the District:

- Leavesden Aerodrome
- Croxley Business Park
- Tolpits Lane
- Maple Cross/Maple Lodge
- Kings Langley Employment Area
- Carpenders Park West
- Rickmansworth Town Centre

5 employment are also sites allocated.

Issues & Options and Call for Sites Consultation⁵³

⁵³ Issues & Options and Call for Sites Consultation: <https://www.threerivers.gov.uk/egcl-page/new-local-plan>

Status

Consulted on between 28 July and 8 September.

Development quantum

Housing

Potential housing need options for the District:

- Plan for a housing target that is 20% below the 514 dwellings per annum OAN for Three Rivers District. This equates to an annual figure of 411 dwellings per annum over a 15 year period from 2017 to 2032.
- Plan for the full OAN figure of 514 dwellings per annum over a 15 year period from 2017 to 2032.
- Plan for a housing target that is 20% above the 514 dwellings per annum OAN for Three Rivers District. This equates to an annual figure of 617 dwellings per annum over a 15 year period from 2017 to 2032.

Employment Land Provision

In order to minimise the loss of employment land and to ensure that current levels of employment land within the District are maintained as much as possible, the Council has confirmed three Article 4 Directions on the employment sites at Croxley Green, Maple Cross and Tolpits Lane.

Potential employment need options for the District:

- Continue safeguarding the existing allocated employment areas so that they can continue to be a focus for jobs growth only.
- Extend existing employment areas for employment use.
- Continue safeguarding the existing allocated employment areas and allocate an additional 8.6ha of land for office-based uses and warehousing, in accordance with the employment land requirements outlined in the South West Hertfordshire Economic Study.
- Continue safeguarding the existing allocated employment areas, and allocate an additional 8.6ha of land, but allow the development of mixed use schemes (mix of employment, residential, retail, leisure uses) within existing employment areas.

Watford's Local Plan 2006-2031: Part 1 - Core Strategy and Part 2 - Site Allocations and Development Management Policies⁵⁴

Status

- Watford Local Plan 2006-2031 Part 1 Core Strategy (2013)
- Watford District Plan 2000 (2003) – saved policies

This will be superseded by the Watford Local Plan 2016-2036⁵⁵ once produced.

Development quantum

Housing

Provision of a minimum total target of 6,500 homes from 2006-2031.

In allocating sites for residential development, priority will be given to sites which will best contribute to building sustainable communities and support the town's regeneration initiatives taking into account the Special Policy Areas of the spatial strategy.

The Site Allocations Development Management Policies list 11 housing site allocations and seven mixed use site allocations for dwellings.

Employment Land Provision

Provision of at least 7,000 additional jobs between 2006-2031.

Half of all additional jobs (3,300-4,200) to be provided within the wider town centre

Most of the remainder of the additional jobs will be provided within mixed use areas at:

- The Health Campus Special Policy Area (around 1,000-1,900 jobs)
- Watford Junction Special Policy Area (around 1,350-2,350 jobs)
- Western Gateway Special Policy Area (around 700-2,000 jobs at Watford Business Park and around 150 retail jobs at Ascot Road)
- Around 500 additional jobs are expected to be delivered through the reoccupation or redevelopment of vacant space in allocated employment areas outside of the Special Policy Areas

Provision of around 80,000sqm of additional B class employment floorspace by 2031.

⁵⁴ Watford Local Plan 2006-2031: https://www.watford.gov.uk/info/20012/planning_and_building_control/135/planning_policy/1

⁵⁵ Watford Local Plan 2016-2036: https://www.watford.gov.uk/info/20012/planning_and_building_control/135/planning_policy/2

Four designated Employment Areas:

- E1 Watford Business Park
- E2 Imperial Way/Colonial Way
- E3 Fishers
- E4 Greycaine Road/Odhams/Sandown Road E1 Watford Business Park

Welwyn Hatfield Borough Council

Welwyn Hatfield Local Plan 2016⁵⁶

Status

Drafted, due for adoption in Autumn 2017. The Council has submitted the Local Plan for examination.

This follows the Welwyn Hatfield District Plan 2005⁵⁷ in which the development quantum has now expired.

Development quantum

Housing

Provision of 12,000 new homes between 2013-2032:

- 2/3 will be within and adjoining Welwyn Garden City and Hatfield
- 1,100 dwelling will be within a new village settlement
- 6,200 dwellings will be located within planned release of a limited amount of land from the Green Belt

Employment Land Provision

294.1 ha of employment land have been identified to maintain a sufficient supply of jobs in the borough and provide the opportunity for new employment floorspace to be provided between 2013-2032.

Provision made for at least 116,400 sq.m of new floorspace for industry, offices and warehousing over the plan period from; designated employment areas and mixed use sites including the strategic development site at Marshmoor, Welham Green.

⁵⁶ Welwyn Hatfield Local Plan: <http://www.welhat.gov.uk/localplan>

⁵⁷ Welwyn Hatfield District Plan: <http://www.welhat.gov.uk/districtplan>

This will provide for a range of 15,960 to 17,900 total new jobs over the plan period.

11 employment areas are designated within the plan.

Adjacent County Minerals and Waste Plans and Strategies

Essex County Council

Essex Minerals Local Plan 2014⁵⁸

Status

Adopted in July 2014.

Development quantum

Provision of the following quantities of sand and silica between 2012 and 2016:

- 40.824 million tonnes of sand and gravel extraction with 31.824mt coming from Preferred Sites and 9mt coming from Reserve Sites
- 0.39 million tonnes of silica sand

This is comprised of 16 allocations on 10 sites.

Sand and gravel sites:

- 11 are extensions to existing quarries (total area of 340)
- 3 are new sites (total area of 241 ha)

Silica sand site:

- Total area of 11.66 ha

Essex and Southend-on-Sea Waste Local Plan 2016⁵⁹

⁵⁸ Essex Minerals Local Plan: <https://www.essex.gov.uk/Environment%20Planning/Minerals-Waste-Planning-Team/Planning-Policy/minerals-development-document/Documents/Essex%20Minerals%20Plan%20-%20Adopted%20July%202014.pdf>

Status

The Plan was adopted in July 2017 by Essex County Council and in October 2017 by Southend-on-Sea Borough Council.

This will follow the Essex And Southend Waste Local Plan 2001⁶⁰.

Development quantum

Provision of sites to deal with the shortfall in capacity by 2031/32 of:

- Up to 217,000 tonnes per annum of biological treatment for non-hazardous organic waste;
- Up to 1.5 million tonnes per annum for the management of inert waste;
- Up to 200,000 tonnes per annum for the treatment of other waste; and
- Up to 50,250 tonnes per annum for the management of hazardous waste.

Provision of strategic site allocations:

- 4 biological waste management sites
- 8 inert waste recycling sites
- 1 other waste management site
- 8 inert landfill sites
- 1 hazardous landfill site

Safeguarding waste management sites - Where non waste development is proposed within 250m of safeguarded sites, the relevant Local Planning Authority is required to consult the Waste Planning Authority on the planning application.

Essex Transport Strategy: The Local Transport Plan for Essex⁶¹

⁵⁹ Essex Replacement Waste Local Plan: http://www.southend.gov.uk/downloads/file/5194/adopted_waste_local_plan

⁶⁰ The Essex And Southend Waste Local Plan: <http://www.essex.gov.uk/Environment%20Planning/Planning/Minerals-Waste-Planning-Team/Planning-Policy/Pages/Current-Waste-Local-Plan.aspx>

Status

Adopted in 2011.

Development quantum

Likely effects of the policies:

- Infrastructure improvements to improve the public transport network
- Infrastructure improvements on main routes
- Infrastructure improvements for sustainable transports, including provision of electric vehicle charging points at new developments, improvements to cycling facilities, developing a cycling network in towns without one, integrating cycling and walking routes to form continuous routes,

Major schemes include:

- A13 Basildon to Hadleigh Passenger Transport Improvements, due to be completed in spring 2012
- Including infrastructure such as bus shelters, electronic information facilities, bus lanes and minor junction improvements
- A13/A130 Sadlers Farm junction scheme due in 2012
- Infrastructure to link the A13 and A130 (thereby reducing the impacts of congestion)

Central Bedfordshire Council

Bedford Borough, Central Bedfordshire and Luton Borough Councils: Minerals and Waste Local Plan: Strategic Sites and Policies, 2014⁶²

Status

Adopted in January 2014.

Development quantum

Provision for management of an anticipated total of 2,100,000 tonnes of waste 2013/14, increasing to 2,300,000 tonnes in 2028/29. Over the fifteen year Plan period of the Plan, a total of 35,000,000 tonnes of waste will require management within the Plan area.

⁶¹ Essex Transport Strategy: The Local Transport Plan for Essex: <http://www.essexhighways.org/Transport-and-Roads/Highway-Schemes-and-Developments/Local-Transport-Plan.aspx>

⁶² Bedford Borough, Central Bedfordshire and Luton Borough Councils: Minerals and Waste Local Plan: Strategic Sites and Policies: http://www.centralbedfordshire.gov.uk/Images/minerals-waste_tcm3-2120.pdf

Provision of four strategic waste management sites:

- Elstow north
- Land at former Brogborough Landfill
- Rookery Pit South
- Land at Thorn Turn

Also requirement for development contributions - All new developments should include sufficient and appropriate waste storage and recovery facilities in their design and layout.

Strategic mineral sites for the supply of aggregate sand and gravels:

- Willington Lock
- Blunham/ Roxton
- Black Cat
- Willowhill Farm
- Bridge Farm
- Land south of Broom Village

Strategic mineral sites for the supply of specialist silica sands:

- Land at Clipstone Brook

The Plan has two key aims:

- To provide an average of 1.84 million tonnes per annum of sand and gravel for each year of the Plan, until such time that national guidelines on aggregate production are further revised
- To maintain a land-bank sufficient for at least 7 years supply of sand and gravel.

Central Bedfordshire Local Transport Plan 3 2011-2016⁶³

Status

Adopted in January 2011.

Development quantum

Major schemes under construction:

- Luton – Dunstable Busway
- M1 Hard Shoulder Running (Junctions 10-13)

Major schemes proposed:

- A5-M1 Link (Dunstable Northern Bypass)
- Woodside Connection
- M1 Junction 10a improvements
- Luton Northern Bypass
- East of Leighton Distributor Road
- Park & Ride – A5/A505 to the north of
- New parkway station in the vicinity of M1 Junction 11a
- Biggleswade Eastern Relief Road
- Flitwick –Westoning bypass
- Dunstable & the A6 north of Luton
- Luton North Station
- East-West Rail and the Marston Vale Line
- Thameslink programme

⁶³ Central Bedfordshire MyJourney: Local Transport Plan 3: http://centralbedfordshire.gov.uk/Images/transport-strategy_tcm3-7901.pdf

- The Wixams Station
- Midland Mainline Electrification
- Bedford to Milton Keynes Waterway

Likely effects of Major Schemes:

- Additional railway infrastructure including new stations
- Additional road infrastructure including junctions
- Improved and additional public transport infrastructure
- Improved green infrastructure including walking and cycling route as well as improved waterway

Buckinghamshire County Council

Buckinghamshire County Council Minerals and Waste Local Plan 2016-2036: Preferred Options Consultation August 2017⁶⁴

Status

In Draft. Underwent Preferred Options consultation between 2 August and 27 September 2017. Recently submitted for examination.

This will replace the Minerals and Waste Core Strategy 2012⁶⁵.

Development quantum

Provision for the extraction of 0.81 million tonnes per annum of sand and gravel from the Thames and Colne Valleys over the plan period from 2016-2036.

Allocated sites for sand and gravel provision:

- M1: Springfield Farm South (Beaconsfield) (2Mt)
- M2: New Denham Quarry North Extension (Denham) (1.60Mt)
- M3: New Denham Quarry North West Extension (Denham) (0.85Mt)
- M4: New Denham Quarry Extension (Denham) (0.2 - 0.25Mt)

⁶⁴ Buckinghamshire County Council Minerals and Waste Local Plan 2016-2036: Preferred Options Consultation August 2017: <https://www.buckscc.gov.uk/services/environment/planning/minerals-and-waste-local-plan/the-new-minerals-and-waste-local-plan-2016-2036/>

⁶⁵ Buckinghamshire County Council Minerals and Waste Core Strategy 2012: <https://www.buckscc.gov.uk/services/environment/planning/minerals-and-waste-local-plan/current-position-on-minerals-and-waste/>

- M5: North Park, Richings Park (Iver) (3Mt)
- M6: Slade Farm North (Hedgerley) (1.25Mt)
- M7: Slade Farm South (Hedgerley) (1Mt)

Provision for the extraction of 0.12 million tonnes per annum of sand and gravel from the Great Ouse Valley over the plan period from 2016-2036. Allocated sites for sand and gravel provision:

- M8: Hydellane Farm (Leckhampstead/Foscott) (1Mt)

Provision for the maintenance of a landbank for sand and gravel equivalent to at least 7 years supply will be sought in order to ensure a steady and adequate supply.

Provision of facilities for the preparation of waste for re-use and recycled and other recovery to be focussed on the main urban areas and growth locations:

- High Wycombe
- Aylesbury
- Buckingham

Buckinghamshire County Council Minerals and Waste Core Strategy 2012⁶⁶

Status

Adopted in November 2012.

This follows the Minerals and Waste Local Plan 2004-2016⁶⁷.

This will be replaced by Buckinghamshire County Council Minerals and Waste Local Plan 2016-2036⁶⁸.

Development quantum

Provision of an additional 6.5mt of sand and gravel from 2011-2026 to maintain a land-bank of sand and gravel equivalent to at least 7 years' worth of supply over the period to 2026. Favourable consideration given to proposals for sand and gravel excavation within the defined Area or search.

⁶⁶ Buckinghamshire County Council Minerals and Waste Core Strategy 2012: <https://www.buckscc.gov.uk/services/environment/planning/minerals-and-waste-local-plan/current-position-on-minerals-and-waste/>

⁶⁷ Buckinghamshire County Council Minerals and Waste Local Plan 2004-2016: <https://www.buckscc.gov.uk/services/environment/planning/minerals-and-waste-local-plan/current-position-on-minerals-and-waste/>

⁶⁸ Buckinghamshire County Council Minerals and Waste Local Plan 2016-2036: Preferred Options Consultation August 2017: <https://www.buckscc.gov.uk/services/environment/planning/minerals-and-waste-local-plan/new-local-plan-preferred-options-consultation/>

Provision for 37.5 million tonnes of waste from 2010-2026, averaging 2.2 million tonnes a year. By 2026, provision for 66% of waste to be recycled and composted, 12% to have energy recovered from it and 22% to be landfilled.

Provision of a Strategic Waste Complex (SWC) located at the Calvert Landfill Site, including a facility for the recovery of energy from residual waste and the required infrastructure e.g. roads and transfer stations. The co-locations of other waste facilities to be encouraged on the SWC, which may include recycling, composting and sorting facilities.

Safeguarded waste management sites:

- Existing waste sites within Buckinghamshire
- Woodham Industrial Area, Aylesbury Vale District
- Richings Park, Iver
- Thorney Mill, Iver

Buckinghamshire's Local Transport Plan 4 2016-2036⁶⁹

Status

Adopted in April 2016.

Development quantum

Likely effects of policies:

- Improved railway infrastructure and access – including stations, public transport, cycling and walking access to stations
- Improve airport access – including improving public transport infrastructure access and road infrastructure for access
- Improved road infrastructure – including use of technology to increase highways capacity, maintenance of existing road infrastructure
- Improving walking infrastructure – particularly for access from new developments, within town centres, and in connecting with other sustainable transport links e.g. buses and train stations
- Improve cycling infrastructure – including developing the cycling network further
- Improve taxi infrastructure – incorporate into new developments where appropriate

⁶⁹ Buckinghamshire's Local Transport Plan 4: <http://www.buckscc.gov.uk/services/council-and-democracy/our-plans/local-transport-plan-4/>

Luton Borough Council

Bedford Borough, Central Bedfordshire and Luton Borough Councils: Minerals and Waste Local Plan: Strategic Sites and Policies, 2014⁷⁰

See above.

Luton Local Transport Plan 3 2011-2026⁷¹

Status

Adopted in March 2011.

Development quantum

Likely effects of policies:

- Improved public transport infrastructure – improvements to bus and railway stations and their links, bus stops
- Improved road infrastructure – including modernised traffic signals, expansion of the traffic control centre
- Improve motorcycle and cycling parking infrastructure
- Increase P&R infrastructure – including additional parking sites
- Increase electric vehicle infrastructure – charging points
- Improve walking and cycling infrastructure – including additional lighting, improved crossings, expand the walking and cycling network

Strategic transport schemes:

- M1 Jct 10-13 Capacity Improvement
- Luton Dunstable Busway
- Northern Entrance to Luton Airport
- Parkway Station

⁷⁰ Bedford Borough, Central Bedfordshire and Luton Borough Councils: Minerals and Waste Local Plan: Strategic Sites and Policies: <http://www.centralbedfordshire.gov.uk/planning/minerals-waste/framework/policies.aspx>

⁷¹ Luton Local Transport Plan 3 2011-2026: https://www.luton.gov.uk/Transport_and_streets/Transport_planning/Local%20transport%20plan/Pages/Local%20Transport%20Plan%203%202011-2026.aspx

- M1 Jct 10a Improvement
- Luton Town Centre Transport Scheme
- Access to Century Park Employment Area
- A5-M1 Link (Dunstable Northern Bypass, including M1 Junction 11a)
- Woodside Connection
- Public Transport Improvements North of
- Luton – Dunstable
- Luton Northern Bypass

Cambridgeshire County Council

Cambridgeshire and Peterborough Minerals and Waste Plan – Core Strategy 2011 and Site Specific Proposals Plan 2012⁷²

Status

Adopted in July 2011.

Development quantum

Provision made for the supply of 3.0 million tonnes of sand and gravel per annum over the Plan period.

New allocations, together with permitted reserves, will enable the supply of the following over the plan period:

- An annual average of 0.75 mtpa from the Northern Zone, i.e. Peterborough and north Fenland District,
- An annual average of 0.85 mtpa from the Central / Southern Zone (excluding the Earith / Mepal Area)
- An annual average of 1.4 mtpa from the Earith / Mepal Zone (from 2010 onwards)

The principal broad locations for sand and gravel extraction will be:

- Kings Delph (Northern Zone)
- Maxey (Northern Zone)

⁷² Cambridgeshire and Peterborough Minerals and Waste Plan: <https://www.cambridgeshire.gov.uk/business/planning-and-development/water-minerals-and-waste/minerals-and-waste-plan/>

- Eye / Thorney (Northern Zone)
- Cottenham / Landbeach (Central / Southern Zone)
- Needingworth (Central / Southern Zone)
- Block Fen / Langwood Fen (Earith / Mepal)

Allocations will be outside the Ouse and Nene river valleys.

One sand and gravel extraction strategic site allocation at Block Fen / Langwood Fen.

Site specific allocations:

- 6 sand and gravel extraction sites
- 6 sand and gravel borrowpit sites
- 0 limestone extraction sites
- 1 chalk marl extraction site
- 1 brick clay extraction site
- 0 engineering clay extraction sites
- 9 engineering clay borrowpit sites
- 2 specialist mineral extraction sites

Additionally – 12 designated mineral infrastructure consultation areas (areas within and around existing quarry operations and associated permitted reserves and areas within and around unimplemented permitted reserves and allocations)

Provision for and estimated 113,662,000 tonnes of waste arisings to be managed from 2006-2026.

Provision for a minimum of by 2026:

- 63,000 tonnes per annum of Household Recycling Centre capacity
- 627,000 tonnes per annum of new recycling capacity (Materials Recycling Facilities / Mixed Recyclables)
- 10,500 tonnes per annum of in-vessel composting capacity
- 1.86 million tonnes per annum of inert waste recycling capacity
- 12.09 million cubic metres of inert landfill void space over the Plan period

- 14,000 cubic metres per annum of stable non-reactive hazardous waste landfill void space

Provision of new household recycling centres in the following broad locations:

- Cambridge East
- Cambridge North
- Cambridge South
- March
- Northstowe
- Peterborough

Site specific allocations:

- 33 site specific and Areas of Search allocations
- 6 inert landfill sites
- 1 general non-hazardous landfill site
- 2 non-reactive hazardous waste landfill sites
- 0 general hazardous waste landfill sites
- 1 Area of Search allocation for a new waste water treatment works
- 49 Waste Water Treatment Works Safeguarding Areas
- 42 proposed sites with Waste Consultation Area designations (areas within and around (250m) existing waste management facilities that make a significant contribution to managing waste in Cambridgeshire and Peterborough and areas within and around unimplemented permitted or allocated waste management sites and Areas of Search)

Cambridgeshire Local Transport Plan 2011-2031⁷³

Status

Adopted in July 2015.

⁷³ Cambridgeshire Local Transport Plan 2011-2031: <https://www.cambridgeshire.gov.uk/residents/travel-roads-and-parking/transport-plans-and-policies/local-transport-plan/>

Development quantum

Committed major schemes in the period to 2020:

- A14 Cambridge to Huntingdon improvement scheme
- A428 Black Cat to Caxton Gibbet improvement
- A47 / A141 Guyhirn junction improvement
- Cambridge Science Park Station
- Cambridge Science Park Station busway access
- A142 Ely Southern Bypass
- Whittlesey Access Phase 1: A605 Kings Dyke level crossing
- A10 Foxton level crossing
- Soham Station
- Chisholm Trail cycle route, Cambridge
- Potential for additional schemes to be delivered from Growth Deal funding
- Elements of Greater Cambridge city deal programme

Long term major schemes beyond 2020:

- Cambridge Science Park Station and Busway access
- A142 Ely Southern Bypass
- Whittlesey Access Phase 1: A605 Kings Dyke level crossing
- A10 Foxton level crossing
- Soham Station
- Chisholm Trail cycle route, Cambridge

Likely effects of major schemes:

- Additional infrastructure improving road, rail, walking and cycling routes

- Additional railway stations – including car and cycle parking and additional public transport access
- Additional road infrastructure – including junction creation, infrastructure improvements
- Improved sustainable transport infrastructure links

North London Boroughs (including Enfield and Barnet)

North London Waste Plan 2017-2032⁷⁴

Status

Draft plan – consulted on between July and September 2015.

Development quantum

Site allocations:

- 3 site allocations for waste management development
- 28 area allocations for waste management developments

West London Boroughs (including Harrow and Hillingdon)

West London Waste Plan 2014⁷⁵

Status

Adopted between May and July 2015 (by the individual borough councils).

Development quantum

Site allocations:

- 7 existing waste sites allocated for potential expansion
- 2 new waste sites allocated with the potential for the development of waste management facilities

⁷⁴ North London Waste Plan: <http://www.nlwp.net/>

⁷⁵ West London Waste Plan: <http://www.wlwp.net/index.html>

Appendix 3
Baseline Information

Hertfordshire County Geographical Context

Hertfordshire is a landlocked County situated in the east of England which shares boundaries with Bedfordshire to the north, Cambridgeshire to the north-east, Essex to the east, Buckinghamshire to the west and Greater London to the south. The County includes ten Local Authorities (LAs): Broxbourne; Stevenage; Welwyn Hatfield; Hertsmere; Dacorum; North Hertfordshire; St. Albans City; Three Rivers; Watford and East Hertfordshire (see **Figure A3.1**).

The largest town in Hertfordshire is Watford which has some of the characteristics of outer London. Cheshunt, Waltham Cross and Hoddesdon are old towns which now form an almost continuous belt of urbanisation extending out of London along the Lee Valley. St Albans, Hitchin, Hertford and Ware are historic market towns while Letchworth and Welwyn Garden City were the world's first garden cities. Stevenage, Hemel Hempstead and Hatfield are New Towns created since 1945⁷⁶.

The county area covers 164,300 hectares. Hertfordshire is defined by a varied landscape mosaic of chalk hills and plateaus sloping down from the chalk escarpment, in the northern part of the county. The landscape is cut by chalk river valleys, which form part of the Thames catchment. The tributaries of the Thames valley define its western edge with Buckinghamshire and the more open landscapes of Essex and Cambridgeshire comprise most of its eastern boundary. The valley of the River Lea creates a strongly defined south eastern boundary. The Chiltern Hills to the west and north-west of the county are designated as an Area of Outstanding Natural Beauty. The proximity of London and the pressures for development during the 20th century have resulted in the growth of suburban development in the southern part of Hertfordshire. This in turn led to the designation of a large proportion of the county as Green Belt comprising 84,640 hectares or 51.5%⁷⁷.

Hertfordshire is well connected nationally and internationally with four national motorways (M1, A1(M), M11, and M25), three neighbouring international airports (London Stansted, London Luton and Heathrow) and four major rail lines (West Coast Main Line, the Midland Main Line, the East Coast Main Line, and the West Anglia Line).

Minerals Baseline

The main mineral resources in Hertfordshire are sand and gravel with smaller deposits of chalk and brick clay. NPPF paragraph 207 requires Minerals Planning Authorities to monitor aggregate production and plan for a steady and adequate supply of aggregates. HCC has produced an annual Local Aggregate Assessment (LAA) to assess the current local mineral provision from which information has been drawn relating to existing sites, reserves and aggregate apportionment levels to 2031 (plan period for the new Minerals Local Plan). Other potential sources of aggregates are included, namely secondary and recycled aggregates, imports and exports. The following information that is presented is taken from the LAA⁷⁸, unless otherwise referenced.

Aggregates and Mineral Resources

Sand and Gravel

Sand and gravel deposits are found in most parts of the County although they are concentrated in an area south of a line between Bishops Stortford in the east and Hemel Hempstead in the west

⁷⁶ LUC (2011) Hertfordshire Strategic Green Infrastructure Plan (Incorporating the GreenArc area), <http://www.hertsdirect.org/docs/pdf/s/SHIP.pdf>

⁷⁷ Hertfordshire County Council (2016) Hertfordshire Local Information System: Environment, Green Belt, <http://www.hertsllis.org/env/landprem/greenbelt/>

⁷⁸ Hertfordshire County Council (2018) Local Aggregate Assessment, www.hertfordshire.gov.uk/minerals

(often referred to as the sand and gravel belt). This area covers the whole of Three Rivers, Watford, Hertsmere, Welwyn Hatfield and Broxbourne LAs. Large parts of the City and District of St Albans and East Hertfordshire are covered, together with a small part of Dacorum.

Currently sand and gravel extraction takes place at four quarries in Hertfordshire;

- Tyttenhanger Quarry, Colney Heath;
- Hatfield Quarry with the linked Symondshyde extraction site;
- Thorley Hall Farm; and
- Pynesfield.

Another site (Water Hall) has extant planning permission for sand and gravel extraction, although no extraction is now taking place⁷⁹. This is due to enforcement proceedings relating to the restored areas of the site at Bunkers Hill. Extraction is permitted until 31 December 2019 and is anticipated to continue following resolution of the enforcement proceedings.

The average sales of sand and gravel in Hertfordshire over the last 10 years is 1.16 million tonnes (2008-2017). This figure was 1.15 million tonnes as of 2016, 1.16 million tonnes as of 2015, and 1.13 million tonnes as of 2014, thereby remaining relatively constant over the last few years.

The rolling 3 year average is 1.19 million tonnes per annum (2015-2017). This was 1.20 million tonnes per annum in 2016, 1.16 million tonnes per annum in 2015.

Sales of sand and gravel compared with permitted reserves in Hertfordshire are shown in **Table A3.1**. Of the sales of primary aggregates in Hertfordshire in 2014, 57% was within Hertfordshire (692,000 tonnes), 22% was to the rest of the East of England (265,000 tonnes) and 21% was to other destinations (252,000 tonnes)⁸⁰.

Table A3.1: Sand and gravel sales compared with permitted reserves in Hertfordshire since 2007⁸¹

Year	Sales of soft sand and sharp sands and gravel (tonnes)	Permitted reserves of soft sand and sharp sands and gravel (tonnes)
2007	1,010,466	10,840,668
2008	988,517	10,869,000
2009	1,214,3066	10,619,000
2010	1,172,890	10,786,465
2011	1,268,465	16,700,000
2012	1,123,645	15,792,000
2013	1,130,295	16,260,000
2014	1,209,532	14,440,000
2015	1,224,284	13,215,716
2016	1,164,633	11,752,000
2017	1,166,921	10,458,308

Prior to the NPPF, the government allocated/appORTioned Mineral Planning Authorities (HCC in this instance) an amount of sand and gravel they had to supply to the market. This figure was known as the 'sub-regional apportionment'. The 'sub-regional apportionment' figure was used in the

⁷⁹ Hertfordshire County Council (2017) Local Aggregate Assessment, <https://www.hertfordshire.gov.uk/media-library/documents/environment-and-planning/planning/planning-in-hertfordshire/minerals-planning/local-aggregate-assessment.pdf>

⁸⁰ British Geological Survey, Department of Communities and Local Government and the Welsh Assembly Government (2016), Collation Of The Results Of The 2014 Aggregate Minerals Survey For England And Wales, Table 9d: Sales of primary aggregates by mineral planning authority and principal destination sub-region in 2014: East of England, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/563423/Aggregate_Minerals_Survey_England___Wales_2014.pdf

⁸¹ Hertfordshire County Council (2017) Local Aggregate Assessment, <https://www.hertfordshire.gov.uk/media-library/documents/environment-and-planning/planning/planning-in-hertfordshire/minerals-planning/local-aggregate-assessment.pdf>

adopted Minerals Local Plan. The figure for Hertfordshire at that time was 1.99 million tonnes per year. Mineral planning has changed with the introduction of the NPPF and there is now no apportionment figure assigned to authorities within legislation; however, Government recognises that the apportionment figure was approved by authorities as an appropriate way forward to deal with imbalances of supply and demand for aggregates across the country⁸². The East of England Aggregates Working Party has adopted the apportionment figure of 1.39 million tonnes, which was set for Hertfordshire in the National and Local Guidelines for Aggregate Provision in England from 2005-2020.

Clay

The main clay resource in Hertfordshire is brick clay, which is concentrated in the north west of the County, particularly the Hemel Hempstead area, where it has been worked at a number of sites. Clay deposits in Hertfordshire can be patchy and vary in quantity, quality and thickness.

A specialist, traditional brickworks at Bovingdon has recently stopped producing bricks but has historically made bricks that are locally distinctive due to the characteristics of local clay reserves and the processes used to fire the bricks. At the time of writing, Bovingdon Brickworks was selling stockpiled bricks; however, brick-making infrastructure has now been removed with no intention to reinstate it although there is no indication that the infrastructure for brick-making will be removed.

In addition, bricks created in the Chilterns area are historically used in restoration of existing buildings with a distinctive architectural character. These use a blend of clays, which highlights the importance of provision of brick clay from a number of different sources.⁸³

Chalk

The scale of chalk extraction in the county has historically been relatively small compared to other minerals. Chalk has been quarried at a small number of sites in the county for use as an agricultural lime on farms to improve soil quality and is therefore classed as an industrial mineral rather than an aggregate used in construction. It can also be used in small quantities in the pharmaceutical industry. There are three permitted chalk extraction sites in Hertfordshire at Codicote Quarry; Bedwell Park Quarry and Anstey Chalk Quarry⁸⁴; however, none are currently being worked.

Chalk occurs as bedrock throughout much of the county. Grey Chalk, which is the oldest of the two types found in Hertfordshire, and is found primarily in the north and far west of the county. White chalk contains more flint and runs through Watford and Hertford, protruding along the sides of the valleys of the rivers Ash and Lea and the Colne valley. The chalk is a major aquifer and is the most important source of groundwater in the county⁸⁵.

Much of the chalk within Hertfordshire lies within the Chilterns area, which consists of rolling chalk hills with superficial clay-with-flints deposits. The Chilterns AONB is designated for the quality of the chalk landscape, with dramatic steep chalk slopes, open downlands and rolling dip slope. The East Anglian Chalk lies to the north east of this area, characterised by gentler slopes from the Chilterns, through Hertfordshire and South Cambridgeshire⁸⁶.

There are currently three chalk extraction sites in Hertfordshire at Codicote Quarry, Bedwell Park and Anstey Chalk Quarry. Extraction at Codicote Quarry and Bedwell Park are due to cease by 21st February 2042. Extraction at Anstey Chalk Quarry is due to be completed by 31st December 2018

⁸² Hertfordshire County Council (2015) Topic paper for the review of the Hertfordshire County Council Minerals Local Plan: Planning for the appropriate amount of sand and gravel, Version 1 – February 2015

⁸³ Hertfordshire County Council (2017) Topic paper for the review of the Hertfordshire County Council Minerals Local Plan: Brick Clay, Version 2 – November 2017

⁸⁴ Hertfordshire County Council (2017) Topic paper for the review of the Hertfordshire County Council Minerals Local Plan: Chalk, Version 2 – November 2017

⁸⁵ Hertfordshire County Council (2017) Topic paper for the review of the Hertfordshire County Council Minerals Local Plan: Chalk, Version 2 – November 2017

⁸⁶ Hertfordshire County Council (2017) Topic paper for the review of the Hertfordshire County Council Minerals Local Plan: Chalk, Version 2 – November 2017

with importation of inert waste for reclamation of the site by 30th June 2020. Codicote and Anstey quarries both also recycle concrete and hardcore on site.

The Annual Minerals Raised Inquiry (AMRI) Survey 2014 states that there were sales of 25,000 tonnes of chalk in Hertfordshire for agricultural uses. The County Council annual aggregate survey in 2016 showed sales of 14,200 tonnes of chalk, incorporating previous returns. Reserves of chalk at the end of December 2016 were 328,300 tonnes. As chalk is classed as an industrial mineral rather than an aggregate, it is not necessary to plan for a separate land bank for this resource unlike sand and gravel. However, reserves should not be sterilised⁸⁷.

Table 3.2 illustrates the location of the operation mineral sites within the County.

Hoggin

One other main aggregate excavated in Hertfordshire is hoggin which is a mixture of sand and gravel held together by clay. Hoggin is suitable for use without processing and is often sold “as raised” from the ground for lower quality purposes. Hoggin is not worked in great quantities in Hertfordshire.

Marine Sources

There is a local demand for marine sand and gravel. Of the 19,000 tonnes of marine sand and gravel consumed in Hertfordshire as reported in the Aggregate Minerals Survey (AMS) 2014, 10-20% was supplied via Kent, 70-80% was supplied via Greater London East and less than 1% via Hampshire⁸⁸.

Crushed Rock

There is a local demand for crushed rock. According to the AMS 2014, Hertfordshire consumed 591,000 tonnes of crushed rock, 80-90% of which came from Leicestershire, 10-20% from Somerset, 1-10% from Cambridgeshire, Shropshire and Powys, and less than 1% from outside England and Wales, Gloucestershire, Doncaster, Yorkshire Dales and Neath Port Talbot. Therefore only 1-10% of imports came from the East of England⁸⁹.

Secondary and Recycled Aggregates

A considerable amount of inert waste is currently being used in the restoration of extraction sites. It is estimated that Hertfordshire produces nearly 1.5 million tonnes of construction, demolition and excavation (CD&E) waste. There are currently seven sites with planning permission for the recovery of inert CD&E waste in Hertfordshire, as listed below. Some sites also process commercial and industrial waste.

Table A3.2: Permitted recovery of inert CD&E waste in sites Hertfordshire⁹⁰

Site	COMPANY	STATUS
Anstey Quarry	The Anstey Quarry Company Ltd	Temporarily permitted until June 2020
Burnside, Hatfield	Peter Brothers Ltd	Permanent
Codicote Quarry	The Anstey Quarry Company Ltd	Temporarily permitted until February 2042

⁸⁷ Hertfordshire County Council (2017) Topic paper for the review of the Hertfordshire County Council Minerals Local Plan: Chalk, Version 2 – November 2017

⁸⁸ Hertfordshire County Council (2017) Local Aggregate Assessment <https://www.hertfordshire.gov.uk/media-library/documents/environment-and-planning/planning/planning-in-hertfordshire/minerals-planning/local-aggregate-assessment.pdf>

⁸⁹ Hertfordshire County Council (2017) Local Aggregate Assessment <https://www.hertfordshire.gov.uk/media-library/documents/environment-and-planning/planning/planning-in-hertfordshire/minerals-planning/local-aggregate-assessment.pdf>

⁹⁰ Hertfordshire County Council (2015) Local Aggregate Assessment (version 2) <http://www.hertfordshire.gov.uk/docs/pdf/1/locaggass15.pdf>

Site	COMPANY	STATUS
Harper Lane (Rail Loop)	Tarmac Ltd	Permanent
Harper Lodge Farm, Radlett	Ground Waste Recycling Ltd	Permanent
Birchall Lane, Cole Green, Welwyn Garden City	BP Mitchell Ltd	Permanent
Land adjacent to B197, north of Graveley	Envirowaste (Inc) Ltd/Stevenage Skips	Permanent

Table A3.3 shows the sales of sand and gravel and production of secondary and recycled aggregates over the past 10 years in Hertfordshire. The total aggregate produced in the county has risen over the past ten years.

Table A3.3 Recycled and Secondary Aggregate Production in Hertfordshire⁹¹

Year	Annual apportionment figure	Sales of soft sand and sharp sands and gravel (tonnes)	Recycled and Secondary Aggregate Processing (tonnes)	Total aggregate production in Hertfordshire
2007	1.39	1,010,466	267,210	1,277,676
2008	1.39	988,517	229,769	1,218,286
2009	1.39	1,214,306	258,427	1,472,733
2010	1.39	1,172,890	346,560	1,519,450
2011	1.39	1,268,465	303,869	1,572,334
2012	1.39	1,123,645	316,941	1,440,586
2013	1.39	1,130,295	329,457	1,459,752
2014	-	-	362,203	-
2015	-	-	317,314	-
2016	-	-	234,783	-
2017	-	-	246,105	-

Transport of Minerals

Linked with the mineral industry is the need for rail aggregate depots. Hertfordshire has five such sites at:

- Langley Sidings, Stevenage;
- Walsworth Road Rail Aggregate, Hitchin;
- Rye House, Hoddesdon;
- Harper Lane, St Albans; and
- Orphanage Road, Watford.

Crushed rock passes through Langley Sidings. Concrete batching is carried out at Orphanage Road, ready mix at Langley Sidings and Harper Lane and asphalt plants at Langley Sidings and Harper Lane. Rye House only handles dry stone; Hitchin rail aggregate depot is not currently operating⁹².

⁹¹ Hertfordshire County Council (2017) Local Aggregate Assessment <https://www.hertfordshire.gov.uk/media-library/documents/environment-and-planning/planning/planning-in-hertfordshire/minerals-planning/local-aggregate-assessment.pdf>

⁹² Hertfordshire County Council (2017) Topic paper for the review of the Hertfordshire County Council Minerals Local Plan: Safeguarding of Infrastructure related aspects & Updating railheads and wharves policy, Version 1 – November 2017

Environmental Baseline

Biodiversity and Geodiversity

Hertfordshire County has a rich biodiversity offering including four sites of international importance for nature conservation: the Lee Valley Special Protection Area (SPA) and Ramsar site, Chilterns Beechwoods Special Area of Conservation (SAC), and Wormley-Hoddesdonpark Woods SAC. Broxbourne Wood (which forms part of Wormley-Hoddesdonpark Woods SAC) is Hertfordshire's only National Nature Reserve (NNR). There are also 42 Local Nature Reserves (LNRs) and 43 nationally designated Sites of Special Scientific Interest (SSSIs) of which 51.23% are considered to be in 'favourable' condition with 46.05% classified as 'unfavourable recovering'⁹³ (see **Figure A3.3**). Furthermore, a number of sites in Hertfordshire are designated as important for their geology and geomorphology including 19 Regionally Important Geological Sites (RIGSs), eight Geological SSSIs, and seven Biological SSSIs with Earth Science Interest⁹⁴. The Herts and Middlesex Wildlife Trust manage over 40 nature reserves covering nearly 1,900 acres in Hertfordshire and the former county of Middlesex including SPAs, SSSIs, Ramsar sites, LNRs, and RIGS (see **Figure A3.4**).

The Herts and Middlesex Wildlife Trust and the Hertfordshire Local Nature Partnership have published an Ecological Network map which identifies the key areas for biodiversity and priority areas for habitat creation⁹⁵. The Hertfordshire Local Nature Partnership have published six principles for planning for biodiversity and the natural environment⁹⁶:

- Recognise the value of the natural environment and the range of benefits and services it provides.
- Protect and enhance existing biodiversity assets.
- Seek opportunities to improve habitat connectivity.
- Integrate biodiversity opportunities within new development.
- Make decisions informed by the best available ecological information and data.
- Secure the long term management of existing and new habitats/sites.

The [Hertfordshire Biodiversity Action Plan](#) (BAP) (1998, updated 2006) sets out specific action plans to increase the quality of habitats or population numbers for a number of habitats and species. It also identifies 30 Key Biodiversity Areas which reflect higher concentrations and/or distinctive types of habitat resource. The Hertfordshire BAP identifies five species action plans and eight habitat action plans that guide work on protecting, restoring and recreating a sustainable level of biodiversity in the county (see **Table A3.4**).

Table A3.4 Hertfordshire BAP action plans

Species Action Plans	Habitats Action Plans
Mammals Water vole, common dormouse, Natterer's bat and otter.	Woodland, including lowland mixed deciduous woodland, lowland wood pasture and parkland.
Birds Tree sparrow, bittern, stone-curlew, song thrush, black-necked grebe.	Wetlands, including wet woodland.
Amphibians Great crested newt.	Heathland and acid grassland.
Invertebrates	Neutral grassland.

⁹³ HertsInsight (2017) *Wildlife & Habitats (Quality of Life Report) Selection: Hertfordshire Geo-type: County*.

⁹⁴ Hertfordshire Geological Society (2017) *Hertfordshire Geological Sites - Geological Conservation Sites in Hertfordshire 2016*. Available at: <http://www.hertsgeolsoc.org.uk/rigs.htm>

⁹⁵ Hertfordshire Local Nature Partnership and Middlesex Wildlife Trust (2014) *Guidance on applying 'Hertfordshire's Ecological Networks' within the planning system*. Available at: https://www.hertswildlifetrust.org.uk/sites/default/files/2018-07/Planning%20guidance%20on%20applying%20Herts%20ecological%20networks_Final%20Oct%202014.pdf

⁹⁶ Hertfordshire Local Nature Partnership – Planning Guiding Principles. Available at: <https://www.hertswildlifetrust.org.uk/local-nature-partnership>

Species Action Plans	Habitats Action Plans
The chalkhill blue, grizzled skipper and purple emperor butterflies, stag beetle and white-clawed crayfish.	
Flora Great pignut, cornflower, river water-dropwort and the county flower, the pasque flower.	Chalk grassland.
	Farmland
	Orchards
	Urban

According to [Hertfordshire's Ecological Networks: A report on the current situation and priorities for restoration](#) there is a total of 359km² (35,900 ha) of habitat in Hertfordshire, equating to approximately 22% of the total county area. The findings on individual habitat networks and conditions are summarised below:

- **Woodland** is the most common habitat in Hertfordshire, comprising 10% of land cover. However, less than half of this is able to be classed as semi-natural and only 3,876 ha (less than one-quarter of Hertfordshire's woodland) is ancient. Wooded habitats have a scattered distribution throughout the whole county but are particularly concentrated within the Hornbeams & Heaths area in the central and south.
- **Neutral grassland** is the second most common habitat, totalling approximately half of the woodland cover. However, of this only 280ha are of known decent quality. The biggest concentration is in the Hornbeams & Heaths character area.
- **Chalk grassland** is highly restricted to the chalk escarpment in the north between Royston and Tring, although outliers occur elsewhere where the underlying chalk geology reaches the surface. There are only a handful of good sized patches left, the most significant being Therfield Heath. The majority of sites and the best potential for connectivity are along the chalk escarpment, with a particular priority around the Therfield Heath vicinity. Chalk grassland elsewhere is generally rare, of small patch size and extremely isolated from other patches. Whilst these are an important natural resource in their own right, there is little potential to connect them as part of a chalk grassland network.
- **Heathland and chalk grassland** are the rarest and most threatened habitats. Heathland is now all but wiped out, with just 13ha remaining, while there is just 148ha of high quality chalk grassland sites remaining.
- **Acid open habitats** are the second most vulnerable and poorly connected habitat after chalk grassland. This is despite merging heathland with acid grassland. The distribution of acid grassland is patchy within the county but clearly concentrated in the Hornbeams and Heaths, around Ashridge Estate and Berkhamsted Common in the north-west and Patmore Heath in the east, with lots of potential for improving network connectivity. The soils and open nature of the wooded area around the Ashridge Estate still support fragments of acid open habitats and rare species associated with them.
- **Wetland habitats** are found throughout the river valleys but are notably most concentrated along the Stort in the east and parts of the Lea and Mimram. Old gravel pits in the Lea and the Colne are very important sites for wetland birds. The nationally and internationally important open water bodies at Tring and in the Colne and Lea Valleys are particularly obvious and show a good deal of connectivity due to their large size and concentration in those areas. The most impressive network connectivity, however, is in the Stort Valley where there is a relatively continuous corridor alongside the river and the model shows a lot of high priority potential between these patches. Conversely, apart from small parts of the Mimram and a few others, there is generally very little current or modelled potential wetland habitat connectivity along the important chalk river tributaries of the Lea or Colne. This highlights one of the reasons why chalk river ecosystems in Hertfordshire are failing. Without significant habitat creation alongside these rivers, they will continue to be highly vulnerable to erosion and diffuse pollution, as well as being unable to support their full range of flora and fauna.

Landscape

Hertfordshire is defined by a varied landscape mosaic of chalk hills and plateaus sloping down from the chalk escarpment, in the northern part of the county. The landscape is cut by chalk river valleys, which form part of the Thames catchment. Hertfordshire's varied landscape is reflected by the fact that it lies within six National Character Areas (NCAs) ⁹⁷:

- 86 South Suffolk and North Essex Clayland.
- 87 East Anglian Chalk.
- 88 Bedfordshire and Cambridgeshire Claylands.
- 110 Chilterns.
- 111 Northern Thames Basin.
- 115 Thames Valley.

The [East of England Regional Landscape Framework](#) identified nine landscape character types in Hertfordshire including:

- Chalk slopes and ridges.
- Rolling chalk hills.
- Wooded chalk valleys.
- Settled chalk valleys.
- Wooded plateau farmlands.
- Estate farmlands.
- Wooded plateau claylands.
- Valley meadowlands.
- Urban areas.

Hertfordshire contains one nationally designated landscape, the Chilterns Area of Outstanding Natural Beauty (AONB), which has been protected since 1965. It is located north of Hemel Hempstead and west of Watford. Approximately 14% of the Chilterns AONB falls within the county.

The Metropolitan Green Belt covers an area of 84,640 hectares or 51.5% of Hertfordshire. There are no national parks within Hertfordshire, however there are nine county parks, 46 Registered Parks and Gardens, and 5,940 hectares of ancient woodland, all of which contribute to the substantial existing green infrastructure resource in Hertfordshire.

Hertfordshire has a particularly high concentration of planned and designed 20th Century urban greenspace assets, due primarily to the presence of the world's first Garden City at Letchworth, the later Welwyn Garden City, and a number of New Towns (Hemel Hempstead, Stevenage and Hatfield). All are important to green infrastructure as they include greenspace provision as an integral part of the settlement layout and development configuration.

According to the GreenArc Strategic Green Infrastructure Plan (with Hertfordshire), there is a deficiency in Access to Natural Greenspace (ANG) particularly in East Hertfordshire, North Hertfordshire, Hertsmere, Welwyn Hatfield, Watford and Stevenage⁹⁸. Broxbourne has a proportionally higher than average provision of ANG.

Figure A3.5 illustrates the location of key landscape designations and features in the county.

⁹⁷ Natural England (2014) National Character Area profiles

⁹⁸ Land Use Consultants (2011). GreenArc Strategic Green Infrastructure Plan (with Hertfordshire). Available at: https://www.broxbourne.gov.uk/sites/default/files/Documents/Planning_Policy/pp_HCC_Herts_Strategic_Green_Infrastructure_Full_Report_%28Mar11%29.pdf

Historic Environment

There are a number of heritage designations in Hertfordshire, from individual buildings and structures of interest to the distinctive character of the market towns of Ware, St Albans, Sawbridgeworth and Bishop's Stortford. Each district and borough council also has non-designated heritage assets of value and local significance.

There are 8,069 Listed Buildings in Hertfordshire (109 Grade I, 7,485 Grade II, and 475 Grade II*), 179 Scheduled Monuments, 46 Registered Parks and Gardens, and one Registered Battlefield (Battle of Barnet 1471). There are 199 Conservation Areas in Hertfordshire, including country house estates and the historic centres of towns and villages. There are also 17,112 entries on the Hertfordshire Historic Environmental Record (HER) and St Albans Urban Archaeological Database (UAD). The majority of designations are within North Hertfordshire and East Hertfordshire⁹⁹.

According to Historic England's national Heritage at Risk Register 2017¹⁰⁰, the following heritage assets in Hertfordshire warrant extra protection through the planning system:

- 13 buildings and structures – (1) remains of old church tower of St Mary and All Saints Church; (2) remains of St Mary and All Saints; (3) Thundridgebury moated enclosure and associated remains of Thundridgebury House, St Mary and All Saints' Church and graveyard; (4) ruins of Church of St Etheldreda; (5) Knebworth House; (6) Minsden Chapel; (7) North Hertfordshire Masonic Lodge (the Cloisters); (8) West Barn at Rectory Farm; (9) the Benedictine Priory of St Mary (Sopwell Priory) and the post-medieval mansions known as Sopwell House or Lee Hall; (10) Langleybury House; (11) Little Cassiobury and former stable block; (12) Frogmore House; and (13) Paine Bridge at Brocket Hall.
- 13 archaeology sites – (1) remains of old church tower of St Mary and All Saints Church; (2) remains of St Mary and All Saints; (3) Roman site near railway station, Braughing/Standon; (4) Thundridgebury moated enclosure and associated remains of Thundridgebury House, St Mary and All Saints' Church and graveyard; (5) ruins of Church of St Etheldreda; (6) Minsden Chapel; (7) Romano-British small town and late Iron Age settlement at Baldock; (8) slight univallate hillfort on Wilbury Hill; (9) ring ditch and enclosure, Newnham; (10) Wymondley Priory, barn, moat, associated earthworks, enclosures, platforms, hollow-way and conduit head; (11) the Benedictine Priory of St Mary (Sopwell Priory) and the post-medieval mansions known as Sopwell House or Lee Hall; (12) the Aubreys camp; and (13) Wheathampstead earthwork incorporating Devils Dyke and the Slad.
- 3 places of worship – (1) Church of St Leonard (High Street, Flamstead); (2) Church of St Mary (Church Street, Baldock); and (3) Church of St Mary (Mill Lane, Ashwell).
- 5 conservation areas – (1) Churchgate; (2) Wormley; (3) Broadwater; (4) Town Square; and, (5) Rectory Lane and St Nicholas.
- 1 park and garden – Panshanger.

Historic buildings and landscapes make a significant contribution to the special character of Hertfordshire and contribute to a rich and varied cultural heritage, which benefits residents and visitors alike¹⁰¹. **Figure A3.6** illustrates the location of historic designations in the county.

Climate change, energy consumption and energy efficiency

Climate change has the potential not only to affect the environment but also the social and economic aspects of life in Hertfordshire.

⁹⁹ Historic England (2017) *Local Authority Profiles 2016*. Available at: <https://historicengland.org.uk/research/heritage-counts/2016-heritage-and-place-branding/indicator-data/local-authority-profiles/>

¹⁰⁰ Historic England (2017) *Heritage at Risk*. Available at: <https://content.historicengland.org.uk/images-books/publications/har-2017-registers/ee-har-register2017.pdf/>

¹⁰¹ Hertfordshire County Council (2015) *Hertfordshire Minerals & Waste Development Framework Authority's Monitoring Report*

The UK Climate Projections (UKCP09)¹⁰² show that for the east of England mean daily maximum and minimum temperatures will increase both in summer and winter. Although the precise nature of environmental changes is not fully understood, changes to precipitation patterns (and river flow) and flooding have implications for the location, longevity and viability of waste developments. Conversely, predicted dry, hot summers will cause problems of low flows for some of the rivers in the area which will increase demand for water. Extreme weather events may also increase disruption to supply chains, infrastructure and transport of waste.

The latest DECC figures¹⁰³ are set out in **Table A3.5** and show generally decreasing trends for CO₂ emissions (kilotonnes) in Hertfordshire from 2005 to 2016. The decreasing trend in emissions reflects the decrease in overall emissions for the UK during this period driven mainly by reductions in emissions from power stations, industrial combustion and passenger cars, land use change and forestry. The reduction from power stations is driven by change in the fuel mix used for electricity generation with a reduction in the amount of coal, which is a carbon intensive fuel. The reduction in industrial combustion is largely driven by the closure or reduced activity of industrial lands, a large portion of which occurred during 2009, likely due to economic factors. Emissions for many Local Authorities are heavily influenced by activities at industrial sites, and changes at a single site can have a big impact on emissions trends¹⁰⁴.

According to the latest Greenhouse Gas Emissions Report by Hertfordshire County Council, greenhouse gas emissions for 2013/14 were at 115,425 CO₂e and have decreased by 10.6% compared to 2012/13 (from 129,042 CO₂e) and by 33.29% compared to the base year of 2008/09 (from 173,015 CO₂e)¹⁰⁵.

In addition, the latest DECC figures¹⁰⁶ for energy consumption (in thousand tonnes of oil equivalent (ktoe)) in Hertfordshire are set out in **Table A3.6**. There has been a general decreasing trend in energy consumption as well as CO₂ emissions. This also reflects a generally steady year on year decrease in total energy consumption. The decreasing trend has been attributed to the impacts of the recession, as well as energy efficiency improvements and declining use particularly in the industrial and commercial sector of petroleum products and gas.

Table A3.5 Source of CO₂ Emissions in Hertfordshire per Sector (2005-2016)

Year	Industry and Commercial (kt CO ₂)	Domestic (kt CO ₂)	Transport (kt CO ₂)	Total (kt CO ₂)
2005	2,691.0	2,692.3	2,846.5	8,151.4
2006	2,619.3	2,691.8	2,888.6	8,119.4
2007	2,537.5	2,625.9	2,882.1	7,957.9
2008	2,498.3	2,625.8	2,697.9	7,732.9
2009	2,251.8	2,399.8	2,633.1	7,195.2
2010	2,384.9	2,584.0	2,576.3	7,451.9
2011	2,103.3	2,262.6	2,585.5	6,855.2
2012	2,295.2	2,443.8	2,587.5	7,227.5
2013	2,205.6	2,407.2	2,582.9	7,096.0

¹⁰² UK Climate Projections (2017). UKCP09. Available at: <http://ukclimateprojections.metoffice.gov.uk>

¹⁰³ DECC (2017) *UK local authority and regional carbon dioxide emissions national statistics: 2005 to 2016*. Available at: <https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-2016>

¹⁰⁴ DECC (2017) *2005 to 2016 UK local and regional CO₂ emissions: statistical release*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/719182/Local_Authority_CO2_Emissions_Statistical_Release_2016.pdf

¹⁰⁵ Hertfordshire County Council (2015) *Greenhouse Gas Emissions Report 2013/14*. Available at: <https://www.hertfordshire.gov.uk/media-library/documents/about-the-council/data-and-information/greenhouse-gas-emissions-report-2013-14-185158251-2.pdf>

¹⁰⁶ DECC (2017) *Total final energy consumption at regional and local authority level*. Available at: <https://www.gov.uk/government/statistical-data-sets/total-final-energy-consumption-at-regional-and-local-authority-level>

Year	Industry and Commercial (kt CO ₂)	Domestic (kt CO ₂)	Transport (kt CO ₂)	Total (kt CO ₂)
2014	1,965.9	2,013.2	2,641.2	6,516.3
2015	1,775.2	1,971.5	2,721.3	6,361.2
2016	1,549.0	1,867.8	2,780.5	6,090.2

Table A3.6 Energy Consumption in Hertfordshire per Sector (2005-2014)

Year	Industry and Commercial (ktoe)	Domestic (ktoe)	Transport (ktoe)	Total (ktoe)
2005	685.05	868.84	822.93	2,376.82
2006	623.87	873.70	857.46	2,355.03
2007	604.60	864.44	860.92	2,329.96
2008	578.77	837.62	830.13	2,246.52
2009	552.44	792.16	819.34	2,163.94
2010	563.27	794.01	795.01	2,152.29
2011	521.26	754.65	802.82	2,078.73
2012	525.52	753.07	801.20	2,079.79
2013	535.33	746.72	802.96	2,085.01
2014	534.97	731.26	822.50	2,088.73
2015	516.28	733.57	840.74	2,090.59

Flood Risk

The Environment Agency has published a number of Catchment Flood Management Plans (CFMPs) that consider all types of inland flooding, from rivers, groundwater, surface water and tidal flooding across individual river catchments that fall within specific river basin districts. There are three CFMPs that fall within the Thames River Basin District and ten that fall within the Anglian River Basin District. Hertfordshire is covered by the Thames Catchment Flood Management Plan (2009) and The Great Ouse Catchment Flood Management Plan (2009). These are summarised in the Hertfordshire's Level 1 Strategic Flood Risk Assessment (SFRA).

Hertfordshire is at risk from a variety of sources of flooding, including groundwater, surface water, river flooding (fluvial), sewer or highway flooding. Many of Hertfordshire's settlements are predicted to be affected by surface water flooding. Over 53,000 properties are in areas where there is potential for surface water flooding up to 0.3m in an event which has a 0.5% probability (1 in 200 chance) of occurring in any year. Significant levels of fluvial flood risk are present in the south and south eastern parts of the county. Approximately 8,000 dwellings fall within flood risk zone 2 and 4,800 dwellings in flood risk zone 3. Between 1997 and 2007 there were 291 records of sewer flooding within Hertfordshire, of which 77 were attributed to surface water and 25 to combined sewers.

The Canal and Rivers Trust (formerly British Waterways) is currently investigating the potential for flooding from the canal network. Current records indicate only two minor breach events on record within Hertfordshire on the Grand Union Canal. Dacorum Borough Council's Level 2 SFRA includes an assessment of potential flood risk associated with a raised section of the Grand Union Canal. It is considered that there are no significant flood risks associated expressly with the canals in Hertfordshire.

Changes in climatic conditions can affect local flood risk in several ways; however, impacts will depend on local conditions and vulnerability. Wetter winters and more intense rainfall may increase river flooding in both rural and urban catchments. More intense rainfall causes greater

surface runoff, increasing localised flooding and erosion, which may increase pressure on drains, sewers and water quality. Storm intensity in summer could increase even in drier summers, increasing the risk arising from unexpected flash flooding.

Wetter winters also increase the risk of flooding from groundwater-bearing chalk aquifers across the county but it is difficult to predict in detail as much depends on the nature of the rainfall.

Many drainage systems in the county have been modified to manage water levels and could help in adapting locally to some impacts of future climate on flooding. However, changing intensity of weather patterns may mean that these assets may need to be managed differently.

Currently, the rivers Ash, Beane, Upper Colne, Lee, Rib, Purwell and The Stort have been subjected to climate change flood modelling. The Environment Agency is currently undertaking new modelling studies that are being undertaken for some of the Stort Tributaries; Puckeridge, Gade & Bulbourne and the Shonks Mill area of Roding. Once these are completed, 1 in 20 year outlines and climate change outlines will be available for these areas.

Figure A3.7 illustrates the location of flood zones 2 and 3 in the county.

Water Quality

Hertfordshire has 19 water courses classed as 'main rivers'. Other rivers, streams, ditches, drains, culverts etc., are classified as an 'ordinary watercourse' which may also contribute to flood risk within the county.

The majority of Hertfordshire lies within the Thames Catchment Area, which covers a total area of 6,229 square miles from Swindon in the west to Crawley in the south. St Albans, Watford, Hatfield, Welwyn Garden City, Hemel Hempstead, Hertford, Ware and Stevenage are situated within the Thames Catchment Area. The remainder of Hertfordshire is situated within the Anglian River Basin, which covers an area of 10,768 square miles from Lincoln in the north to Chelmsford in the south. Letchworth Garden City, Hitchin and Royston are situated within the Anglian River Basin.

The EU Water Framework Directive (2000/60/EC) looks at the ecological health of both groundwater and surface water with the aim of achieving 'good ecological status' by 2027, and to ensure that there is no deterioration from existing statuses. There are 41 water bodies within or crossing the boundaries of Hertfordshire. In 2016:

- 2.4% of the water bodies were classified as 'good'.
- 61% of the water bodies were classified as moderate; these include the Rivers Mimram, Ash, Chess and Hiz.
- 29.3% of the water bodies were classified as poor; these include the Rivers Bulbourne, Purwell and Ivel.
- 7.3% of Hertfordshire's water bodies were classified as bad; this equates to three water bodies – the Cat Ditch, the Upper Gade to confluence with River Bulbourne and the River Colne¹⁰⁷.

The 2016 data for Hertfordshire shows a decrease in the number of water bodies at good and moderate status and an increase in the number of water bodies at poor status compared to 2015.

Since July 2016 there has been low rainfall and groundwater resources remain well below average. There are a number of Groundwater Source Protection Zones (Zone I – Inner Protection Zone) primarily around Watford, Cheshunt, Welham Green, Hoddesdon, Hertford, Letchworth Garden City. In 2016, the average non-metered per capita consumption was 166.71 litres per person per day in Hertfordshire which is an increase of 0.8% on the previous year, and 136.61 litres per person per day for metered residents which is an increase of 3.5% since 2015. In 2016,

¹⁰⁷ HertsInsight (2017) Water (Quality of Life Report) Selection: Hertfordshire Geo-type: County. Available at: <http://atlas.hertsinsis.org/profiles/profile?profileId=980&geoTypeId=16&geolDs=E10000015#>

Affinity Water carried out over 186,000 water quality tests¹⁰⁸. Of those measured against the Drinking Water Inspectorate's standards, 99.97% were compliant¹⁰⁹.

Figure A3.7 illustrates the location of Source Protection Zones I and II in the county.

Air Quality

The Environment Act 1995 introduced the National Air Quality Strategy and the requirement for local authorities to determine if statutory air quality objectives (AQOs) are likely to be exceeded. All local authorities now report to DEFRA on an annual basis, and have the obligation to declare Air Quality Management Areas (AQMAs) and develop action plans for improvement of air quality if objectives are likely to be exceeded.

According to the Air Quality Strategic Plan for Hertfordshire¹¹⁰, Hertfordshire's location close to London and its key strategic transport arteries running north to south across the county (e.g. the A1M, A10, and M1) and east to west in the south of the county (the M25), combined with high levels of car ownership and use, have contributed to the poor air quality experienced in some parts of Hertfordshire.

There are currently 54 designated AQMAs across Hertfordshire (see **Figure A3.8**)¹¹¹. With the exception of Stevenage District Council and Welwyn District Council, all local authorities have Air Quality Management Areas. Hertsmere Borough Council has the highest number of AQMAs (20) while Broxbourne Borough Council has the second highest number of AQMAs (11). All AQMAs are exceeding their annual mean objective for nitrogen dioxide (NO₂) with the exception of one AQMA in East Hertfordshire District Council and two AQMAs in Three Rivers District Council which are exceeding their annual mean objective for particulate matter (PM₁₀).

Soil Quality

The varied geology of Hertfordshire has generated wide variations in soil types and consequently in agricultural land productivity. Approximately 64% of the land area of Hertfordshire is used for agriculture, 7% is wooded, and urban built up areas and transport cover the remaining 29%¹¹².

The Agricultural Land Classification (ALC) system provides a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations to agricultural use. The principal factors influencing agricultural production are soil wetness, drought and erosion. These factors together with interactions between them form the basis for classifying land use into one of five grades, where 1 describes land as excellent (land of high agricultural quality and potential) and 5 describes land as very poor (land of low agricultural quality and potential). Land falling outside these scores is deemed to be 'primarily in non-agricultural use', or 'predominantly in urban use'. Grade 3 can be further separated into grades 3a and 3b, although this requires further local surveys and therefore such data is only available for small areas. Grades 1, 2 and 3a are considered to be best and most versatile agricultural land.

The majority of Hertfordshire consists of grade 2 and grade 3 agricultural land. There are no areas classified as grade 1 land. There are some small areas of lower quality, grade 4 land, particularly in the north west of the county. Larger settlements do not have associated ALC grades as they are predominantly in urban use. **Figure A3.9** illustrates the spread of Agricultural Land Classification Grades across the county.

¹⁰⁸ *Ibid.*

¹⁰⁹ <https://www.affinitywater.co.uk/water-quality-in-your-area.aspx>

¹¹⁰ Hertfordshire County Council (2015) *Air Quality Strategic Plan for Hertfordshire 2015 – 2020*. Available at: <https://www.hertfordshire.gov.uk/media-library/documents/public-health/air-quality-strategic-plan.pdf>

¹¹¹ Department for Environment Food and Rural Affairs (2017) *List of Local Authorities with AQMAs*. Available at: <https://uk-air.defra.gov.uk/aqma/list?a=all&country=all&pollutant=all>

¹¹² LUC (2012) Hertfordshire Waste Development Framework Waste Core Strategy & Development Management Policies DPD Adopted version 2012, Final Sustainability Appraisal Report

Social Baseline

Population

With no dominant city, Hertfordshire is instead characterised by a network of urban areas and its density of 7.16 people per hectare makes it one of Britain's most densely populated counties. The latest mid-year population figures for mid-2017 showed that there were 1,180,900 people living in the County¹¹³, with an almost even split between females (51%) and males (49%)¹¹⁴. This is an increase of 15,600 people compared to 2015. This was in part due to natural change, i.e. more births than deaths.

In the year ending at mid-2017, the net internal migration to Hertfordshire was estimated at - 2,900 with an inflow of 55,000 and an outflow of 57,900. The net international migration was estimated at 2,800 with an inflow of 7,700 and an outflow of 4,900.

The highest proportion of residents in Hertfordshire is within the 45-49 and 50-54 year age brackets. The number of residents between 20-24 years old is lower than the national average, however this age group has the highest internal net migration. There were 199,300 people over 65 years of age in mid-2017 which is projected to increase by 2039. This will have implications for the economy, service provision, accommodation and health.

The population projections indicate an increase of approximately 187,700 people (15.96%) in Hertfordshire over the 25 year period from 2016 to 2041.

The population is largely concentrated within Dacorum, St Albans and East Hertfordshire Authorities. The population density of Hertfordshire is 6.8 persons per hectare¹¹⁵. This is substantially higher than the average for the East of England at 3.1 persons per hectare. Within the county, Watford (42.1), Stevenage (32.3) and Broxbourne (18.2) have the highest numbers of people per hectare with East and North Hertfordshire having the lowest (2.9 and 3.4 respectively) which reflects the rural nature of these areas.

80.82% of Hertfordshire's population is white English/Welsh/Scottish/Northern Irish/British. This is less diverse than the average for the East of England (85.28%) but more diverse than the national average of (79.75%)¹¹⁶.

The population of Hertfordshire is projected to increase by 187,700 (15.96%) over the 25 year period from 2016 to 2041¹¹⁷ with populations for each individual district sharing the increase. East Herts is set to experience the largest increase of 27,600 people by 2041 and Stevenage the lowest increase of 12,000, by 2041¹¹⁸.

Social inclusion and deprivation

The English Indices of Deprivation 2015¹¹⁹ is a measure of multiple deprivation in small areas or neighbourhoods, called Lower-layer Super Output Areas (LSOA), in England. Seven domains of deprivation are measured: Income Deprivation; Employment Deprivation; Health Deprivation and Disability; Education, Skills and Training Deprivation; Crime; Barriers to Housing and Services; and Living Environment Deprivation. Each domain contains a number of indicators. The seven domains are combined to give a multiple deprivation score. There are 690 LSOAs in Hertfordshire and 32,844 nationally¹²⁰. At 12.2% Hertfordshire has a lower than average deprivation score

¹¹³ NOMIS (2017) Labour Market Profile – Hertfordshire. Available at: <https://www.nomisweb.co.uk/reports/lmp/la/1941962834/report.aspx>

¹¹⁴ ONS (2017) Annual mid-year population estimates - Nomis labour market profile – Hertfordshire.

¹¹⁵ ONS (2011) *2011 Census: Usual resident population and population density, local authorities in the United Kingdom*.

¹¹⁶ ONS (2011) *2011 Census: Usual resident population and population density, local authorities in the United Kingdom*.

¹¹⁷ ONS, 2016 based sub national population projections, published 2018.

¹¹⁸ ONS, 2016 based sub national population projections, published 2018.

¹¹⁹ DCLG (2015). *The English Indices of Deprivation*.

¹²⁰ DCLG (2015). *Indices of Deprivation 2015 explorer*. Available at: <http://dclgapps.communities.gov.uk/imd/idmap.html>

compared to the England average of 21.8%¹²¹. Stevenage and Broxbourne are the two authorities in the county with the highest levels of deprivation at 18.4% and 17.3% respectively.

Hertfordshire contains two LSOAs in the 10% most deprived in the country (Hertsmere 006C within the Borehamwood Cowley Hill ward and Three Rivers 012D within the South Oxhey ward). Seven LSOAs are within the 20% most deprived in the country (two within the Waltham Cross ward in Broxbourne; one within the Hemel Hempstead Town ward in Dacorum; one within the Letchworth South East ward in North Hertfordshire; one each within the Bedwell ward and the Bandle Hill ward in Stevenage; and one in the Central ward in Watford). **Figure A3.10** maps the Indices of Deprivation across the county.

In 2017, the Department for Business, Energy & Industrial Strategy published detailed statistics on the level of fuel poverty in 2015, which estimates that there are 6.8% of households considered to be fuel poor¹²² (32,084 fuel poor households). This is lower than fuel poverty rates for the East of England (9.4%)¹²³.

Housing

The number of dwellings in Hertfordshire has progressively increased each year since 2012 with an estimated 487,680 dwellings at 1st April 2017¹²⁴. In total, the Hertfordshire districts are planning for to provide a total of approximately 100,000 homes by 2031 across the county.

On 3rd October 2017, there were 9,458 registered vacant dwellings the majority of which are located in St Albans, Dacorum, North Hertfordshire and East Hertfordshire, an increase of 1,116 since 2015¹²⁵. There are 24,090 households on the housing waiting list with 52% of demand from Dacorum Borough Council, resulting in Hertfordshire being one of the counties in the East of England with the highest number of households waiting for housing¹²⁶.

Statutory homelessness for Hertfordshire is at 0.3 per 1000 people which is below the national average of 0.8¹²⁷. According to the English Indices of Deprivation¹²⁸, there are 690 LSOAs in Hertfordshire of which 33 are within the 10% most deprived for access to housing and services, the majority of which are located in East Hertfordshire, Dacorum and Welwyn Hatfield.

In May 2018, the average house price in Hertfordshire was £401,958¹²⁹. Housing in Hertfordshire is less affordable than the England average which has a median house price of £226,351. Hertfordshire has the highest median house price of all counties in the East of England. The number of households in Hertfordshire is projected to increase from 472,000 to 616,000 over the 25-year period 2014-2039, representing an increase of 23% (144,000) on the 2014 figure¹³⁰.

In total, the Hertfordshire districts are planning for to provide a total of 91,000 homes by 2031 across the county.

Health

The population of Hertfordshire performs either better than or at least as good as the averages for the East of England and nationally against all health indicators, with the exception of diabetes diagnoses, dementia diagnoses and the number of excess winter deaths. An estimated 1,795

¹²¹ Public Health England (2018). *Hertfordshire Health Profile 2018*. Available at: https://fingertips.phe.org.uk/profile/health-profiles/area-search-results/E10000015?place_name=Hertfordshire&search_type=parent-area

¹²² A household is considered to be fuel poor if they have required fuel costs that are above the national median level and were they to spend that amount, they would be left with a residual income below the poverty line.

¹²³ Department for Business, Energy & Industrial Strategy (2018). *Fuel poverty statistics*. Available at: <https://www.gov.uk/government/collections/fuel-poverty-statistics>

¹²⁴ DCLG (2018) Live tables on dwelling stock (including vacants). Table 100: number of dwellings by tenure and district, England.

¹²⁵ DCLG (2018) Live tables on dwelling stock (including vacants). Table 615: vacant dwellings by local authority district, England, from 2004.

¹²⁶ DCLG (2018) Live tables on rents, lettings and tenancies. Table 600: number of households on local authorities' housing waiting lists, by district, England, from 1997.

¹²⁷ Public Health England (2018). *Hertfordshire Health Profile 2018*. Available at: https://fingertips.phe.org.uk/profile/health-profiles/area-search-results/E10000015?place_name=Hertfordshire&search_type=parent-area

¹²⁸ DCLG (2015). *The English Indices of Deprivation*.

¹²⁹ Land Registry, <http://landregistry.data.gov.uk/app/ukhpi>

¹³⁰ DCLG (2016) Live tables on household projections.

(20.7%) more people died in the winter months compared with non-winter months between August 2013 - July 2016 which is significantly worse than the England average of 17.9%. This is due to the 273 winter deaths in North Hertfordshire which equates to 24.2% more people dying in the winter months compared with the non-winter months.

About 13.3% of children in the county live in poverty¹³¹. This is lower than the national average of 20.1% of children living in poverty.

Life expectancies for both men and women in Hertfordshire are higher than the national average, at 84.2 years for women and 81 years for men. The life expectancy is 7.2 years lower for men and 5.4 years lower for women in the most deprived areas of Hertfordshire than in the least deprived areas.

Obesity rates in year 6 children are 16% which is less than the England average, and 59.7% of adults in Hertfordshire are classed as either overweight or obese which is also lower than the national average. Alcohol-specific hospital stays and levels of smoking for those under 18 are better than the averages for the East of England and England as a whole. Smoking prevalence in adults at 12.7% of the population is also lower than the England average (14.9%). 68.5% adults in Hertfordshire are physically active, which is greater than England as a whole (66%). 39% of the population of Hertfordshire participate in sport at least once a week which is also higher than the regional and national averages¹³². Mortality rates (under 75s for cardiovascular and cancer) in Hertfordshire are also below the regional and national averages. However, Stevenage Borough Council performs significantly worse than the national averages in relation to under 18 conceptions (30%), GCSEs achieved (46.8%), violent crime (28.7%) and the under 75 mortality rate (cancer) (161.5 per 100,000).

There are 21 hospitals in Hertfordshire several of which are located in Hemel Hempstead and Stevenage. There are also 169 GP surgeries located across the county.

Figure A3.11 illustrates the location of GP surgeries and hospitals across the county.

Education, skills and training

There are 533 nursery, primary, secondary and special schools in Hertfordshire with the greatest concentration within East Hertfordshire, St Albans, Dacorum, and North Hertfordshire. 63.6% of pupils in Hertfordshire achieved GCSEs which is above the national average of 57.8% and the East of England average of 57.9%¹³³. However, the number pupils achieving GCSEs in Stevenage is considerably less than the national average at 46.8%.

The University of Hertfordshire is primarily based in Hatfield and has a student community of 24,500 including more than 3,800 international students¹³⁴. There are also a number of further education colleges located throughout the county including West Herts College, Oaklands College, North Hertfordshire College, Hertford Regional College, and Barnet College.

Figure A3.11 illustrates the location of schools across the county.

Crime

Hertfordshire generally has low levels of crime and has a crime deprivation score of -0.41 (low) which is below the national average of 0.01 (based on English Indices of Deprivation 2015)¹³⁵. In 2015/16, police recorded 14 crimes per 1,000 people which is below the national and East of England averages of 17.2 and 15.6 respectively. However, for Stevenage and Watford these figures are significantly higher at 22.4 and 20.8 respectively. Broxbourne is the local authority with the highest crime deprivation score of 0.04, followed by Stevenage at 0.01.

¹³¹ Public Health England (2017). *Hertfordshire Health Profile 2017*. Available at: <https://fingertips.phe.org.uk/profile/health-profiles>

¹³² Sport England (2017). *Local Sport Profile for Hertfordshire*. Available at: <http://localsportprofile.sportengland.org/Profiles.aspx>

¹³³ Public Health England (2018). *Hertfordshire Health Profile 2018*. Available at: https://fingertips.phe.org.uk/profile/health-profiles/area-search-results/E10000015?place_name=Hertfordshire&search_type=parent-area

¹³⁴ University of Hertfordshire (2016) *Strategic Report and Financial Statements 2016-2017*. Available at: <https://images.herts.ac.uk/pf.tlx?9kB9zT91qqiQU>

¹³⁵ Public Health England (2017). *Hertfordshire Health Profile 2017*. Available at: <https://fingertips.phe.org.uk/profile/health-profiles>

The instances of violent crimes are increasing within each district and borough council in Hertfordshire. From April 2016 to January 2017, there were 60,321 reported crimes in Hertfordshire which is an increase of 13.22% since the previous recording period with the most crimes being reported as 'violence against the person'¹³⁶. There is also a direct correlation between crime and the most deprived areas in Hertfordshire with 71.4 crimes per 100,000 people reported in the most deprived decile compared to 23.6 crimes per 100,000 people reported in the least deprived decile¹³⁷.

The number of fly-tipping incidents in Hertfordshire has progressively increased from 12,481 in 2014/15 to 14,426 in 2015/16 and 15,257 in 2016/17, an increase of 22.2%. The greatest number of incidents were recorded in Stevenage and Welwyn Hatfield, while Watford experienced three times more fly tipping incidents in 2015/16 compared to the previous recording period¹³⁸.

Culture, leisure and recreation

Leisure activities contribute to the quality of life of residents, providing amenity and opportunities for enhancing intellectual, spiritual and physical wellbeing. Additionally, they represent a tourism asset and their provision can result in economic benefits to the area. Waste operations have the potential to affect areas valued for recreation through their operations however, they can also enhance recreation opportunities through the restoration of waste sites.

Hertfordshire has a range of cultural and leisure attractions, including ten museums such as the National History Museum Tring, three wildlife parks, numerous adventure and leisure centres, and various tourist attractions such as the Warner Bros. Harry Potter Studio¹³⁹.

Hertfordshire has five historic houses and gardens which are open to the public including Knebworth House, Bocket Hall Estate, Hatfield House, Place House Hall, and Benington Lordship Gardens. The historic market towns and villages of Hertfordshire contain many historic assets such as St Albans Cathedral and Clock Tower, the Welwyn Roman Baths, Scott's Grotto, and Bhaktivendanta Manor Krishna Temple. Hertfordshire has 54 golf courses including Chorleywood, Batchworth Park, East Hertfordshire, Whippsnade Park and Cheshunt Park¹⁴⁰.

Many visitors to Hertfordshire come for its countryside, including the Chilterns AONB in the west and north-west, and the wealth of walking and cycling opportunities across the county. Hertfordshire has an extensive Rights of Way network of over 5,200 paths totalling more than 3,000km. The Ridgeway, a National Trail, passes through the county north-west of Hemel Hempstead through the Chilterns AONB. There are a number of National Cycle Network (NCN) routes across Hertfordshire including Route 1 (Dover to Shetland Islands), Route 6 (London to the Lake District), Route 12 (Great North Way), and Routes 57 and 61 (Hertfordshire Greenways – Wheathampstead to Ware). **Figure A3.12** illustrates the location of open spaces and Public rights of way across the county.

According to the [GreenArc Strategic Green Infrastructure Plan \(with Hertfordshire\)](#), there is a deficiency in Access to Natural Greenspace particularly in East Hertfordshire, North Hertfordshire, Hertsmere, Welwyn Hatfield, Watford and Stevenage, however, Broxbourne has a proportionally higher than average level of Access to Natural Greenspace.

Economic Baseline

Economy and employment

Hertfordshire's close proximity to London, strong communication links, highly skilled workforce and good quality of life have attracted a wide range of businesses to the county. Hertfordshire is

¹³⁶ Hertfordshire Constabulary (2017). *Crime Figures*. Available at: <https://www.herts.police.uk/assets/Information-and-services/About-us/Transparency/Crime-figures/Crime-figures-CSP.pdf>

¹³⁷ Public Health England (2017). *Hertfordshire Health Profile 2017*. Available at: <https://fingertips.phe.org.uk/profile/health-profiles>

¹³⁸ DEFRA (2017) *Fly-tipping incidents and actions taken, reported by local authorities in England 2012 to 2017*.

¹³⁹ <https://www.visitherts.co.uk/>

¹⁴⁰ <http://www.englishgolf-courses.co.uk/hertfordshire/>

home to thriving and diverse industries including leading pharmaceutical, bio-technology, financial services, and film and computer-related businesses.

Hertfordshire's Local Enterprise Partnership (LEP), is a business-led partnership between local businesses, academia, voluntary organisations and local government. The LEP aims 'to accelerate business-led growth in Hertfordshire' and secured a Growth Deal of £221.5 million from Government for infrastructure, business and skills in Hertfordshire.

The railway corridors and road networks in each radial corridor are the focal points to providing economic corridors between London, Hertfordshire and the North. These will help to boost the county's economic activity and mineral provision is essential to this growth.

Hertfordshire's employment rate is 78.6%¹⁴¹ which is greater than the rates for the East of England (77.6%) and UK (74.9%) for the 3 months up to May 2017¹⁴². Of those residents of working age (16-64), 81.5% are economically active. This is higher than the proportion for the East of England (80.7%) and England as a whole (78.4%). Of those in work, the most common types of employment are professional occupations, and associate professional and technical. Of those residents of working age in Hertfordshire, 1.3% are claiming out of work benefits, which is lower than both the averages for the East of England (1.6%) and England (2.2%). The average gross weekly pay in Hertfordshire is £592.6, which is higher than both the regional (£545.5) and national (£552.3) averages¹⁴³.

There are 606,000 employee jobs in Hertfordshire, 64.9% of which are full time and 35.1% of which are part time. The industries that employ the most people are wholesale and retail trade, repair of motor vehicles and motorcycles, and administrative and support service activities¹⁴⁴.

There are 58,135 enterprises and 62,540 local units (sites or workplaces) in Hertfordshire. The majority (91.3%) of businesses are micro, with up to 9 people in the business. Some 7% of businesses are small (10-49 people), 1.3% are medium (50-249 people) and 0.4% are large (250 people or more). There is a similar trend in the size structure for local units with 87.7% of local units classified as micro, 10% as small, 2% as medium and 0.3% as large¹⁴⁵.

Long term unemployment is decreasing in Hertfordshire (compared to the previous year) and is at 3 per 1,000 working age population which is below the national and East of England averages of 3.7 and 4.3 respectively¹⁴⁶.

Rural Hertfordshire has lower rates of economic participation with a much lower rate of employment growth compared to the county as a whole. There is a higher level of dependence on public sector jobs and on public administration for jobs growth¹⁴⁷.

Although the recent recession drove unemployment up across the England, Hertfordshire's employment rate is now 78.9% which is greater than the rates for the East of England (77.6%) and UK (75%) between April 2017 and March 2018. In November 2016, 5.4% of working aged people in Hertfordshire were in receipt of an out of work benefit. This compares to 6.6% in the East of England¹⁴⁸.

Transport

Transport in Hertfordshire reflects the county's location immediately to the north of London. The major roads and railways run north-south through the county as part of the national transport

¹⁴¹ Hertfordshire Local Information System, Quality of Life Report 2017

¹⁴² ONS 2017, Summary of Labour Statistics.

¹⁴³ Nomis labour market profile – Hertfordshire.

¹⁴⁴ *Ibid*

¹⁴⁵ *Ibid*

¹⁴⁶ *Ibid*

¹⁴⁷ Glenn Athey, 2015. Rural Hertfordshire Economic Issues and Characteristics. Available at:

<http://mediafiles.thedms.co.uk/Publication/BH-Herts/cms/pdf/20150423%20Rural%20Hertfordshire%20Profile.pdf>

¹⁴⁸ Hertfordshire County Council (2016) Hertfordshire Local Information System: Economic Well-being Profile, <http://atlas.hertslis.org/IAS/profiles/profile?profileId=99&geoTypeId=>

system linking London to the rest of the country and traffic levels are high with a complex movement pattern both within the county and across the borders¹⁴⁹.

The five major rail lines through Hertfordshire are the West Coast Mainline through Watford, the Midland Mainline through St Albans, the East Coast Mainline through Stevenage, the West Anglia Mainline through Broxbourne and Bishop's Stortford and the London to Aylesbury line. The Midland Mainline is also part of the Thameslink system which crosses through London to the south. The other lines include the Abbey Line, from St Albans Abbey station to Watford, and the Metropolitan Line from West Watford and Rickmansworth which is part of the London Underground system. There is no east-west rail line across the county. The majority of Hertfordshire's rail users are commuters to central London leading to capacity problems and overcrowding at peak hours, however, there are also reliability issues. There is also considerable commuter usage in the opposite direction to the main flow and use of the long distance lines to destinations north of the county. Rail use in Hertfordshire is significantly higher (13%) than the national average (9%)¹⁵⁰.

Immediately to the east and to the west of the county are two major civil airports, London Stansted, near Bishop's Stortford, and London Luton, north of Harpenden. Heathrow lies to the southwest of the county.

Figure A3.13 illustrates the location of the strategic road and rail network, and the location of railway stations and airports across the county.

There are two systems of navigable waterways in the county, the Grand Union Canal in the west through Berkhamsted and the Lea and Stort Rivers in the east from Hertford and Bishop's Stortford. They are mainly used for recreation, boating, fishing and walking and cycling on the tow paths (both are Sustrans routes).

The road network, like the railways, is dominated by the north-south routes, the M1 and A1(M) motorways with the M11 immediately to the east of the county. The M25 provides an east-west route across the south of the county with the A414 another east-west route a little to the north. In the north of the county the A505 links the M11 to the A1(M) via the Baldock Bypass and then continues through Hitchin to Luton. As an economically buoyant county near London traffic levels are high.

Serious link congestion occurs on sections of the M25, M1 and the A1, along with the A602 and A1000. All of Hertfordshire's main towns suffer with congestion junctions. Hertfordshire has both freight traffic distributing goods within the county and a large number of HGVs (heavy goods vehicles over 3.5 tonnes) passing through the county on the strategic routes. Hertfordshire's motorway and trunk road networks carry three times the national level of HGVs, with principal A roads carrying almost double the national levels¹⁵¹.

Hertfordshire has some of the highest car/van ownership levels in the country. The majority of households in Hertfordshire own either one (40%) or two (49%) cars or vans. Ownership of two or more cars is higher than the national average of 32%¹⁵². Hertfordshire has less households without use or access to a car (11%) compared to the national average of 25%.

The most common method of travel to work is driving a car or van which is a trend seen across the country (63%), while 21% of residents take the train to work and 7% walk to work. Approximately 22% of people work from home at least once a week in Hertfordshire.



¹⁴⁹ Hertfordshire County Council, 2018. Local Transport Plan. Available at: <https://www.hertfordshire.gov.uk/media-library/documents/about-the-council/consultations/ltp4-2018.pdf>

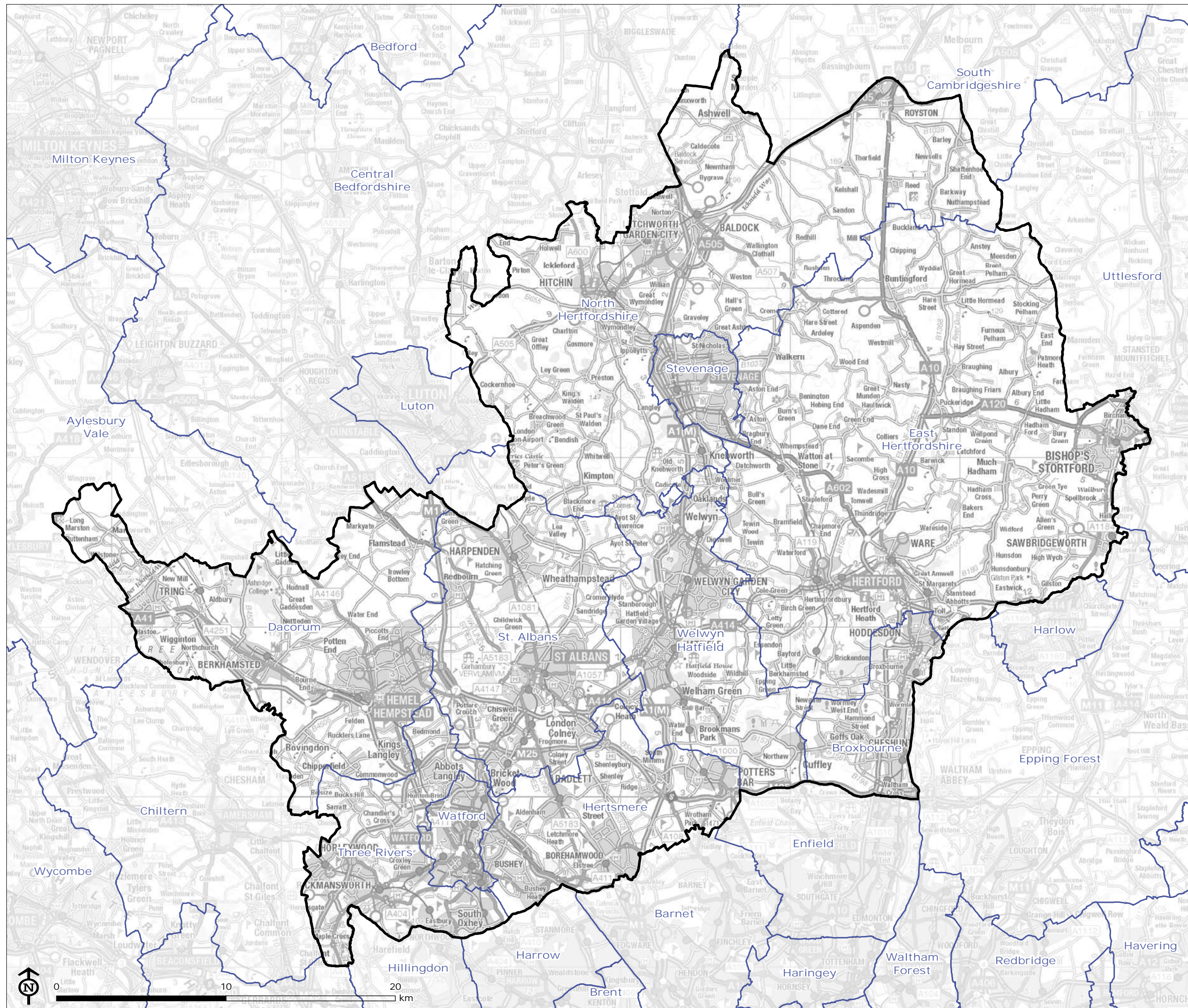
¹⁵⁰ Hertfordshire County Council, 2017. Hertfordshire Transport Facts 2017 (Based on 2016 data). Available at: <https://www.hertfordshire.gov.uk/media-library/documents/highways/transport-planning/transport-and-accident-data/ttdr/2016-transport-factsheet-based-on-2015-data.pdf>

¹⁵¹ Hertfordshire County Council, 2017. Hertfordshire Traffic and Transport Data Report. Available at: <https://www.hertfordshire.gov.uk/media-library/documents/highways/transport-planning/transport-and-accident-data/ttdr/hertfordshire-traffic-and-transport-data-report-2017.pdf>

¹⁵² Hertfordshire County Council, 2016. Hertfordshire county travel survey. Available at: https://www.hertfordshire.gov.uk/services/Highways-roads-and-pavements/Speed-awareness-and-driver-training/Transport-and-Accident-Data/Transport-and-accident-data.aspx#DynamicJumpMenuManager_1_Anchor_4

Figure A3.1 - Geographical
Context




-  Hertfordshire County boundary
-  Local Authority boundary

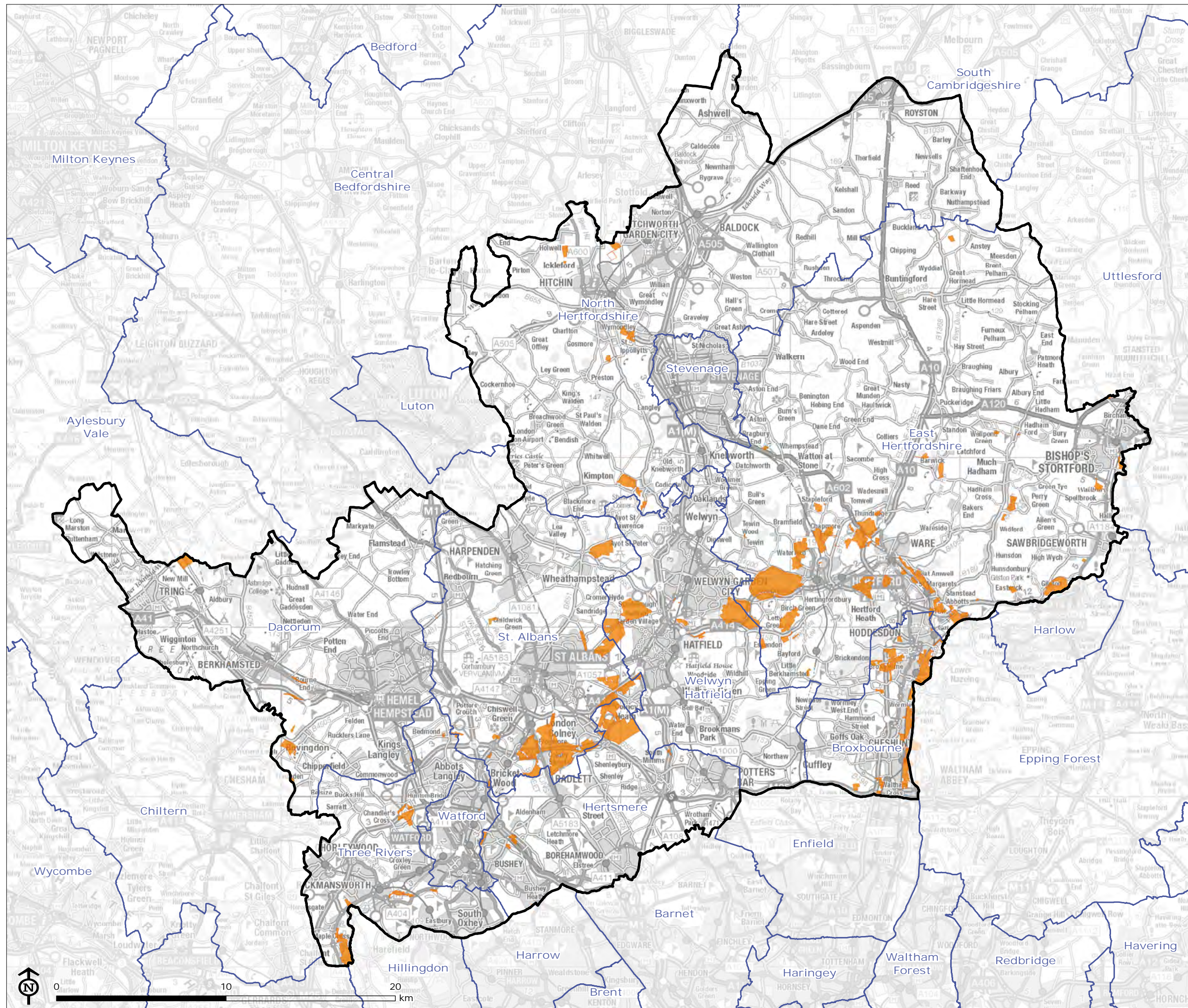


Main Map Scale @ A3: 1:220,000



Figure A3.2: Location of
Operational Mineral Sites within
the County

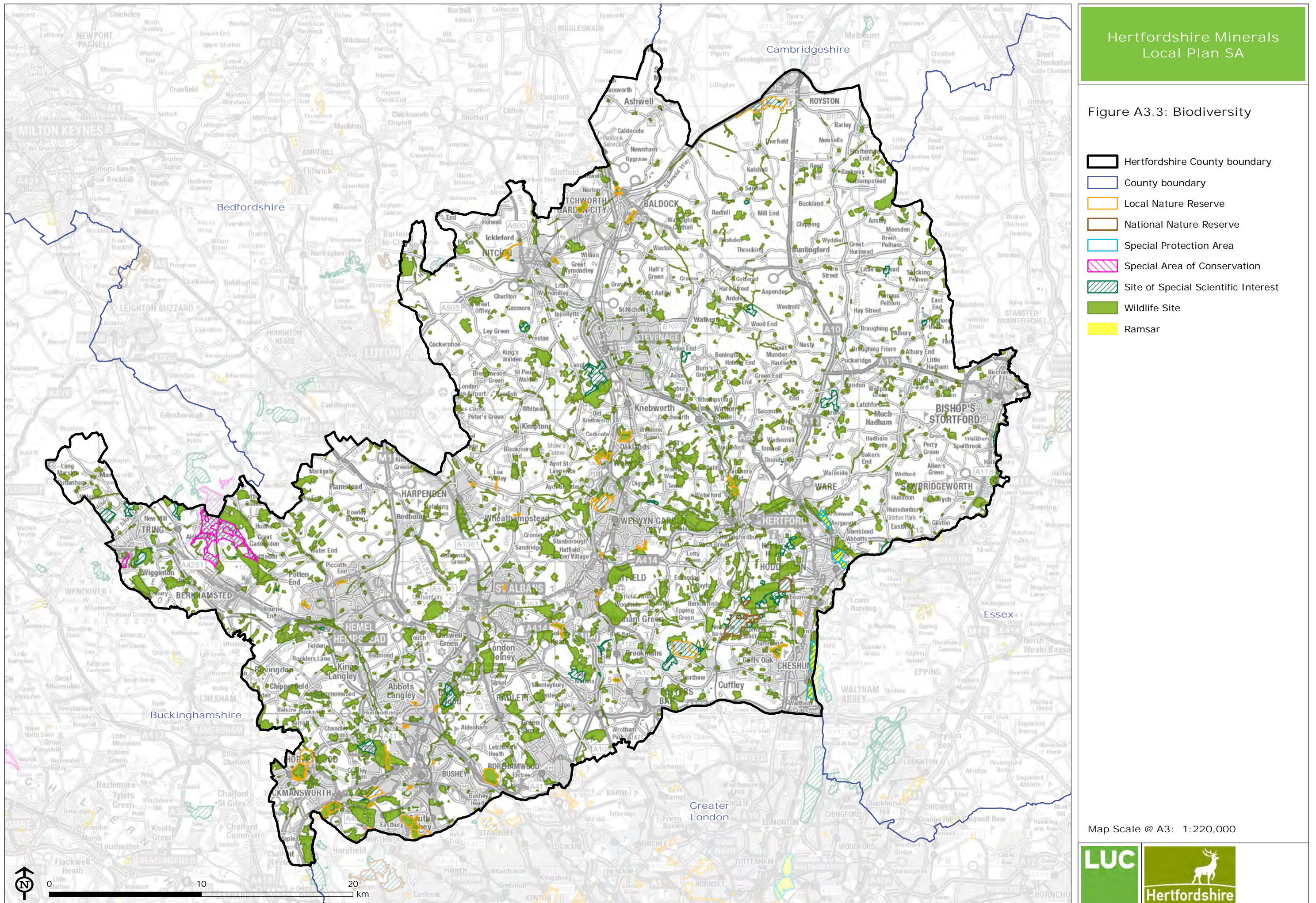
-  Hertfordshire County boundary
-  Local Authority boundary
-  Operational and worked mineral site



Map Scale @ A3: 1:220,000



Figure A3.3: Biodiversity






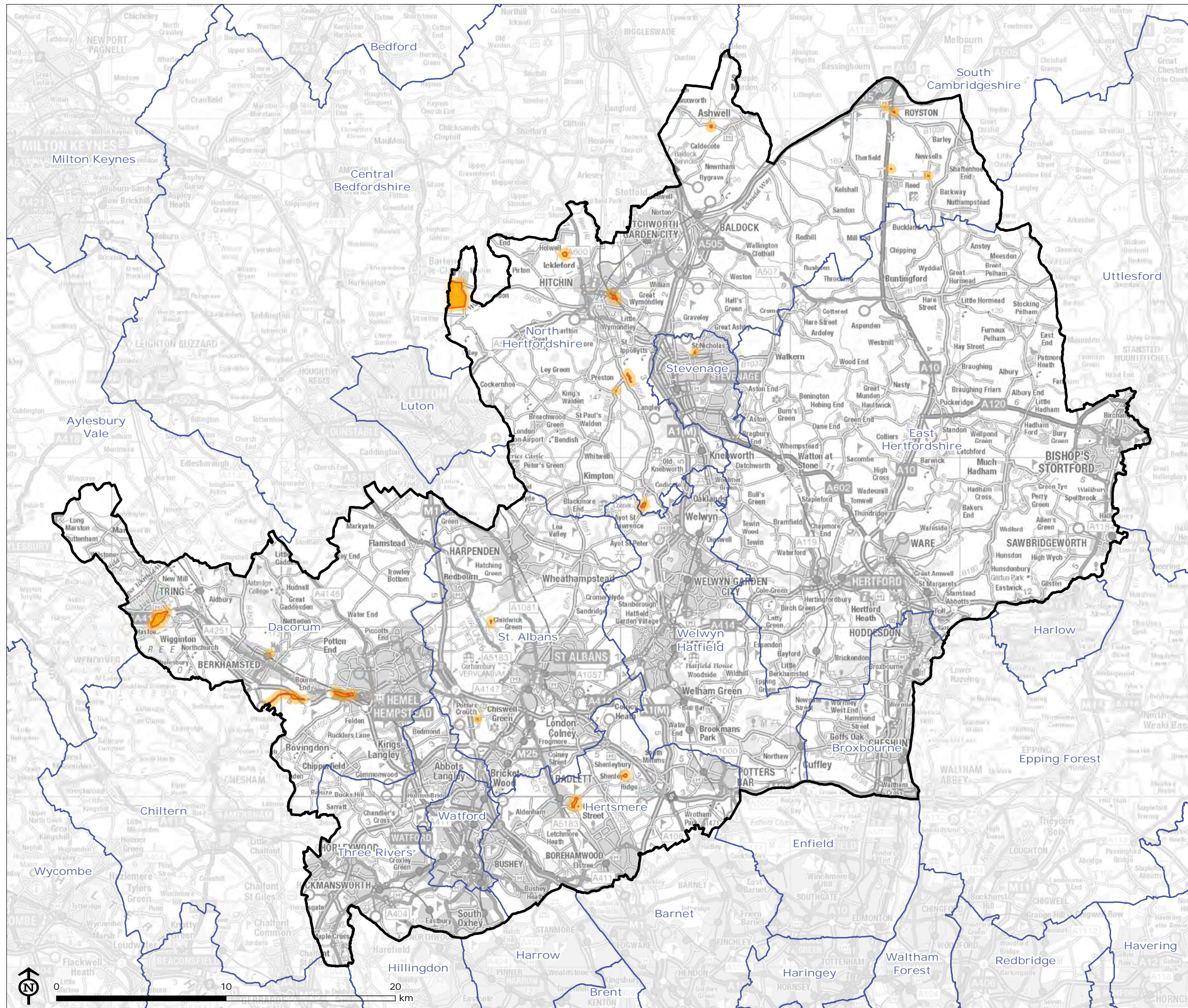
- Hertfordshire County boundary
- County boundary
- Local Nature Reserve
- National Nature Reserve
- Special Protection Area
- Special Area of Conservation
- Site of Special Scientific Interest
- Wildlife Site
- Ramsar

Map Scale @ A3: 1:220,000



Figure A3.4: Geodiversity







-  Hertfordshire County boundary
-  Local Authority boundary
-  Regionally Important Geological Site

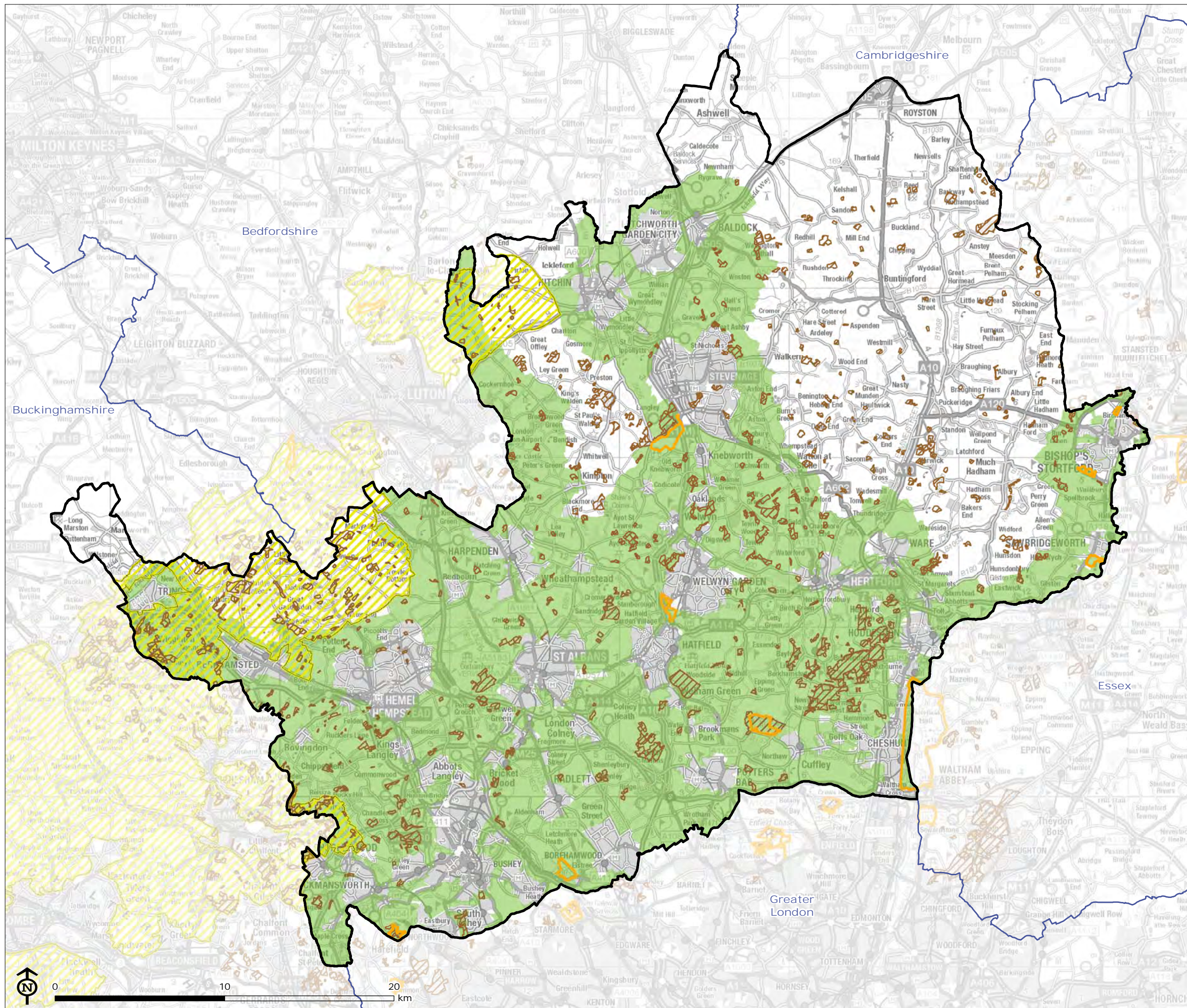


Map Scale @ A3: 1:220,000



Figure A3.5: Key Landscape Designations & Features









-  Hertfordshire County boundary
-  County boundary
-  Country park
-  Ancient Woodland
-  Area of Outstanding Natural Beauty
-  Green Belt

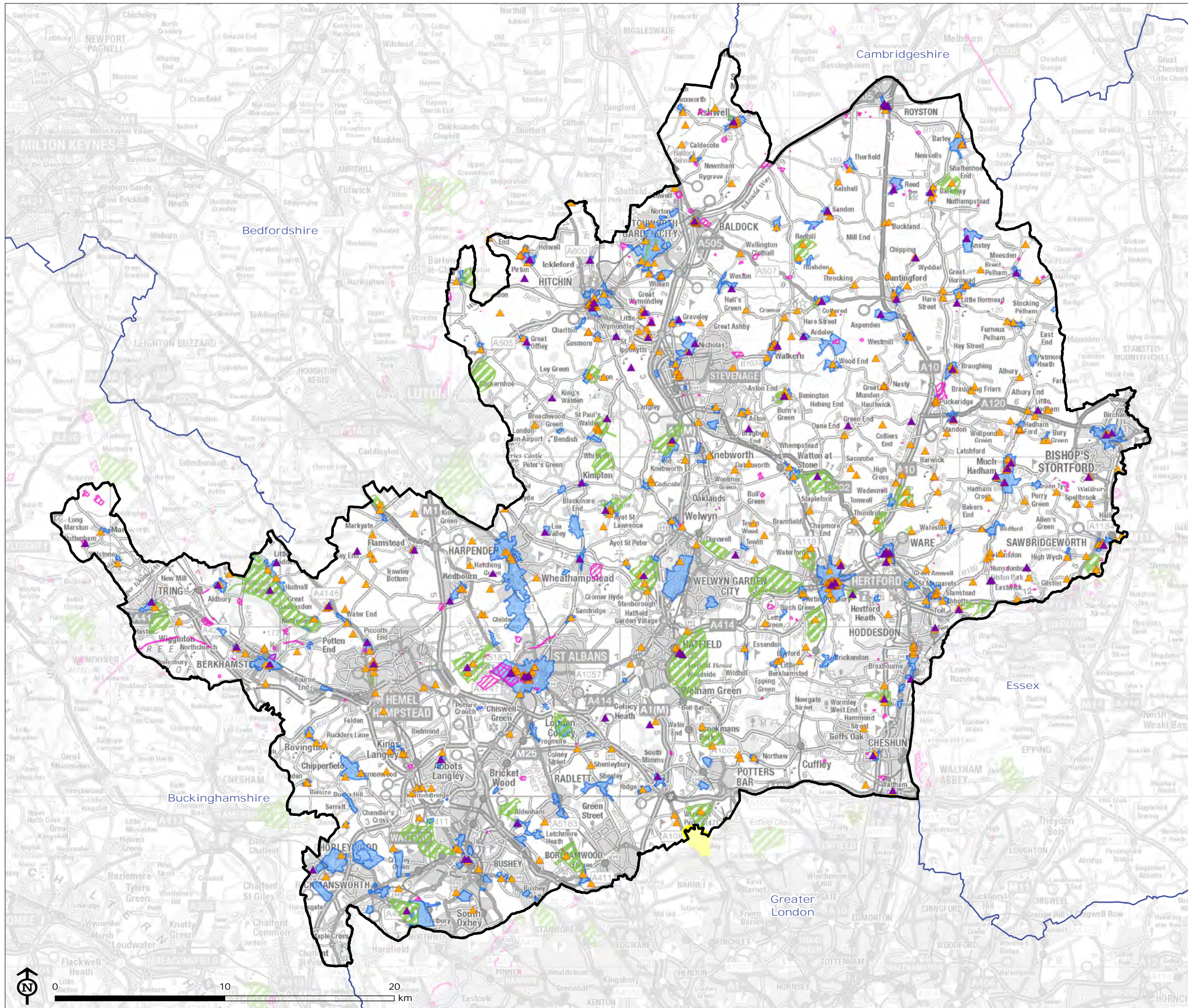


Map Scale @ A3: 1:220,000



Figure A3.6: Historic Environment







-  Hertfordshire County boundary
-  County boundary
-  Grade I Listed Building
-  Grade II* Listed Building
-  Registered Battlefield
-  Registered Parks and Gardens
-  Scheduled Monument
-  Conservation Area

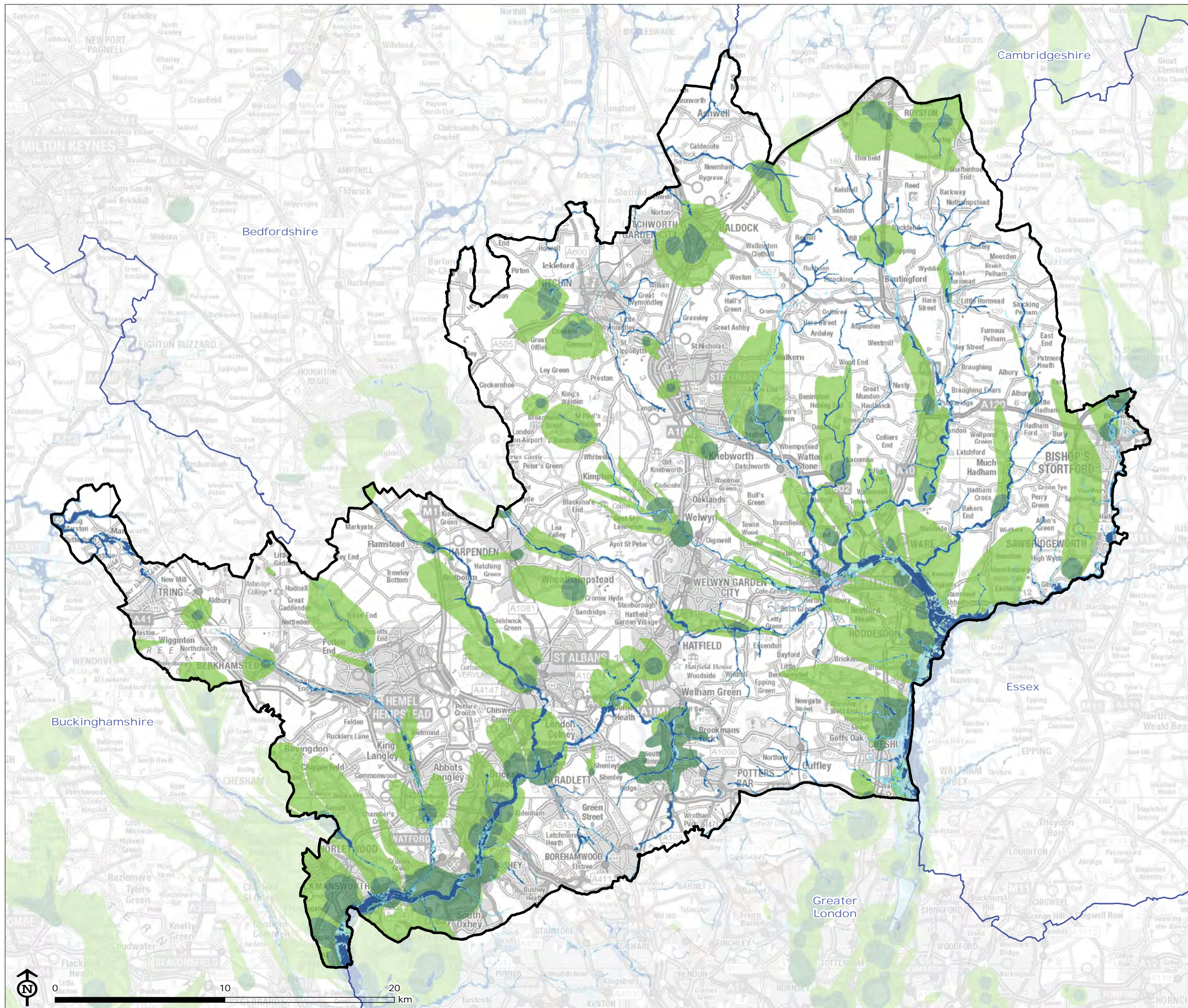


Map Scale @ A3: 1:220,000



Figure A3.7: Flood Zones




-  Hertfordshire County boundary
-  County boundary
-  Flood zone 3
-  Flood zone 2
- Source Protection Zones
-  Zone I - Inner Protection Zone
-  Zone II - Outer Protection Zone

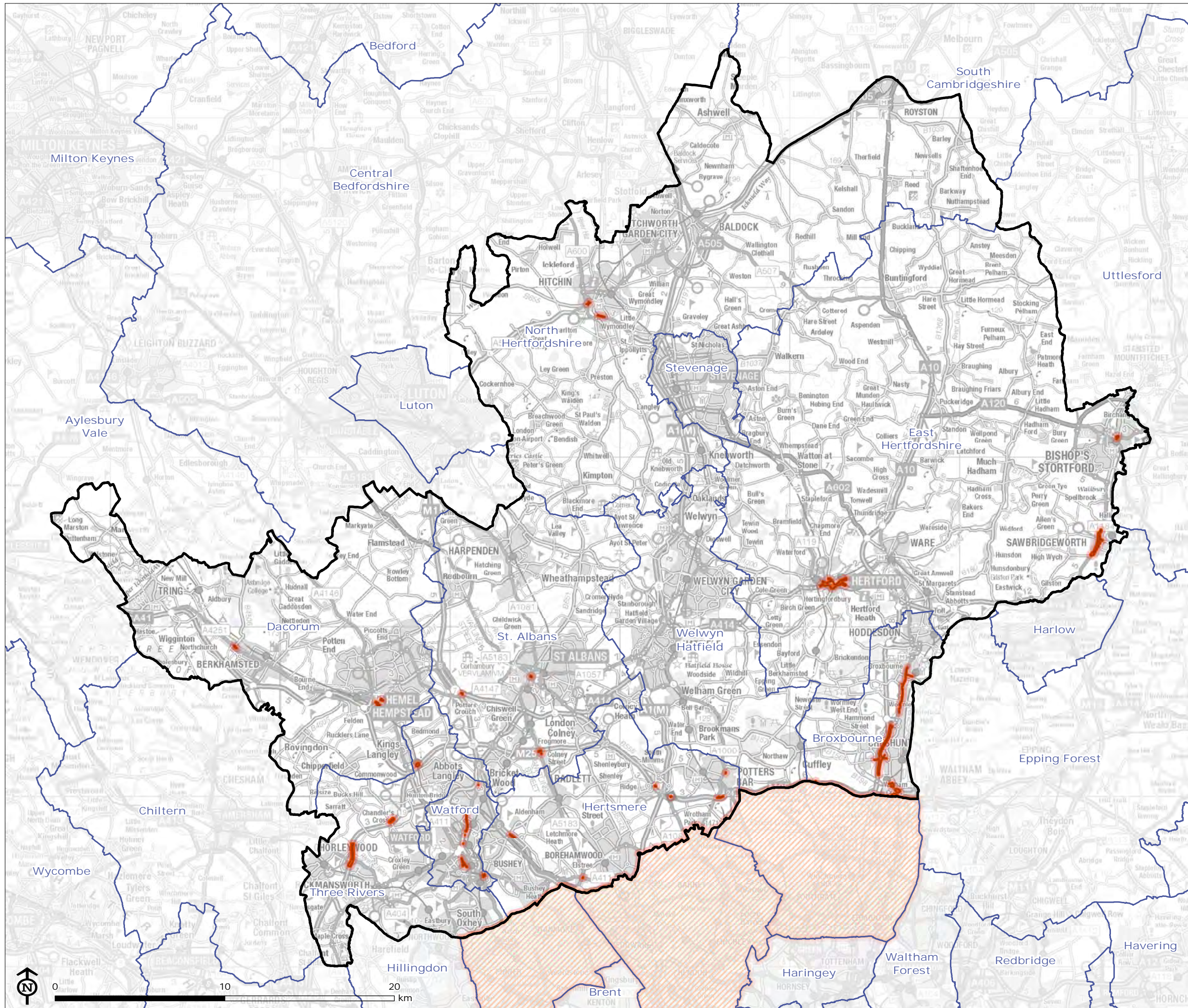


Map Scale @ A3: 1:220,000



Figure A3.8: Air Quality









-  Hertfordshire County boundary
-  Local Authority boundary
-  Air Quality Management Areas

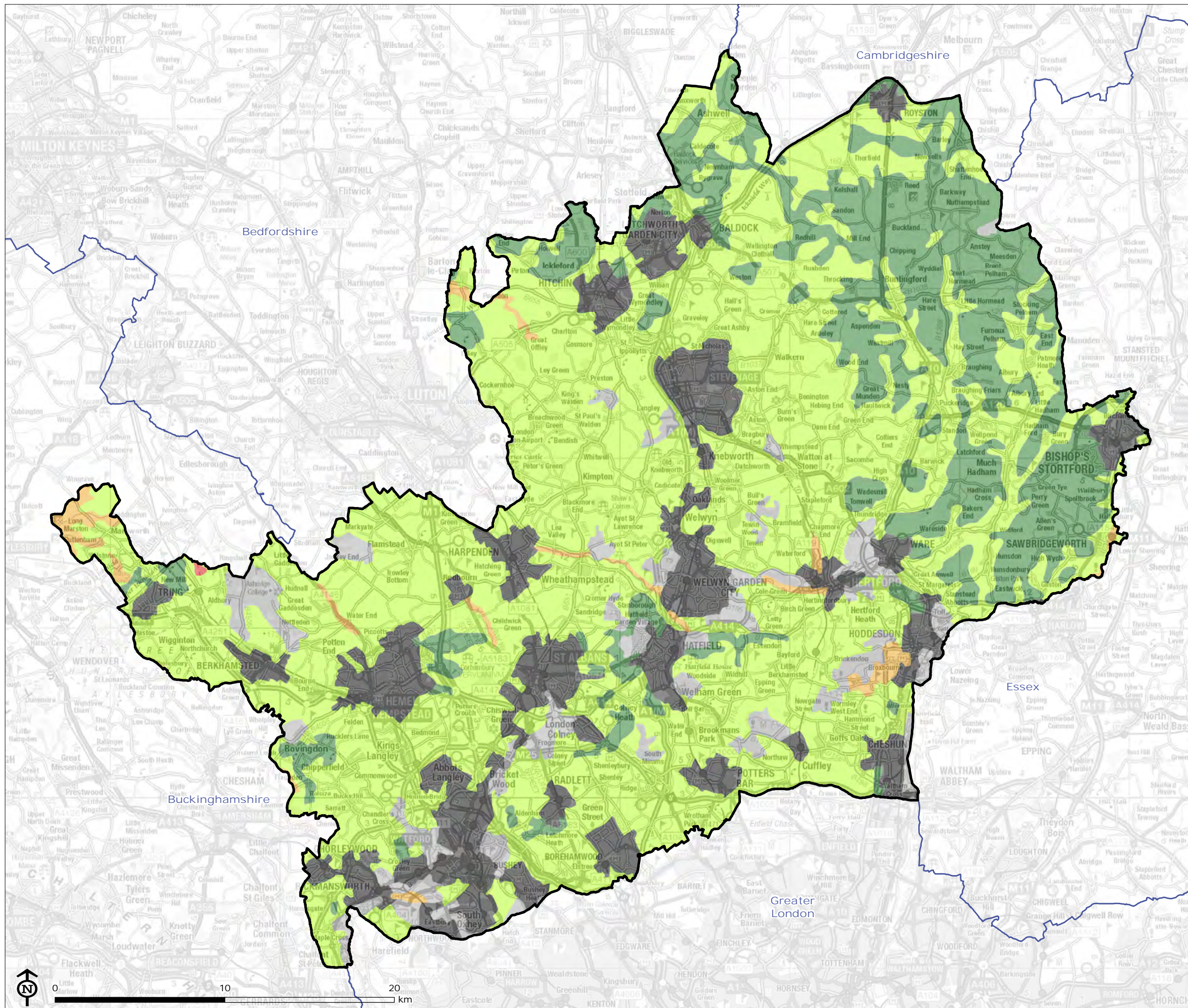


Map Scale @ A3: 1:220,000



Figure A3.9: Agricultural
Landscape Classification

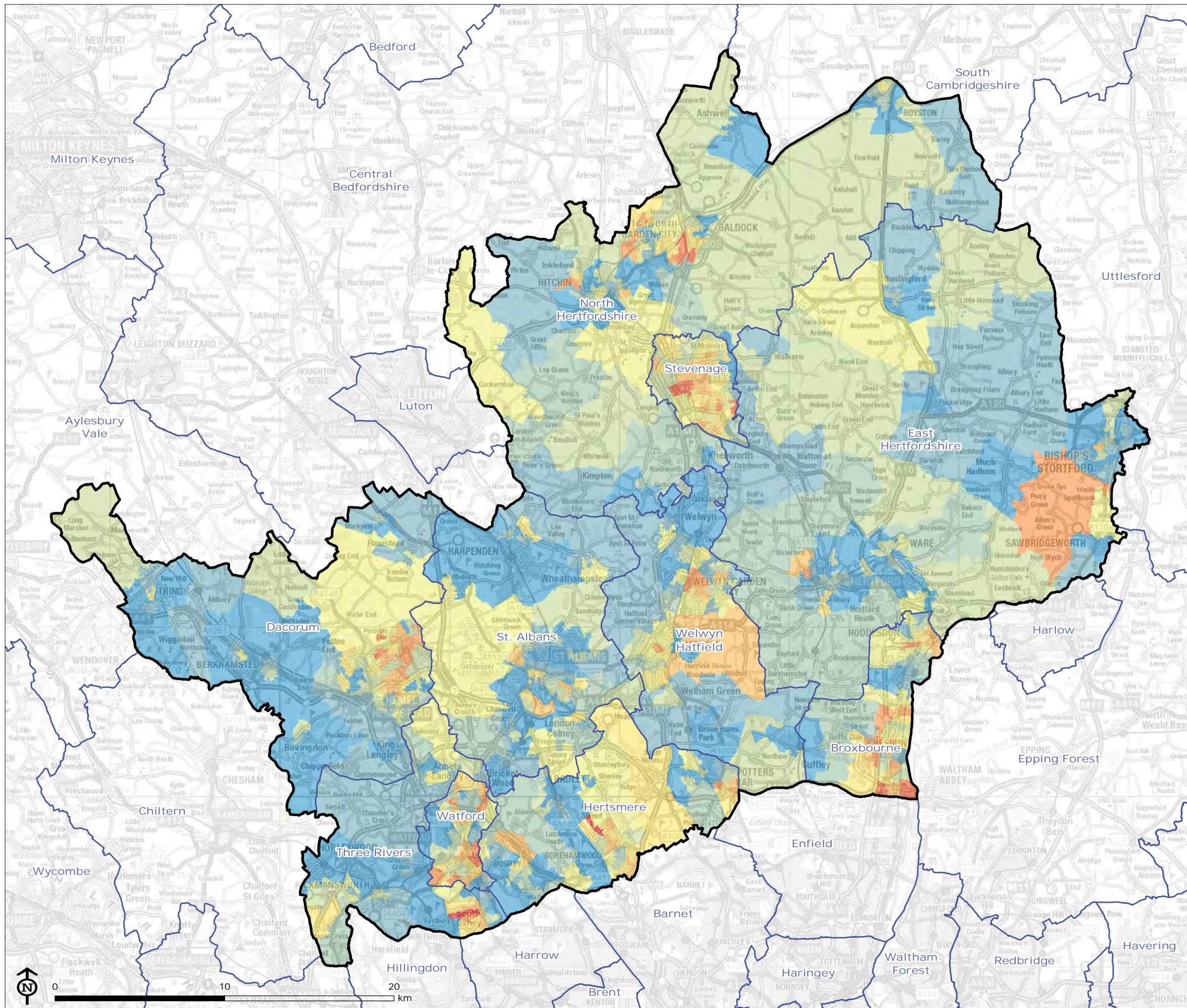
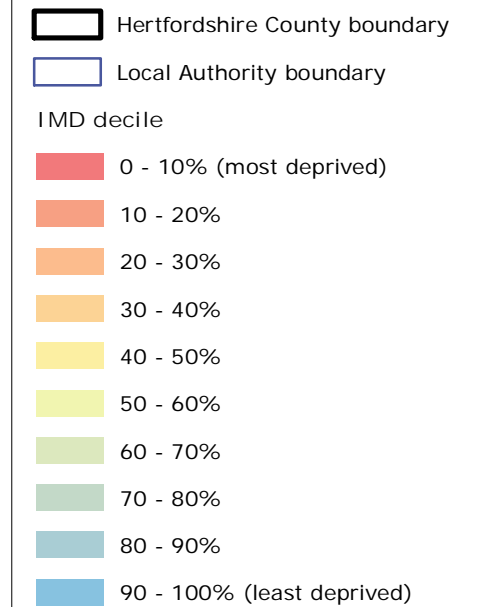
-  Hertfordshire County boundary
-  County boundary
- Agricultural land classification
- Quality
-  Grade 2 - very good
-  Grade 3 - good to moderate
-  Grade 4 - poor
-  Grade 5 - very poor
-  Non Agricultural
-  Urban



Map Scale @ A3: 1:220,000








Figure A3.10: Index of Multiple Deprivation

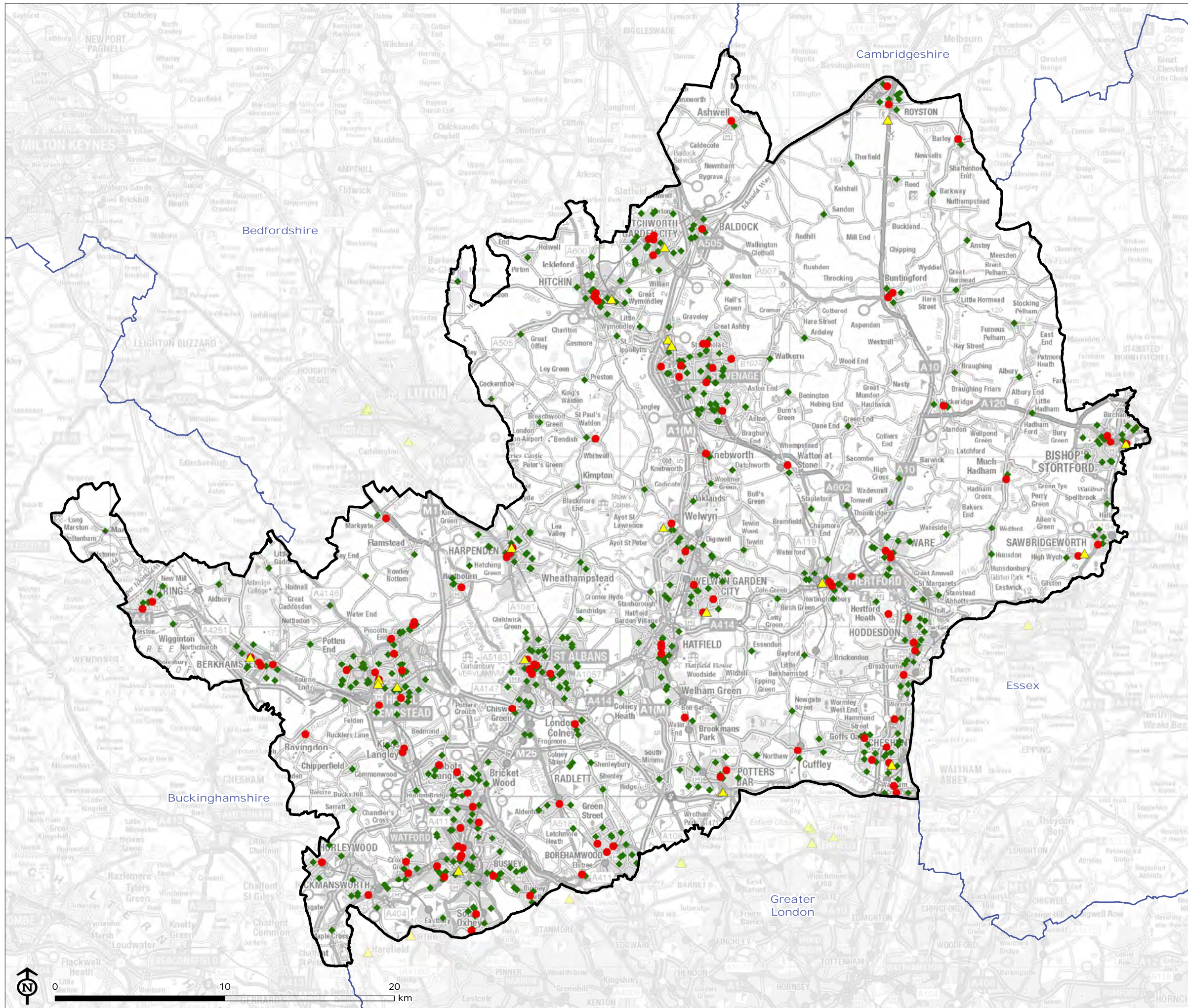


Map Scale @ A3: 1:220,000



Figure A3.11: Services

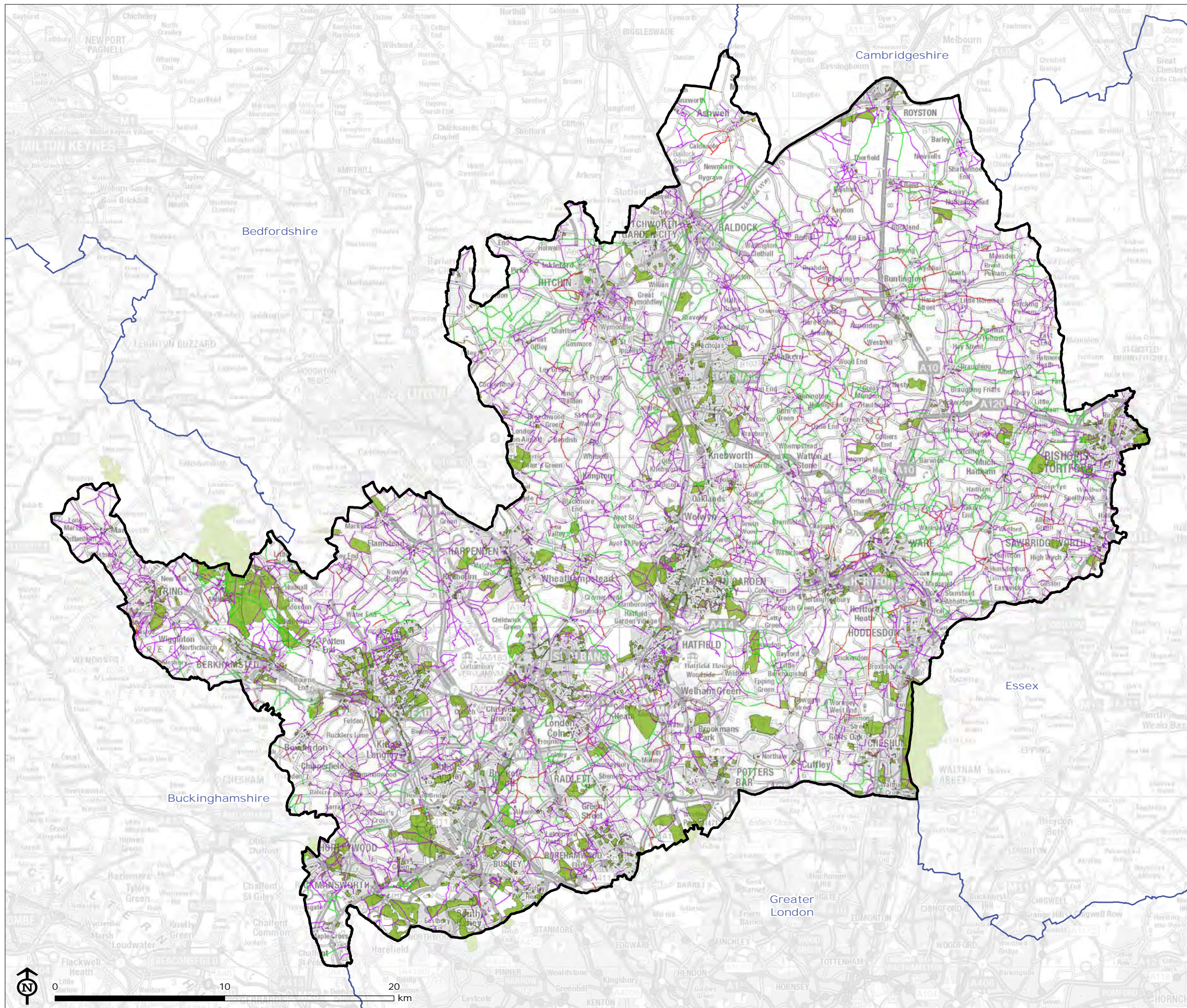
-  Hertfordshire County boundary
-  County boundary
-  Hospital
-  GP Surgery
-  School










Map Scale @ A3: 1:220,000



Figure A3.12: Open Space &
Public Rights of Way

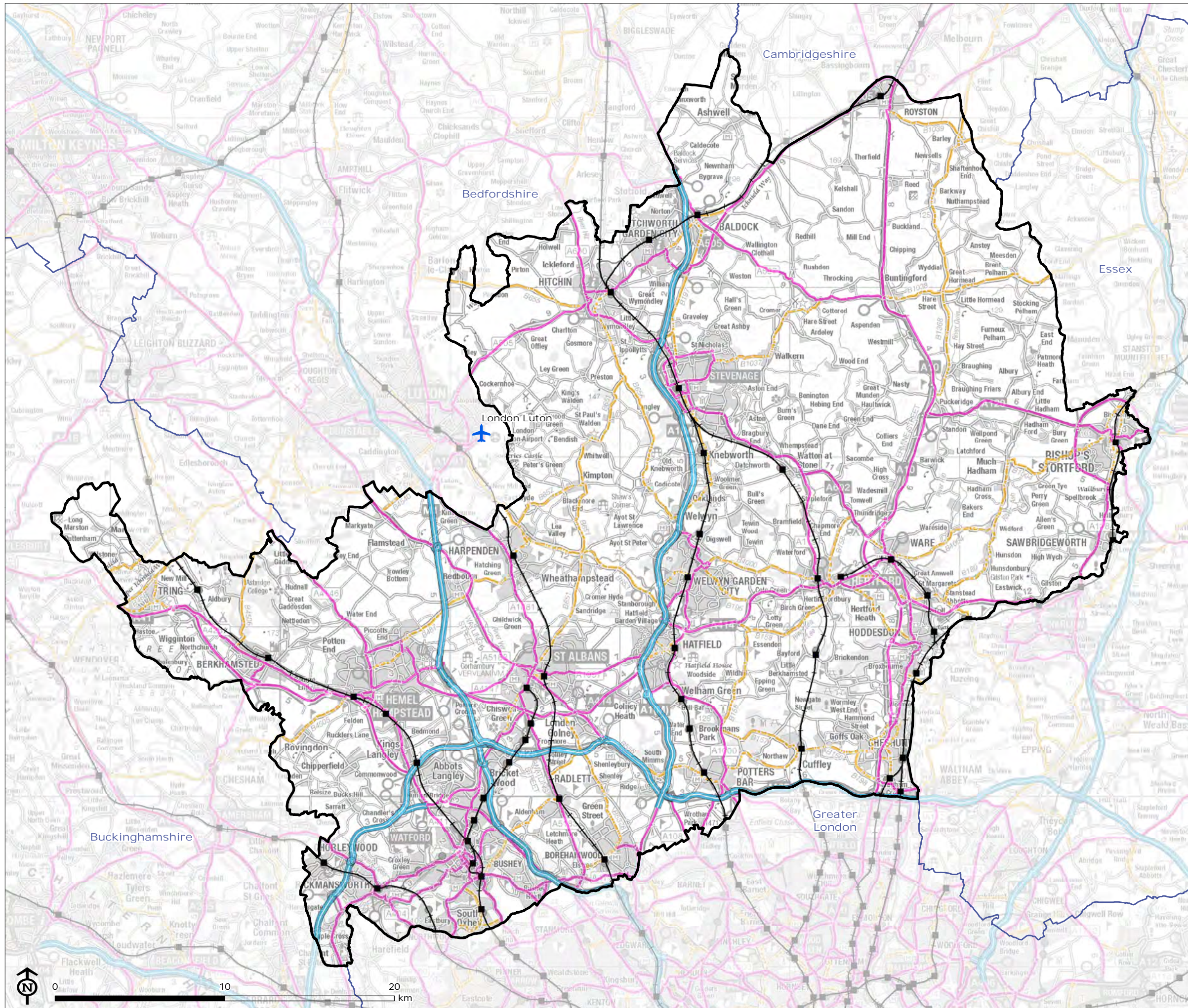









-  Hertfordshire County boundary
-  County boundary
-  Open Space
- Public Rights Of Way
 -  Byway Open to All Traffic
 -  Restricted Byway
 -  Bridleway
 -  Footpath

Map Scale @ A3: 1:220,000



Figure A3.13: Transport Links



-  Hertfordshire County boundary
-  County boundary
-  Airport
-  Railway station
-  Railway
-  Motorway
-  A Road
-  B Road

Map Scale @ A3: 1:220,000



Appendix 4

SA Framework Assumptions

The MLP options and sites have been assessed against each SA objective and a judgement has been made with regards to the likely effect that the sites/options would have on that objective. These judgements have been recorded as a colour coded symbol. Through the appraisal process the aim has been to differentiate between the most significant effects and other more minor effects through the use of the symbols shown below.

++	The policy is likely to have a significant positive impact on the SA objective(s).
+	The policy is likely to have a minor positive impact on the SA objective(s).
0	The policy is likely to have a negligible or no impact on the SA objective(s).
+/-	The policy is likely to have a mixture of positive and negative impacts on the SA objective(s).
-	The policy is likely to have a minor negative impact on the SA objective(s).
--	The policy is likely to have a significant negative impact on the SA objective(s).
?	It is uncertain what effect the policy will have on the SA objective(s).

The dividing line in making a decision about the significance of an effect is often quite small. Where either ++ or -- is used to distinguish significant effects from more minor effects (+ or -), this is because the effect of the policy or site option in question on an SA objective is considered to be of such magnitude that it will have a noticeable and measurable effect taking into account other factors that may influence the achievement of that SA objective.

The assumptions highlight the broad variations in potential scores for each SA objective, i.e. significant positive through to significant negative and the minor, uncertain and negligible effects in between. References to uncertainty are only made where it is considered justified. This justification has been provided in the text in the justification column where relevant.

Table A4.1: SA Framework and Assumptions for judging significance of effects of the Hertfordshire Minerals Local Plan

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
Environmental			
<p>1. To protect, conserve and enhance natural habitats, species and geological features including those identified in s41 of the NERC Act 2006, consistent with the UK Post-2010 Biodiversity Framework, Biodiversity 2020 and the Local Nature Partnership aims.</p>			
<p>1.1 To protect against the loss of priority habitats, biodiversity and species</p> <p>Would the site:</p> <ul style="list-style-type: none"> o Have an adverse effect on biodiversity, including the protection of designated sites (e.g. Special Protection Areas, Special Areas of Conservation, Ramsars, Sites of Special Scientific Interest, National Nature Reserves and Ancient Woodland)? o Have an adverse effect on locally designated sites which form part of a network of ecosystems? o Have an adverse effect on wider habitat networks (including BAP habitats) and land used by protected species? o Have an adverse impact upon locally important habitats such as Chalk Rivers, woodland trees, grasslands and hedgerows. 		<p>Background information affecting assumptions</p> <p>International and national sites have statutory protection through international and EU conventions (Ramsar, 1971; Bern, 1979; Bonn, 1979), directives (92/43/EC; 2009/147/EC) and national law (Wildlife and Countryside Act, 1981 as amended) and should be conserved and enhanced as outlined in the NPPF.</p> <p>Locally important sites of nature conservation should also be protected under the NPPF, and it will be necessary to consider those sites that are not afforded statutory protection but are of local importance; especially those that provide ecological connectivity (including BAP habitats). In addition, previously developed land will not be assumed to have no biodiversity value. Previously developed land that has been undisturbed for a significant period of time can in some instances have greater ecological value than 'greenfield sites'.</p> <p>Operation of mineral extraction sites can have a number of different impacts on habitats and species either within the boundary of the extraction site or in proximity to the site. Physical loss or damage to habitats can occur within the boundary of the extraction site. Operations within the mineral extraction site that affect water levels and water courses (e.g. through dewatering, diverting water courses or creation of siltation ponds) can affect ground and surface waterbodies downstream of the site. There may also be potential for water pollution e.g. through addition of dust and silts to waterbodies or through accidental spills or run-off of oil from machinery for example.</p> <p>Species can be affected through disturbance such as from noise, light, vibration and human presence. Disturbance effects are generally more likely within or in close proximity to the extraction site. Light pollution would only affect nocturnal species (e.g. bats and some birds), and would be more likely during the winter months when shorter</p>	<p>GIS data:</p> <ul style="list-style-type: none"> • Biodiversity designations <p>MLP Site assessment criterion:</p> <ul style="list-style-type: none"> • BAP Priority Species or Habitats

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
		<p>day lengths mean extraction sites may still be operating when it is dark (e.g. late afternoon). Noise and vibration arising from sand and gravel extraction within waterbodies could affect aquatic species, however, it should be possible to avoid or mitigate adverse impacts, for example by timing works to avoid critical periods (e.g. spawning or breeding periods), or preventing work from being undertaken at night to avoid disturbance to nocturnal species (e.g. otters).</p> <p>It is difficult to assess the potential for significant effects on habitats and species when selecting sites for allocation in the MLP, as this is a strategic decision-making stage, and the level of detailed understanding of presence of habitats and species on a site (e.g. through Phase 1 habitat surveys) is unavailable (as this would be undertaken at the planning application stage, potentially through a site-specific Environmental Impact Assessment (EIA)). In addition, detailed proposals about what sort of extraction practices and mitigation measures might be implemented will not be available until the planning application stage.</p> <p>Therefore, as an <u>indication</u> of the likelihood of significant negative effects, proximity of designated nature conservation sites to potential mineral sites has been used. Where more detailed information regarding effects on European sites from the Habitats Regulations Assessment becomes available, this will also be drawn upon. Uncertainty will be attached to all effects on this SA objective, as effects will very much depend on the design and operation of extraction activities as well as implementation of mitigation measures which would not be determined until planning applications come forward.</p> <p>Note that sites of geological interest are considered under SA Objective 1.4.</p> <p>Assumptions for determining significance of effects on SA objective 1.1:</p>	
	++	N/A	
	+?	<p>Potential minerals sites for which:</p> <ul style="list-style-type: none"> The MLP site assessment process considers the overall impact on biodiversity is potentially positive because there is unlikely to be any priority habitats or species affected could have a minor positive effect. Restoration of the site could also have a minor positive effect on this 	

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
		objective, however these effects would be uncertain as the potential for effects will depend on the exact nature and design of new sites. However, if it is not possible for HCC / LUC to identify positive impacts on biodiversity or enhancement opportunities through the site assessment process, it will not be possible to determine this until the planning application stage.	
	0	Potential minerals sites for which: <ul style="list-style-type: none"> • More than 1km from any international, national or local designated nature conservation site or BAP priority habitat, and/or • The Habitats Regulations Assessment concludes no significant effects are likely to affect this objective. 	
	?	N/A	
	-?	Potential minerals sites which are: <ul style="list-style-type: none"> • Between 250m and 1km of one or more international, national or local designated nature conservation sites or include BAP priority habitat are considered more likely to have a minor negative effect on this objective, however these effects would be uncertain as the potential for effects will depend on the exact nature and design of new sites. 	
	--?	Potential minerals sites which are: <ul style="list-style-type: none"> • Within 250m of one or more international, national or local designated nature conservation sites are considered more likely to have significant negative effects on this objective, however these effects would be uncertain as the potential for effects will depend on the exact nature and design of new sites. However, if the Habitats Regulations Assessment concludes significant effects are likely then this uncertainty would be removed. 	

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)						
	--	Potential minerals sites which are: <ul style="list-style-type: none"> • Within one or more international, national or local designated nature conservation sites could have a significant negative effect on this objective. 							
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site.		<p>Background information affecting assumptions</p> <p>The NPPF requires that high quality restoration and aftercare of minerals sites takes place.</p> <p>The design of and restoration of mineral sites is increasingly adopting innovative practice to contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible. There may be opportunities for sites to contribute towards national and local biodiversity targets during the restoration stage of the site, supporting ecological networks surrounding the site and incorporating the use of native species and habitats to encourage biodiversity within the site.</p> <p>However, the standard and extent of restoration would be very dependent on the exact nature and proposed design of the restoration of the minerals site, which would not be known until the planning application stage</p> <p>Assumptions for determining significance of effects on SA objective 1.2:</p> <table border="1"> <tbody> <tr> <td>++</td> <td>N/A</td> </tr> <tr> <td>+?</td> <td>Minerals operators are increasingly adopting innovative practice with respect to post-extraction restoration and therefore, any minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration of the minerals site, which would not be known until the planning application stage.</td> </tr> <tr> <td>0</td> <td>N/A</td> </tr> </tbody> </table>	++	N/A	+?	Minerals operators are increasingly adopting innovative practice with respect to post-extraction restoration and therefore, any minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration of the minerals site, which would not be known until the planning application stage.	0	N/A	GIS data: <ul style="list-style-type: none"> • Biodiversity designation MLP Site assessment criterion: <ul style="list-style-type: none"> • Restoration
++	N/A								
+?	Minerals operators are increasingly adopting innovative practice with respect to post-extraction restoration and therefore, any minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration of the minerals site, which would not be known until the planning application stage.								
0	N/A								

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
	?	N/A	
	-	N/A	
	--	N/A	
<p>1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites</p> <p>Would the site:</p> <ul style="list-style-type: none"> o Lead to a change in local air quality? o Cause an increase in deposition of pollutants on sensitive designated nature conservation sites? 	<p>Background information affecting assumptions</p> <p>Proposals for all types of minerals sites could contribute to increasing air pollution in the County with regards to minerals transportation by road, as well as any air pollution associated with the operation of the sites and processes used such as extraction and processing. The type and extent of air pollution (e.g. from dust or other emissions) will depend on the type of mineral extracted on the site, the scale of the operations and the type of activities undertaken within the site. Softer minerals, such as sand and gravel, can crumble more easily during handling and may produce a greater number of dust particles. Furthermore, the effects of traffic related pollutants (e.g. Nitrogen Dioxide, Carbon Dioxide and Particulate Matter) may differ depending on the mineral worked at sites and the level of output. For example, crushed rock quarries typically have larger annual outputs than sand and gravel sites and may therefore involve more traffic movements within and outside of the sites. The majority of mineral extraction sites in Hertfordshire are for sand and gravel.</p> <p>For certain quarry processes, dust emissions are controlled under the Environmental Permitting (England and Wales) Regulations (2010) regulated and enforced by the Environment Agency. The requirement to meet EP permitting standards (including emissions to air) should ensure that the design and operation of minerals sites minimises any potentially significant effects on human health and the environment. In addition, many sites will meet the criteria that require a site-specific environmental impact assessment to be undertaken to accompany the planning application, which would look at the potential impacts and mitigation measures in more detail, and influence the conditions placed on the planning permission.</p> <p>Air quality impacts on human sensitive receptors due to dust emissions from the sites themselves are covered under the assumptions for SA Objective 9.1 below. The</p>	<p>GIS data:</p> <ul style="list-style-type: none"> • Rail aggregates depot • Primary route network <p>MLP site assessment criteria:</p> <ul style="list-style-type: none"> • Sustainable transport • Sustainable transport and pollution to the environment (dust, air, water) <p>HRA findings.</p>	

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
	++	<p>assumptions discussed below for potential effects on this objective therefore relate to air emissions from road transport of mineral only and consider the proximity of sites to the strategic highway network and nature conservation sites.</p> <p>Air pollution is most likely to affect designated nature conservation sites where plant, soil and water habitats are the qualifying features, but some qualifying animal species may also be affected, either directly or indirectly, by any deterioration in habitat as a result of air pollution. Deposition of pollutants to the ground and vegetation can alter the characteristics of the soil, affecting the pH and nitrogen availability that can then affect plant health, productivity and species composition. In terms of vehicle traffic, nitrogen oxides (NO_x, i.e. NO and NO₂) are considered to be the key pollutants. Deposition of nitrogen compounds may lead to both soil and freshwater acidification, and NO_x can cause eutrophication of soils and water. Based on the Highways Agency Design Manual for Road and Bridges (DMRB) Volume 11, Section 3, Part 1¹⁵³ (which was produced to provide advice regarding the design, assessment and operation of trunk roads (including motorways)), it is assumed that air pollution from roads passing through or adjacent to designated nature conservation sites is unlikely to be significant beyond 200m from the road itself. As the particular routes that minerals transport take will not be known until planning applications come forward, the Highways Agency guideline measure of 200 metres from a road beyond which air pollution effects are unlikely to be significant will be applied to those roads likely to be used for minerals transport to and from potential mineral sites, i.e. the primary road network of motorways and A roads that form the Hertfordshire Primary Route Network. However, a significant effect would only occur within 200m of the road if the annual average daily traffic (AADT) heavy duty vehicle (HDV) flows along that route were likely to increase by 200 AADT or more. Therefore, the likely number of HDV movements resulting from an operational mineral site will also need to be taken into account. This information has been identified through the Habitats Regulations Assessment, which will be used to help inform the SA.</p> <p>Assumptions for determining significance of effects on SA objective 1.3:</p>	

¹⁵³ Design Manual for Road and Bridges. Highways Agency. <http://dft.gov.uk/ha/standards/dmrb/index.htm>

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
	+?	<p>Potential minerals sites which are:</p> <ul style="list-style-type: none"> • Within 500m of a rail aggregate depot / proposed rail freight interchange site are considered to have the potential for a minor positive effect on protecting sites from the deposition of air pollutants by reducing the use of road transport and the generation of associated emissions, although these impacts are very dependent on the type of mineral site, likely routes to be taken by HDVs to the rail aggregate site, the scale of the operations, the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Effects would also be uncertain as it cannot be guaranteed that the site would be able to use the rail depot for the transportation of minerals. 	
	0	<p>Potential minerals sites which are:</p> <ul style="list-style-type: none"> • Unlikely to result in HDV flows along roads within the Hertfordshire Primary Route Network that are within 200m of designated nature conservation sites are considered unlikely to have an impact on protecting sites from the deposition of air pollutants by reducing the use of road transport and the generation of associated emissions, although these impacts are very dependent on the likely routes to be taken by HDVs, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. 	
	?	N/A	
	-	N/A	
	--?	<p>Potential minerals sites where:</p> <ul style="list-style-type: none"> • HDV transport to or from the site along the Hertfordshire Primary Route Network is likely to pass within 200m of a designated nature 	

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)				
		<p>conservation site sensitive to air pollution have the potential to have a significant negative impact on the nature conservation site through increased deposition of air pollutants, although this impact is dependent on the likely increase in HDV annual average daily traffic flows along the road passing within 200m of the nature conservation site (in combination with HDV movements from other existing and potential minerals sites). This information will need to be sought from the HRA, and if the HRA concludes that there will not be a significant effect on European designated sites as a result of air pollution then this potential effect would be removed.</p>					
<p>1.4 To protect and enhance sites of geological conservation interest.</p> <p>Would the site:</p> <ul style="list-style-type: none"> ○ Have an adverse effect on geodiversity, including the protection of geological features or sites (e.g. Sites of Special Scientific Interest, and Local Geological Sites, formally RIGS)? ○ Create new geological exposures of education interest? ○ Provide opportunities for geodiversity as part of the development or restoration? 	<p>Background information affecting assumptions</p> <p>National and locally important sites of geological/geomorphological interest (SSSIs or Local Geological Sites (LGSs), formally RIGS) should also be protected under the NPPF. The NPPF states that proposals for any development on or affecting geodiversity sites or landscape areas will be judged. The NPPF also states that to minimise impacts on geodiversity, planning policies should aim to prevent harm to geological interests; and local planning authorities should put in place policies so that high quality restoration and aftercare of mineral sites take place, including for geodiversity.</p> <p>Mineral sites can potentially contribute to geodiversity by preserving and conserving geological features/landscapes that contribute towards the link between people, landscape and their culture. However, due to the methods of extraction and processing, this is more likely to be conserved at less intensive sites (e.g. building stone) than aggregate sites.</p> <p>Assumptions for determining significance of effects on SA objective 1.4:</p> <table border="1"> <tr> <td style="background-color: #008000; color: white; text-align: center;">++</td> <td style="text-align: center;">N/A</td> </tr> <tr> <td style="background-color: #90EE90; text-align: center;">+?</td> <td style="text-align: center;">The working of and restoration of minerals sites is increasingly adopting innovative practice and there may be opportunities to create new geological exposures for educational interest or incorporate and preserve important</td> </tr> </table>	++	N/A	+?	The working of and restoration of minerals sites is increasingly adopting innovative practice and there may be opportunities to create new geological exposures for educational interest or incorporate and preserve important	<p>GIS data:</p> <p>Geology-HERC_LRC_Geosites</p> <p>Natural England designation information to determine the exact nature and reason for the designation of the LGS/SSSI.</p>	
++	N/A						
+?	The working of and restoration of minerals sites is increasingly adopting innovative practice and there may be opportunities to create new geological exposures for educational interest or incorporate and preserve important						

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
		geological features within the site. However, this would be very dependent on the exact nature, working and proposed design of the restoration of the minerals site, which would not be known until the planning application stage.	
	0	Potential minerals sites which are: <ul style="list-style-type: none"> • More than 500m from a national site of geological interest (SSSI) or Local Geological Site are considered unlikely to affect this objective. 	
	?	N/A	
	-?	Potential minerals sites which are: <ul style="list-style-type: none"> • Within 500m of a national site of geological interest (SSSI) or Local Geological Site could have a minor negative effect on this objective. However, this would be very dependent on the exact nature, working and proposed design of the restoration of the minerals site, which would not be known until the planning application stage. 	
	--?	Potential minerals sites which are: <ul style="list-style-type: none"> • Within the boundary of a national site of geological interest (SSSI) or Local Geological Site could have significant negative effects on this objective. However, this would be very dependent on the exact nature, working and proposed design of the restoration of the minerals site and there could potentially be opportunities to integrate the SSSI or LGS into a restoration strategy for the site, which would not be known until the planning application stage. 	
2. To conserve and enhance the quality of the historic environment including landscape history, human history, archaeological history			
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage	Background information affecting assumptions There is national legislation relating to the protection and treatment of the historic environment in the planning process, the key pieces of which are the Ancient Monuments		The National Heritage List England –

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
<p>assets and their setting.</p> <p>Would the site:</p> <ul style="list-style-type: none"> o Help enable the conservation of features of historic interest in the county, such as conservation areas, Listed Buildings and Scheduled Monuments and areas of archaeological potential? 		<p>and Archaeological Areas Act 1979 and the Planning (Listed Buildings and Conservation Areas) Act 1990. These identify the historic environment as a non-renewable, fragile and finite resource and place a priority on its conservation.</p> <p>The application of this legislation, and the national policy covering the effects of development on the historic environment, are outlined in the National Planning Policy Framework (NPPF). The Listed buildings have statutory protection through the Planning (Listed Buildings and Conservation Areas) Act 1990. The Ancient Monuments and Archaeological Areas Act (1979) protects monuments whose preservation is given priority over other land uses.</p> <p>The NPPF requires local authorities to conserve and enhance the historic environment and states that heritage assets should be conserved in a manner appropriate to their significance. Accordingly, great weight should be given to the conservation of designated assets and development that causes substantial harm to them should be exceptional/wholly exceptional.</p> <p>The development of minerals sites containing or in proximity to heritage assets could physically affect them, and/or have a negative effect on their setting and significance. A high-level assessment of these potential effects on assets within 1km¹⁵⁴ of each site has been made based on professional judgement and a strategic understanding of the assets' importance and sensitivity. A level of uncertainty will be attached to all effects on this SA objective given the absence of detailed information on the following:</p> <ul style="list-style-type: none"> • the significance and sensitivity of assets, including how their setting contributes to their significance; and • the development proposals and magnitude of impact. <p>In the absence of this detailed information, a maximum case scenario is generally assumed. However, mitigation measures may be possible that would help reduce some effects. The assessment provided herein is therefore indicative only, and more detailed assessment of the effects on the historic environment should be undertaken as part of the planning application process.</p>	<p>shapefiles and online database for information on designated assets and heritage at risk.</p> <p>Heritage Gateway for information on the local Historic Environment Record.</p> <p>Local authority websites for information on locally listed buildings and parks. (Note that only Dacorum, Hertsmere and Three Rivers had building lists publicly available online and only Dacorum had information on locally listed parks.)</p> <p>Shapefiles for</p>

¹⁵⁴ Locally listed assets have been reviewed within the site and its immediate environs only due to the data not being mapped and being difficult to locate spatially.

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
	Assumptions for determining significance of effects on SA objective 2.1:		conservation areas provided by the local authorities.
	++	N/A	
	+	N/A	
	0?	<ul style="list-style-type: none"> Allocation would not physically change any designated or non-designated heritage assets and would conserve their setting, resulting in no change to the way in which the heritage asset is perceived or understood. 	
	?	N/A	
	-?	A minor negative effect occurs where allocation has the potential to cause minor effects to assets of high or medium significance as a consequence of setting change; and/ or, where assets of low significance may experience physical or setting change, resulting in any degree of effect (minor to significant).	
	--?	A significant negative effect occurs where, as result of allocation, assets of medium or high significance are subject to significant degree of effect, via setting or physical change.	
2.2 To conserve below ground archaeological assets	<p>Background information affecting assumptions</p> <p>There is national legislation and guidance relating to the protection and treatment of the historic environment which identify the historic environment as a non-renewable, fragile and finite resource and place a priority on its conservation. The key piece of legislation for buried remains is the Ancient Monuments and Archaeological Areas Act (1979).</p> <p>The NPPF requires local authorities to conserve and enhance the historic environment, including archaeology, and states that heritage assets should be conserved in a manner appropriate to their significance. Accordingly, great weight should be given to the conservation of designated assets and development that causes substantial harm to them should be exceptional/ wholly exceptional. This extends to non-designated assets</p>		Heritage Gateway for information on the local Historic Environment Record (non-designated assets). This data source is not always up to date and may not

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)								
		<p>of archaeological interest, which are demonstrably of equivalent significance to scheduled monuments.</p> <p>The development of minerals sites could result in the damage/ removal of archaeological assets and their setting. A high-level assessment of the potential effects on known archaeological assets within each site has been made based on professional judgement and a strategic understanding of the assets' importance and sensitivity. A level of uncertainty will be attached to all effects on this SA objective given the absence of detailed information on the following:</p> <ul style="list-style-type: none"> • the significance and sensitivity of assets, including how their setting contributes to their significance; and • the development proposals and magnitude of impact. <p>In the absence of this detailed information, a maximum case scenario is generally assumed. However, mitigation measures may be possible that would help reduce some effects. The assessment provided herein is therefore indicative only, and more detailed assessment of the effects on the historic environment should be undertaken as part of the planning process.</p> <p>Assumptions for determining significance of effects on SA objective 2.2:</p> <table border="1"> <tr> <td>++</td> <td>N/A</td> </tr> <tr> <td>+</td> <td>N/A</td> </tr> <tr> <td>0</td> <td>N/A</td> </tr> <tr> <td>?</td> <td>There is insufficient data to determine whether any of the potential mineral sites contain archaeological assets, therefore an uncertain effect is identified, as a more detailed assessment of below ground archaeological assets would be required once proposals are known. In addition, extraction at minerals sites offers some opportunity to help conserve archaeological assets (although probably not in situ).</td> </tr> </table>	++	N/A	+	N/A	0	N/A	?	There is insufficient data to determine whether any of the potential mineral sites contain archaeological assets, therefore an uncertain effect is identified, as a more detailed assessment of below ground archaeological assets would be required once proposals are known. In addition, extraction at minerals sites offers some opportunity to help conserve archaeological assets (although probably not in situ).	<p>contain all the information that is held by Hertfordshire Historic Environment.</p> <p>Local Plan Policy Maps for information on sites of archaeological interest/ importance</p> <p>Shapefiles conservation areas provided by the local authorities.</p> <p>The National Heritage List for England downloads and online database for information on nationally designated assets.</p>
++	N/A										
+	N/A										
0	N/A										
?	There is insufficient data to determine whether any of the potential mineral sites contain archaeological assets, therefore an uncertain effect is identified, as a more detailed assessment of below ground archaeological assets would be required once proposals are known. In addition, extraction at minerals sites offers some opportunity to help conserve archaeological assets (although probably not in situ).										

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
	-	N/A	
	--	N/A	
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	Background information affecting assumptions Sand and gravel sites are not likely to contribute to providing traditional building materials. There have been traditional brickworks e.g. at Bovingdon, which have produced locally distinctive building materials from local brick clay. As such, only sites providing brick clay can be considered to contribute positively to this objective.		Type of mineral site option.
	Assumptions for determining significance of effects on SA objective 2.3:		
	++	N/A	
	+	Sites providing brick clay can be considered to contribute positively to this objective.	
	0	Sites providing sand and gravel and/or chalk would not contribute towards this objective as these are not locally distinctive building materials.	
	?	N/A	
	-	N/A	
--	N/A		
3. To conserve and enhance Hertfordshire's landscape assets such as landscapes of natural beauty and greenspaces.			
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	Background information affecting assumptions Areas of Outstanding Natural Beauty (AONB) have statutory protection through the Countryside and Rights of Way Act (2000). More than half the County has been designated for landscape conservation, including Chilterns AONB, which is partly within		MLP Landscape and Visual Sensitivity Assessment.

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
<p>Would the site:</p> <ul style="list-style-type: none"> o Help enable the protection of landscape (Chilterns AONB) and townscape character? o Contribute to the restoration of minerals sites, maximising after-use potential for beneficial use (e.g. agriculture, nature conservation, recreation, amenity, water storage, flood management) as appropriate? o Facilitate the supply and use of local building materials to protect local character? o Affect dark skies from light pollution? o Protect and enhance the tranquillity of Hertfordshire (e.g. by minimising noise arising from minerals facilities and transport)? o Encourage landscape improvement? 	<p>Hertfordshire.</p> <p>Areas of high landscape quality and the setting of settlements may be affected by the development of minerals sites. In addition, areas with poor landscape character could be enhanced through the creation of high quality restored minerals sites. However, this will not be able to be determined until the planning application stage, and will depend upon factors such as: how prominent sites are in the landscape; the level of screening; and the character of the surrounding landscape.</p> <p>It is difficult to assess the potential for significant effects on landscape character and setting of settlements when selecting sites for allocation in the MLP, as this is a strategic decision-making stage, and the level of detailed understanding of topography, prominence in the landscape, visibility and setting of settlements etc. may not be available (as this would be undertaken at the planning application stage, potentially through a site-specific Environmental Impact Assessment (EIA)). In addition, detailed proposals about what sort of extraction practices and mitigation measures might be implemented will not be available until the planning application stage.</p> <p>However, HCC has commissioned LUC to undertake a detailed Landscape and Visual Sensitivity Assessment¹⁵⁵ of all 19 potential mineral sites, and the findings of that study have informed the judgements for this SA objective as set out below.</p> <p>Assumptions for determining significance of effects on SA objective 3.1:</p> <p>++</p> <p>N/A</p> <p>+?</p> <p>The restoration of minerals sites is increasingly adopting innovative practice and this could have positive effects on landscape character. However, this would be very dependent on the exact nature and proposed design of the restoration of the minerals site, which would not be known until the planning application stage.</p>		

¹⁵⁵ Hertfordshire Landscape and Visual Sensitivity Study of Potential Mineral Sites. LUC, August 2016.

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
	0	Potential minerals sites which: <ul style="list-style-type: none"> Have an overall landscape sensitivity judgement of 'low' in the Landscape and Visual Sensitivity Study are considered unlikely to have an effect on designated landscapes, local landscape character or tranquillity. 	
	?	N/A	
	-	Potential minerals sites which: <ul style="list-style-type: none"> Have an overall landscape sensitivity judgement of 'moderate' or 'low-moderate' in the Landscape and Visual Sensitivity Study are considered likely to have a minor negative effect on designated landscapes, local landscape character or tranquillity. 	
	--	Potential minerals sites which: <ul style="list-style-type: none"> Have an overall landscape sensitivity judgement of 'high' or 'moderate-high' in the Landscape and Visual Sensitivity Study could be more likely to have a significant negative effect on designated landscapes, local landscape character and/or tranquillity. 	
4. To protect water resources, water quality and the function of the water environment from pollution and over abstraction			
4.1 To protect the quality of ground and surface water Would the site: <ul style="list-style-type: none"> Affect the quality of water bodies and/or interfere with the flows of 	Background information affecting assumptions The Water Framework Directive ¹⁵⁶ applies to all surface freshwater bodies (including lakes, streams and rivers), groundwater, groundwater dependent ecosystems, estuaries and coastal waters out to one mile from low-water. It aims to improve inland and coastal waters and protect them from diffuse pollution in urban and rural areas; increase the sustainable use of water as a natural resource and create better habitats for wildlife that		GIS data: <ul style="list-style-type: none"> Water environment (EA source protection zone)

¹⁵⁶ The European Water Framework Directive came into force in December 2000, and was transposed into UK law by December 2003.

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
<p>these waters, including the potential risk to, and impacts on, the quality of aquifers and groundwater</p>		<p>lives in and around water.</p> <p>The Environment Agency's Groundwater Protection: Principles and Practice Guide (2013) outlines the Agency's approach to the management and protection of groundwater in England and Wales. The guide lists the main types of infrastructure with significant potential for groundwater pollution. While the list does not include mineral extraction sites, the guide states that relevant guidance will be applied to any infrastructure or technologies where there is significant potential for groundwater pollution.</p> <p>The guide goes on to list the main activities likely to result in the physical disturbance of aquifers, including mining, quarrying and gravel extraction, which can artificially lower or raise groundwater levels, alter groundwater flows paths, or even cut off groundwater flow completely. This is supported by paragraph 143 of the NPPF which states that permitted mineral operations must demonstrate that there will be no unacceptable adverse impacts on the flow and quantity of groundwater and the migration of contamination from the site.</p> <p>The extent to which a minerals extraction site will affect ground and surface water on a potential site depends on the type of mineral worked, site design and characteristics, and the geological conditions. Mineral sites could potentially lead to loss of contaminants or accidental pollution incidents, which could adversely affect groundwater quality, particularly if the sites are in Source Protection Zone (SPZ) 1¹⁵⁷ or adjacent to a water body. However, the NPPF states that local planning authorities should set out environmental criteria against which planning applications will be assessed so as to ensure that permitted operations do not have unacceptable adverse impacts on the natural environment, including migration of contamination from sites.</p> <p>There are also other regulatory regimes in place, such as the Environment Agency's Environmental Permitting regime, which require the minerals industry to obtain permits setting out thresholds for impacts on water supply and quality from minerals operations. Therefore, it is assumed that any minerals extraction operation that might occur in future on a site allocated in the MLP will be undertaken in line with the Environmental Permit,</p>	<ul style="list-style-type: none"> o Base map for water body location <p>MLP Site assessment criteria:</p> <ul style="list-style-type: none"> • Ecological status of water bodies • Groundwater vulnerability <p>Relevant information from HRA.</p>

¹⁵⁷ Source Protection Zones have been defined by the Environment Agency around 2,000 groundwater sources of public drinking water supply. These zones show the risk of contamination from any activities that might cause pollution in the area. The closer the activity is to the source, the greater the risk. SPZ 1 is the innermost zone around the groundwater source.

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)												
		<p>which should help to minimise potential effects on water supply and quality.</p> <p>At this stage in the planning process it is difficult to determine the impacts of minerals sites on water quality (surface or groundwater) as it will very much depend on the proposal (mineral type, design, method of working etc.), which would be assessed at the planning application stage.</p> <p>Assumptions for determining significance of effects on SA objective 4.1:</p> <table border="1"> <tr> <td>++</td> <td>N/A</td> </tr> <tr> <td>+</td> <td>N/A</td> </tr> <tr> <td>0</td> <td>Sites outside SPZ1 and with no water bodies present on site are assessed as having a negligible effect with uncertainty relating to the operation activities (e.g. dewatering).</td> </tr> <tr> <td>?</td> <td>N/A</td> </tr> <tr> <td>-?</td> <td>Sites outside SPZ1 but within/adjacent to a water body are assessed as having a minor adverse effect. However, this effect would be uncertain as it would be very dependent on the exact nature, working and proposed design of the site.</td> </tr> <tr> <td>--?</td> <td>Sites within SPZ1 and/or within/adjacent to a water body are assessed as having a significant adverse effect. However, this effect would be uncertain as it would be very dependent on the exact nature, working and proposed design of the site.</td> </tr> </table>	++	N/A	+	N/A	0	Sites outside SPZ1 and with no water bodies present on site are assessed as having a negligible effect with uncertainty relating to the operation activities (e.g. dewatering).	?	N/A	-?	Sites outside SPZ1 but within/adjacent to a water body are assessed as having a minor adverse effect. However, this effect would be uncertain as it would be very dependent on the exact nature, working and proposed design of the site.	--?	Sites within SPZ1 and/or within/adjacent to a water body are assessed as having a significant adverse effect. However, this effect would be uncertain as it would be very dependent on the exact nature, working and proposed design of the site.	
++	N/A														
+	N/A														
0	Sites outside SPZ1 and with no water bodies present on site are assessed as having a negligible effect with uncertainty relating to the operation activities (e.g. dewatering).														
?	N/A														
-?	Sites outside SPZ1 but within/adjacent to a water body are assessed as having a minor adverse effect. However, this effect would be uncertain as it would be very dependent on the exact nature, working and proposed design of the site.														
--?	Sites within SPZ1 and/or within/adjacent to a water body are assessed as having a significant adverse effect. However, this effect would be uncertain as it would be very dependent on the exact nature, working and proposed design of the site.														
<p>4.2 To protect the quantity of ground and surface water from over abstraction</p>		<p>Background information affecting assumptions</p> <p>As above, the Water Framework Directive applies to all surface freshwater bodies (including lakes, streams and rivers), groundwater, groundwater dependent ecosystems, estuaries and coastal waters out to one mile from low-water. It aims to improve inland</p>	<p>GIS data:</p> <ul style="list-style-type: none"> o Water environment (EA source) 												

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)								
<p>Would the site:</p> <ul style="list-style-type: none"> o Affect the quantity of water bodies and/or interfere with the flows of these waters, including the potential risk to, and impacts on, the aquifers and groundwater? 		<p>and coastal waters and protect them from diffuse pollution in urban and rural areas; increase the sustainable use of water as a natural resource and create better habitats for wildlife that lives in and around water.</p> <p>The extent to which a minerals extraction site will affect ground and surface water quantity depends on the type of mineral worked, site design and characteristics, and the geological conditions. The NPPF states that local planning authorities should set out environmental criteria against which planning applications will be assessed so as to ensure that permitted operations do not have unacceptable adverse impacts on the natural environment, including from impacts on the flow and quantity of surface and groundwater.</p> <p>There are also other regulatory regimes in place, such as the Environment Agency's Environmental Permitting regime, which require the minerals industry to obtain permits setting out thresholds for impacts on water supply and quality from minerals operations. Therefore, it is assumed that any minerals extraction operation that might occur in future on a site allocated in the MLP will be undertaken in line with the Environmental Permit, which should help to minimise potential effects on water supply.</p> <p>It will not be possible to assess water use and efficiency at this stage in the planning process, as it will very much depend on the proposal (mineral type, design, method of working etc.), which would be assessed at the planning application stage.</p> <p>Assumptions for determining significance of effects on SA objective 4.1:</p> <table border="1"> <tr> <td>++</td> <td>N/A</td> </tr> <tr> <td>+</td> <td>N/A</td> </tr> <tr> <td>0</td> <td>N/A</td> </tr> <tr> <td>?</td> <td>All mineral activity could potentially require the use of water resources, but the extent of water use will not be known until the planning application stage where proposals are brought forward. Therefore it is considered that</td> </tr> </table>	++	N/A	+	N/A	0	N/A	?	All mineral activity could potentially require the use of water resources, but the extent of water use will not be known until the planning application stage where proposals are brought forward. Therefore it is considered that	<p>protection zone)</p> <ul style="list-style-type: none"> o Base map <p>MLP Site assessment criterion:</p> <ul style="list-style-type: none"> • Aquifers
++	N/A										
+	N/A										
0	N/A										
?	All mineral activity could potentially require the use of water resources, but the extent of water use will not be known until the planning application stage where proposals are brought forward. Therefore it is considered that										

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
		all potential mineral activities will have an uncertain effect on this objective.	
	-	N/A	
	--	N/A	
5. To minimise the effects of climate change and reduce emissions of greenhouse gases			
<p>5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport.</p> <ul style="list-style-type: none"> Reductions in transport distances by supporting the location of mineral extraction sites in proximity to surrounding markets for minerals and to serve local needs? 	<p>Background information affecting assumptions</p> <p>The mineral industry is energy intensive and consequently reducing greenhouse gas emissions and energy consumption, and the industry's overall carbon footprint in relation to minerals production are important matters. Mineral sites should and do aim to be as energy efficient as possible and implement measures to offset or reduce the size of their carbon footprint, whereby some sites calculate their carbon output per tonne of product. However, it is very difficult to take carbon footprint and therefore potential contributions to and adaptations to climate change into account at this stage in the planning process; as it will depend on the information that proposed developments can provide at the application stage.</p> <p>Sites in close proximity to planned strategic developments within the County have greater potential to reduce transport emissions through the provision of minerals in close proximity to the source of extraction. 'Strategic development locations' represent relatively large areas of development allocated with Local Planning Authorities adopted Local Development Plans and Local Plans.</p> <p>Assumptions for determining significance of effects on SA objective 5.1:</p>		
	++	N/A	
	+?	If minerals site is within close proximity (e.g. 10 km) of a strategic development location within the County, it could contribute to reducing transport distances of aggregates used for construction. However, this is uncertain as it is not known where aggregates will be transported to from	

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
		each site.	
	0	N/A	
	?	N/A	
	-	N/A	
	--	N/A	
<p>5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site</p> <p>Would the site/policy:</p> <ul style="list-style-type: none"> o Lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery? o Encourage the use of renewable or lower carbon energy sources on-site (e.g. through the use of small on-site renewable energy sources, i.e. wind turbines, solar panels)? 		<p>Background information affecting assumptions</p> <p>The mineral industry (particularly aggregate quarrying) is energy intensive and consequently reducing greenhouse gas emissions and energy consumption, and the industry's overall carbon footprint in relation to minerals production are important matters. Mineral sites should and do aim to be as energy efficient as possible and implement measures to offset or reduce the size of their carbon footprint, whereby some sites calculate their carbon output per tonne of product. However, it is very difficult to take carbon footprint and therefore potential contributions to and adaptations to climate change into account at this stage in the planning process; as it will depend on the information that proposed developments can provide at the application stage.</p> <p>Assumptions for determining significance of effects on SA objective 5.2:</p>	N/A
	++	N/A	
	+?	There may be an opportunity for all sites to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), however this will depend on the proposal, which would be assessed at the planning application stage.	
	0	N/A	

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
	?	N/A	
	-	All sites could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery. Therefore, all sites are likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.	
	--	N/A	
<p>6. To avoid the risk of flooding, by directing development away from areas at highest risk and promote opportunities for implementing alleviation / mitigation during site restoration.</p>			
<p>6.1 To protect against the risk of flooding</p> <p>Would the site:</p> <ul style="list-style-type: none"> Affect the likelihood of flooding or lead to inappropriate development in a flood risk zone (e.g. Flood Zones 2 or 3) contrary to national policy on flooding? 	<p>Background information affecting assumptions</p> <p>Paragraphs 157 and 158 of the NPPF describe how Local Authorities should apply a sequential, risk based approach to the location of development to avoid where possible flood risk to people and property and manage any residual risk by: applying the Sequential Test; if necessary, applying the Exception Test; and using opportunities offered by new development to reduce the causes and impact of flooding. As stated in the National Planning Practice Guidance (NPPG)¹⁵⁸, local authorities should take a sequential approach to developing in areas at risk of flooding, giving preference to locating development in Flood Zone 1, followed by Flood Zone 2 then Flood Zone 3.</p> <p>Table 2 (Flood Risk Vulnerability Classification) in the NPPG¹⁵⁹ outlines the flood risk vulnerability classification. Minerals working and processing (except sand & gravel working) are classed as less vulnerable, which means that they are potentially compatible with all flood zones except for Flood Zone 3b, the functional floodplain¹⁶⁰. Sand and gravel workings are classed as water-compatible development and are</p>	<p>GIS data:</p> <ul style="list-style-type: none"> EA flood risk zones OS Base map 	

¹⁵⁸ Available at: <http://planningguidance.planningportal.gov.uk/blog/guidance/flood-risk-and-coastal-change/the-aim-of-the-sequential-test/>

¹⁵⁹ Available at: <http://planningguidance.planningportal.gov.uk/blog/guidance/flood-risk-and-coastal-change/flood-zone-and-flood-risk-tables/table-2-flood-risk-vulnerability-classification/>

¹⁶⁰ Available at: <http://planningguidance.planningportal.gov.uk/blog/guidance/flood-risk-and-coastal-change/flood-zone-and-flood-risk-tables/table-3-flood-risk-vulnerability-and-flood-zone-compatibility/>

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
		<p>potentially suitable for all flood zones including 3b, the functional floodplain. However, NPPG¹⁶¹ also states that mineral workings should not increase flood risk elsewhere and need to be designed, worked and restored accordingly.</p> <p>However, paragraph 4.25 in the Hertfordshire County Council Strategic Flood Risk Assessment states that whilst clay extraction sites are not deemed suitable developments within flood zone 3b, the potential layout of the site should avoid the plant site and other infrastructure being located within the areas of the site that may fall within flood zones 2 and 3. In addition, paragraph 4.41 states that due to the size and scale of mineral workings, any new planning application for sand & gravel, chalk and clay extraction sites within the county, will likely need to be accompanied by an individual Flood Risk Assessment (FRA), regardless of their location within flood zones 1, 2 and 3.</p> <p>Assumptions for determining significance of effects on SA objective 6.1:</p>	
	++	N/A	
	+	N/A	
	0?	<ul style="list-style-type: none"> • Sand and gravel extraction sites or • Brick clay extraction sites <p>are considered unlikely to have an effect on flood risk areas and unlikely to increase the risk of flooding elsewhere. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.</p>	
	?	N/A	
	-	N/A	

¹⁶¹ Available at: <http://planningguidance.planningportal.gov.uk/blog/guidance/flood-risk-and-coastal-change/the-sequential-risk-based-approach-to-the-location-of-development/>

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
	--	N/A	
<p>6.2 To provide opportunities for flood alleviation/mitigation during the restoration of the site</p> <p>Would the site:</p> <ul style="list-style-type: none"> o Provide opportunities for alleviation/mitigation 	<p>Background</p> <p>Some mineral extraction sites, which may dewater, may hold the potential to store excess water in times of heavy rain, which would be seen as a positive in terms of preventing flood risk. However, this would generally not be known until the planning application stage.</p> <p>Assumptions for determining significance of effects on SA objective 6.2:</p>		<p>Proposals submitted by site promoters. However, no information has been provided in relation to flood alleviation.</p>
	++?	Mineral workings (particularly sand and gravel sites) located on land designated as Flood Zone 3b with clear plans for flood alleviation through the provision of flood storage and attenuation, could have significant positive effects on reducing flood risk. Where no plans are available, uncertainty (?) is attached to the significant positive score.	
	+?	Mineral workings (particularly sand and gravel sites) located on land designated as Flood Zone 2 and 3a with clear plans for flood alleviation through the provision of flood storage and attenuation, could have minor positive effects on reducing flood risk. Where no plans are available, uncertainty (?) is attached to the minor positive score.	
	0	Mineral sites not located on land designated as Flood Zones 2, 3a or 3b are likely to have limited potential to reduce or impact on flood risk and are therefore likely to have a negligible effect on this objective.	
	?	N/A	
	-	N/A	
	--	N/A	

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)												
7. To protect and ensure the sustainable use of mineral resources															
<p>7.1 To encourage the use of recycled and secondary aggregates</p> <p>Would the site:</p> <ul style="list-style-type: none"> o Encourage the use of recycled and secondary aggregates? 		<p>Background information affecting assumptions</p> <p>The NPPF is clear that local plans should take account of secondary and recycled aggregates before considering extraction of primary minerals. The development of new mineral extraction sites is therefore likely to have a negative effect on this SA objective, as it enables primary mineral extraction. However, other policies in the MLP encourage the use of secondary and recycled aggregates, and will perform better against this SA objective.</p> <p>Assumptions for determining significance of effects on SA objective 7.1:</p> <table border="1"> <tbody> <tr> <td>++</td> <td>N/A</td> </tr> <tr> <td>+</td> <td>N/A</td> </tr> <tr> <td>0</td> <td>N/A</td> </tr> <tr> <td>?</td> <td>N/A</td> </tr> <tr> <td>-?</td> <td>All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.</td> </tr> <tr> <td>--?</td> <td>N/A</td> </tr> </tbody> </table>	++	N/A	+	N/A	0	N/A	?	N/A	-?	All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.	--?	N/A	
++	N/A														
+	N/A														
0	N/A														
?	N/A														
-?	All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.														
--?	N/A														
Economic															
8. To maximise the potential economic benefits of mineral extraction for the economy in Hertfordshire															
8.1 To provide opportunities for local		Background information affecting assumptions	N/A												

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)												
<p>people to access employment and skills both during and after extraction</p> <p>Would the site/policy:</p> <ul style="list-style-type: none"> o Help the local economy, for example by generating new jobs, and how might implementing the policy impact on local businesses? 		<p>The <u>location</u> of mineral sites is unlikely to directly affect local businesses in Hertfordshire, as it is unlikely that new sites will encourage further investment and growth in the industry. All of the sites could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the provision of more local based skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed in the County will not be a large number each year, the total numbers of new employment opportunities likely to be provided within the County is not considered to be significant.</p> <p>Assumptions for determining significance of effects on SA objective 8.1:</p> <table border="1"> <tr> <td>++</td> <td>N/A</td> </tr> <tr> <td>+</td> <td>All sites are considered likely to have a minor positive effect on providing opportunities for local people to access employment and skills both during and after extraction</td> </tr> <tr> <td>0</td> <td>N/A</td> </tr> <tr> <td>?</td> <td>N/A</td> </tr> <tr> <td>-</td> <td>N/A</td> </tr> <tr> <td>--</td> <td>N/A</td> </tr> </table>	++	N/A	+	All sites are considered likely to have a minor positive effect on providing opportunities for local people to access employment and skills both during and after extraction	0	N/A	?	N/A	-	N/A	--	N/A	
++	N/A														
+	All sites are considered likely to have a minor positive effect on providing opportunities for local people to access employment and skills both during and after extraction														
0	N/A														
?	N/A														
-	N/A														
--	N/A														
<p>8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs</p>		<p>Background</p> <p>As new sand and gravel sites need to be allocated within the MLP to meet the forecast amounts of aggregate required to meet Hertfordshire's needs, all of the potential mineral sites could have a positive effect on this SA objective.</p> <p>Assumptions for determining significance of effects on SA objective 8.2:</p>	N/A												

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
	++	N/A	
	+	All sites would contribute towards providing minerals to meet Hertfordshire's needs	
	0	N/A	
	?	N/A	
	-	N/A	
	--	N/A	
<p>8.3 To ensure that mineral sterilisation is minimised</p> <p>Would the site/policy:</p> <ul style="list-style-type: none"> o Reduce the extraction of virgin materials? o Avoid sterilising mineral resources by preventing unnecessary development on or near to mineral resources? o Require prior extraction if development that would sterilise mineral resources were to go ahead? 		<p>Background information affecting assumptions</p> <p>New potential mineral sites would not be inappropriate development as they are contributing to the extraction of mineral resources, not limiting the ability to extract resources, and would therefore have a positive effect on this objective, which primarily relates to conserving minerals resources from inappropriate non-minerals development. This is supported by designating resources as Mineral Safeguarding and Consultation areas to safeguard from sterilisation by <u>non-mineral</u> development.</p> <p>Assumptions for determining significance of effects on SA objective 8.3:</p>	N/A
++		N/A	
+		New potential mineral sites are not classed as inappropriate development, however, the site options would have a positive effect on this objective as they provide a degree of protection to minerals resources from inappropriate non-mineral development.	
0		N/A	

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)										
	?	N/A											
	-	N/A											
	--	N/A											
<p>8.4 Protect The County’s best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality</p> <p>Would the site/policy:</p> <ul style="list-style-type: none"> o Minimise the loss of the best and most versatile agricultural land? o Improve the soil quality? 		<p>Background information affecting assumptions</p> <p>The NPPF states that where significant development of agricultural land is demonstrated to be necessary, local planning authorities should seek to use areas of poorer quality land (4 and 5) in preference to that of a higher quality (1, 2 and 3). Furthermore, the NPPF states that local planning authorities should put in place policies to ensure that high quality restoration and aftercare of mineral sites takes place, including for agriculture (safeguarding the long term potential of best and most versatile agricultural land and conserving soil resources). In some instances, depending on the proposed restoration process agreed for sites, soils could be reused during restoration.</p> <p>Assumptions for determining significance of effects on SA objective 8.4:</p> <table border="1"> <tr> <td>++</td> <td>N/A</td> </tr> <tr> <td>+</td> <td>N/A</td> </tr> <tr> <td>0</td> <td> Potential minerals sites which are: <ul style="list-style-type: none"> • Not within grade 1, 2 or 3 agricultural land are considered unlikely to have an effect on protecting or enhancing soil/land quality </td> </tr> <tr> <td>?</td> <td>N/A</td> </tr> <tr> <td>-</td> <td> Potential minerals sites which are: <ul style="list-style-type: none"> • Large (i.e. over 20 ha) and partially within grade 1, 2 but mostly within grade 3 BMV agricultural land; or • Small to medium (i.e. less than 20 ha) and partially within grade 1, 2 </td> </tr> </table>	++	N/A	+	N/A	0	Potential minerals sites which are: <ul style="list-style-type: none"> • Not within grade 1, 2 or 3 agricultural land are considered unlikely to have an effect on protecting or enhancing soil/land quality 	?	N/A	-	Potential minerals sites which are: <ul style="list-style-type: none"> • Large (i.e. over 20 ha) and partially within grade 1, 2 but mostly within grade 3 BMV agricultural land; or • Small to medium (i.e. less than 20 ha) and partially within grade 1, 2 	
++	N/A												
+	N/A												
0	Potential minerals sites which are: <ul style="list-style-type: none"> • Not within grade 1, 2 or 3 agricultural land are considered unlikely to have an effect on protecting or enhancing soil/land quality 												
?	N/A												
-	Potential minerals sites which are: <ul style="list-style-type: none"> • Large (i.e. over 20 ha) and partially within grade 1, 2 but mostly within grade 3 BMV agricultural land; or • Small to medium (i.e. less than 20 ha) and partially within grade 1, 2 												

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
		but mostly within grade 3 BMV agricultural land could have a minor negative effect on protecting or enhancing soil/land quality.	
	--	<p>Potential minerals sites which are:</p> <ul style="list-style-type: none"> Large (i.e. over 20 ha) and located mostly or entirely within grade 1 or 2 BMV agricultural land could have a significant negative effect on protecting or enhancing soil/land quality. 	
Social			
9. To protect and improve health and amenity for individuals and communities within Hertfordshire			
<p>9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport</p> <p>Would the site:</p> <ul style="list-style-type: none"> Have harmful effects on human health and be sited close to sensitive receptor(s)? Affect amenity through dust and noise (e.g. traffic) or vibration? Affect air quality through traffic impacts Affect road safety through traffic 	<p>Background information affecting assumptions</p> <p>Some minerals sites could have a minor negative effect on protecting the health of local residents, communities and visitors to the County. Dust¹⁶² from extraction, processing and transportation may cause concern to residents and communities near to mineral extraction sites. However, research undertaken for the government in 1995¹⁶³ concluded that dust generated by surface mineral operations (i.e. sand and gravel extraction, as opposed to underground mines) did not result in any specific public health impacts. Therefore, it is not considered likely that mineral extraction in Hertfordshire would give rise to a significant negative effect on health, but minor negative effects may be experienced or perceived by some residents' etc. living or working close to sites.</p> <p>National Planning Practice Guidance for Minerals¹⁶⁴ states that the relationship of the activities within mineral workings to surrounding land uses, in regards to dust emissions, will vary from site to site. This is primarily for two reasons:</p> <p>The quantity of dust generated by minerals sites will depend on the type of mineral extracted on the site, the scale of the operations and the type of activities undertaken</p>	<p>GIS data:</p> <ul style="list-style-type: none"> MLP sites Existing mineral site data AQMA data set <p>MLP Site assessment criteria:</p> <ul style="list-style-type: none"> Proximity of allocated residential or built development 	

¹⁶² Dust is the generic term which BS6069 (Part 2) *Characterization of air quality Glossary* (1987) uses to describe particulate matter in the size range 1–75 µm (micrometres) in diameter. Particles that are less than or equal to (≤) 10 µm in diameter are commonly referred as PM₁₀.

¹⁶³ Office of the Deputy Prime Minister (by Arup Environmental/Ove Arup and Partners). *The Environmental Effects of Dust from Surface Minerals Workings*, 1995.

¹⁶⁴ Available at: <http://planningguidance.planningportal.gov.uk/blog/guidance/minerals/assessing-environmental-impacts-from-minerals-extraction/dust-emissions/>.

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
<p>impacts?</p> <ul style="list-style-type: none"> ○ Have the potential to create land use conflict issues? ○ Provide opportunities for improvements to health, wellbeing and amenity through enhancements? ○ Create cumulative effects in terms of adverse impacts on environmental quality, social cohesion and inclusion or economic potential? 		<p>within the site. (Note: blasting operations rarely take place at sand and gravel or brick clay operations. Neighbouring land uses vary in sensitivity to dust.</p> <p>Additional measures to control fine particles (PM₁₀) to address any impacts of dust might be necessary if, within a site, the actual source of emission is in close proximity to a residential property or other sensitive use. Evidence included in the former Annex 1: Dust of Minerals Policy Statement 2, and National Planning Practice Guidance for Minerals state that residential properties and other sensitive uses can be affected by dust up to 1km from the source, and that additional measures to monitor and control PM₁₀ might be necessary. However, former Annex 1 of Minerals Policy Statement 2 also stated that concerns about dust are most likely to be experienced near to dust sources, generally within 100m depending on site characteristics and in the absence of appropriate mitigation. Therefore these distances (100m and 1km) have been used within the assumptions for this SA objective.</p> <p>The NPPF is clear that minerals planning authorities should ensure that unavoidable dust emissions are controlled and mitigated or removed at source. Therefore it is assumed that mineral extraction at any of the potential sites will be well operated and that mitigation measures implemented should be sufficient to avoid any potential health effects.</p> <p>Additionally, potential negative effects may occur in relation to amenity if residential areas are between 100m and 1km from a potential minerals site as dust could have a nuisance effect, as highlighted above. Any increases in road transport of minerals will also lead to increases in local air pollution and emissions of CO₂. The further vehicles transporting minerals have to travel along local roads (i.e. not on the primary road network), the higher the potential for more localised air pollution as they are likely to travel more slowly on local roads. In addition, if the mineral site is within, or vehicles are travelling through, AQMAs where existing air pollution issues have been identified, there is more potential for negative effects on air quality.</p> <p>Mineral sites could also have a minor negative effect on safeguarding the amenity of local residents and communities. This is because all minerals development would result in some level of noise, vibration and light pollution during site preparation, operation and restoration and associated with transport of minerals from the site. Noise and vibration</p>	<ul style="list-style-type: none"> • Cumulative effects • Sensitive land uses

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
		<p>from extraction activities and processing activity within the site (e.g. haul roads, sieves and stockpiles etc.) may cause concern to residents and communities near to mineral extraction sites. Evidence from Annex 2: Noise of Minerals Policy Statement 2 stated that noise from surface mineral operations can have a noticeable environmental impact and is a common cause of complaint. However, research for the former Department for the Environment, Transport and the Regions (DETR) found that practice on the assessment and control of noise at surface mineral workings had improved since the publication of the earlier Minerals Planning Guidance 11 in 1993. Furthermore, NPPG for Minerals¹⁶⁵ states that activities such as soil-stripping, the construction and removal of baffle mounds, soil storage mounds and soil heaps, construction of new permanent landforms and aspects of site road construction and maintenance may give rise to particularly noisy short-term activities. However, increased temporary daytime noise limits should be considered to facilitate essential site preparation and restoration work, and construction of baffle mounds where it is clear that this will bring longer-term environmental benefits to the site or its environs.</p> <p>The extent of noise and vibration effects on local amenity will depend on the type of mineral extracted on the site, the scale of the operations and the type of activities undertaken within the site. For example, noise and vibration may be greater near hard rock sites (e.g. crushed rock) due to the need for blasting prior to excavation, which is rarely needed at sand and gravel or brick clay operations.</p> <p>The NPPF is clear that minerals planning authorities should ensure that unavoidable noise and any blasting vibrations are controlled and mitigated or removed at source, but when developing noise limits, there should be recognition that some noisy short-term activities, which may otherwise be regarded as unacceptable, are unavoidable to facilitate minerals extraction. Therefore it is assumed that mineral extraction at any of the potential sites will be well operated and that mitigation measures implemented should be sufficient to avoid any potential long term amenity effects.</p> <p>There could be potential for land use conflict where minerals sites are in close proximity to areas planned for future residential development.</p> <p>The NPPF states that local planning authorities should take into account the cumulative effect of multiple impacts from individual sites and/or from a number of sites in a</p>	

¹⁶⁵ Accessible at: <http://planningguidance.planningportal.gov.uk/blog/guidance/minerals/assessing-environmental-impacts-from-minerals-extraction/noise-emissions/>

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
		locality. Assumptions for determining significance of effects on SA objective 9.1:	
	++	N/A	
	+	N/A	
	0	<p>Potential minerals sites which are:</p> <ul style="list-style-type: none"> Over 100m from sensitive receptors (i.e. residential areas, schools, hospitals, faith centres (e.g. churches, mosques, temples) including areas identified or allocated for residential development in District/Borough Local Plans and; not within 1km of an AQMA. <p>are considered unlikely to have effects on health and local amenity.</p> <p>Potential sites which are greater than 100m from an existing mineral site are considered unlikely to have a cumulative effect on the local community.</p> <p>Potential mineral sites which are adjacent to or within 100m of an existing mineral site, but over 100m from sensitive receptors are considered unlikely to have a cumulative effect on the local community.</p> <p>Settlements with no new potential minerals sites within 1km are considered unlikely to experience cumulative effects from new mineral operations on the amenity of the local community.</p>	
	?	N/A	
	-?	<p>Potential minerals sites which are:</p> <ul style="list-style-type: none"> Within 100m of sensitive receptors (i.e. residential areas, schools, hospitals, faith centres (e.g. churches, mosques, temples) including areas identified or allocated for residential development in 	

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
	<p style="text-align: center;">-</p>	<p>District/Borough Local Plans and</p> <ul style="list-style-type: none"> • within 1km of an AQMA. <p>are considered likely to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. Although, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive use in relation to the prevailing wind direction and visibility), and the type of mineral site, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore, in all cases these effects are uncertain (-?).</p> <p>In addition, potential sites which are:</p> <ul style="list-style-type: none"> • Within 1km from a settlement, • Within 1km of an AQMA; and • There are other existing mineral sites also within 1km of the same settlement <p>could have a cumulative effect on the amenity of the local community.</p>	
	<p style="text-align: center;">--</p>	<p>N/A, as research has excluded any health effects of dust generated by surface minerals operations such as sand and gravel and brick clay extraction, and research has highlighted that effects on amenity (e.g. noise) are improving and can be controlled, mitigated or removed.</p>	
<p>9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space</p>		<p>Background information affecting assumptions</p> <p>All of the potential minerals sites could have negative effects on the amenity of users of Public Rights of Way (PRoW) and other users of the countryside, open spaces and</p>	<p>PMF data:</p> <ul style="list-style-type: none"> • Recreational

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
<p>Would the site/option:</p> <ul style="list-style-type: none"> o Result in a loss of open space? 		<p>recreational facilities if they are in close proximity to the potential site, by making them less attractive for users or in some cases removing the access (e.g. PRow and cycle routes). The potential negative effects would arise because all minerals development would result in some level of noise, traffic, and light pollution during site preparation, operations and potentially during restoration as well.</p> <p>There may be some opportunities for enhancement to footpaths/ PRow during development of particular mineral sites. In addition, there may be opportunities to create new recreation areas/open spaces during restoration of mineral sites.</p> <p>Assumptions for determining significance of effects on SA objective 9.2:</p>	<p>assets</p> <p>LUC Site assessment data:</p> <ul style="list-style-type: none"> • Recreation
	++	N/A	
	+	N/A	
	0	<p>Potential minerals sites which have no PRow or local recreational facility including a public park or open space adjacent to the site <u>OR</u></p> <p>Potential minerals sites which are:</p> <ul style="list-style-type: none"> • More than 100m from a leisure or recreational facility or open space, including PRow, are considered unlikely to have an effect on the amenity of users of PRow and other users of the countryside in the County. However, it is not possible for to determine whether diversion is required for PRow until the planning application stage. 	
	?	N/A	
	-?	<p>Potential minerals sites which are:</p> <ul style="list-style-type: none"> • Within 100m of a PRow or local recreational facility including a public park or open space, or • Within the Chiltern AONB <p>could have a minor negative effect on the amenity of users of PRow and other users of the countryside in the County, or enjoyment of the AONB by</p>	

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
	-	<p>making the facilities/countryside less attractive for users and impacting on amenity.</p> <p>However, it is not possible for to determine whether diversion is required for PRow until the planning application stage.</p>	
	--?	<p>Potential minerals sites which:</p> <ul style="list-style-type: none"> • Include a PRow or local recreational facility including a public park or open space, or <p>could have a significant negative effect on the amenity of users of PRow and other users of the countryside in the County, as development of the sites would either mean removing part of a facility/open space, or removing or temporarily closing land which has potential for recreation/access to the countryside. However, it is not possible to determine whether diversion is required for PRow until the planning application stage.</p>	
<p>9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced Public Rights of Way and improved access to recreation as part of the development and restoration of a site.</p>		<p>Background information affecting assumptions</p> <p>Minerals development and restoration has the potential to provide benefits associated with investment in local green infrastructure and recreation facilities, either as part of required mitigation or enhancement measures or to offset other adverse effects generated by development.</p> <p>Assumptions for determining significance of effects on SA objective 9.3:</p>	N/A
	++?	N/A	
	+?	<p>All potential minerals sites have the potential to contribute positively to local health and amenity through the delivery of new and/or improved green infrastructure, Public Rights of Way, open spaces or recreational facilities. Such enhancements, which would be delivered through the restoration of each site, will have a positive effect on this objective. However, until the opportunities for enhancements are identified and planned into a formal</p>	

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
		restoration plan at the planning application stage the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect is recorded for all site options.	
	0?	N/A	
	?	N/A	
	-	N/A	
	--	N/A	
<p>9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes</p> <p>Would the site/option:</p> <ul style="list-style-type: none"> o Be near to an airfield and likely to increase the chance of birdstrike? o Compromise safe operating of commercial aerodromes (i.e. be near to an airfield and through restoration likely to attract large numbers of birds and increase the chance of bird strike)? 	<p>++</p>	<p>Background information affecting assumptions</p> <p>Mineral extraction sites that are restored to open water can increase bird-strike risk if they are planned near commercial or military aerodromes. This is because where birds congregate in large numbers, they can provide a hazard to aircraft at locations close to aerodromes or low flying areas. The numbers and movements of some species of birds may be influenced by the distribution of mineral sites. As part of the aerodrome safeguarding procedure (ODPM Circular 1/2003) local planning authorities are required to consult aerodrome operators on proposed developments likely to attract birds. Consultation arrangements apply within safeguarded areas (which should be shown on the proposals map in the local development framework).</p> <p>This effect would only apply to sites that plan to incorporate open water restoration. The NPPF states that aviation safety should be taken into account when restoring minerals sites. The type of restoration of potential mineral sites is not known at this stage, and would need to be considered once specific proposals are made.</p> <p>Assumptions for determining significance of effects on SA objective 9.4:</p>	

SA Objective and sub questions	Score	Justification/reasons for score	Data sources (and limitations)
	+	N/A	
	0	Potential minerals sites which are: <ul style="list-style-type: none"> ○ not located within an Airport Safeguarding Zone are unlikely to have any impact upon the safe operation of aerodromes/airports if restored to a water-based use. 	
	?	N/A	
	-?	Potential minerals sites which are: <ul style="list-style-type: none"> • Within an Airport Safeguarding Zone could have minor negative effects on the safe operating of aerodromes/airports if restored to a water-based use that is likely to attract large numbers of birds and increase the risk of bird strike. A '?' will be used to denote uncertainty about this effect as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until a later stage in the Minerals Local Plan preparation or even at the planning application stage. 	
	--	N/A	

Appendix 5

Detailed SA matrices for the Hertfordshire Draft MLP Policies

Hertfordshire Draft MLP Strategic Policy Appraisals

Policy 1: Sustainable Development

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development. As such, it is considered that the policy would seek to protect against the loss of priority habitats, biodiversity and species having a minor positive effect on this objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. The supporting text states that the Council will seek opportunities to achieve net gains across each dimension of sustainable development, in this case the environmental dimension. As such, it is considered that the policy supports the enhancement of biodiversity and, therefore, a minor positive effect is considered likely on this objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development. As such, it is considered that the policy would protect designated nature conservation sites from the deposition of dust and any other harmful pollutants. As such, it is considered that it would have a minor positive effect on this objective.
1.4 To protect and enhance sites of geological conservation interest	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development and in the supporting text that the Council would seek to achieve net gains in each dimension of sustainable development, in this case the environmental dimension. As such, it is considered that the policy would seek to protect and enhance sites of geological conservation interest, having a minor positive effect on this objective.

SA Objective Sub Questions	SA Score	Justification
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development and in the supporting text that the Council would seek to achieve net gains in each dimension of sustainable development, in this case the environmental dimension. As such, it is considered that the policy would seek to conserve and enhance the County's cultural heritage, having a minor positive effect on this objective.
2.2 To conserve below ground archaeological assets	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development and in the supporting text that the Council would seek to achieve net gains in each dimension of sustainable development, in this case the environmental dimension. As such, it is considered that the policy would seek to conserve below ground archaeological assets, if such assets are identified on a site which is subject to a planning application. Therefore, a minor positive effect is considered likely.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	Policy 1 makes no reference to ensuring the supply of locally distinctive building. As such, a negligible effect is considered likely.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development and in the supporting text that the Council would seek to achieve net gains in each dimension of sustainable development, in this case the environmental dimension. As such, it is considered the policy would seek to conserve and enhance the character and quality of Hertfordshire's landscape. Therefore, a minor positive effect is considered likely.
4.1 To protect the quality of ground and surface water	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development. As such, it is considered that the policy would seek to protect the quality of ground and surface water. Therefore,

SA Objective Sub Questions	SA Score	Justification
		a minor positive effect is considered likely.
4.2 To protect the quantity of ground and surface water from over abstraction	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development. As such, it is considered that the policy would seek to protect the quantity of ground and surface water from over abstraction. Therefore, a minor positive effect is considered likely.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development and in the supporting text that the Council would seek to achieve net gains in each dimension of sustainable development, in this case the environmental dimension. As such, it is considered the policy would seek to reduce operational emissions and ensure that proposed transport movements are as sustainable as viably possible. Therefore, a minor positive effect on this objective is considered likely.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. The supporting text states that the Council would seek to achieve net gains in each dimension of sustainable development, in this case the environmental dimension. As such, it is considered that the policy would seek to promote energy efficiency and the use of appropriate renewable or low carbon energy sources onsite as a part of a development. Therefore, a minor positive effect is considered likely.
6.1 To protect against the risk of flooding	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development. As such, it is considered that policy would seek to protect against the risk of flooding. Therefore, a minor positive effect is considered likely.
6.2 To provide opportunities for flood alleviation / mitigation during the	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. The supporting text states that the Council would seek to achieve net gains in each dimension of sustainable development, in this case the environmental

SA Objective Sub Questions	SA Score	Justification
restoration of the site		dimension. As such, the policy should seek developments that provide opportunities for flood alleviation. Therefore, a minor positive effect is considered likely.
7.1 To encourage the use of recycled and secondary aggregates	0	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. While it may also apply to development proposals for recycling and processing secondary or recycled aggregates, it does not specifically encourage the use of recycled or secondary aggregates. Therefore, a negligible effect is considered likely.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. The provision of minerals will help the Council contribute to a strong and competitive economy and the supporting text states that the Council would seek to achieve net gains in each dimension of sustainability, in this case the economic dimension. As such, a minor positive effect is considered likely on this objective.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	Policy 1 seeks to ensure that mineral development within the County is in accordance with the NPPF's presumption in favour of sustainable development, which should help to ensure a steady and adequate supply of minerals. As such, a minor positive effect is considered likely.
8.3 To ensure that mineral sterilisation is minimised	0	Policy 1 seeks to ensure that mineral development within the County is in accordance with the NPPF's presumption in favour of sustainable development. As such, it is considered that the policy would have a negligible effect on this objective as it does not address development which could sterilise a mineral reserve.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	+	Policy 1 seeks to ensure that mineral development within the County is in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development. As such, it is considered that the policy would seek to protect the County's best and most versatile agricultural land from mineral development. Therefore, a minor positive effect on this objective is considered likely.
Social		

SA Objective Sub Questions	SA Score	Justification
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+	Policy 1 seeks to ensure that mineral development within the County is in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development. As such, it is considered that the policy would protect the health and amenity of local residents and communities. Therefore, a minor positive effect on this objective is considered likely.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+	Policy 1 seeks to ensure that mineral development within the County is in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development. As such, it is considered that the policy would protect against the loss of PRoW, access, recreation areas or open space. Therefore, a minor positive effect on this objective is considered likely.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. The supporting text states that the Council would seek to achieve net gains in each dimension of sustainable development, in this case the social dimension. As such, it is considered the policy would seek to improve health and amenity through the delivery of PRoWs and/or improved access to recreation. Therefore, a minor positive effect on this objective is considered likely.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	+	Policy 1 seeks to ensure that mineral development within the County is in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development. As such, it is considered that the policy would ensure that mineral developments would not compromise the operation and safety of commercial/ civil or military aerodromes. Therefore, a minor positive effect on this objective is considered likely.

Policy 2: Climate Change

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	0	Policy 2 seeks to address climate change and, as such, it is considered unlikely to have an effect on this objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	++?	Policy 2 seeks to address climate change and encourages proposals to promote the benefits from restoration with a particular emphasis on biodiversity highlighted in the supporting text. As such, a significant positive effect is considered likely. However, the effect is uncertain as details of any proposal would not be known until the planning application stage.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	+?	Policy 2 seeks to address climate change and requires proposals to demonstrate effective adaptation and resilience measures to potential climate changes, including minimising greenhouse gas emissions and by installing renewable and low-carbon energy generation onsite. As such, this could reduce the amount of air pollutants emitted protecting designated nature conservation sites from pollutants. As such, a minor negative effect is considered likely. However, the effect is uncertain as details of any proposal would not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	Policy 2 seeks to address climate change and, as such, it is considered unlikely to have an effect on this objective.

2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	0	Policy 2 seeks to address climate change and, as such, it is considered unlikely to have an effect on this objective.
2.2 To conserve below ground archaeological assets	0	Policy 2 seeks to address climate change and, as such, it is considered unlikely to have an effect on this objective.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	Policy 2 seeks to address climate change and, as such, it is considered unlikely to have an effect on this objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	++?	Policy 2 seeks to address climate change and encourages proposals to promote the benefits from restoration with a particular emphasis on landscape highlighted in the supporting text. As such, a significant positive effect is considered likely. However, the effect is uncertain as details of any proposal would not be known until the planning application stage.
4.1 To protect the quality of ground and surface water	++?	Policy 2 seeks to address climate change and encourages proposals to promote the benefits from restoration with a particular emphasis on water resource enhancement highlighted in the supporting text. As such, a significant positive effect is considered likely. However, the effect is uncertain as details of any proposal would not be known until the planning application stage.
4.2 To protect the quantity of ground and surface water from over abstraction	++?	Policy 2 seeks to address climate change and requires proposals to demonstrate effective adaptation and resilience measures to potential climate changes, including achieving onsite water efficiency. Measures could include repeated re-use of water in mineral screening and/or the installation of grey-water recycling systems and onsite water storage. As such, a significant positive effect is considered likely. However, the effect is uncertain as details of any proposal would not be known until the planning application stage.

5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	++?	Policy 2 seeks to address climate change and requires proposals to demonstrate effective adaptation and resilience measures to potential climate changes, including minimising greenhouse gas emissions and by installing renewable and low-carbon energy generation onsite. As such, a significant positive effect is considered likely. However, the effect is uncertain as details of any proposal will not be known until the planning application stage.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	++?	Policy 2 seeks to address climate change and requires proposals to demonstrate effective adaptation and resilience measures to potential climate changes, including minimising greenhouse gas emissions and by installing renewable and low-carbon energy generation onsite. As such, a significant positive effect is considered likely. However, the effect is uncertain as details of any proposal will not be known until the planning application stage.
6.1 To protect against the risk of flooding	++?	Policy 2 seeks to address climate change and requires proposals to demonstrate effective adaptation and resilience measures to potential climate changes, including reducing flood risk. As such, a significant positive effect is considered likely. However, the effect is uncertain as details of any proposal would not be known until the planning application stage.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	++?	Policy 2 seeks to address climate change and requires proposals to demonstrate effective adaptation and resilience measures to potential climate changes, including reducing flood risk. Furthermore, the policy encourages proposals to promote the benefits from restoration with a particular emphasis on flood alleviation highlighted in the supporting text. As such, a significant positive effect is considered likely. However, the effect is uncertain as details of any proposal would not be known until the planning application stage.
7.1 To encourage the use of recycled and secondary aggregates	++?	Policy 2 seeks to address climate change and notes the contribution the use of secondary and recycled aggregates can have on reducing the reliance on primary aggregates which in turn can help reduce the emission of greenhouse gases associated with the extraction of primary aggregates. As such, a significant positive effect is considered likely on this objective. However, the effect is uncertain as details of any proposal would not be known until the planning application stage.
Economic		
8.1 To provide opportunities for local people to access employment and skills	0	Policy 2 seeks to address climate change and is not considered likely to affect this objective.

both during and after extraction		
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	Policy 2 seeks to address climate change and is not considered likely to affect this objective.
8.3 To ensure that mineral sterilisation is minimised	0	Policy 2 seeks to address climate change and is not considered likely to affect this objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	0	Policy 2 seeks to address climate change and is not considered likely to affect this objective.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+?	Policy 2 seeks to address climate change and requires proposals to demonstrate effective adaptation and resilience measures to potential climate changes, including minimising greenhouse gas emissions and by installing renewable and low-carbon energy generation onsite. As such, a reduction in emissions could result in a reduced impact on the health and amenity of local residents. As such, a minor positive effect is considered likely. However, the effect is considered uncertain as the details of any proposals will not be known until the planning application stage.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	0	Policy 2 seeks to address climate change and is not considered likely to affect this objective.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of	+?	Policy 2 seeks to address climate change and encourages proposals to promote the benefits from restoration with a particular emphasis on landscape, biodiversity flood alleviation and water resource enhancement highlighted in the supporting text. These could all contribute to green infrastructure provision and as such, an indirect minor positive effect is considered likely. However, the effect is uncertain as details of any proposal would not be known

<p>way and improved access to recreation as part of the development and restoration of a site</p>		<p>until the planning application stage.</p>
<p>9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes</p>	<p>0</p>	<p>Policy 2 seeks to address climate change and is not considered likely to affect this objective.</p>

Policy 3: Aggregate Supply

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	-?	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. The extraction of primary aggregates may have an adverse effect on biodiversity within a site or on land surrounding a site. As such, a minor negative effect is likely. However, this is uncertain as it is subject to the location of any proposed mineral site.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel which will require the extraction of primary aggregates. Mineral operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, mineral sites post-restoration could have a positive effect on biodiversity, in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. As such, an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	-?	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate. This may occur as extensions to existing operational sites or as completely new sites. Subject to the location of the sites, adverse effects may occur on designated nature conservation sites through the deposition of dust from mineral extraction activities and pollutants from HGVs transporting minerals offsite. As such, an uncertain minor negative effect is considered likely.
1.4 To protect and enhance sites of geological conservation interest	-/+?	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate. This may occur as extensions to existing operational sites or as completely new sites. Subject to the location of the sites, adverse effects may occur on sites of geological conservation interest if the site contains or is located within close proximity to such a site. Conversely, exposure of geological faces through mineral extraction can provide educational opportunities and sometimes create new sites of geological conservation interest. As such, an uncertain mixed minor negative and positive effect is considered likely.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and	-?	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate. This may occur as extensions to existing operational sites or as completely new sites. Subject to the location of the sites, adverse effects may occur on designated heritage assets and their setting. However, this would not be known until a site has been brought forward at the

SA Objective and Sub Questions	SA Score	Justification
their setting.		planning application stage. As such, an uncertain minor negative effect is considered likely.
2.2 To conserve below ground archaeological assets	-?	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate. This may occur as extensions to existing operational sites or as completely new sites. As such, a negative effect is recorded as mineral extraction could remove/truncate any below ground archaeological assets. However, this is uncertain as the location of any development proposal will not be known until the planning application stage.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. As such, the policy would not contribute to the supply of locally distinctive building materials. Therefore, a negligible effect is likely.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-/+?	<p>Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate. As such, minor negative effects are considered likely as the operation of forthcoming mineral sites may have a minor negative effect on the character and quality of the landscape. However, this is uncertain as the location of any development proposal will not be known until the planning application stage.</p> <p>However, mineral operators are becoming increasingly aware of the need to restore sites to a high standard. As such, the proposed site could be restored to a standard which enhances the character and quality of the landscape having a minor positive effect on this objective. However, the effect is uncertain as any restoration proposals would not be known until the planning application stage.</p> <p>As such, an uncertain mixed minor negative and positive effect is considered likely.</p>
4.1 To protect the quality of ground and surface water	-?	<p>Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate. This may occur as extensions to existing operational sites or as completely new sites. Hertfordshire contains a number of Source Protection Zone 1s (SPZ1s) and sites within SPZ1s could lead to accidental pollution incidents that could contaminate the quality of groundwater, which could have a significant negative effect. Furthermore, sites may also contain a watercourse or water body and accidental pollution incidents could also result in the contamination of surface water. However, this would not be known until the planning application stage when specific proposals have been brought forward identifying a site.</p> <p>As such, an overall uncertain minor negative effect is considered likely.</p>

SA Objective and Sub Questions	SA Score	Justification
4.2 To protect the quantity of ground and surface water from over abstraction	?	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. All sand and gravel activity could potentially require the use of water resources, but the extent of water use would not be known until the planning application stage where proposals are brought forward. Therefore, it is considered that all potential sand and gravel activities would have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?/-	<p>Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate. As such, there may be an opportunity for mineral operators to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/ offices), but this would depend on the proposal, which would be assessed at the planning application stage. Therefore, an uncertain minor positive effect is likely.</p> <p>However, mineral operations could lead to the production of carbon dioxide and other greenhouse gases from on-site vehicles and machinery, although, sand and gravel site are likely to be less intensive than crushed rock sites thus having smaller effects. The policy is therefore also likely to have a minor negative effect.</p>
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate. As such, there may be an opportunity for mineral operators to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/ offices), but this would depend on the proposal, which would be assessed at the planning application stage. Therefore, an uncertain minor positive effect is likely.
6.1 To protect against the risk of flooding	0	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. Sand and gravel workings are considered water compatible development. As such, a negligible effect is considered likely.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	+?	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate. Mineral workings (particularly sand and gravel sites) can potentially reduce flood risk by providing flood storage and attenuation, and could have a minor positive effect on reducing vulnerability to flooding. However, these effects are uncertain until further assessment has been undertaken at the planning application stage.
7.1 To encourage the use of	-	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel which is a primary aggregate. As

SA Objective and Sub Questions	SA Score	Justification
recycled and secondary aggregates		such, a minor negative effect is considered likely.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate. As such, direct and indirect minor positive effects are considered likely on increasing employment levels during site preparation, operation and restoration, as mineral workings are likely to result in a small amount of job creation for local people in both rural and urban areas.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	++	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel to meet the needs of Hertfordshire as determined through the East of England Aggregates Working Party Annual Monitoring Report 2015 and the Local Aggregate Assessment 2015. As such, a significant positive effect is considered likely on this objective.
8.3 To ensure that mineral sterilisation is minimised	+	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. As such, the policy would provide a degree of protection to mineral resources from inappropriate development as a supply of sand and gravel must be maintained within Hertfordshire.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-?	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate which could result in loss of the County's best and most versatile agricultural land. However, the exact land take and location according to agricultural land quality (i.e. Grades 1 – 5), and whether improvements to soil quality through site restoration are possible; would not be known until the planning application stage, therefore effects on this objective overall are likely to be minor negative uncertain.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated	-/+	Policy 3 may have minor negative effects on health and amenity. The policy seeks to maintain a steady and adequate supply of sand and gravel which could come forward in the form new sites. Therefore, this may continue to subject residents and communities within Hertfordshire to impacts such as dust, noise, vibration and traffic associated with the existing mineral workings or impact new residents as a result of new sites. However, the policy may also have minor positive effects, as the supply of sand and gravel could come from extensions to

SA Objective and Sub Questions	SA Score	Justification
transport		existing sites therefore not resulting in new sites or impacts on previously unaffected residents and communities within Hertfordshire. Therefore, mixed minor negative /minor positive effects are expected on this objective.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	-?	Policy 3 could have a minor negative effect on this objective as the policy seeks to maintain a steady and adequate supply of sand and gravel which could come forward in the form new sites or extensions to existing sites. These new mineral operations that come forward could have an impact on PRoW, access, recreation areas or open space. However, the effect is uncertain as it would depend on the exact nature of the proposed development, which would not be known until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	Policy 3 could have a minor positive effect on this objective as the policy seeks to maintain a steady and adequate supply of sand and gravel which could come forward in the form new sites or extensions to existing sites. Mineral operators are becoming increasingly aware of the need restore sites to a high standard which could come in the form a new/enhanced recreational areas or PRoW. However, the effect is uncertain as it would depend on the exact nature of the proposed restoration, which would not be known until the planning application stage.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	-?	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate and these sites may fall within an Airport Safeguarding Zone. As such, an uncertain minor negative effect is considered likely as the location of the sites would not be known until the planning application stage.

Policy 4: Working of Specific Sites or preferred areas

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--?	<p>Policy 4 allocates three sites and one preferred area for sand and gravel extraction.</p> <p>The three sites and preferred area are all within 250m of Local Wildlife Sites and other nature conservation designations or ancient woodland. Therefore, a significant negative effect is considered likely with regards to this objective, however there is some uncertainty as effects will depend on the exact nature and design of any proposals which come forward.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix were explored in Chapter 8 of the SA Report which accompanied the Draft MLP.</p>
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	<p>Policy 4 sets out three specific sites and one preferred area for sand and gravel extraction. Mineral operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, mineral sites post-restoration could have a positive effect on biodiversity, in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. As such, an uncertain minor positive effect is considered likely.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix were explored in Chapter 8 of the SA Report which accompanied the Draft MLP.</p>
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	--?	<p>Policy 4 sets out three specific sites and one preferred area for sand and gravel extraction.</p> <p>With the exception of MLPCS008, the constituent extraction locations are located within 1km of the Hertfordshire primary route network. All of the sites within 1km of the primary route network have potential to increase HGV flows within 200m of one or more sites designated for nature conservation, including SSSIs, wildlife sites and the Lee Valley SPA. Therefore, Policy 4 has the potential to have a significant negative affect on this nature conservation site through increased deposition of air pollutants, although this effect is dependent on the likely increase in HDV annual average daily traffic flows along the road passing within 200m of the nature conservation site (in combination with HDV movements from other existing and potential minerals sites). The HRA Report for the MLP assumes that the maximum number of daily HDV movements that may be produced by any single site option would be 150. On their own, each potential minerals site is unlikely to have a significant effect in relation to increased air pollution. However, if more than one minerals site that is close to other minerals sites were to be developed and become operational at the same time, then in-combination the increase in HDV movements could</p>

SA Objective and Sub Questions	SA Score	Justification
		<p>be higher than the DMRB threshold and result in a significant effect in relation to air pollution.</p> <p>The HRA concluded that there is potential for significant negative effects on the Lee Valley SPA and Ramsar sites, Epping Forest SAC and Wormley Hoddesdonpark Woods SAC. Therefore, a significant negative effect is considered likely. However, the effect is uncertain as the exact locations and accessibility of proposals will not be known until the planning application stage.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix were explored in Chapter 8 of the SA Report which accompanied the Draft MLP.</p>
1.4 To protect and enhance sites of geological conservation interest	0	<p>The three sites and one preferred area allocated for sand and gravel extraction in Policy 4 lie within 500m of a site designated for geological interest (i.e. a geological SSSI or LGS). As such, Policy 4 is likely to have a negligible effect on this objective..</p>
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	--?	<p>All three sites and one preferred area allocated for sand and gravel extraction in Policy 4 lie within 1km of one or more heritage assets, particularly listed buildings. Effects of development at most sites are expected to be minor or negligible due to existing screening and the existing context of the sites. However, the Briggens Estate – Olives Farm is adjacent to Stanstead Abbots conservation area, which includes several listed buildings close to the site. Development within this preferred area is likely to have a significant adverse effect on the setting of the conservation area and listed buildings within this. These effects are considered uncertain as the actual effects on historic assets will depend on the asset, exact siting, scale and type of development.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix were explored in Chapter 8 of the SA Report which accompanied the Draft MLP.</p>
2.2 To conserve below ground archaeological assets	?	<p>There is insufficient data to determine whether any of the potential mineral sites in this option contain archaeological assets, therefore an uncertain effect is identified, as a more detailed assessment of below ground archaeological assets would be required once proposals are known. In addition, extraction at minerals sites offers some opportunity to help conserve archaeological assets (although probably not <i>in situ</i>).</p>

SA Objective and Sub Questions	SA Score	Justification
		Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix were explored in Chapter 8 of the SA Report which accompanied the Draft MLP.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	The minerals targeted for extraction in Policy 4 are sand and gravel, which are not locally distinctive building materials. Therefore effects are expected to be negligible with regards to this objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-	<p>Policy 4 is expected to have an overall minor negative effect on the landscape of Hertfordshire. According to the LUC Landscape and Visual Sensitivity study 2016 all extraction locations are assessed as having low-moderate landscape sensitivity to mineral extraction, with the exception of MLPCS006, which was identified as having negligible effects.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix were explored in Chapter 8 of the SA Report which accompanied the Draft MLP.</p>
4.1 To protect the quality of ground and surface water	--?	<p>While none of the potential development areas in Policy 4 are within SPZ1, all areas allocated for extraction contain a waterbody. Development and extraction activities in close proximity to the water bodies could lead to their contamination, which could have significant adverse effects, but uncertainty remains as the effect depends on the exact location, nature, working and design of a site.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix were explored in Chapter 8 of the SA Report which accompanied the Draft MLP.</p>
4.2 To protect the quantity of ground and surface water from over abstraction	?	All mineral activity could potentially require the use of water resources, but the extent of water use would not be known until the planning application stage where proposals are brought forward. Therefore, an uncertain effect on this objective is considered likely.

SA Objective and Sub Questions	SA Score	Justification
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	<p>Policy 4 would lead to minerals extraction within 10km of a number of sites allocated for development. Extraction in close proximity to centres of growth could contribute to reducing transport distances of aggregates for construction and thus a minor positive is considered appropriate. However, this is uncertain as it is not known where aggregates will be transported to from each site.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix were explored in Chapter 8 of the SA Report which accompanied the Draft MLP.</p>
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	<p>There may be an opportunity for the sites allocated within Policy 4 to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, Policy 4 could lead to the production of carbon dioxide or other greenhouse gases from vehicles and machinery at minerals sites, although sand and gravel sites are likely to be less intensive than crushed rock sites thus having more minor effects. Therefore, a minor negative effect on the production of greenhouse gases from on-site vehicles and machinery is also recorded for this objective.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix were explored in Chapter 8 of the SA Report which accompanied the Draft MLP.</p>
6.1 To protect against the risk of flooding	0?	<p>Policy 4 allocates three specific sites and one preferred area for sand and gravel extraction. Sand and gravel workings are considered water compatible development and are therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, potential effects of extraction and associated development on flood risk are uncertain until more detailed assessment of specific proposals is carried out. As such, an uncertain negligible effect is recorded against this objective.</p>
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	<p>Policy 4 allocated three specific sites and one preferred area for sand and gravel extraction. The majority of land allocated lies outside Flood Zones 2 and 3, resulting in a low risk of flooding. A small area of Flood Zone 2 is located within site MLPCS006, but this represents a very small proportion of the overall site. Therefore, Policy 4 is unlikely to create significant opportunities for flood alleviation and a negligible effect is recorded against this objective.</p> <p>Mineral workings can potentially reduce flood risk by providing flood storage and attenuation, and could have a minor positive effect on reducing vulnerability to flooding. However, these effects are uncertain until further</p>

SA Objective and Sub Questions	SA Score	Justification
		assessment has been undertaken at the planning application stage.
7.1 To encourage the use of recycled and secondary aggregates	-	Policy 4 three specific sites and one preferred area for mineral extraction. Therefore, a minor negative effect is recorded on this objective because each would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	Policy 4 allocated three specific sites and one preferred area for sand and gravel extraction. As such, direct and indirect minor positive effects are considered likely on increasing employment levels during site preparation, operation and restoration. Given that the overall number of mineral sites likely to be developed, job creation is not expected to be significant within the Hertfordshire economy.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	++	Policy 4 allocate three specific sites and one preferred areas for sand and gravel extraction. Together these locations have projected tonnage of 25.25 million tonnes over the plan period, which will directly help to maintain a steady and adequate supply of sand and gravel to meet the needs of Hertfordshire. As such, a significant positive effect is considered likely.
8.3 To ensure that mineral sterilisation is minimised	+	The three Specific Sites and one preferred area allocated in Policy 4 are designed for mineral extraction, removing the possibility that mineral resources would be sterilised by a non-mineral development. As such, a minor positive effect is considered likely.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	--	The majority of the land allocated within the three Specific Sites and one preferred area are designated as Grade 3 agricultural land. However, sites MLPCS006 and MLP009 and the preferred area at the Briggens Estate – Olives Farm consist mostly of Grade 2 agricultural land. Mineral extraction in these locations would therefore result in the loss of some of the county's best and most versatile agricultural land with significant negative effects against this objective. Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix were explored in Chapter 8 of the SA Report which accompanied the Draft MLP.
Social		
9.1 To protect the health and	-?	The three Specific Sites and one preferred Area allocated in Policy 4 would lead to development within close proximity (100m) of residential properties. Furthermore, some sites are located close to existing settlements

SA Objective and Sub Questions	SA Score	Justification
amenity of local residents and communities from the impacts of minerals workings and associated transport		<p>and/or other sensitive receptors, such as schools. As such, development under this option is considered to have minor negative effects on health due to the potential for dust (PM10) and loss of amenity to have a negative effect on the health of local residents, communities and visitors to the County.</p> <p>However, it is acknowledged that these effects are dependent on local circumstances, such as the topography and nature of the landscape, the prevailing wind direction, the scale of the operations and the type of activities undertaken which would be assessed at the planning application stage. Therefore these effects are minor negative uncertain.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix were explored in Chapter 8 of the SA Report which accompanied the Draft MLP.</p>
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	--?	<p>Sites MLPCS006, MLPCS009 and the preferred area at the Briggens Estate – Olives Farm allocated in Policy 4 all contain recreational spaces and/or Public rights of way that would be lost and moved. Such reprovion would take time resulting in a temporary net loss. However, it is not possible to determine whether diversion is required for PRoW until the planning application stage, therefore there is some uncertainty involved. Therefore an uncertain significant negative effect is recorded against this objective.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix were explored in Chapter 8 of the SA Report which accompanied the Draft MLP.</p>
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	<p>All new minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRoW and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix were explored in Chapter 8 of the SA Report which accompanied the Draft MLP.</p>

SA Objective and Sub Questions	SA Score	Justification
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	-?	<p>Policy 4 allocates three specific sites and one preferred area for sand and gravel extraction. Sites MLPCS008, MLPCS006 and MLPCS009 are within the Luton Airport Safeguarding Zone which could have a minor negative effect on the safe operation of the airport, particularly if the restoration involved water-based uses with the potential to attract large numbers of birds. However, this effect is uncertain as it is dependent on the type of restoration proposed and eventually developed on site, which will not be known until a later stage in the Minerals Local Plan preparation or even at the planning application stage.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix were explored in Chapter 8 of the SA Report which accompanied the Draft MLP.</p>

Policy 5: Secondary and Recycled Aggregates

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+?	Policy 5 seeks to promote the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities, which could have an adverse effect on biodiversity. However, the policy explicitly states that proposals for recycling facilities must be appropriate to the character of the surrounding natural environment and not adversely impact upon the natural environment. As such, it is considered that the policy would have a minor positive effect on this objective. However, this is uncertain as the location and nature of the proposal would not be known until the planning application stage.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	0	Policy 5 does not seek to provide opportunities to enhance biodiversity. As such, a negligible effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	+?	Policy 5 seeks to promote the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities, which could produce dust and air pollutants that would have an adverse effect on nature conservation sites. However, the policy explicitly states that proposals for recycling facilities must be appropriate to the character of the surrounding natural environment and not adversely impact upon the natural environment. As such, it is considered that the policy would have a minor positive effect on this objective. However, this is uncertain as the location and nature of the proposal would not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	+?	Policy 5 seeks to promote the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities, which could have an adverse effect on geodiversity. However, the policy explicitly states that proposals for recycling facilities must be appropriate to the character of the surrounding natural environment and not adversely impact upon the natural environment. As such, it is considered that the policy would have a minor positive effect on this objective. However, this is uncertain as the location and nature of the proposal would not be known until the planning application stage.

SA Objective and Sub Questions	SA Score	Justification
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	+?	Policy 5 seeks to promote the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities, which could have an adverse effect on cultural heritage. However, the policy explicitly states that proposals for recycling facilities must be appropriate to the character of the surrounding built environment and not adversely affect the built or historic environment. As such, it is considered that the policy would have a minor positive effect on this objective. However, this is uncertain as the location and nature of the proposal would not be known until the planning application stage.
2.2 To conserve below ground archaeological assets	+?	Policy 5 seeks to promote the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities, which could have an adverse effect on below ground archaeological assets. The policy explicitly states that proposals for recycling facilities must not adversely affect the historic environment. As such, it is considered that the policy would have a minor positive effect on this objective. However, this is uncertain as the location and nature of the proposal would not be known until the planning application stage.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	+?	Policy 5 seeks to promote the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities, which could help to supply some locally distinctive building materials (if the recycled aggregate came from local demolitions). As such, it is considered that the policy would have a minor positive effect on this objective. However, this is uncertain as it would depend on the source and nature of the recycled aggregates.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+	Policy 5 seeks to promote the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities, which could have an adverse effect on landscape character and quality. However, the policy explicitly states that proposals for recycling facilities must demonstrate that the landscaping and screening of the site is designed to effectively mitigate the impact of the proposal. As such, a minor positive effect is considered likely.
4.1 To protect the quality of ground and surface water	+?	Policy 5 seeks to promote the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities, which could have an adverse effect on water quality. However, the policy explicitly states that proposals for recycling facilities must be appropriate to the character of the surrounding natural environment and not adversely impact upon the natural environment. As such, it is considered that the policy would have a minor positive effect on this objective. However, this is uncertain as the location and nature of the proposal would not be known until the planning application stage.
4.2 To protect the quantity of	+?	Policy 5 seeks to promote the use of secondary and recycled aggregates and permit development proposals for

SA Objective and Sub Questions	SA Score	Justification
ground and surface water from over abstraction		new recycling/reprocessing facilities, which could have an adverse effect on water quantity. The policy explicitly states that proposals for recycling facilities must be appropriate to the character of the surrounding natural environment and not adversely impact upon the natural environment. As such, it is considered that the policy would have a minor positive effect on this objective. However, this is uncertain as the location and nature of the proposal would not be known until the planning application stage.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+/-	Policy 5 seeks to promote the use of secondary and recycled aggregates, which could contribute to reducing emissions associated with operation of primary mineral extraction sites. In addition, where recycled aggregate facilities are located within existing mineral sites, transport of the recycled aggregate may be reduced. However, there are likely to still be some operational and transport emissions from new secondary and recycled aggregate facilities that are not co-located with other mineral sites. As such, it is considered that policy would have a mixed minor positive and negative effect on this objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?	Policy 5 seeks to promote the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities. Development applications submitted under this policy may propose to use small-scale on-site renewable energy sources to power machinery used in the recycling process and/or on-site infrastructure (e.g. buildings/ offices). However, this would not be known until the planning application stage. Therefore, an uncertain minor positive effect is likely.
6.1 To protect against the risk of flooding	+?	Policy 5 seeks to promote the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities, which could have an effect on flooding depending on the nature of the facility. However, the policy explicitly states that proposals for recycling facilities must demonstrate that the development is appropriate to the character of the surrounding natural environment and that it would not adversely impact upon the natural environment or human health. As such, it is considered that the policy would have a minor positive effect on this objective. However, this is uncertain as the location and nature of the proposal would not be known until the planning application stage.
6.2 To provide opportunities for flood alleviation / mitigation during the	0	Policy 5 does not explicitly discuss the need to provide opportunities for flood alleviation when considering applications which relate to secondary or recycled aggregates. As such, it is considered that a negligible effect is likely.

SA Objective and Sub Questions	SA Score	Justification
restoration of the site		
7.1 To encourage the use of recycled and secondary aggregates	++	Policy 5 seeks to encourage the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities. As such, it is considered that a significant positive effect is likely.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	Policy 5 seeks to encourage the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities. Secondary and recycled aggregates are important resources and support a wide range of end uses. As such, it is important that there is sufficient supply of these materials to provide infrastructure, buildings, energy and goods that Hertfordshire needs. The handling of the materials within the County will make a positive contribution to the local and national economy, as such a minor positive effect is considered likely.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	Policy 5 seeks to encourage the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities. Supporting this industry will help to ensure that there is a steady and adequate supply of secondary and recycled aggregates to supply infrastructure and building projects, energy, and goods that Hertfordshire needs. As such, a minor positive effect is considered likely.
8.3 To ensure that mineral sterilisation is minimised	0	Policy 5 seeks to support the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities. It is therefore considered that the policy will not have an impact on minimising mineral sterilisation. As such, a negligible effect is considered likely.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-?	Policy 5 seeks to support the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities. The exact land-take and location of any proposed secondary/recycled aggregates facility will not be known until the planning application stage. As such, the potential loss of high quality agricultural land (i.e. Grades 1-3), and whether improvements to soil quality through soil restoration are possible is unknown at this stage. Therefore, an uncertain minor negative effect is considered likely.
Social		
9.1 To protect the health and amenity of local residents	+?	Policy 5 seeks to support secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities, which could have an adverse effect on health and amenity. It explicitly states

SA Objective and Sub Questions	SA Score	Justification
and communities from the impacts of minerals workings and associated transport		that proposals for recycling facilities must demonstrate that it would not adversely impact on amenity or human health. As such, a minor positive effect is considered likely. However, this is uncertain as the location and nature of the proposal would not be known until the planning application stage.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	-?	Policy 5 seeks to support secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities, which could have an adverse effect on PRowWs, access, recreation areas and open space. The policy does not explicitly reference the protection of PRowWs, access, recreation areas or open space. As such, a minor negative effect is considered likely. However, the effect is uncertain as the land-take of a proposed development will not be known until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	0	Policy 5 does not seek opportunities to improve health and/or amenity. As such, a negligible effect is considered likely on this objective.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	The processing of secondary or recycled aggregates is not considered to attract significant amounts of birds due to the nature of the operation. As such, a negligible effect is considered likely.

Policy 6: Brick Clay

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	-?	Policy 6 seeks to secure the continued supply of brick clay. As such, sites which come forward under this policy to extract brick clay may result in the loss of priority habitats, biodiversity and species. Therefore, a minor negative effect is considered likely. However, the effect is considered uncertain as the details and location of any proposal will not be known until the planning application stage.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Policy 6 seeks to secure the continued supply of brick clay. Mineral operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, mineral sites post-restoration could have a positive effect on biodiversity, in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. As such, an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	-?	Policy 6 seeks to secure the continued supply of brick clay. As such, sites which come forward under this policy to extract brick clay may result in the deposition of dust from mineral extraction and pollutants from HGVs on designated nature conservation sites. Therefore, a minor negative effect is considered likely. However, the effect is uncertain as the location of any proposal will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	-/+?	Policy 6 seeks to secure the continued supply of brick clay. As such, sites which come forward under this policy to extract brick clay may result in adverse impacts on sites of geological interest. Conversely, exposure of geological faces through mineral extraction can provide educational opportunities and sometimes create new sites of geological conservation interest. As such, an uncertain mixed minor negative and positive effect is considered likely. However, the effect is uncertain as the location of any proposal will not be known until the planning application stage.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	-?	Policy 6 seeks to secure the continued supply of brick clay. As such, sites which come forward under this policy to extract brick clay may result in adverse impacts on above ground heritage assets and their setting. Therefore, a minor negative effect is considered likely. However, the effect is considered uncertain as the location of any proposal will not be known until the planning application stage.

SA Objective and Sub Questions	SA Score	Justification
2.2 To conserve below ground archaeological assets	-?	Policy 6 seeks to secure the continued supply of brick clay. As such, sites which come forward under this policy to extract brick clay could remove/truncate any below ground archaeological assets within the site. Therefore, a minor negative effect is considered likely. However, the effect is considered uncertain as the location of any proposal and the presence of below ground archaeological assets would not be known until the planning application stage.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	++	Policy 6 seeks to secure the continued supply of brick clay within Hertfordshire which is used in the construction and restoration of traditional brick and flint building styles, complementing the County's local heritage. As such, it is considered that the policy will have a significant positive effect on this objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-/+?	<p>Policy 6 seeks to secure the continued supply of brick clay. As such, minor negative effects are considered likely as the operation of brick clay mineral sites may have an adverse impact on the character and quality of the landscape.</p> <p>However, mineral operators are becoming increasingly aware of the need to restore sites to a high standard. As such, a proposed site could be restored to a standard which enhances the character and quality of the landscape having a minor positive effect on this objective. However, the effect is uncertain as any restoration proposals would not be known until the planning application stage.</p>
4.1 To protect the quality of ground and surface water	-?	<p>Policy 6 seeks to secure the continued supply of brick clay. Hertfordshire contains a number of Source Protection Zone 1s (SPZ1s) and proposed mineral sites within SPZ1s could lead to accidental pollution incidents that could contaminate the quality of groundwater, which could have a significant negative effect. Furthermore, sites may also contain a watercourse or water body and accidental pollution incidents could also result in the contamination of surface water. However, this would not be known until the planning application stage when specific proposals have been brought forward identifying a site.</p> <p>As such, an overall uncertain minor negative effect is considered likely.</p>
4.2 To protect the quantity of ground and surface water from over abstraction	?	Policy 6 seeks to secure the continued supply of brick clay. All mineral activity could potentially require the use of water resources, but the extent of water use would not be known until the planning application stage where proposals are brought forward. Therefore, an uncertain effect on this objective is considered likely.
5.1 To reduce operational	+?/-	Policy 6 seeks to secure the continued supply of brick clay. Mineral applications submitted under this policy may

SA Objective and Sub Questions	SA Score	Justification
emissions through improved/enhanced technologies and sustainable transport		propose to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/ offices). However, this would not be known until the planning application stage. Therefore, an uncertain minor positive effect is likely. However, mineral operations could lead to the production of carbon dioxide and other greenhouse gases from on-site vehicles and machinery. The policy is therefore also likely to have a minor negative effect.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?	Policy 6 seeks to secure the continued supply of brick clay. Mineral applications submitted under this policy may propose to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/ offices). However, this would not be known until the planning application stage. Therefore, an uncertain minor positive effect is likely.
6.1 To protect against the risk of flooding	0?	Policy 6 seeks to secure the continued supply of brick clay. Mineral workings and processing are classed as less vulnerable development which means they are potentially compatible with all flood zones except for Flood Zone 3b, which clay sites are unlikely to be located in. As such, a negligible effect is considered likely. However, the effect is considered uncertain as the type of minerals development and its location with regard to Flood Risk Zones would not be known until the planning application stage.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	+?	Policy 6 seeks to secure the continued supply of brick clay. Mineral workings can potentially reduce flood risk by providing flood storage and attenuation, and could have a minor positive effect on reducing vulnerability to flooding. However, these effects are uncertain until further assessment has been undertaken at the planning application stage.
7.1 To encourage the use of recycled and secondary aggregates	-	Policy 6 seeks to secure the continued supply of brick clay as a primary mineral which requires extraction and therefore does not encourage the use of recycled and secondary aggregates. As such, a minor negative effect is considered likely.
Economic		
8.1 To provide opportunities for local people to access	+	Policy 6 seeks to secure the continued supply of brick clay. As such, direct and indirect minor positive effects are considered likely on increasing employment levels during site preparation, operation and restoration as mineral

SA Objective and Sub Questions	SA Score	Justification
employment and skills both during and after extraction		workings are likely to result in a small amount of job creation for local people in both rural and urban areas.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	++	Policy 6 seeks to secure the continued supply of brick clay. As such, sites that come forward under this policy would ensure a steady and adequate supply of brick clay when it has been demonstrated that the level of permitted reserves is insufficient to maintain brick clay production for at least 25 years.
8.3 To ensure that mineral sterilisation is minimised	+	Policy 6 seeks to secure the continued supply of brick clay. As such, sites that come forward under this policy would allow the mineral to be extracted, thus removing the possibility of that mineral resource being sterilised by a non-mineral development. Furthermore, the policy refers to the Mineral Safeguarding Areas for brick clay which seek to prevent the unnecessary sterilisation of mineral resources. As such, a minor positive effect is considered likely.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-?	Policy 6 seeks to secure the continued supply of brick clay. As such, sites that come forward under this policy may be located on land that is considered to be best and most versatile agricultural land which could be lost as a result of the mineral extraction. However, the exact land take and location according to agricultural land quality (i.e. Grades 1 – 5), and whether improvements to soil quality through site restoration are possible; would not be known until the planning application stage, therefore effects on this objective overall are likely to be minor negative uncertain.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-/+	Policy 6 seeks to secure the continued supply of brick clay. Therefore, this may continue to subject local residents and communities within Hertfordshire to impacts such as dust, noise, vibration and traffic associated with the existing mineral workings or impact new residents/ land uses as a result of new sites. However, the policy may also have minor positive effects as the supply of minerals could come from extensions to existing sites therefore not resulting in new sites or impacts on previously unaffected local residents and communities within Hertfordshire. Therefore, mixed minor negative /minor positive effects are expected on this objective.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas	-?	Policy 6 seeks to secure the continued supply of brick clay. As such, sites that come forward under this policy could have an impact on PRow, access, recreation areas or open space. However, the effect is uncertain as it would depend on the exact nature of the proposed development, which would not be known until the planning

SA Objective and Sub Questions	SA Score	Justification
and open space		application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	Policy 6 seeks to secure the continued supply of brick clay. As such, it could have a minor positive effect on this objective as mineral operators are becoming increasingly aware of the need restore sites to a high standard which could come in the form a new/enhanced recreational areas or PRow. However, the effect is uncertain as it would depend on the exact nature of the proposed development, which would not be known until the planning application stage.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	-?	Policy 6 seeks to secure the continued supply of brick clay. Any site which comes forward under this policy may fall within an Airport Safeguarding Zone. As such, an uncertain minor negative effect is considered likely as the location of any proposal would not be known until the planning application stage.

Policy 7: Chalk

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	-?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. As such, sites which come forward under this policy to extract chalk may result in the loss of priority habitats, biodiversity and species. Therefore, a minor negative effect is considered likely. However, the effect is considered uncertain as the details and location of any proposal would not be known until the planning application stage.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site.	+?	Policy 7 seeks permits chalk extraction providing there is demonstrated demand from agriculture. Mineral operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, mineral sites post-restoration could have a positive effect on biodiversity, in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. As such, an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	-?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. As such, sites which come forward under this policy to extract chalk may result in the deposition of dust from mineral extraction and pollutants from HGVs on designated nature conservation sites. Therefore, a minor negative effect is considered likely. However, the effect is uncertain as the location of any proposal will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	-/+?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. As such, sites which come forward under this policy to extract chalk may result in adverse impacts on sites of geological interest. Conversely, exposure of geological faces through mineral extraction can provide educational opportunities and sometimes create new sites of geological conservation interest. As such, an uncertain mixed minor negative and positive effect is considered likely. However, the effect is uncertain as the location of any proposal will not be known until the planning application stage.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and	-?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. As such, sites which come forward under this policy to extract chalk may result in adverse impacts on above ground heritage assets and their setting. Therefore, a minor negative effect is considered likely. However, the effect is considered uncertain as the location of any proposal will not be known until the planning application stage.

SA Objective and Sub Questions	SA Score	Justification
their setting		
2.2 To conserve below ground archaeological assets	-?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. As such, sites which come forward under this policy to extract chalk could remove/truncate any below ground archaeological assets within the site. Therefore, a minor negative effect is considered likely. However, the effect is considered uncertain as the location of any proposal and the presence of below ground archaeological assets would not be known until the planning application stage.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	+	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. It is noted that the chalk contains locally important flints, which are used in the construction and maintenance of roads and buildings, often as part of heritage restoration of older buildings. Although not a building material, the flints are considered to be a locally distinctive product, as such, it is considered likely that the policy will have a minor positive effect on this objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-/+?	<p>Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. As such, minor negative effects are considered likely as the operation of chalk mineral sites may have an adverse impact on the character and quality of the landscape.</p> <p>Mineral operators are becoming increasingly aware of the need to restore sites to a high standard. As such, a proposed site could be restored to a standard which enhances the character and quality of the landscape having a minor positive effect on this objective. However, the effect is uncertain as any restoration proposals would not be known until the planning application stage.</p>
4.1 To protect the quality of ground and surface water	-?	<p>Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. Hertfordshire contains a number of Source Protection Zone 1s (SPZ1s) and proposed mineral sites within SPZ1s could lead to accidental pollution incidents that could contaminate the quality of groundwater, which could have a significant negative effect. Furthermore, sites may also contain a watercourse or water body and accidental pollution incidents could also result in the contamination of surface water. However, this would not be known until the planning application stage when specific proposals have been brought forward identifying a site.</p> <p>As such, an overall uncertain minor negative effect is considered likely.</p>
4.2 To protect the quantity of ground and surface water	?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. All mineral activity could potentially require the use of water resources, but the extent of water use would not be known until the planning application stage where proposals are brought forward. Therefore, an uncertain effect on this objective

SA Objective and Sub Questions	SA Score	Justification
from over abstraction		is considered likely.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?/-	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. Mineral applications submitted under this policy may propose to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/ offices). However, this would not be known until the planning application stage. Therefore, an uncertain minor positive effect is likely. However, mineral operations could lead to the production of carbon dioxide and other greenhouse gases from on-site vehicles and machinery. The policy is therefore also likely to have a minor negative effect.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. Mineral applications submitted under this policy may propose to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/ offices). However, this would not be known until the planning application stage. Therefore, an uncertain minor positive effect is likely.
6.1 To protect against the risk of flooding	0?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. Mineral workings and processing are classed as less vulnerable development which means they are potentially compatible with all flood zones except for Flood Zone 3b, which chalk sites are unlikely to be located in due to the nature of the geological resource. As such, a negligible effect is considered likely. However, the effect is considered uncertain, as the type of minerals development and its location with regard to Flood Risk Zones would not be known until the planning application stage.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	+?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. Mineral workings can potentially reduce flood risk by providing flood storage and attenuation, and could have a minor positive effect on reducing vulnerability to flooding. However, these effects are uncertain until further assessment has been undertaken at the planning application stage.
7.1 To encourage the use of recycled and secondary aggregates	-	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture, which would be extraction of a primary aggregate. As such, a minor negative effect is considered likely.

SA Objective and Sub Questions	SA Score	Justification
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. As such, direct and indirect minor positive effects are considered likely on increasing employment levels during site preparation, operation and restoration as mineral workings are likely to result in a small amount of job creation for local people in both rural and urban areas. However this is uncertain as it is possible that no sites will come forward over the plan period.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. However, due to the fact that no site options have come forward for the extraction of chalk, a negligible effect is considered likely on this objective.
8.3 To ensure that mineral sterilisation is minimised	+?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. As such, sites that come forward under this policy would allow the mineral to be extracted, thus removing the possibility of that mineral resource being sterilised by a non-mineral development. As such, a minor positive effect is considered likely. However, this is uncertain as it is possible that no sites will come forward over the plan period and no Minerals Safeguarding Areas for chalk have been identified in the plan.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. As such, sites that come forward under this policy may be located on land that is considered to be best and most versatile agricultural land which could be lost as a result of the mineral extraction. However, the exact land take and location according to agricultural land quality (i.e. Grades 1 – 5), and whether improvements to soil quality through site restoration are possible; would not be known until the planning application stage, therefore effects on this objective overall are likely to be minor negative uncertain.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-/+?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. This may subject local residents, and communities within Hertfordshire to impacts such as dust, noise, vibration and traffic associated with the existing mineral workings or impact new residents/land uses as a result of new sites. However, the policy may also have minor positive effects as the supply of minerals could come from extensions to existing sites therefore not resulting in new sites or impacts on previously unaffected local residents and communities within Hertfordshire. Therefore, mixed minor negative /minor positive effects are expected on this

SA Objective and Sub Questions	SA Score	Justification
		objective. Uncertainty has been identified in relation to this effect, as this depends on whether any chalk sites come forward and where they are located.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	-?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. As such, sites that come forward under this policy could have an impact on PRoW, access, recreation areas or open space. However, the effect is uncertain as it would depend on the exact nature of the proposed development, which would not be known until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. As such, it could have a minor positive effect on this objective as mineral operators are becoming increasingly aware of the need restore sites to a high standard which could come in the form a new/enhanced recreational areas or PRoW. However, the effect is uncertain as it would depend on the exact nature of the proposed development, which would not be known until the planning application stage.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	-?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. Any site which comes forward under this policy may fall within an Airport Safeguarding Zone. As such, an uncertain minor negative effect is considered likely as the location of any proposal would not be known until the planning application stage.

Policy 8: Mineral Safeguarding

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+/-?	<p>Policy 8 identifies Mineral Safeguarding Areas and Mineral Consultation Areas and seeks to avoid sterilisation from non-minerals development. As such, it may potentially restrict or delay non-mineral development within these areas that could otherwise have a negative impact on priority habitats. Therefore, a minor positive effect is considered likely. The effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>However, the safeguarding of minerals could lead to more mineral extraction which could have adverse effects on this objective. In addition, prior extraction of minerals at a non-mineral development site could have adverse effects on this objective. This effect is also uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction. As such, an overall uncertain, mixed minor positive and minor negative effect is likely.</p>
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	0	<p>Policy 8 identifies Mineral Safeguarding Areas and Mineral Consultation Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place, therefore it is considered unlikely to affect this objective.</p>
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	+/-?	<p>Policy 8 identifies Mineral Safeguarding Areas and Mineral Consultation Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. As such, it may potentially restrict or delay non-mineral development within these areas that could otherwise have a negative impact of designated nature conservation sites through the deposition of dust and other pollutants. Therefore, a minor positive effect is considered likely. The effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>However, the safeguarding of minerals could lead to more mineral extraction which could have adverse effects on this objective and prior extraction of minerals at a non-mineral development site could itself have adverse effects on this objective. This effect is also uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction. As such, an overall uncertain, mixed minor positive and minor negative effect is</p>

SA Objective and Sub Questions	SA Score	Justification
		likely.
1.4 To protect and enhance sites of geological conservation interest	+?	Policy 8 identifies Mineral Safeguarding Areas and Mineral Consultation Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. This policy could have a minor positive effect on this objective, if prior extraction of any mineral within the MSA/MCA exposes geological faces of educational value or interest. However, this effect is uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction, and is of any geological interest.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	+/-?	<p>Policy 8 identifies Mineral Safeguarding Areas and Mineral Consultation Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. As such, it may potentially restrict or delay non-mineral development within these areas that could otherwise have a negative impact on the County's above ground cultural heritage assets. Therefore, a minor positive effect is considered likely. The effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>However, the safeguarding of minerals could lead to more mineral extraction, which could have adverse effects on this objective and the prior extraction of minerals at non-mineral development sites could itself have adverse impacts on this objective. This effect is also uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction. As such, an overall uncertain, mixed minor positive and minor negative effect is likely.</p>
2.2 To conserve below ground archaeological assets	+/-?	<p>Policy 8 identifies Mineral Safeguarding Areas and Mineral Consultation Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. As such, it may potentially restrict or delay non-mineral development within these areas that could otherwise have a negative impact on the County's below ground archaeological assets. Therefore, a minor positive effect is considered likely. The effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>However, the safeguarding of minerals could lead to more mineral extraction which could have adverse effects on this objective and the prior extraction of minerals at non-mineral development sites could itself have adverse effects on this objective. This effect is also uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction. As such, an overall uncertain, mixed minor positive and minor negative effect is likely.</p>

SA Objective and Sub Questions	SA Score	Justification
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	+?	Policy 8 identifies Mineral Safeguarding Areas and Mineral Consultation Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. As such, it may potentially restrict or delay non-mineral development that could otherwise prevent the supply of locally distinctive materials. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the whether the proposed non-mineral development is permitted, and whether the mineral resource is considered viable and worth prior extraction.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+/-?	<p>Policy 8 identifies Mineral Safeguarding Areas and Mineral Consultation Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. As such, it may potentially restrict or delay non-mineral development within these areas that could otherwise have a negative impact on the landscape. Therefore, a minor positive effect is considered likely. The effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>However, the safeguarding of minerals could lead to more mineral extraction which could have adverse effects on this objective and the prior extraction of minerals could itself have adverse effects on this objective. This effect is also uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction. As such, an overall uncertain, mixed minor positive and minor negative effect is likely.</p>
4.1 To protect the quality of ground and surface water	+/-?	<p>Policy 8 identifies Mineral Safeguarding Areas and Mineral Consultation Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. As such, it may potentially restrict or delay non-mineral development within these areas that could otherwise have a negative impact on the quality of ground and surface water. Therefore, a minor positive effect is considered likely. The effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>However, the safeguarding of minerals could lead to more mineral extraction which could have adverse effects on this objective and the prior extraction of minerals could itself have adverse effects on this objective. This effect is also uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction. As such, an overall uncertain, mixed minor positive and minor negative effect is likely.</p>
4.2 To protect the quantity of ground and surface water	+/-?	Policy 8 identifies Mineral Safeguarding Areas and Mineral Consultation Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources

SA Objective and Sub Questions	SA Score	Justification
from over abstraction		<p>before the non-minerals development takes place. As such, it may potentially restrict non-mineral development within these areas that could otherwise have a negative impact on the quantity of ground and surface water as a result of over abstraction. The effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>However, the safeguarding of minerals could lead to more mineral extraction which could have adverse effects on this objective and the prior extraction of minerals could itself have adverse effects on this objective. This effect is also uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction. As such, an overall uncertain, mixed minor positive and minor negative effect is likely.</p>
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+/-?	<p>Policy 8 identifies Mineral Safeguarding Areas and Mineral Consultation Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. As such, it may potentially restrict non-mineral development within these areas that could otherwise have a negative impact on this objective. The effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted. In addition, the policy states that full consideration should be given to the use of the raised sand and gravel material on site in construction projects. Therefore, this would help to reduce the distance the prior extracted mineral resource needs to travel, and help to reduce emissions.</p> <p>However, the safeguarding of minerals could lead to more mineral extraction which could have adverse effects on this objective. This effect is also uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction. As such, an overall uncertain, mixed minor positive and minor negative effect is likely.</p>
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	<p>Policy 8 identifies Mineral Safeguarding Areas and Mineral Consultation Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place, therefore it is considered unlikely to affect this objective.</p>

SA Objective and Sub Questions	SA Score	Justification
6.1 To protect against the risk of flooding	0	Policy 8 identifies Mineral Safeguarding Areas and Mineral Consultation Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place, therefore it is considered unlikely to affect this objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	+	Policy 8 identifies Mineral Safeguarding Areas and Mineral Consultation Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. It could therefore have a temporary positive effect on flood alleviation through the provision of flood storage areas while the mineral is being extracted.
7.1 To encourage the use of recycled and secondary aggregates	-	Policy 8 identifies Mineral Safeguarding Areas and Mineral Consultation Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. This would help to safeguard primary mineral resources from sterilisation by non-mineral development. The policy will therefore ensure primary mineral resources are not needlessly sterilised allowing the resource to be extracted at a later date or prior to the construction of a non-mineral development. As such, a minor negative effect on this objective is considered likely because it does not encourage the use of recycled and secondary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+?/-	<p>Policy 8 identifies Mineral Safeguarding Area and Mineral Consultation Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. As such, the policy could help safeguard minerals resources from sterilisation and, therefore, have a minor positive effect on the local economy as minerals could be extracted at a later date, providing employment opportunities. The effect is uncertain as the identification of these areas does not mean that mineral extraction will definitely take place, only that it is safeguarded so that it could take place if viable and needed at a later date.</p> <p>However, it may potentially restrict or delay non-mineral development within these areas that could otherwise have a positive effect on the local economy. Therefore, a minor negative effect is also considered likely.</p>
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	Policy 8 identifies Mineral Safeguarding Areas and Mineral Consultation Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. This provides weight to the protection of mineral resources when applications for non-mineral development have been submitted. As such, the policy seeks to maintain the mineral resources within the County so that they can be worked when required ensuring that there is a steady

SA Objective and Sub Questions	SA Score	Justification
		and adequate supply of minerals to meet Hertfordshire's needs. Therefore, a minor positive effect is considered likely.
8.3 To ensure that mineral sterilisation is minimised	++?	Policy 8 identifies Mineral Safeguarding Areas and Mineral Consultation Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. This provides weight to the protection of mineral resources when applications for non-mineral development have been submitted. As such, a significant positive effect is considered likely. However, the effect is uncertain as the identification of these areas does not completely rule out non-mineral development from taking place, only that mineral sterilisation and prior extraction are considered as part of a planning application.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	+/-?	<p>Policy 8 identifies Mineral Safeguarding Areas and Mineral Consultation Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. As such, it may potentially restrict or delay non-mineral development within these areas that could otherwise have a negative effect on the best and most versatile agricultural land. Therefore, a minor positive effect is considered likely. The effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>However, the safeguarding of minerals could lead to more mineral extraction which could have adverse effects on this objective and the prior extraction of minerals could itself have adverse effects on this objective. This effect is also uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction. As such, an overall uncertain, mixed minor positive and minor negative effect is likely.</p>
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+/-?	<p>Policy 8 identifies Mineral Safeguarding Areas and Mineral Consultation Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. As such, it may potentially restrict non-mineral development within these areas that could otherwise have a negative effect on the health and amenity of nearby residents. Therefore, a minor positive effect is considered likely. The effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>However, the safeguarding of minerals could lead to more mineral extraction which could have adverse effects on this objective and the prior extraction of minerals could itself have adverse effects on this objective. This effect is also uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction. As</p>

SA Objective and Sub Questions	SA Score	Justification
		such, an overall uncertain, mixed minor positive and minor negative effect is likely.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+/-?	<p>Policy 8 identifies Mineral Safeguarding Areas and Mineral Consultation Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. As such, it may potentially restrict non-mineral development within these areas that could otherwise have a negative effect on PRow, access, recreation areas or open space. Therefore, a minor positive effect is considered likely. The effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>However, the safeguarding of minerals could lead to more mineral extraction which could have adverse effects on this objective and the prior extraction of minerals could itself have adverse effects on this objective. This effect is also uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction. As such, an overall uncertain, mixed minor positive and minor negative effect is likely.</p>
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	0	Policy 8 identifies Mineral Safeguarding Areas and Mineral Consultation Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place, therefore it is considered unlikely to affect this objective.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	Policy 8 identifies Mineral Safeguarding Areas and Mineral Consultation Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place, therefore it is considered unlikely to affect this objective.

Policy 9: Rail Heads and Wharves

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+?	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves. As such, it may potentially restrict non-mineral development near to mineral infrastructure that could otherwise have a negative impact on priority habitats, biodiversity and species. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	0	Policy 9 seeks to safeguard rail heads and wharves and is considered unlikely to affect this objective. As such, a negligible effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	+?	<p>Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves. As such, it may potentially restrict non-mineral development near to mineral infrastructure that could otherwise have a negative impact of designated nature conservation sites through the deposition of dust and other pollutants. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>Although safeguarding existing rail heads may prolong any existing adverse effects, these are not considered here as these effects would have been considered when the existing infrastructure was originally developed.</p>
1.4 To protect and enhance sites of geological conservation interest	0	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves and is considered unlikely to affect this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and	+?	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves. As such, it may potentially restrict non-mineral development near to mineral infrastructure that could otherwise have a negative impact on the County's above ground cultural heritage assets. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-

SA Objective and Sub Questions	SA Score	Justification
their setting		<p>mineral development and whether it is permitted.</p> <p>Although safeguarding existing rail heads may prolong any existing adverse effects, these are not considered here as these effects would have been considered when the existing infrastructure was originally developed.</p>
2.2 To conserve below ground archaeological assets	+?	<p>Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves. As such, it may potentially restrict non-mineral development near to mineral infrastructure that could otherwise have a negative impact on the County's below ground archaeological assets. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p>
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	<p>Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves and is considered unlikely to affect this objective.</p>
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+?	<p>Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves. As such, it may potentially restrict non-mineral development near to mineral infrastructure that could otherwise have a negative impact on the landscape. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>Although safeguarding existing rail heads may prolong any existing adverse effects, these are not considered here as these effects would have been considered when the existing infrastructure was originally developed.</p>
4.1 To protect the quality of ground and surface water	+?	<p>Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves. As such, it may potentially restrict non-mineral development near to mineral infrastructure that could otherwise have a negative impact on the quality of ground and surface water. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p>
4.2 To protect the quantity of ground and surface water	+?	<p>Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves. As such, it may potentially restrict non-mineral development near to mineral infrastructure that could otherwise have a</p>

SA Objective and Sub Questions	SA Score	Justification
from over abstraction		negative impact on the quantity of ground and surface water as a result of over abstraction. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	++?	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves. As such, it is considered that the policy promotes the use of sustainable transport methods when transporting minerals. This would make a significant contribution to reducing operational emissions with regard to transportation. It could also restrict non-mineral development near to mineral infrastructure that could otherwise have a negative impact on this objective. Therefore, a significant positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves. As such, it is considered unlikely that the policy will have an effect on this objective.
6.1 To protect against the risk of flooding	0	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves. As such, it is considered unlikely that the policy will have an effect on this objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves. As such, it is considered unlikely that the policy will have an effect on this objective.
7.1 To encourage the use of recycled and secondary aggregates	0	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves. As such, it is considered unlikely that the policy will have an effect on this objective.

SA Objective and Sub Questions	SA Score	Justification
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves. As such, it is considered that the continued operation of existing rail heads and wharves and the safeguarding of planned and potential rail heads and wharves will provide opportunities for local people to access employment. Therefore, a minor positive effect is considered likely.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves. As such, it is considered unlikely that the policy will have an effect on this objective.
8.3 To ensure that mineral sterilisation is minimised	0	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves. As such, it is considered unlikely that the policy will have an effect on this objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	0	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves. As such, it is considered unlikely that the policy will have an effect on this objective.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+?	<p>Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves. As such, it may potentially restrict non-mineral development near to mineral infrastructure that could otherwise have a negative effect on the health and amenity of nearby residents. However, this is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted. Safeguarding rail heads and wharves to transport minerals will also contribute to reducing that the number of HGVs transporting minerals via the road network thereby reducing the impact on the health and amenity of nearby residents. These effects are considered to be uncertain minor positive.</p> <p>Although safeguarding existing rail heads may prolong any existing adverse effects on the health and amenity of residents, these are not considered here as these effects would have been considered when the existing</p>

SA Objective and Sub Questions	SA Score	Justification
		infrastructure was originally developed.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+?	<p>Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves. As such, it may potentially restrict non-mineral development near to mineral infrastructure that could otherwise have a negative effect on PRow, access, recreation areas or open space. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>Although safeguarding existing rail heads may prolong any existing adverse effects on PRow, access, recreation areas or open space, these are not considered here as these effects would have been considered when the existing infrastructure was originally developed.</p>
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	0	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves and is considered unlikely to affect this objective.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves and is considered unlikely to affect this objective.

Policy 10: Concrete Batching, Asphalt and Coated Stone Plants

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+?	Policy 10 safeguards existing, planned and potential concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it may potentially restrict non-mineral development near to this infrastructure that could otherwise have a negative impact on priority habitats, biodiversity and species. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	0	Policy 10 safeguards existing, planned and potential concrete batching, asphalt and coated stone plants from development that would compromise their operation and is considered unlikely to affect this objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	+?	<p>Policy 10 safeguards existing, planned and potential concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it may potentially restrict non-mineral development near to this infrastructure that could otherwise have a negative impact on designated nature conservation sites through the deposition of dust and other pollutants. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>Although safeguarding the above plants may prolong any existing adverse effects on designated nature conservation sites through the operation of such plants, these are not considered here as these effects would have been considered when the existing infrastructure was originally developed.</p>
1.4 To protect and enhance sites of geological conservation interest	0	Policy 10 safeguards existing, planned and potential concrete batching, asphalt and coated stone plants from development that would compromise their operation and is considered unlikely to affect this objective.
2.1 To conserve and enhance the County's cultural	+?	Policy 10 safeguards existing, planned and potential concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it may potentially restrict non-mineral

SA Objective and Sub Questions	SA Score	Justification
heritage, including above ground heritage assets and their setting		<p>development near to this infrastructure that could otherwise have a negative impact on the County's above ground cultural heritage assets. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>Although safeguarding the above plants may prolong any existing adverse effects on cultural heritage assets through the operation of such plants, these are not considered here as these effects would have been considered when the existing infrastructure was originally developed.</p>
2.2 To conserve below ground archaeological assets	+?	<p>Policy 10 safeguards existing, planned and potential concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it may potentially restrict non-mineral development near to this infrastructure that could otherwise have a negative impact on the County's below ground archaeological assets. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p>
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	<p>Policy 10 safeguards existing, planned and potential concrete batching, asphalt and coated stone plants from development that would compromise their operation and is considered unlikely to affect this objective.</p>
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+?	<p>Policy 10 safeguards existing, planned and potential concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it may potentially restrict non-mineral development near to this infrastructure that could otherwise have a negative impact on the landscape. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>Although safeguarding the above plants may prolong any existing adverse effects on the landscape through the operation of such plants, these are not considered here as these effects would have been considered when the existing infrastructure was originally developed.</p>
4.1 To protect the quality of ground and surface water	+?	<p>Policy 10 safeguards existing, planned and potential concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it may potentially restrict non-mineral</p>

SA Objective and Sub Questions	SA Score	Justification
		development near to this infrastructure that could otherwise have a negative impact on the quality of ground and surface water. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.
4.2 To protect the quantity of ground and surface water from over abstraction	+?	Policy 10 safeguards existing, planned and potential concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it may potentially restrict non-mineral development near to this infrastructure that could otherwise have a negative impact on the quantity of ground and surface water as a result of over abstraction. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	0	Policy 10 safeguards existing, planned and potential concrete batching, asphalt and coated stone plants from development that would compromise their operation and is considered unlikely to affect this objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	Policy 10 safeguards existing, planned and potential concrete batching, asphalt and coated stone plants from development that would compromise their operation and is considered unlikely to affect this objective.
6.1 To protect against the risk of flooding	0	Policy 10 safeguards existing, planned and potential concrete batching, asphalt and coated stone plants from development that would compromise their operation and is considered unlikely to affect this objective.
6.2 To provide opportunities for flood alleviation /	0	Policy 10 safeguards existing, planned and potential concrete batching, asphalt and coated stone plants from

SA Objective and Sub Questions	SA Score	Justification
mitigation during the restoration of the site		development that would compromise their operation and is considered unlikely to affect this objective.
7.1 To encourage the use of recycled and secondary aggregates	0	Policy 10 safeguards existing, planned and potential concrete batching, asphalt and coated stone plants from development that would compromise their operation and is considered unlikely to affect this objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	Policy 10 safeguards existing, planned and potential concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it is considered that the continued operation of such plant and the safeguarding of planned and potential plants will provide opportunities for local people to access employment. Therefore, a minor positive effect is considered likely.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	Policy 10 safeguards existing, planned and potential concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it is considered that the continued operation of such plant and the safeguarding of planned and potential plants will ensure that there is a steady and adequate and supply of these aggregates to meet Hertfordshire's needs. Therefore, a minor positive effect is considered likely.
8.3 To ensure that mineral sterilisation is minimised	0	Policy 10 safeguards existing, planned and potential concrete batching, asphalt and coated stone plants from development that would compromise their operation and is considered unlikely to affect this objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	0	Policy 10 safeguards existing, planned and potential concrete batching, asphalt and coated stone plants from development that would compromise their operation and is considered unlikely to affect this objective.
Social		
9.1 To protect the health and amenity of local residents	+?	Policy 10 safeguards existing, planned and potential concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it may potentially restrict non-mineral

SA Objective and Sub Questions	SA Score	Justification
and communities from the impacts of minerals workings and associated transport		<p>development near to this infrastructure that could otherwise have a negative effect on the health and amenity of nearby residents. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>Although safeguarding the above plants may prolong any existing adverse effects on the landscape through the operation of such plants, these are not considered here as these effects would have been considered when the existing infrastructure was originally developed.</p>
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+?	<p>Policy 10 safeguards existing, planned and potential concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it may potentially restrict non-mineral development near to this infrastructure that could otherwise have a negative effect on PRow, access, recreation areas or open space. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>Although safeguarding the above plants may prolong any existing adverse effects on the landscape through the operation of such plants, these are not considered here as these effects would have been considered when the existing infrastructure was originally developed.</p>
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	0	<p>Policy 10 safeguards existing, planned and potential concrete batching, asphalt and coated stone plants from development that would compromise their operation and is considered unlikely to affect this objective.</p>
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	<p>Policy 10 safeguards existing, planned and potential concrete batching, asphalt and coated stone plants from development that would compromise their operation and is considered unlikely to affect this objective.</p>

Policy 11: Borrow Pits

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	-?	Policy 11 addresses the use of borrow pits. The extraction of aggregates from borrow pits may have an adverse effect on biodiversity within a site or on land surrounding a site. As such, a minor negative effect is likely. However, this is uncertain as the location of any borrow pit will not be known until the planning application stage. In addition, the supporting text to the policy notes the advantages borrow pits have, however, it also notes that their short term nature should not outweigh any environmental damage. It goes on to say that biodiversity is a particular feature which needs to be considered when considering a borrow pit.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Policy 11 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use such as a construction project. Through the restoration of the borrow pit there may be opportunities to improve biodiversity. As such, a minor positive effect is considered likely. The effect is considered uncertain as any restoration proposal will not be known until the planning application stage.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	+?	Policy 11 addresses the use of borrow pits. As borrow pits need to be located in close proximity to the construction project the aggregates are required for, they should help to reduce travel and therefore deposition of air pollutants arising from HGV movements. As such, a minor positive effect is likely. However, this is uncertain as the location of any borrow pit will not be known until the planning application stage and there may still be some impacts on nearby nature conservation sites from dust associated with the aggregate extraction.
1.4 To protect and enhance sites of geological conservation interest	-/+?	Policy 11 addresses the use of borrow pits. Borrow pits could be located within sites of geological conservation interest. As such, adverse impacts could result on these sites and their qualifying features. Conversely, exposure of geological faces through mineral extraction can provide educational opportunities and sometimes create new sites of geological conservation interest. As such, an uncertain mixed minor negative and positive effect is considered likely. The effect is considered uncertain as the location of any borrow pit will not be known until the planning application stage.
2.1 To conserve and enhance	-?	Policy 11 addresses the use of borrow pits. Borrow pits could be located within or in close proximity to one of the

SA Objective and Sub Questions	SA Score	Justification
the County's cultural heritage, including above ground heritage assets and their setting		County's above ground heritage assets. As such, the qualifying features of the asset or its setting could be adversely affected by a borrow pit. Therefore a minor negative effect is considered likely. The effect is considered uncertain as the location of any borrow pit will not be known until the planning application stage.
2.2 To conserve below ground archaeological assets	-?	Policy 11 addresses the use of borrow pits. The extraction of aggregates from borrow pits may have an adverse effect on archaeology within a site. As such, a minor negative effect is likely. However, this is uncertain as the location of any borrow pit will not be known until the planning application stage. In addition, the supporting text to the policy notes the advantages borrow pits have, however, it also notes that their short term nature should not outweigh any environmental damage. It goes on to say that archaeology is a particular feature which needs to be considered when considering a borrow pit.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	Policy 11 addresses the use of borrow pits where aggregate extraction takes places over a limited period of time for an exclusive use in a specific construction project. As such, it is unlikely to be used to supply locally distinctive building materials, and it is considered the policy will have a negligible effect on this objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-/+?	<p>Policy 11 addresses the use of borrow pits. The extraction of aggregates from borrow pits may have an adverse effect on landscape character and quality. As such, a minor negative effect is likely. However, this is uncertain as the location of any borrow pit will not be known until the planning application stage. In addition, the supporting text to the policy notes the advantages borrow pits have, however, it also notes that its short term nature should not outweigh any environmental damage. It goes on to say that the landscape is a particular feature which needs to be considered when considering a borrow pit.</p> <p>Furthermore, the restoration of the borrow pit may enhance the character and quality the landscape, having an uncertain minor positive effect. Overall, the policy is considered likely to have a mixed minor negative/minor positive but uncertain effect.</p>
4.1 To protect the quality of ground and surface water	-?	Policy 11 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use in a specific construction project. Hertfordshire contains a number of Source Protection Zone 1s (SPZ1s) and sites within SPZ1s could lead to accidental pollution incidents that could contaminate the quality of groundwater, which could have a significant negative effect. Furthermore, sites may also contain a watercourse or water body and accidental pollution incidents could also result in the contamination of surface water. However, this would not be known until the planning application stage when specific proposals have been brought forward

SA Objective and Sub Questions	SA Score	Justification
		identifying a site. As such, an overall uncertain minor effect is considered likely.
4.2 To protect the quantity of ground and surface water from over abstraction	?	Policy 11 addresses the use of borrow pits. All mineral activity could potentially require the use of water resources, but the extent of water use would not be known until the planning application stage where proposals are brought forward. Therefore, an uncertain effect on this objective is considered likely.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	++/-	Policy 11 addresses the use of borrow pits. It explicitly states proposals for borrow pits will be permitted where it can be demonstrated that the site's proximity to the construction project is more sustainable than importing aggregate. As such, a significant positive effect is considered likely. However, the extraction of minerals at a borrow pit is still likely to produce carbon dioxide and other emissions through the operation of vehicles, machinery and plant. As such, a minor negative effect is considered likely.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	Policy 11 addresses the use of borrow pits and it is considered unlikely that it will effect this objective. As such, a negligible effect is considered likely.
6.1 To protect against the risk of flooding	0?	Policy 11 addresses the use of borrow pits. Mineral workings and processing are classed as less vulnerable development with the exception of sand and gravel workings which are considered to be water compatible development. As such, a negligible effect is considered likely. However, the effect is considered uncertain the type of minerals development and its location with regard to Flood Risk Zones would not be known until the planning application stage.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	+?	Policy 11 addresses the use of borrow pits. Mineral workings (particularly sand and gravel sites) can potentially reduce flood risk by providing flood storage and attenuation, and could have a minor positive effect on reducing vulnerability to flooding. However, these effects are uncertain until further assessment has been undertaken at the planning application stage.

SA Objective and Sub Questions	SA Score	Justification
7.1 To encourage the use of recycled and secondary aggregates	-	Policy 11 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use in a specific construction project. As such, the policy will not encourage the use of recycled or secondary aggregates and a minor negative effect is considered likely.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	Policy 11 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use in a specific construction project. Direct and indirect minor positive effects are considered likely on increasing employment levels during site preparation and operation as the mineral workings are likely to result in a small amount of job creation for local people.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	Policy 11 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use in a specific construction project. As such, the policy is considered likely to have a minor positive effect on ensuring a steady and adequate supply of minerals to meet Hertfordshire's needs.
8.3 To ensure that mineral sterilisation is minimised	+	Policy 11 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use in a specific construction project. As such, the extraction of minerals via a borrow pit will ensure that minerals are not sterilised. Therefore, a minor positive effect is considered likely.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-?	Policy 11 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use in a specific construction project. As such, borrow pits may be located on land that is considered to be best and most versatile agricultural land which could be lost as a result of the mineral extraction. However, the exact land take and location according to agricultural land quality (i.e. Grades 1-5) would not be known until the planning application stage, therefore effects on this objective overall are likely to be minor negative uncertain.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals	-?	Policy 11 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use in a specific construction project. The extraction of minerals could result in adverse impacts on the health and amenity of local residents during site preparation and extraction. As such, a minor negative effect is considered likely. The effect is uncertain as the location of any borrow pit and its proximity to local residents

SA Objective and Sub Questions	SA Score	Justification
workings and associated transport		would not be known until the planning application stage.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	-?	Policy 11 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use in a specific construction project. The extraction of minerals could result in adverse impacts on PRow, access, recreation areas or open space. As such, a minor negative effect is considered likely. The effect is uncertain as the location of any borrow pit would not be known until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	Policy 11 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use in a specific construction project. Through the restoration of the borrow pit there may be opportunities to improve health and amenity through the delivery of green infrastructure, PRow or recreation areas. As such, a minor positive effect is considered likely. The effect is uncertain as any restoration proposal will not be known until the planning application stage.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	-?	Policy 11 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use in a specific construction project. Any borrow pit may fall within an Airport Safeguarding Zone. As such, an uncertain minor negative effect is considered likely, as the location of any proposal would not be known until the planning application stage.

Policy 12: Incidental Extraction

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	-?	Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. Development of this kind could result in the loss of priority habitats, biodiversity or species. As such, a minor negative effect is considered likely. However, the effect is uncertain as the land take for any development proposal will not be known until the planning application stage.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. The policy states that proposals would be looked upon favourably where they provide an opportunity to achieve net gains across the three dimensions of sustainable development. As such, it is considered that the policy would seek to secure biodiversity enhancement under the environmental dimension of sustainable development. As such, a minor positive effect is considered likely. The effect is uncertain as any proposal will not be known until the planning application stage.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	-?	Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. Development of this kind could result in adverse impacts on designated nature conservation sites as a result of dust and other pollutants. As such, a minor negative effect is considered likely. However, the effect is uncertain as the location for any development proposal will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	-/+?	Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that not been allocated as a specific site or within a Preferred Area. Development of this kind could result in adverse impacts on sites of geological conservation depending on proximity of the sites to geological sites. Conversely, exposure of geological faces through mineral extraction can provide educational opportunities and sometimes create new sites of geological conservation interest. As such, an uncertain mixed minor negative and positive effect is considered likely. However, the effect is uncertain as the location of any proposal will not be known until the planning application stage.
2.1 To conserve and enhance the County's cultural heritage, including above	-?	Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. Development of this kind could result in adverse impacts on the County's above ground heritage assets. As such, a minor negative effect is

SA Objective and Sub Questions	SA Score	Justification
ground heritage assets and their setting		considered likely. However, the effect is uncertain as the location for any development proposal would not be known until the planning application stage.
2.2 To conserve below ground archaeological assets	-?	Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. Development of this kind could result in adverse impacts on the County's below ground archaeological assets. As such, a minor negative effect is considered likely. However, the effect is uncertain as the location for any development proposal would not be known until the planning application stage.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	?	Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. It will not be known until the planning application stage which mineral would be extracted. As such, an uncertain effect is considered likely on this objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-/+?	<p>Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. Development of this kind could result in adverse impacts on the character and quality of Hertfordshire's landscape. As such, a minor negative effect is likely.</p> <p>Conversely, the supporting text to the policy states that proposals would be looked upon favourably where the mineral is to be used to enhance the character and quality of Hertfordshire's landscape. As such, a minor positive effect is also possible.</p> <p>However, both effects are uncertain subject to the detailed proposals which would not be known until the planning application stage.</p>
4.1 To protect the quality of ground and surface water	-?	<p>Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. Hertfordshire contains a number of Source Protection Zone 1s (SPZ1s) and sites within SPZ1s could lead to accidental pollution incidents that could contaminate the quality of groundwater, which could have a significant negative effect. Furthermore, sites may also contain a watercourse or water body and accidental pollution incidents could also result in the contamination of surface water. However, this would not be known until the planning application stage when specific proposals have been brought forward identifying a site.</p> <p>Overall, an uncertain minor negative effect is considered likely.</p>

SA Objective and Sub Questions	SA Score	Justification
4.2 To protect the quantity of ground and surface water from over abstraction	?	Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. All mineral activity could potentially require the use of water resources, but the extent of water use would not be known until the planning application stage where proposals are brought forward. Therefore, an uncertain effect on this objective is considered likely.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+/-?	Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. The policy states that the transportation of extracted materials should not have a significant adverse impact on highway safety or the effective operation of the highway network, therefore it is likely that most minerals will be transported by road. However, the supporting text notes that proposals would be looked upon favourably where the extracted mineral will be used onsite or close to the extraction site. As such, a minor positive effect is considered likely. The extraction of minerals is still likely to produce carbon dioxide and other emissions through the operation of vehicles, machinery and plant. Therefore, a minor negative effect is also considered likely, although both effects are uncertain as details of the proposals would not be known until the planning application stage.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?	Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. Applications submitted under this policy may propose to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/ offices). However, this would not be known until the planning application stage. Therefore, an uncertain minor positive effect is likely.
6.1 To protect against the risk of flooding	0?	Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. Mineral workings and processing are classed as less vulnerable development with the exception of sand and gravel workings which are considered to be water compatible development. As such, a negligible effect is considered likely. However, the effect is considered uncertain as the type of minerals development and its location with regard to Flood Risk Zones would not be known until the planning application stage.

SA Objective and Sub Questions	SA Score	Justification
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	+?	Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. Mineral workings (particularly sand and gravel sites) can potentially reduce flood risk by providing flood storage and attenuation, and could have a minor positive effect on reducing vulnerability to flooding. However, these effects are uncertain until further assessment has been undertaken at the planning application stage.
7.1 To encourage the use of recycled and secondary aggregates	-	Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. This type of development will extract primary aggregate. Therefore, a minor negative effect is considered likely on this objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. Direct and indirect minor positive effects are considered likely on increasing employment levels during site preparation and operation as mineral workings are likely to result in a small amount of job creation for local people in both rural and urban areas.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. The policy states that the proposals will only be permitted where it is demonstrated that the amount of mineral to be extracted is consistent with the purpose and scale of the development. It is therefore considered that the policy would ensure that there will not be an overworking of the mineral source which could contribute to an oversupply of minerals within Hertfordshire. As such, a minor positive effect is considered likely.
8.3 To ensure that mineral sterilisation is minimised	+	Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. The policy will support the extraction of primary aggregate when a proposal meets the criteria set out within the policy. As such, this will minimise mineral sterilisation. Therefore, a minor positive effect is considered likely.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of	-.?	Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. As such, applications may be submitted on land that is considered to be best and most versatile agricultural land which could be lost as a result of the mineral extraction. However, the exact land take and location according to agricultural land quality

SA Objective and Sub Questions	SA Score	Justification
poorer quality agricultural land in preference to that of a higher quality		(i.e. Grades 1 – 5) would not be known until the planning application stage, therefore effects on this objective overall are likely to be minor negative uncertain.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. As such, new sites for mineral extraction may have an adverse impact on the health and amenity of local residents. Therefore, a minor negative effect is considered likely. However, the effect is uncertain as the location of any proposal will not be known until the planning application stage.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	-?	Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. As such, new sites for mineral extraction may have an adverse impact on PRoW, access, recreation areas or open space. Therefore, a minor negative effect is considered likely. However, the effect is uncertain as the location of any proposal would not be known until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. The policy states that proposals would be looked upon favourably where they provide an opportunity to achieve net gains across the three dimensions of sustainable development. As such, it is considered that the policy would seek to secure recreational enhancements under the social dimension of sustainable development. As such, a minor positive effect is considered likely. The effect is uncertain as any proposal will not be known until the planning application stage.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	-?	Policy 12 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. Any new site may fall within an Airport Safeguarding Zone. As such, an uncertain minor negative effect is considered likely as the location of any proposal would not be known until the planning application stage.

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Policy 13: Green Belt

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+?	Despite enabling mineral extraction in the Green Belt, this policy will ensure that the five purposes of the Green Belt are upheld including 'safeguarding the countryside', which could have a positive impact on protecting green space and habitats within the Green Belt which are important in the protection against the loss of priority habitats, biodiversity and species. A minor positive effect is likely on this SA objective, although it is uncertain as it will depend on the specific proposals for the mineral extraction site within the Green Belt and whether there might still be loss of habitats and species.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Mineral extraction can result in the loss of important habitats and species. However, this policy seeks to ensure that the proposed restoration of the site does not conflict with the five purposes of the Green Belt and where possible enhances the beneficial use and improves the character and appearance of the countryside. Although not specifically mentioned in the policy or supporting text, this could provide opportunities for enhancing biodiversity and achieve net gains in biodiversity. As such, a minor positive but uncertain effect is likely on this SA objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
1.4 To protect and enhance sites of geological conservation interest	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	+	The fundamental aim of Green Belt Policy is to prevent urban sprawl by keeping land permanently open. The open landscape is important to the setting of Hertfordshire's rich historic assets including Listed Buildings with concentrations in the historic towns such as Hertford and St Albans. This policy will help to ensure that proposals comply with national Green Belt policy and siting of minerals related machinery does not impact upon the openness of the Green Belt throughout the duration of the minerals operations. As such, a minor positive effect is likely on this SA objective.

SA Objective Sub Questions	SA Score	Justification
2.2 To conserve below ground archaeological assets	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	++	With over half of Hertfordshire designated as Metropolitan Green Belt, it contributes to Hertfordshire's rich variety of character. Through helping to protect the Green Belt from urban sprawl, keeping land permanently open and maintaining the essential characteristics of openness and permanence a significant positive effect is likely on this SA objective.
4.1 To protect the quality of ground and surface water	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
6.1 To protect against the risk of flooding	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
7.1 To encourage the use of recycled and secondary aggregates	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	The fundamental aim of Green Belt Policy is to prevent urban sprawl by keeping land permanently open. The supporting text to the policy recognises that mineral development is temporary and not deemed as inappropriate development in the NPPF, and as such will support proposals for mineral extraction and associated development in the Green Belt subject to compliance with national Green Belt policy and other local plan policies. Therefore, a minor positive effect is likely on this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+	The development of a minerals site could have an adverse impact on the local amenity of local residents and communities. By seeking to uphold the purposes of the Green Belt during the development and restoration of mineral sites, this policy could help to protect the amenity of towns and villages adjacent to and within the Green Belt in Hertfordshire. As such, a minor positive effect is likely on this SA objective.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+	Upholding the purposes of the Green Belt by keeping land permanently open and maintaining the essential characteristics of openness could contribute to protecting against the loss of Public Rights of Way, access, recreation areas and open space. Therefore, a minor positive effect is likely on this SA objective.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	This policy supports proposed restoration, which enhances the beneficial use of the Green Belt and improves the character and appearance of the countryside. This could lead to opportunities to improve health and amenity such as the delivery of enhanced public rights of way and improved access. However, it is difficult to determine whether this can be achieved as it will depend upon the location of the site and the detailed restoration plan, which will not be known until the planning application has been submitted.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.

Policy 14: Cumulative Impact

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	?	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The policy and supporting text identify the natural environment where a cumulative effect could occur, but the wording does not specifically mention biodiversity and therefore an uncertain effect has been identified. It is recommended that a bullet point be added under the 'Natural Environment' heading in the supporting text to include biodiversity (habitats and species).
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	0	Consideration of cumulative effects from minerals development is unlikely to affect this SA objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	?	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The policy and supporting text identify the natural environment where a cumulative effect could occur, but the wording does not specifically mention biodiversity and therefore an uncertain effect has been identified. It is recommended that a bullet point be added under the 'Natural Environment' heading in the supporting text to include biodiversity (including designated nature conservation sites)
1.4 To protect and enhance sites of geological conservation interest	+	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The supporting text identifies geology as a potential area of the natural environment, where a cumulative effect is likely. As such, a minor positive effect is likely on this SA objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	+	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The supporting text identifies the historic environment as a potential area for cumulative effect. As such, a minor positive effect is likely on this SA objective.

SA Objective Sub Questions	SA Score	Justification
2.2 To conserve below ground archaeological assets	+	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The supporting text identifies archaeological assets as a potential area for cumulative effect. As such, a minor positive effect is likely on this SA objective.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	Consideration of cumulative effects from minerals development is unlikely to affect this SA objective. Therefore, no effects are expected for this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The supporting text includes the appearance, quality and character of the landscape in Hertfordshire where a cumulative effect could occur. A minor positive effect is therefore identified on this SA objective.
4.1 To protect the quality of ground and surface water	+	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The supporting text identifies the quality of the water courses as a potential area for cumulative effect. As such, a minor positive effect is likely on this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	+	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The supporting text identifies groundwater and surface water as a potential area for cumulative effect. As such, a minor positive effect is likely on this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The supporting text identifies particle emissions and transport networks as a potential area for cumulative effect. As such, a minor positive effect is likely on this SA objective.

SA Objective Sub Questions	SA Score	Justification
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	Consideration of cumulative effects from minerals development is unlikely to affect this SA objective. Therefore, no effects are expected for this SA objective.
6.1 To protect against the risk of flooding	?	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The supporting text identifies the water environment where a cumulative effect could occur, but the wording does not specifically mention flood risk and therefore an uncertain effect has been identified. It is recommended that a bullet point be added under the 'Natural Environment' heading in the supporting text to include flood risk.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	?	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The policy and supporting text identify the water environment where a cumulative effect could occur, but the wording does not specifically mention flood alleviation or mitigation and therefore an uncertain effect has been identified. It is recommended that a bullet point be added under the 'Natural Environment' heading in the supporting text to include flood risk/alleviation.
7.1 To encourage the use of recycled and secondary aggregates	0	Consideration of cumulative effects from minerals development is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	0	Consideration of cumulative effects from minerals development is unlikely to affect this SA objective.
8.2 To ensure a steady and	0	Consideration of cumulative effects from minerals development is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
adequate supply of minerals to meet Hertfordshire's needs		
8.3 To ensure that mineral sterilisation is minimised	0	Consideration of cumulative effects from minerals development is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	+	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The supporting text identifies agricultural land as where a cumulative effect could occur. As such, a minor positive effect is likely on this SA objective.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+	The policy states that mineral development proposals will only be permitted where the cumulative impact will not create an unacceptable adverse impact on the environment of an area or on the amenity or health of a local community, either in relation to the collective effects of different impacts of an individual proposal or in relation to the effects of a number of developments occurring either concurrently or successively. The policy and supporting text specifically refer to human health and amenity and the supporting text refers to the potential impacts of noise, dust, particle emissions and blasting vibrations. As such, a minor positive effect is likely on this SA objective.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The supporting text identifies general amenity and Public Rights of Way where a cumulative effect could occur. As such, a minor positive effect is likely on this SA objective.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to	0	Consideration of cumulative effects from minerals development is unlikely to affect this SA objective. Therefore, no effects are expected for this SA objective.

SA Objective Sub Questions	SA Score	Justification
recreation as part of the development and restoration of a site		
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	+	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The policy and supporting text identifies aviation safety, and in particular risk of bird strike within the Aerodrome Safeguarding Areas around London Luton Aerodrome and London Stansted Aerodrome, as where a cumulative effect could occur. As such, a minor positive effect is expected on this SA objective.

Policy 15: Water Management

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+	The policy seeks to ensure that there are no unacceptable impacts on the quality of water and nature conservation. Flooding can also damage habitats and this policy seeks to minimise flood risk through requiring proposals to take account of climate change allowances and direct proposals away from areas of high risk of flooding and reduce surface water run-off. Therefore, a minor positive effect is likely on this SA objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+	This policy seeks to protect both the quality of water and nature conservation, during development and in the restoration of sites. Flooding can also damage habitats; however, the policy seeks to ensure that proposals take account of flood risk and implement mitigation, which includes the use of Sustainable Drainage Systems (SuDS), which can support the enhancement of habitats and achieve net gains in biodiversity. Therefore, a minor positive effect is likely on this SA objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.
1.4 To protect and enhance sites of geological conservation interest	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.
2.2 To conserve below ground archaeological assets	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.
2.3 Seek to ensure the supply of locally distinctive building materials for historic	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
building methods		
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+	Flooding can damage buildings and settlements and also adversely affect the characteristics of landscapes. As this policy seeks to minimise flood risk through requiring proposals to take account of climate change allowances, be directed away from areas of high risk of flooding and reduce surface water run-off, therefore a minor positive effect is likely on this SA objective.
4.1 To protect the quality of ground and surface water	++	The supporting text states that mineral developments must not cause any unacceptable adverse impact on local water bodies, as roughly 70% of Hertfordshire is covered by Source Protection Zones, which provide much of the county's drinking water and maintain the flow in many rivers. The policy itself requires water quality to be taken into account and in particular proposals must demonstrate that there is no adverse impact to water quality and they will not cause adverse impacts on the flow and quality of surface and groundwater on the site and elsewhere. A significant positive effect is therefore likely on this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	++	The supporting text states that mineral developments must not cause any unacceptable adverse impact on local water bodies, as roughly 70% of Hertfordshire is covered by Source Protection Zones, which provide much of the county's drinking water and maintain the flow in many rivers. The policy itself requires water supply to be taken into account and in particular proposals must demonstrate that they will not cause adverse impacts on the flow and quality of surface and groundwater on the site and elsewhere. A significant positive effect is therefore likely on this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.
6.1 To protect against the risk of flooding	++	The policy is likely to have significant positive effects on this SA objective as it supports proposals that reduce the likelihood and impact of flooding both on and off-site. This is required in Hertfordshire where there are a number of settlements along the flood plain, especially on Broxbourne-Epping Forest border and Cheshunt. Therefore, a

SA Objective Sub Questions	SA Score	Justification
		significant positive effect is likely on this SA objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	++	Minerals sites can contribute to reducing flood risk as they can offer opportunities for water storage. The policy requires proposals to reduce flood risk, taking account of climate change allowances, flow and quality of surface and groundwater on the site and elsewhere. It also requires restoration of the site to demonstrate that it will enhance water management and alleviate the risk of flooding. The supporting text states that the County Council would support proposals that provide beneficial impacts related to flooding. This may involve increasing the capacity of the floodplain and/or the free flow of floodwater through the development's design. Therefore, a significant positive effect is likely on this SA objective.
7.1 To encourage the use of recycled and secondary aggregates	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
higher quality		
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	++	This policy aims to protect water supply and water quality and avoid flood risk in Hertfordshire. This will help to protect public drinking water supplies, which will prevent any effects on the health and wellbeing of local communities within Hertfordshire. Flooding can endanger lives; damage settlements and can also adversely affect the health of people. This policy is also likely to prevent proposals which increase flood risk. The supporting text states that the County Council would support proposals that provide beneficial impacts related to flooding. This may involve increasing the capacity of the floodplain and/or the free flow of floodwater through the development's design. Overall, this policy is likely to have a significant effect on this SA objective.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.

Policy 16: Historic Environment

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
1.4 To protect and enhance sites of geological conservation interest	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	++	Hertfordshire contains an interesting variety of heritage assets, including 170 Scheduled Ancient Monuments, 110 Grade I, 472 Grade II*, 7,477 Grade II listed buildings, 45 parks and gardens of including two Grade I, nine Grade II* and 34 Grade II parks and gardens and 64 Conservation Areas ¹⁶⁶ . As it requires the protection, conservation and where appropriate, the enhancement of the historic environment as well as the consideration of the significance of any heritage assets affected by the proposals, including their setting, integrity and distinctiveness, this policy is likely to have a significant positive effect on this SA objective.
2.2 To conserve below ground archaeological assets	++	As well as all of the known heritage assets, there are many below ground and non-designated heritage assets including archaeology sites in Hertfordshire. This policy specifically requires the protection, conservation of all heritage assets including archaeological assets. Applicants are encouraged to provide an assessment of these assets using relevant historic, archaeological, environmental and heritage asset records and appropriate

¹⁶⁶ <http://hc.historicengland.org.uk/content/pub/2015/local-authority-profiles-2015.xls>

SA Objective Sub Questions	SA Score	Justification
		expertise. In addition, the supporting text encourages public display of the archive collection and publicly available studies associated with the excavation of artefacts. Therefore, a significant positive effect is considered likely.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	+	There are isolated and localised pockets of brick clay in the north west of the county and this specific mineral can be used in locally distinct historic building methods. This policy aims to support mineral extraction where it can be demonstrated that the proposal will protect, conserve and where appropriate enhance the historic environment. Therefore, this policy could help to ensure the continued supply of locally distinctive building materials for historic buildings in the County. However, this will be dependent upon whether brick clay sites are brought forward by developers and therefore an uncertain positive effect has been given for this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	++	Hertfordshire's environment contains an interesting variety of historic landscapes. Through the protection of these designations which contribute to landscape character and quality within Hertfordshire, the policy is likely to have a significant positive effect on this SA objective
4.1 To protect the quality of ground and surface water	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
6.1 To protect against the risk of flooding	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
7.1 To encourage the use of recycled and secondary aggregates	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
Social		
9.1 To protect the health and amenity of local residents	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
and communities from the impacts of minerals workings and associated transport		
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.

Policy 17: Landscape and Green Infrastructure

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+	The policy seeks to protect designated landscapes and sites (e.g. Ancient Woodlands) from mineral workings. The supporting text notes that reference should be given to the Hertfordshire Local Nature Partnership Guiding principles. As such, a minor positive effect is likely on this SA objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	++	The policy seeks to protect designated landscapes and sites (e.g. Ancient Woodlands) from mineral workings. It also requires proposals for mineral extraction to continue long term improvements made to the wider ecological networks and green infrastructure, which should result in enhancements to habitats and the achievement of net gains in biodiversity. As such, a significant positive effect is likely on this SA objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.
1.4 To protect and enhance sites of geological conservation interest	+	Hertfordshire has a rich variety of character, including the chalk landscape of the Chilterns character area, which is important to geological conservation. The supporting text states that these should be conserved and enhanced to demonstrate their importance and the contribution that they make to wider ecological networks. As such, a minor positive effect is likely on this SA objective
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	+	In Hertfordshire there are a large number of designations relating to the historic environment many of which contribute to wider landscape quality and character. Therefore, as an indirect effect of protecting the landscape, this policy could also help to conserve these historic environment designations. As such, a minor positive effect is likely on this SA objective.
2.2 To conserve below ground archaeological assets	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	++	There are five types of important and valued landscapes of national and local importance in Hertfordshire including The Chilterns AONB; two Regional Parks; Watling Chase Community Forest; Landscapes of local importance and value; and Registered parks and gardens and other landscapes of historic interest. Through seeking to protect these designated landscapes and important sites, the policy aims to conserve and enhance the landscape, local distinctiveness and landscape character in Hertfordshire. It states that mineral development proposals must assess the landscape character, quality and visual impact through a full Landscape and Visual Impact Assessment, which takes into account existing local studies. As such, a significant positive effect is likely on this SA objective.
4.1 To protect the quality of ground and surface water	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
6.1 To protect against the risk of flooding	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.
7.1 To encourage the use of recycled and secondary aggregates	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.
Social		
9.1 To protect the health and amenity of local residents	+	The development of a minerals site could have an adverse impact on local amenity for local residents and communities. This policy aims to protect both the designated landscapes, sites and local distinctive areas from

SA Objective Sub Questions	SA Score	Justification
and communities from the impacts of minerals workings and associated transport		inappropriate development. As such, a minor positive effect is likely on this SA objective.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+	The policy aims to protect both designated landscapes and the landscape more generally within Hertfordshire from minerals development. In achieving this, access to the countryside, open spaces and Public Rights of Way could be protected and as such, a minor positive effect is identified on this SA objective.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	++	The policy requires mineral proposals to demonstrate that throughout the lifetime of the development (including restoration) continued long term improvements are made to wider ecological networks and green infrastructure. In addition, the supporting text states that restoration proposals should seek to demonstrate their contribution to meeting local green infrastructure needs, including multifunctional green infrastructure assets. This could provide increased opportunities to access recreational facilities such as public rights of way. Therefore, this policy is considered likely to have significant positive effects on this SA objective.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.

Policy 18: Biodiversity

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	++	This policy seeks to ensure that protected sites and priority habitats for nature conservation and species in Hertfordshire are given the appropriate level of protection. A significant positive effect is therefore likely on this SA objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	++	This policy seeks to ensure that there are opportunities for the delivery of net gains in national and local biodiversity, ecological networks and the Strategic Green Infrastructure. The supporting text also seeks to ensure that consideration is given to the guiding principles of the Local Nature Partnership, which includes the integration of biodiversity within new development. Furthermore, sites should be restored to a high environmental standard and where possible contribute or enhance the natural and local environment, including ecological networks. A significant positive effect is therefore likely on this SA objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	++?	This policy requires proposals to demonstrate how the loss of or damage to habitats and/or species will be minimised. Although not specifically stated, this might include the avoidance of the deposition of levels of nitrogen oxides and sulphur dioxide, produced by minerals transport on biodiversity sites. Therefore, an uncertain but significant effect is likely on this SA objective, however this is dependent upon the level of HGV traffic generated by minerals sites through the County and likely routes taken by vehicles travelling to and from the site.
1.4 To protect and enhance sites of geological conservation interest	++	Hertfordshire contains four main National Character Areas (NCAs) which reflect the distinctive landscapes and habitats across the county, including the chalk streams of the Chilterns. In addition, Hertfordshire has 43 sites of Special Scientific Interest (SSSI) and other nationally and locally designated ecological and geological sites. This policy seeks to ensure that there is no irreversible or significant adverse impact on these specific sites. The supporting text also states that where possible, the restoration of sites should contribute to the enhancement of the natural and local environment. A significant positive effect is therefore likely on this SA objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	+?	Hertfordshire contains four NCAs covering distinct geographical areas which reflect the distinctive landscapes and historic characteristics of the County. Habitats and biodiversity are often linked to local landscapes. Therefore an indirect minor positive effect is considered likely on this SA objective.
2.2 To conserve below ground archaeological assets	0	This policy seeks to ensure that protected sites and priority habitats for nature conservation and species in Hertfordshire are given the appropriate level of protection. Therefore, no effects are expected for this SA objective.
2.3 Seek to ensure the supply of	0	This policy seeks to ensure that protected sites and priority habitats for nature conservation and species in

SA Objective Sub Questions	SA Score	Justification
locally distinctive building materials for historic building methods		Hertfordshire are given the appropriate level of protection. Therefore, no effects are expected for this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+?	Important habitats and biodiversity are interlinked with landscapes. Hertfordshire contains four National Character Areas (NCAs) and the Chilterns AONB, which reflect the distinctive landscapes and habitats across the county, including the chalk streams of the Chilterns. The conservation and enhancement of biodiversity in this policy could therefore have an indirect minor positive effect on this SA objective, as it will also protect and contribute towards the important landscapes within Hertfordshire.
4.1 To protect the quality of ground and surface water	+?	Ensuring that protected and non-protected sites for nature conservation are given the appropriate level of protection and that there are opportunities for the delivery of net gains in national and local biodiversity, ecological networks and the Strategic Green Infrastructure in Hertfordshire could have an indirect minor positive effect on this SA objective, where the nature conservation sites, ecological networks and strategic green infrastructure include water bodies. This effect is uncertain as it will depend on the nature of the conservation sites being protected.
4.2 To protect the quantity of ground and surface water from over abstraction	0	This policy seeks to ensure that protected sites and priority habitats for nature conservation and species in Hertfordshire are given the appropriate level of protection. Therefore, no effects are expected for this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	0	This policy seeks to ensure that protected sites and priority habitats for nature conservation and species in Hertfordshire are given the appropriate level of protection. Therefore, no effects are expected for this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	This policy seeks to ensure that protected sites and priority habitats for nature conservation and species in Hertfordshire are given the appropriate level of protection. Therefore, no effects are expected for this SA objective.

SA Objective Sub Questions	SA Score	Justification
6.1 To protect against the risk of flooding	+?	Ensuring that protected and non-protected sites for nature conservation are given the appropriate level of protection and that there are opportunities for the delivery of net gains in national and local biodiversity, ecological networks and the Strategic Green Infrastructure in Hertfordshire could have an indirect minor positive effect on this SA objective, where the nature conservation sites, ecological networks and strategic green infrastructure include water bodies. This effect is uncertain as it will depend on the nature of the conservation sites being protected.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	+?	Ensuring that protected and non-protected sites for nature conservation are given the appropriate level of protection and that there are opportunities for the delivery of net gains in national and local biodiversity, ecological networks and the Strategic Green Infrastructure in Hertfordshire could have an indirect minor positive effect on this SA objective, where the nature conservation sites, ecological networks and strategic green infrastructure include water bodies. This effect is uncertain as it will depend on the nature of the conservation sites being protected.
7.1 To encourage the use of recycled and secondary aggregates	0	This policy seeks to ensure that protected sites and priority habitats for nature conservation and species in Hertfordshire are given the appropriate level of protection. Therefore, no effects are expected for this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	0	This policy seeks to ensure that protected sites and priority habitats for nature conservation and species in Hertfordshire are given the appropriate level of protection. Therefore, no effects are expected for this SA objective.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	This policy seeks to ensure that protected sites and priority habitats for nature conservation and species in Hertfordshire are given the appropriate level of protection. Therefore, no effects are expected for this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	This policy seeks to ensure that protected sites and priority habitats for nature conservation and species in Hertfordshire are given the appropriate level of protection. Therefore, no effects are expected for this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking	0	This policy seeks to ensure that protected sites and priority habitats for nature conservation and species in Hertfordshire are given the appropriate level of protection. Therefore, no effects are expected for this SA objective.

SA Objective Sub Questions	SA Score	Justification
to use areas of poorer quality agricultural land in preference to that of a higher quality		
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+	This policy seeks to ensure that biodiversity networks can be enhanced and contribute to the wider ecological networks and local green infrastructure. Although this will primarily benefit biodiversity it will also provide indirect benefits to people, through the provision of recreational, aesthetic and environmental health improvements. As such, a minor positive effect is likely on this SA objective.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+	This policy requires proposals to take into account the Hertfordshire Strategic Green Infrastructure Plan during mineral extraction, restoration and associated development. The supporting text states that proposals should recognise the value of the natural environment and the range of benefits and services it provides. The protection of nature conservation and species can therefore have an indirect benefit upon protecting against the loss of Public Rights of Way, access, recreation areas and open space. As such, a minor positive effect is likely on this SA objective.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	This policy requires proposals to take into account the Hertfordshire Strategic Green Infrastructure Plan during mineral extraction, restoration and associated development. Although the enhancement and growth of the wider ecological network will be primarily for the benefit of biodiversity, indirect benefits are also likely in relation to increasing access and provision to formal and informal recreation infrastructure. However, this will be dependent on the type of infrastructure created and its accessibility to the public, which cannot be known until the application stage of the planning process. As such, an uncertain minor positive effect is likely on this SA objective.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	+?	This policy requires proposals to include an ecological survey and scheme for monitoring biodiversity within the site prior to, during and after extraction. This could include the monitoring of bird species on sites within an Airport Safeguarding Zone, although neither the policy nor supporting text specifically require this and therefore the effect of this policy upon this policy is uncertain minor positive.

Policy 19: Protection and Enhancement of Environment and Amenity

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	++	This policy requires applicants to consider the impact upon natural environment and local amenity and the supporting text highlights the impacts of lighting, noise, dust, vibration and other emissions, including those arising from traffic. All of these issues could have a detrimental impact on priority habitats, biodiversity and species. As such, a significant positive effect is likely on this SA objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	The policy seeks to ensure that consideration has been given to the natural and built environment and where required appropriate mitigation and possible enhancements are included in minerals development proposals. This could provide opportunities for net gains in biodiversity as part of the development and restoration of a site. As such, a minor positive but uncertain effect is likely on this SA objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	++	The supporting text states that proposals will be expected to undertake an early analysis of potential impacts of air quality on the integrity of any internationally designated Natura 2000 sites (that is, Special Areas of Conservation, Special Protection Areas) and Ramsar sites, in order to establish any need for mitigation measures. Therefore, this policy could protect against the deposition of air and other pollutants on designated nature conservation sites and as such, a significant positive effect is likely on this SA objective.
1.4 To protect and enhance sites of geological conservation interest	+?	The policy seeks to ensure that consideration has been given to the natural environment and where appropriate, adequate mitigation is provided. Therefore, although not mentioned specifically in policy this could support the protection and enhancement of geological sites of interest and as such, an uncertain minor positive effect is likely on this SA objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	++	Hertfordshire contains an interesting variety of heritage assets and this policy seeks to ensure that consideration has been given to the historic environment and where required appropriate mitigation and possible enhancements are included in minerals development proposals. As such, a significant positive effect is likely on this SA objective.
2.2 To conserve below ground archaeological assets	+?	Hertfordshire contains an interesting variety of heritage assets, including archaeology sites and this policy aims to ensure that consideration has been given to the historic environment and where required appropriate mitigation and possible enhancements are included in minerals development proposals. Therefore, although not mentioned specifically in policy this could support the protection and enhancement of archaeological sites and as such, an uncertain minor positive effect is likely on this SA objective.
2.3 Seek to ensure the supply of	0	Protecting against adverse impacts of minerals development upon the natural, built and historic environment, public health and safety, quality of life and amenity is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
locally distinctive building materials for historic building methods		
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	++	The supporting text highlights the potential for impacts from lighting, noise and vibration. These could have an adverse impact upon Hertfordshire's nationally and locally distinctive landscapes. This policy requires applicants to consider the impact upon natural, built and historic environment (which all contribute to landscape character) and local amenity and where required provide appropriate mitigation. Therefore, a significant positive effect is likely on this SA objective.
4.1 To protect the quality of ground and surface water	+?	The policy seeks to ensure that consideration has been given to the natural environment and where appropriate, adequate mitigation is provided. Therefore, although not mentioned specifically in policy this could provide protection to the quality of water and as such, an uncertain minor positive effect is likely on this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	+?	The policy seeks to ensure that consideration has been given to the natural environment and where appropriate, adequate mitigation is provided. Therefore, although not mentioned specifically in policy this could provide protection to the quantity of ground and surface water from over abstraction and as such, an uncertain minor positive effect is likely on this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	The supporting text states that proposals will be expected to undertake an early analysis of potential impacts of air quality on human health, in order to establish any need for mitigation measures. Therefore, this policy could protect against the deposition of air and other pollutants and as such, an uncertain minor positive effect is likely on this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	Protecting against adverse impacts of minerals development upon the natural, built and historic environment, public health and safety, quality of life and amenity is unlikely to affect this SA objective.
6.1 To protect against the risk of flooding	+?	The policy seeks to ensure that consideration has been given to the natural environment and where appropriate, adequate mitigation is provided. Therefore, although not mentioned specifically in policy this could provide protection against the risk of flooding and as such, an uncertain minor positive effect is likely on this SA objective.

SA Objective Sub Questions	SA Score	Justification
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	+?	The policy seeks to ensure that consideration has been given to the natural environment and where appropriate, adequate mitigation is provided. Therefore, although not mentioned specifically in policy this could flood mitigation methods including water storage and SuDs and as such, an uncertain minor positive effect is likely on this SA objective.
7.1 To encourage the use of recycled and secondary aggregates	0	Protecting against adverse impacts of minerals development upon the natural, built and historic environment, public health and safety, quality of life and amenity is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	0	Protecting against adverse impacts of minerals development upon the natural, built and historic environment, public health and safety, quality of life and amenity is unlikely to affect this SA objective.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	Protecting against adverse impacts of minerals development upon the natural, built and historic environment, public health and safety, quality of life and amenity is unlikely to affect this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	Protecting against adverse impacts of minerals development upon the natural, built and historic environment, public health and safety, quality of life and amenity is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	+?	The policy seeks to ensure that consideration has been given to the natural environment and where appropriate, adequate mitigation is provided. Therefore, although not mentioned specifically in policy this could provide protection of the County's best and most versatile agricultural land and as such, an uncertain minor positive effect is likely on this SA objective.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated	++	The policy seeks to ensure that consideration has been given to the natural, built and historic environment, public health and safety, quality of life and amenity and that appropriate mitigation has been identified. The supporting text states that applications will also be expected to submit a Health Impact Assessment to assess all potential impacts on health as a result of the proposed development. The supporting text also highlights the need for consideration to be given to specific issues such as those arising from lighting, noise, dust, vibration and other

SA Objective Sub Questions	SA Score	Justification
transport		emissions, including those arising from traffic, which can all have a detrimental impact on public health and safety and quality of life. As such, a significant positive effect is likely on this SA objective.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+?	The policy seeks to ensure that consideration has been given to the natural, built and historic environment and where required appropriate mitigation and possible enhancements are included in minerals development proposals. Although not specifically stated in the policy or supporting text, this could include the protection against the loss of recreational facilities. Therefore, an uncertain but minor positive effect is likely on this SA objective.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	The policy requires mineral proposals to demonstrate that where possible, enhancements have been made to enhance the natural, built and historic environment and amenity. Although not specifically stated in the policy or supporting text, this could include the delivery of green infrastructure, enhanced public rights of way and improved access to recreation. Therefore, an uncertain but minor positive effect is likely on this SA objective.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	Protecting against adverse impacts of minerals development upon the natural, built and historic environment, public health and safety, quality of life and amenity is unlikely to affect this SA objective.

Policy 20: Strategic Transport

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+?	Mineral workings can generate road traffic which can have negative impacts on biodiversity e.g. through the deposition of pollutants. The policy seeks to reduce associated minerals traffic on the road and proposals must consider the use of sustainable modes of transport (rail and water). A minor positive effect is identified as these measures will reduce adverse effects such as noise, air pollution, vibration, protect habitats and species. However, any effects would be uncertain as the potential for effects will depend on the exact nature and design of proposals, which will not be known until the planning application stage.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	++?	<p>There are currently 32 Air Quality Management Areas (AQMAs) across eight of the 10 districts in Hertfordshire, with Stevenage and Welwyn Hatfield being the only two districts with no designated AQMAs. Minerals working can generate road traffic which can have negative impacts on air quality and the deposition of air and other pollutants on designated nature conservation sites. This policy seeks to encourage mineral operations to utilise sustainable transport modes and where possible minimise transport movements and distance travelled by road. Furthermore, the policy requires proposals to take into account significant adverse impacts generated by traffic on wildlife habitats and the natural environment.</p> <p>However, the policy also states that the County will support proposals for new or replacement aggregate terminals for rail and water transport, subject to the suitability of the local road network for secondary collection and distribution. However, any effects would be uncertain as the potential for effects will depend on the exact nature and design of proposals, location and proximity / viability to connect to the existing transport network, which will not be known until the planning application stage.</p> <p>Therefore, a significant uncertain positive effect is likely for this SA objective.</p>
1.4 To protect and enhance sites of geological conservation interest	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	+?	Vibrations and emissions from HGV transport can harm historic assets. Therefore by encouraging the use Hertfordshire's primary route network and sustainable transport modes, this policy could reduce the potential impact on historic assets. A minor positive effect is identified as these measures will reduce adverse effects such as noise, air pollution, and vibration which would protect habitats and protected species. However, any effects would be uncertain as the potential for effects will depend on the exact nature and design of proposals, location and proximity / viability to connect to the existing transport network, which will not be known until the planning application stage.
2.2 To conserve below ground archaeological assets	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+?	Transport is a major issue when considering proposals for mineral development as the generation of additional HGV traffic can have negative impacts on the environment and landscape. The proposed policy may have minor positive effects on this SA objective as applicants must demonstrate how they have considered sustainable modes of transport (rail and water) in their proposals. However, any effects would be uncertain as the potential for effects will depend on the exact nature and design of proposals, location and proximity / viability to connect to the existing transport network, which will not be known until the planning application stage.
4.1 To protect the quality of ground and surface water	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	++?	This policy is likely to have a significant positive effect on this SA objective as it encourages the use of sustainable transport modes as a means of transport of minerals as well as minimising transport movements and distances travelled by road. The supporting text states that proposals must acknowledge the existing highway situation and, in accordance with national policy, seek to minimise travel and actively promote alternatives to road transport. Furthermore, the policy states that the County will support proposals for new or replacement aggregate terminals for rail and water transport, subject to the suitability of the local road network for secondary collection and distribution. The effect is uncertain though because the supporting text recognises that more sustainable modes may not always be feasible, therefore it will depend on the specific proposals that come forward.

SA Objective Sub Questions	SA Score	Justification
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
6.1 To protect against the risk of flooding	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
7.1 To encourage the use of recycled and secondary aggregates	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality		
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+?	Transport is a major issue when considering proposals for mineral development as the generation of HGV traffic can have negative impacts on the wellbeing and health of local communities. Mineral workings are not wide spread across the county and are predominantly restricted to the sand and gravel belt where they naturally occur. As a result, there is more chance of there being concentrations of mineral related traffic in some areas in the County. However, this policy states that mineral extraction sites and associated development must be well located in relation to the primary route network, which should minimise the use of local roads and reduce the volume of lorries near local communities. This policy may have minor positive effects on this SA objective as it supports proposals that use rail or water to transport minerals. However, any effects would be uncertain as the potential for effects will depend on the exact nature and design of proposals, location and proximity / viability to connect to the existing transport network, which will not be known until the planning application stage.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
9.4 To ensure that mineral sites do not compromise the operation and safety of	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
commercial/civil or military aerodromes		

Policy 21: Operational Transport

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+?	This policy requires that where significant transport movements are expected, they must be supported by a Transport Assessment which addresses proximity to nearby environmental designations or sensitive areas. It also states that mineral proposals must demonstrate that the traffic impacts generated would not have a significant adverse impact on the natural, built and historic environment. Furthermore, where appropriate, the County will use planning obligations to mitigate and/or compensate for the effects of minerals development. Therefore, a minor positive effect is likely. However, any effects would be uncertain as the potential for effects will depend upon the exact nature and design of proposals and its location in relation to biodiversity sites which will not be known until the planning application stage.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Where there are likely to be significant adverse effects upon the natural environment that cannot be mitigated by planning conditions, the County will use planning obligations to mitigate and/or compensate for adverse effects of minerals development. Therefore, a minor positive effect is likely as compensation may include enhancement for biodiversity. However, any effects would be uncertain as the potential for effects will depend on the exact nature and design of proposals and its location in relation to biodiversity sites which will not be known until the planning application stage.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	+?	Minerals working can generate road traffic which can have negative impacts on biodiversity e.g. through the deposition of pollutants. This policy aims to protect against adverse impacts upon biodiversity, which could include the re-routing of traffic on less sensitive roads. Therefore, a minor positive effect is likely. However, any effects would be uncertain as the potential for effects will depend upon the exact nature and design of proposals and its location in relation to nature conservation sites which will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	+?	This policy seeks to ensure that proposals do not have an adverse effect on the natural, built and historic environment. The policy requires Transport Assessments to be prepared which detail proximity to nearby environmental designations or sensitive areas. This could include designated heritage assets and Conservation Areas. Therefore, a minor positive effect is likely. However, any effects would be uncertain as the potential for effects will depend upon the exact nature and design of proposals, which will not be known until the planning application stage.
2.2 To conserve below ground archaeological assets	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+?	This policy seeks to ensure that proposals do not have an adverse effect on the natural, built and historic environment. The policy requires Transport Assessments to be prepared which detail proximity to nearby environmental designations or sensitive areas. This could include landscape designations, as such, a minor positive effect is likely. However, any effects would be uncertain as the potential for effects will depend upon the exact nature and design of proposals, which will not be known until the planning application stage.
4.1 To protect the quality of ground and surface water	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
and plant, and the use of appropriate renewable or lower carbon energy sources on site		
6.1 To protect against the risk of flooding	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
7.1 To encourage the use of recycled and secondary aggregates	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
higher quality		
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+?	This policy requires that where significant transport movements are expected, they must be supported by a Transport Assessment which addresses potential cumulative impacts arising from transport movements, proximity to nearby environmental designations or sensitive areas and the availability of public transport (presumably for employees). It also states that mineral proposals must demonstrate that the traffic impacts generated would not have a significant adverse impact on amenity or human health. A minor positive effect is identified as the policy should help to reduce adverse effects such as noise and air pollution on local communities. However, any effects would be uncertain as the potential for effects will depend upon the exact nature and design of proposals, which will not be known until the planning application stage.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.

Policy 22: Public Rights of Way

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+?	This policy supports the creation of new rights of way and linkages where possible to the Rights of Way Improvement Plan and Green Infrastructure Plans. This could result in improvements to biodiversity. However, this will be dependent on the location of the proposed mineral site, local biodiversity and habitats as well as the proposed replacements and new route locations.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	This policy supports the creation of new rights of way and linkages where possible to the Rights of Way Improvement Plan and Green Infrastructure Plans. This could result in improvements to biodiversity. However, this will be dependent on the location of the proposed mineral site, local biodiversity and habitats as well as the proposed replacements and new route locations.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
1.4 To protect and enhance sites of geological conservation interest	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
2.2 To conserve below ground archaeological assets	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
2.3 Seek to ensure the supply of locally distinctive building materials for historic	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
building methods		
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+	The location of mineral extraction sites is usually within the countryside, which means there is the potential for impacts upon existing Rights of Way and general access to open space. This policy seeks to ensure that Public Rights of Way are protected and enhancements are made to support access into the countryside. Therefore, an indirect impact of this policy is that it could help to conserve and enhance the character and quality of Hertfordshire's landscapes. A minor positive effect is likely on this SA objective.
4.1 To protect the quality of ground and surface water	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
6.1 To protect against the risk of flooding	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
site		
7.1 To encourage the use of recycled and secondary aggregates	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+	This policy seeks to ensure that Public Rights of Way are protected and enhancements are made to support access into the countryside. Therefore, this policy could contribute to protecting local amenity around communities and improving health through access to the countryside and therefore a minor positive effect is likely on this SA objective.
9.2 To protect against the loss of Public Rights of Way,	++	The location of mineral extraction sites is usually within the countryside, which means there is the potential for impacts upon existing Rights of Way and general access to open space. This policy seeks to ensure that Public

SA Objective Sub Questions	SA Score	Justification
access, recreation areas and open space		Rights of Way are protected and not adversely affected by a proposal and where this is not possible, good quality, safe and convenient alternative provision is made or suitable replacement Right(s) of Way are secured. This policy also supports the creation of new rights of way, which link where possible to the Rights of Way Improvement Plan and Green Infrastructure Plans. Overall, a significant positive effect is likely on this SA objective.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	++	This policy supports the creation of new rights of way, which link where possible to the Rights of Way Improvement Plan and Green Infrastructure Plans. It is likely that this will increase opportunities to improve health and amenity through delivery of green infrastructure and enhanced public rights of way and therefore a significant positive effect is likely on this SA objective.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.

Policy 23: Soils and Agricultural Land

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+?	Mineral developments can result in the loss of soil and the habitats it supports but the policy seeks to ensure that original soil profiles are reinstated or an appropriate alternative soil profile created, which could therefore contribute to restoration of habitats. In addition, while the policy safeguards against the loss of best and most versatile agricultural land, this may be allowed to occur if it can be demonstrated that available lower grade land has an environmental value which outweighs agricultural considerations. Therefore, habitats and species protection may indirectly occur off-site. These measures are likely to benefit biodiversity and as such, a minor positive effect is likely on this SA objective. However, this will be dependent on the location of the proposed mineral site, local biodiversity and habitats as well as the proposed soil reinstatement proposals (e.g. if the site is returned to agricultural land it would be unlikely to improve biodiversity).
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Mineral developments can result in the loss of soil and the habitats it supports but the policy seeks to ensure that original soil profiles are reinstated or an appropriate alternative soil profile created, which could therefore contribute to restoration of habitats and as such, a minor positive effect is likely on this SA objective. However, this will be dependent on the location of the proposed mineral site, local biodiversity and habitats as well as the proposed soil reinstatement proposals (e.g. if the site is returned to agricultural land it would be unlikely to improve biodiversity).
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
1.4 To protect and enhance sites of geological conservation interest	+?	Mineral developments can result in the loss of soil profiles and layers, which can contribute to geological interest as they form the upper most part of rock formations and can help to understand past environmental conditions and geological processes. The policy seeks to ensure that original soil profiles are reinstated or an appropriate alternative soil profile created, which could therefore help to protect or enhance sites of geological conservation interest and as such, a minor positive effect is likely on this SA objective. However, this will be dependent on the intrinsic geological value of the proposed mineral site as well as the proposed soil reinstatement proposals.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting.	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
2.2 To conserve below ground archaeological assets	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+	The policy seeks to ensure that there are no unacceptable impacts on the quality of soil resulting from mineral development in Hertfordshire and also against the permanent loss of best and most versatile agricultural land. A minor positive effect is likely on this SA objective through protecting soil which is a basic element contributing to the landscape, and also agricultural land which can contribute to landscape character and quality.
4.1 To protect the quality of ground and surface water	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
6.1 To protect against the risk of flooding	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
7.1 To encourage the use of recycled and secondary aggregates	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	Although this policy permits development on the best and most versatile agricultural land in certain circumstances, it seeks to prevent the permanent loss of the best and most versatile agricultural land. Therefore, it could have a long term, indirect minor positive effect on this SA objective because it would help to retain the economic benefits of agricultural land within Hertfordshire.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	++	Although this policy permits development on the best and most versatile agricultural land in certain circumstances, it seeks to prevent the permanent loss of the best and most versatile agricultural land. Therefore, the restoration of sites must ensure that agricultural land is returned to at least the equivalent grade or better quality prior to mineral extraction. Therefore, overall a significant positive effect is expected for this SA objective.
Social		
9.1 To protect the health and amenity of local residents	0	Although this policy permits development on the best and most versatile agricultural land in certain circumstances, it seeks to prevent the permanent loss of the best and most versatile agricultural land.

SA Objective Sub Questions	SA Score	Justification
and communities from the impacts of minerals workings and associated transport		
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	0	Although this policy permits development on the best and most versatile agricultural land in certain circumstances, it seeks to prevent the permanent loss of the best and most versatile agricultural land.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	0	Although this policy permits development on the best and most versatile agricultural land in certain circumstances, it seeks to prevent the permanent loss of the best and most versatile agricultural land.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	Although this policy permits development on the best and most versatile agricultural land in certain circumstances, it seeks to prevent the permanent loss of the best and most versatile agricultural land.

Policy 24: Restoration

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	0	The restoration of mineral sites is unlikely to affect this SA objective, which relates more to effects during operation of the site.
2.1 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+	The policy states that mineral extraction is temporary and there is a range potential after uses, which include the creation of new habitats for biodiversity. As such, a minor positive effect is likely on this SA objective.
3.1 To protect against the deposition of air and other pollutants on designated nature conservation sites	0	The restoration of mineral sites is unlikely to affect this SA objective, which relates more to effects during operation of the site.
4.1 To protect and enhance sites of geological conservation interest	?	Through encouraging high quality restoration that is appropriate to the area, this policy could contribute to protecting and conserving the geodiversity assets in Hertfordshire. However, the policy and supporting text do not mention geodiversity in the range of potential after-uses and as such an uncertain effect is identified on this SA objective.
1.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting.	?	Through encouraging high quality restoration that is appropriate to the area, this policy could contribute to protecting and conserving cultural heritage in Hertfordshire. However, the policy and supporting text do not mention cultural heritage and as such; an uncertain effect is identified on this SA objective.
2.1 To conserve below ground archaeological assets	?	Through encouraging high quality restoration that is appropriate to the area, this policy could contribute to protecting and conserving archaeological assets in Hertfordshire. However, the policy and supporting text do not mention archaeological assets and as such; an uncertain effect is identified on this SA objective.
3.1 Seek to ensure the supply of locally distinctive building	0	The restoration of mineral sites is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
materials for historic building methods		
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+?	The supporting text notes that restoration refers to measures taken to ensure the land is returned to its original or former condition. As such, a minor positive effect is likely on this SA objective. However, effects would be uncertain as it is dependent on the appropriateness of the site for development in the first instance, the type of restoration proposed and after-use eventually developed on a site, which will not be known until the planning application stage.
4.1 To protect the quality of ground and surface water	?	Through encouraging high quality restoration that is appropriate to the area, this policy could contribute to protecting and conserving the quality of ground and surface water in Hertfordshire. However, the policy and supporting text do not mention water quality or restoration to water uses and as such an uncertain effect is identified on this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	?	Through encouraging high quality restoration that is appropriate to the area, this policy could contribute to protecting and conserving ground and surface water quantity in Hertfordshire. However, the policy and supporting text do not mention water quantity or restoration to water uses and as such an uncertain effect is identified on this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	0	The restoration of mineral sites is unlikely to affect this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	The restoration of mineral sites is unlikely to affect this SA objective.
6.1 To protect against the risk of flooding	+?	The policy supports proposals for mineral extraction and temporary minerals infrastructure development that are accompanied by comprehensive restoration schemes. The supporting text states a range potential after uses, which could include agricultural uses and forestry which could help to alleviate flooding and reduce flood risk. Therefore a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is

SA Objective Sub Questions	SA Score	Justification
		dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	+?	The policy supports proposals for mineral extraction and temporary minerals infrastructure development that are accompanied by comprehensive restoration schemes. The supporting text states a range potential after uses, which could include agricultural uses and forestry which could be used to alleviate flooding. Therefore a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
7.1 To encourage the use of recycled and secondary aggregates	0	The restoration of mineral sites is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+?	The policy supports proposals for mineral extraction and temporary minerals infrastructure development that is accompanied by comprehensive restoration schemes. The supporting text states that this could include the re-use of the site for agriculture; forestry; recreational activities; waste management, including waste storage; and the built environment, such as residential, industrial and retail where appropriate. All of these activities are likely to provide employment opportunities in the longer term. Therefore, minor positive effects are expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	The restoration of mineral sites is unlikely to affect this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	The restoration of mineral sites is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a	+	The policy encourages high quality restoration which could include the protection and possible enhancement of soil quality and reinstatement of the best and most versatile land. Where agricultural land is used, the policy requires that it must be returned to at least the equivalent grade prior to mineral extraction. As such, a minor positive effect is likely on this SA objective.

SA Objective Sub Questions	SA Score	Justification
higher quality		
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+?	The policy supports proposals that will provide high quality and practicable restoration and aftercare which could enhance the local amenity for residents and visitors to Hertfordshire. The policy also supports a phased restoration occurring at the earliest opportunity. As such, a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+?	The policy supports proposals that will provide high quality and practicable restoration. The supporting text states that this includes recreational after-uses and therefore a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	The supporting text to the policy suggests that restoration could include the creation of new habitats and recreational areas. Therefore, a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	?	The policy states that mineral extraction is temporary and there is a range potential after uses, which include the creation of new habitats for biodiversity, which might include new habitats for birds, which could affect aerodrome safety; however, this is not addressed in the policy wording and the impact will not be known until the planning application stage. Therefore, an uncertain effect is considered likely in relation to this SA objective.

Policy 25: Aftercare and After-use

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+	This policy requires proposals to demonstrate consideration to support and enhance existing places of nature conservation for habitats and species. As such, a minor positive effect is expected on this SA objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+	This policy requires proposals to demonstrate consideration to support and enhance existing places of nature conservation for habitats and species. As such, a minor positive effect is expected on this SA objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0	The aftercare and after-use of mineral sites is unlikely to affect this SA objective.
1.4 To protect and enhance sites of geological conservation interest	+	This policy requires proposals to demonstrate consideration to maximising opportunities for sites of geological interest. As such, a minor positive effect is expected on this SA objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	+	This policy requires proposals to demonstrate consideration to the compatibility of the after-use to the landscape character of the area including landscape quality and setting of heritage assets. As such, a minor positive effect is expected on this SA objective.
2.2 To conserve below ground archaeological assets	?	This policy requires proposals to demonstrate consideration to the compatibility of the after-use to the quality and setting of heritage assets, which could include archaeological assets, although this is not specifically mentioned in the policy wording. As such, an uncertain effect is expected on this SA objective.
2.3 Seek to ensure the supply of locally distinctive building	0	The aftercare and after use of mineral sites is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
materials for historic building methods		
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+	This policy requires proposals to demonstrate consideration to the compatibility of the after-use to the landscape character of the area. As such, a minor positive effect is expected on this SA objective.
4.1 To protect the quality of ground and surface water	?	This policy requires proposals to demonstrate consideration to the after-use supporting and enhancing existing places of nature conservation for habitats and species, which may include surface water bodies, although this is not specifically mentioned in the policy wording. As such, an uncertain effect is expected on this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	0	The aftercare and after use of mineral sites is unlikely to affect this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+	This policy requires proposals to demonstrate consideration of the after-use to integrating sustainable transport options such as walking and cycling with public transport. As such, a minor positive effect is expected on this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	The aftercare and after use of mineral sites is unlikely to affect this SA objective.
6.1 To protect against the risk of flooding	?	This policy requires proposals to demonstrate consideration to the after-use supporting and enhancing existing places of nature conservation for habitats and species, which may help to reduce flood risk through maintaining permeable surfaces (rather than built development), although this is not specifically mentioned in the policy wording and the after-use would not be known until the planning application stage. As such, an uncertain effect is expected on this SA objective.
6.2 To provide opportunities for flood alleviation / mitigation	?	This policy requires proposals to demonstrate consideration to the after-use supporting and enhancing existing places of nature conservation for habitats and species, which may help to provide flood alleviation through

SA Objective Sub Questions	SA Score	Justification
during the restoration of the site		maintaining permeable surfaces (rather than built development) or even water storage, although this is not specifically mentioned in the policy wording and the after-use would not be known until the planning application stage. As such, an uncertain effect is expected on this SA objective.
7.1 To encourage the use of recycled and secondary aggregates	0	The aftercare and after use of mineral sites is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This policy requires after-use proposals to demonstrate consideration to supporting the local economy. As such, a minor positive effect is expected on this SA objective.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	The aftercare and after use of mineral sites is unlikely to affect this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	The aftercare and after use of mineral sites is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	?	This policy requires after-use proposals to demonstrate consideration to the quality of the area, which might include agricultural quality, although this is not mentioned in the policy and therefore an uncertain effect is expected.
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+?	This policy requires after-use proposals to demonstrate consideration to the enhancement of the local character of the area as well as providing opportunities to access the countryside and recreational facilities which could help improve health and well-being. As such, a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.

SA Objective Sub Questions	SA Score	Justification
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+?	This policy requires after-use proposals to demonstrate consideration to providing opportunities to access the countryside and recreational facilities which could include Public Rights of Way. As such, a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	This policy requires after-use proposals to demonstrate consideration to improved and increased public access to the countryside and the creation of public open space for recreation. As such, a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	?	This policy requires after-use proposals to demonstrate contribution to the local economy. This could include support for the aviation economy, by reducing the potential for bird strike and the increased risk to aerodrome safety, but this is not mentioned in the wording of the policy and as such an uncertain effect is expected for this SA objective.

Appendix 6

Detailed SA matrices for the Hertfordshire Proposed Submission MLP Policies

Hertfordshire Proposed Submission MLP Strategic Policy Appraisals

Policy 1: Sustainable Development

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development. As such, it is considered that the policy would seek to protect against the loss of priority habitats, biodiversity and species having a minor positive effect on this objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. The supporting text states that the Council will seek opportunities to achieve net gains across each dimension of sustainable development, in this case the environmental dimension. As such, it is considered that the policy supports the enhancement of biodiversity and, therefore, a minor positive effect is considered likely on this objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development. As such, it is considered that the policy would protect designated nature conservation sites from the deposition of dust and any other harmful pollutants. As such, it is considered that it would have a minor positive effect on this objective.
1.4 To protect and enhance sites of geological conservation interest	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development and in the supporting text that the Council would seek to achieve net gains in each dimension of sustainable development, in this case the environmental dimension. As such, it is considered that the policy would seek to

SA Objective Sub Questions	SA Score	Justification
		protect and enhance sites of geological conservation interest, having a minor positive effect on this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development and in the supporting text that the Council would seek to achieve net gains in each dimension of sustainable development, in this case the environmental dimension. As such, it is considered that the policy would seek to conserve and enhance the County's cultural heritage, having a minor positive effect on this objective.
2.2 To conserve below ground archaeological assets	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development and in the supporting text that the Council would seek to achieve net gains in each dimension of sustainable development, in this case the environmental dimension. As such, it is considered that the policy would seek to conserve below ground archaeological assets, if such assets are identified on a site which is subject to a planning application. Therefore, a minor positive effect is considered likely.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	Policy 1 makes no reference to ensuring the supply of locally distinctive building. As such, a negligible effect is considered likely.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development and in the supporting text that the Council would seek to achieve net gains in each dimension of sustainable development, in this case the environmental dimension. As such, it is considered the policy would seek to conserve and enhance the character and quality of Hertfordshire's landscape. Therefore, a minor positive effect is considered likely.
4.1 To protect the quality of ground and surface	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development.

SA Objective Sub Questions	SA Score	Justification
water		As such, it is considered that the policy would seek to protect the quality of ground and surface water. Therefore, a minor positive effect is considered likely.
4.2 To protect the quantity of ground and surface water from over abstraction	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development. As such, it is considered that the policy would seek to protect the quantity of ground and surface water from over abstraction. Therefore, a minor positive effect is considered likely.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development and in the supporting text that the Council would seek to achieve net gains in each dimension of sustainable development, in this case the environmental dimension. As such, it is considered the policy would seek to reduce operational emissions and ensure that proposed transport movements are as sustainable as viably possible. Therefore, a minor positive effect on this objective is considered likely.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. The supporting text states that the Council would seek to achieve net gains in each dimension of sustainable development, in this case the environmental dimension. As such, it is considered that the policy would seek to promote energy efficiency and the use of appropriate renewable or low carbon energy sources onsite as a part of a development. Therefore, a minor positive effect is considered likely.
6.1 To protect against the risk of flooding	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development. As such, it is considered that policy would seek to protect against the risk of flooding. Therefore, a minor positive effect is considered likely.
6.2 To provide opportunities for flood alleviation /	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. The supporting text states that the Council would

SA Objective Sub Questions	SA Score	Justification
mitigation during the restoration of the site		seek to achieve net gains in each dimension of sustainable development, in this case the environmental dimension. As such, the policy should seek developments that provide opportunities for flood alleviation. Therefore, a minor positive effect is considered likely.
7.1 To encourage the use of recycled and secondary aggregates	0	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. While it may also apply to development proposals for recycling and processing secondary or recycled aggregates, it does not specifically encourage the use of recycled or secondary aggregates. Therefore, a negligible effect is considered likely.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. The provision of minerals will help the Council contribute to a strong and competitive economy and the supporting text states that the Council would seek to achieve net gains in each dimension of sustainability, in this case the economic dimension. As such, a minor positive effect is considered likely on this objective.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	Policy 1 seeks to ensure that mineral development within the County is in accordance with the NPPF's presumption in favour of sustainable development, which should help to ensure a steady and adequate supply of minerals. As such, a minor positive effect is considered likely.
8.3 To ensure that mineral sterilisation is minimised	0	Policy 1 seeks to ensure that mineral development within the County is in accordance with the NPPF's presumption in favour of sustainable development. As such, it is considered that the policy would have a negligible effect on this objective as it does not address development which could sterilise a mineral reserve.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	+	Policy 1 seeks to ensure that mineral development within the County is in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development. As such, it is considered that the policy would seek to protect the County's best and most versatile agricultural land from mineral development. Therefore, a minor positive effect on this objective is considered likely.

SA Objective Sub Questions	SA Score	Justification
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+	Policy 1 seeks to ensure that mineral development within the County is in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development. As such, it is considered that the policy would protect the health and amenity of local residents and communities. Therefore, a minor positive effect on this objective is considered likely.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+	Policy 1 seeks to ensure that mineral development within the County is in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development. As such, it is considered that the policy would protect against the loss of PRoW, access, recreation areas or open space. Therefore, a minor positive effect on this objective is considered likely.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+	Policy 1 seeks to grant planning permission for mineral extraction and associated development in accordance with the NPPF's presumption in favour of sustainable development. The supporting text states that the Council would seek to achieve net gains in each dimension of sustainable development, in this case the social dimension. As such, it is considered the policy would seek to improve health and amenity through the delivery of PRoWs and/or improved access to recreation. Therefore, a minor positive effect on this objective is considered likely.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	+	Policy 1 seeks to ensure that mineral development within the County is in accordance with the NPPF's presumption in favour of sustainable development. It specifically states that permission would not be granted where any adverse impacts would significantly and demonstrably outweigh the need for the development. As such, it is considered that the policy would ensure that mineral developments would not compromise the operation and safety of commercial/ civil or military aerodromes. Therefore, a minor positive effect on this objective is considered likely.

Policy 2: Climate Change

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	0	Policy 2 seeks to address climate change and, as such, it is considered unlikely to have an effect on this objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	++?	Policy 2 seeks to address climate change and encourages proposals to promote the benefits from restoration with a particular emphasis on biodiversity highlighted in the supporting text. As such, a significant positive effect is considered likely. However, the effect is uncertain as details of any proposal would not be known until the planning application stage.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	+?	Policy 2 seeks to address climate change and requires proposals to demonstrate effective adaptation and resilience measures to potential climate changes, including minimising greenhouse gas emissions and by installing renewable and low-carbon energy generation onsite. As such, this could reduce the amount of air pollutants emitted protecting designated nature conservation sites from pollutants. As such, a minor negative effect is considered likely. However, the effect is uncertain as details of any proposal would not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	Policy 2 seeks to address climate change and, as such, it is considered unlikely to have an effect on this objective.

2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	0	Policy 2 seeks to address climate change and, as such, it is considered unlikely to have an effect on this objective.
2.2 To conserve below ground archaeological assets	0	Policy 2 seeks to address climate change and, as such, it is considered unlikely to have an effect on this objective.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	Policy 2 seeks to address climate change and, as such, it is considered unlikely to have an effect on this objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	++?	Policy 2 seeks to address climate change and encourages proposals to promote the benefits from restoration with a particular emphasis on landscape highlighted in the supporting text. As such, a significant positive effect is considered likely. However, the effect is uncertain as details of any proposal would not be known until the planning application stage.
4.1 To protect the quality of ground and surface water	++?	Policy 2 seeks to address climate change and encourages proposals to promote the benefits from restoration with a particular emphasis on water resource enhancement highlighted in the supporting text. As such, a significant positive effect is considered likely. However, the effect is uncertain as details of any proposal would not be known until the planning application stage.
4.2 To protect the quantity of ground and surface water from over abstraction	++?	Policy 2 seeks to address climate change and requires proposals to demonstrate effective adaptation and resilience measures to potential climate changes, including achieving onsite water efficiency. Measures could include repeated re-use of water in mineral screening and/or the installation of grey-water recycling systems and onsite water storage. As such, a significant positive effect is considered likely. However, the effect is uncertain as details of any proposal would not be known until the planning application stage.

5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	++?	Policy 2 seeks to address climate change and requires proposals to demonstrate effective adaptation and resilience measures to potential climate changes, including minimising greenhouse gas emissions and by installing renewable and low-carbon energy generation onsite. As such, a significant positive effect is considered likely. However, the effect is uncertain as details of any proposal will not be known until the planning application stage.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	++?	Policy 2 seeks to address climate change and requires proposals to demonstrate effective adaptation and resilience measures to potential climate changes, including minimising greenhouse gas emissions and by installing renewable and low-carbon energy generation onsite. As such, a significant positive effect is considered likely. However, the effect is uncertain as details of any proposal will not be known until the planning application stage.
6.1 To protect against the risk of flooding	++?	Policy 2 seeks to address climate change and requires proposals to demonstrate effective adaptation and resilience measures to potential climate changes, including reducing flood risk. As such, a significant positive effect is considered likely. However, the effect is uncertain as details of any proposal would not be known until the planning application stage.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	++?	Policy 2 seeks to address climate change and requires proposals to demonstrate effective adaptation and resilience measures to potential climate changes, including reducing flood risk. Furthermore, the policy encourages proposals to promote the benefits from restoration with a particular emphasis on flood alleviation highlighted in the supporting text. As such, a significant positive effect is considered likely. However, the effect is uncertain as details of any proposal would not be known until the planning application stage.
7.1 To encourage the use of recycled and secondary aggregates	++?	Policy 2 seeks to address climate change and notes the contribution the use of secondary and recycled aggregates can have on reducing the reliance on primary aggregates which in turn can help reduce the emission of greenhouse gases associated with the extraction of primary aggregates. As such, a significant positive effect is considered likely on this objective. However, the effect is uncertain as details of any proposal would not be known until the planning application stage.
Economic		
8.1 To provide opportunities for local people to access employment and skills	0	Policy 2 seeks to address climate change and is not considered likely to affect this objective.

both during and after extraction		
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	Policy 2 seeks to address climate change and is not considered likely to affect this objective.
8.3 To ensure that mineral sterilisation is minimised	0	Policy 2 seeks to address climate change and is not considered likely to affect this objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	0	Policy 2 seeks to address climate change and is not considered likely to affect this objective.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+?	Policy 2 seeks to address climate change and requires proposals to demonstrate effective adaptation and resilience measures to potential climate changes, including minimising greenhouse gas emissions and by installing renewable and low-carbon energy generation onsite. As such, a reduction in emissions could result in a reduced impact on the health and amenity of local residents. As such, a minor positive effect is considered likely. However, the effect is considered uncertain as the details of any proposals will not be known until the planning application stage.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	0	Policy 2 seeks to address climate change and is not considered likely to affect this objective.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of	+?	Policy 2 seeks to address climate change and encourages proposals to promote the benefits from restoration with a particular emphasis on landscape, biodiversity flood alleviation and water resource enhancement highlighted in the supporting text. These could all contribute to green infrastructure provision and as such, an indirect minor positive effect is considered likely. However, the effect is uncertain as details of any proposal would not be known

<p>way and improved access to recreation as part of the development and restoration of a site</p>		<p>until the planning application stage.</p>
<p>9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes</p>	<p>0</p>	<p>Policy 2 seeks to address climate change and is not considered likely to affect this objective.</p>

Policy 3: Aggregate Supply

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	-?	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. The extraction of primary aggregates may have an adverse effect on biodiversity within a site or on land surrounding a site. As such, a minor negative effect is likely. However, this is uncertain as it is subject to the location of any proposed mineral site.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel which will require the extraction of primary aggregates. Mineral operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, mineral sites post-restoration could have a positive effect on biodiversity, in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. As such, an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	-?	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate. This may occur as extensions to existing operational sites or as completely new sites. Subject to the location of the sites, adverse effects may occur on designated nature conservation sites through the deposition of dust from mineral extraction activities and pollutants from HGVs transporting minerals offsite. As such, an uncertain minor negative effect is considered likely.
1.4 To protect and enhance sites of geological conservation interest	-/+?	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate. This may occur as extensions to existing operational sites or as completely new sites. Subject to the location of the sites, adverse effects may occur on sites of geological conservation interest if the site contains or is located within close proximity to such a site. Conversely, exposure of geological faces through mineral extraction can provide educational opportunities and sometimes create new sites of geological conservation interest. As such, an uncertain mixed minor negative and positive effect is considered likely.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and	-?	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate. This may occur as extensions to existing operational sites or as completely new sites. Subject to the location of the sites, adverse effects may occur on designated heritage assets and their setting. However, this would not be known until a site has been brought forward at the

SA Objective and Sub Questions	SA Score	Justification
their setting		planning application stage. As such, an uncertain minor negative effect is considered likely.
2.2 To conserve below ground archaeological assets	-?	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate. This may occur as extensions to existing operational sites or as completely new sites. As such, a negative effect is recorded as mineral extraction could remove/truncate any below ground archaeological assets. However, this is uncertain as the location of any development proposal will not be known until the planning application stage.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. As such, the policy would not contribute to the supply of locally distinctive building materials. Therefore, a negligible effect is likely.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-/+?	<p>Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate. As such, minor negative effects are considered likely as the operation of forthcoming mineral sites may have a minor negative effect on the character and quality of the landscape. However, this is uncertain as the location of any development proposal will not be known until the planning application stage.</p> <p>However, mineral operators are becoming increasingly aware of the need to restore sites to a high standard. As such, the proposed site could be restored to a standard which enhances the character and quality of the landscape having a minor positive effect on this objective. However, the effect is uncertain as any restoration proposals would not be known until the planning application stage.</p> <p>As such, an uncertain mixed minor negative and positive effect is considered likely.</p>
4.1 To protect the quality of ground and surface water	-?	<p>Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate. This may occur as extensions to existing operational sites or as completely new sites. Hertfordshire contains a number of Source Protection Zone 1s (SPZ1s) and sites within SPZ1s could lead to accidental pollution incidents that could contaminate the quality of groundwater, which could have a significant negative effect. Furthermore, sites may also contain a watercourse or water body and accidental pollution incidents could also result in the contamination of surface water. However, this would not be known until the planning application stage when specific proposals have been brought forward identifying a site.</p> <p>As such, an overall uncertain minor negative effect is considered likely.</p>

SA Objective and Sub Questions	SA Score	Justification
4.2 To protect the quantity of ground and surface water from over abstraction	?	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. All sand and gravel activity could potentially require the use of water resources, but the extent of water use would not be known until the planning application stage where proposals are brought forward. Therefore, it is considered that all potential sand and gravel activities would have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?/-	<p>Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate. As such, there may be an opportunity for mineral operators to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/ offices), but this would depend on the proposal, which would be assessed at the planning application stage. Therefore, an uncertain minor positive effect is likely.</p> <p>However, mineral operations could lead to the production of carbon dioxide and other greenhouse gases from on-site vehicles and machinery, although, sand and gravel site are likely to be less intensive than crushed rock sites thus having smaller effects. The policy is therefore also likely to have a minor negative effect.</p>
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate. As such, there may be an opportunity for mineral operators to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/ offices), but this would depend on the proposal, which would be assessed at the planning application stage. Therefore, an uncertain minor positive effect is likely.
6.1 To protect against the risk of flooding	0	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. Sand and gravel workings are considered water compatible development. As such, a negligible effect is considered likely.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	+?	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate. Mineral workings (particularly sand and gravel sites) can potentially reduce flood risk by providing flood storage and attenuation, and could have a minor positive effect on reducing vulnerability to flooding. However, these effects are uncertain until further assessment has been undertaken at the planning application stage.
7.1 To encourage the use of	-	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel which is a primary aggregate. As

SA Objective and Sub Questions	SA Score	Justification
recycled and secondary aggregates		such, a minor negative effect is considered likely.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate. As such, direct and indirect minor positive effects are considered likely on increasing employment levels during site preparation, operation and restoration, as mineral workings are likely to result in a small amount of job creation for local people in both rural and urban areas.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	++	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel to meet the needs of Hertfordshire as determined through the East of England Aggregates Working Party Annual Monitoring Report 2015 and the Local Aggregate Assessment 2015. As such, a significant positive effect is considered likely on this objective.
8.3 To ensure that mineral sterilisation is minimised	+	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. As such, the policy would provide a degree of protection to mineral resources from inappropriate development as a supply of sand and gravel must be maintained within Hertfordshire.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-?	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate which could result in loss of the County's best and most versatile agricultural land. However, the exact land take and location according to agricultural land quality (i.e. Grades 1 – 5), and whether improvements to soil quality through site restoration are possible; would not be known until the planning application stage, therefore effects on this objective overall are likely to be minor negative uncertain.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated	-/+	Policy 3 may have minor negative effects on health and amenity. The policy seeks to maintain a steady and adequate supply of sand and gravel which could come forward in the form new sites. Therefore, this may continue to subject residents and communities within Hertfordshire to impacts such as dust, noise, vibration and traffic associated with the existing mineral workings or impact new residents as a result of new sites. However, the policy may also have minor positive effects, as the supply of sand and gravel could come from extensions to

SA Objective and Sub Questions	SA Score	Justification
transport		existing sites therefore not resulting in new sites or impacts on previously unaffected residents and communities within Hertfordshire. Therefore, mixed minor negative /minor positive effects are expected on this objective.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	-?	Policy 3 could have a minor negative effect on this objective as the policy seeks to maintain a steady and adequate supply of sand and gravel which could come forward in the form new sites or extensions to existing sites. These new mineral operations that come forward could have an impact on PRoW, access, recreation areas or open space. However, the effect is uncertain as it would depend on the exact nature of the proposed development, which would not be known until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	Policy 3 could have a minor positive effect on this objective as the policy seeks to maintain a steady and adequate supply of sand and gravel which could come forward in the form new sites or extensions to existing sites. Mineral operators are becoming increasingly aware of the need restore sites to a high standard which could come in the form a new/enhanced recreational areas or PRoW. However, the effect is uncertain as it would depend on the exact nature of the proposed restoration, which would not be known until the planning application stage.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	-?	Policy 3 seeks to maintain a steady and adequate supply of sand and gravel. To achieve this, sites must come forward to extract sand and gravel as a primary aggregate and these sites may fall within an Airport Safeguarding Zone. As such, an uncertain minor negative effect is considered likely as the location of the sites would not be known until the planning application stage.

Policy 4: Working of Specific Sites or preferred areas

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--?	<p>Policy 4 allocates three sites and one for sand and gravel extraction.</p> <p>The three sites and preferred area are all within 250m of Local Wildlife Sites and other nature conservation designations or ancient woodland. Therefore, a significant negative effect is considered likely with regards to this objective, however there is some uncertainty as effects will depend on the exact nature and design of any proposals which come forward.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix is explored in Chapter 9.</p>
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	<p>Policy 4 sets out three specific sites and one preferred area for sand and gravel extraction. Mineral operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, mineral sites post-restoration could have a positive effect on biodiversity, in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. As such, an uncertain minor positive effect is considered likely.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix is explored in Chapter 9.</p>
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0--?	<p>Policy 4 sets out three specific sites and one preferred area for sand and gravel extraction.</p> <p>With the exception of MLPCS008, the constituent extraction locations are located within 1km of the Hertfordshire primary route network. All of the sites within 1km of the primary route network have potential to increase HGV flows within 200m of one or more sites designated for nature conservation, including SSSIs, wildlife sites and the Lee Valley SPA. Therefore, Policy 4 has the potential to have a significant negative affect on this nature conservation site through increased deposition of air pollutants, although this effect is dependent on the likely increase in HDV annual average daily traffic flows along the road passing within 200m of the nature conservation site (in combination with HDV movements from other existing and potential minerals sites). The HRA Report has concluded that the each potential minerals site both individually and collectively are unlikely to have a significant effect in relation to increased air pollution on European Sites. However, there is still potential for the HDV movements generated from the sites to effect other national and local sites.</p>

SA Objective and Sub Questions	SA Score	Justification
		<p>Therefore, a significant negative effect is recorded. However, the effect is uncertain as the exact locations and accessibility of proposals will not be known until the planning application stage.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix are explored in Chapter 9 of this SA Report.</p>
1.4 To protect and enhance sites of geological conservation interest	0	The three sites and one preferred area allocated for sand and gravel extraction in Policy 4 lie within 500m of a site designated for geological interest (i.e. a geological SSSI or LGS). As such, Policy 4 is likely to have a negligible effect on this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	--?	<p>Policy 4 may lead to significant negative effects with regards to this objective as MLPCS006, MLPCS009 and Preferred Area: 010 Briggens Estate – Olives Farm lie directly adjacent to listed buildings, the settings of which could be negatively affected by minerals workings at these sites. The other area allocated is also within 1km of one or more heritage assets, most notably listed buildings. However, effects of development at these other sites are expected to be minor or negligible due to existing screening and the existing context of the sites. These effects are considered uncertain as the actual effects on historic assets will depend on the asset and the exact siting, scale and type of development.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix is explored in Chapter 9.</p>
2.2 To conserve below ground archaeological assets	--?	<p>Policy 4 may lead to significant negative effects with regards to this objective as sites MLPCS009 and Preferred Area: 010 Briggens Estate – Olives Farm both contain areas of archaeological interest and the HER has records of non-designated assets within each. The features found within each site are highly susceptible to physical change which could result in a significant negative effect. Further assessment of the assets and their significance, as well as the scale of development impact would be required to properly understand the scale of effect and determine whether it may be appropriately mitigated.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix is explored in Chapter 9.</p>
2.3 Seek to ensure the supply of locally distinctive	0	The minerals targeted for extraction in Policy 4 are sand and gravel, which are not locally distinctive building materials. Therefore effects are expected to be negligible with regards to this objective.

SA Objective and Sub Questions	SA Score	Justification
building materials for historic building methods		
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-	<p>Policy 4 is expected to have an overall minor negative effect on the landscape of Hertfordshire. According to the LUC Landscape and Visual Sensitivity study 2018 all extraction locations are assessed as having low-moderate landscape sensitivity to mineral extraction, with the exception of MLPCS006, which was identified as having negligible effects.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix is explored in Chapter 9.</p>
4.1 To protect the quality of ground and surface water	--?	<p>While none of the potential development areas in Policy 4 are within SPZ1, all areas allocated for extraction contain a waterbody. Development and extraction activities in close proximity to the water bodies could lead to their contamination, which could have significant adverse effects, but uncertainty remains as the effect depends on the exact location, nature, working and design of a site.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix is explored in Chapter 9.</p>
4.2 To protect the quantity of ground and surface water from over abstraction	?	All mineral activity could potentially require the use of water resources, but the extent of water use would not be known until the planning application stage where proposals are brought forward. Therefore, an uncertain effect on this objective is considered likely.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	<p>Policy 4 would lead to minerals extraction within 10km of a number of sites allocated for development. Extraction in close proximity to centres of growth could contribute to reducing transport distances of aggregates for construction and thus a minor positive is considered appropriate. However, this is uncertain as it is not known where aggregates will be transported to from each site.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning</p>

SA Objective and Sub Questions	SA Score	Justification
		briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix is explored in Chapter 9.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	<p>There may be an opportunity for the sites allocated within Policy 4 to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, Policy 4 could lead to the production of carbon dioxide or other greenhouse gases from vehicles and machinery at minerals sites, although sand and gravel sites are likely to be less intensive than crushed rock sites thus having more minor effects. Therefore, a minor negative effect on the production of greenhouse gases from on-site vehicles and machinery is also recorded for this objective.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix is explored in Chapter 9.</p>
6.1 To protect against the risk of flooding	0?	Policy 4 allocates three specific sites and one preferred area for sand and gravel extraction. Sand and gravel workings are considered water compatible development and are therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, potential effects of extraction and associated development on flood risk are uncertain until more detailed assessment of specific proposals is carried out. As such, an uncertain negligible effect is recorded against this objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	<p>Policy 4 allocated three specific sites and one preferred area for sand and gravel extraction. The majority of land allocated lies outside Flood Zones 2 and 3, resulting in a low risk of flooding. A small area of Flood Zone 2 is located within site MLPCS006, but this represents a very small proportion of the overall site. Therefore, Policy 4 is unlikely to create significant opportunities for flood alleviation and a negligible effect is recorded against this objective.</p> <p>Mineral workings can potentially reduce flood risk by providing flood storage and attenuation, and could have a minor positive effect on reducing vulnerability to flooding. However, these effects are uncertain until further assessment has been undertaken at the planning application stage.</p>
7.1 To encourage the use of recycled and secondary aggregates	-	Policy 4 three specific sites and one preferred area for mineral extraction. Therefore, a minor negative effect is recorded on this objective because each would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities	+	Policy 4 allocated three specific sites and one preferred area for sand and gravel extraction. As such, direct and

SA Objective and Sub Questions	SA Score	Justification
for local people to access employment and skills both during and after extraction		indirect minor positive effects are considered likely on increasing employment levels during site preparation, operation and restoration. Given that the overall number of mineral sites likely to be developed, job creation is not expected to be significant within the Hertfordshire economy.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	++	Policy 4 allocate three specific sites and one preferred areas for sand and gravel extraction. Together these locations have projected tonnage of 25.25 million tonnes over the plan period, which will directly help to maintain a steady and adequate supply of sand and gravel to meet the needs of Hertfordshire. As such, a significant positive effect is considered likely.
8.3 To ensure that mineral sterilisation is minimised	+	The three Specific Sites and one preferred area allocated in Policy 4 are designed for mineral extraction, removing the possibility that mineral resources would be sterilised by a non-mineral development. As such, a minor positive effect is considered likely.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	--	The majority of the land allocated within the three Specific Sites and one preferred area are designated as Grade 3 agricultural land. However, sites MLPCS006 and MLP009 and the preferred area at the Briggens Estate – Olives Farm consist mostly of Grade 2 agricultural land. Mineral extraction in these locations would therefore result in the loss of some of the county's best and most versatile agricultural land with significant negative effects against this objective. Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix is explored in Chapter 9.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	The three Specific Sites and one preferred Area allocated in Policy 4 would lead to development within close proximity (100m) of residential properties. Some sites are located close to existing settlements and/or other sensitive receptors, such as schools. Furthermore, site MLPCS006 is in close proximity to the existing Cemex Hatfield Quarry processing plant on Oaklands Lane. This plant will remain in operation if one or a combination of sites MLPCS008 and MLPCS009 are allocated for extraction. As such, development under this option is considered to have minor negative effects on health due to the potential for dust (PM10) and loss of amenity to have a negative effect on the health of local residents, communities and visitors to the County. However, it is acknowledged that these effects are dependent on local circumstances, such as the topography

SA Objective and Sub Questions	SA Score	Justification
		<p>and nature of the landscape, the prevailing wind direction, the scale of the operations and the type of activities undertaken which would be assessed at the planning application stage. Therefore these effects are minor negative uncertain.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix is explored in Chapter 9.</p>
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	--?	<p>Sites MLPCS006, MLPCS009 and the preferred area at the Briggens Estate – Olives Farm allocated in Policy 4 all contain recreational spaces and/or Public rights of way that would be lost and moved. Such reprovision would take time resulting in a temporary net loss. However, it is not possible to determine whether diversion is required for PRoW until the planning application stage, therefore there is some uncertainty involved. Therefore an uncertain significant negative effect is recorded against this objective.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix is explored in Chapter 9.</p>
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	<p>All new minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRoW and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.</p> <p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix is explored in Chapter 9.</p>
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	-?	<p>Policy 4 allocates three specific sites and one preferred area for sand and gravel extraction. Sites MLPCS008, MLPCS006 and MLPCS009 are within the Luton Airport Safeguarding Zone which could have a minor negative effect on the safe operation of the airport, particularly if the restoration involved water-based uses with the potential to attract large numbers of birds. However, this effect is uncertain as it is dependent on the type of restoration proposed and eventually developed on site, which will not be known until a later stage in the Minerals Local Plan preparation or even at the planning application stage.</p>

SA Objective and Sub Questions	SA Score	Justification
		<p>Policy 4 states that proposals for mineral extraction within the three specific sites and the preferred area will be considered against the policies within the plan and proposals must fulfil the requirements set out within planning briefs. The influence of other policies in the Plan to mitigate and enhance effects recorded in this matrix is explored in Chapter 9.</p>

Policy 5: Substitute or Secondary Materials

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+?	Policy 5 seeks to promote the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities, which could have an adverse effect on biodiversity. However, the policy explicitly states that proposals for recycling facilities must be appropriate to the character of the surrounding natural environment and not adversely impact upon the natural environment. As such, it is considered that the policy would have a minor positive effect on this objective. However, this is uncertain as the location and nature of the proposal would not be known until the planning application stage.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	0	Policy 5 does not seek to provide opportunities to enhance biodiversity. As such, a negligible effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	+?	Policy 5 seeks to promote the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities, which could produce dust and air pollutants that would have an adverse effect on nature conservation sites. However, the policy explicitly states that proposals for recycling facilities must be appropriate to the character of the surrounding natural environment and not adversely impact upon the natural environment. As such, it is considered that the policy would have a minor positive effect on this objective. However, this is uncertain as the location and nature of the proposal would not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	+?	Policy 5 seeks to promote the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities, which could have an adverse effect on geodiversity. However, the policy explicitly states that proposals for recycling facilities must be appropriate to the character of the surrounding natural environment and not adversely impact upon the natural environment. As such, it is considered that the policy would have a minor positive effect on this objective. However, this is uncertain as the location and nature of the proposal would not be known until the planning application stage.

SA Objective and Sub Questions	SA Score	Justification
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	+?	Policy 5 seeks to promote the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities, which could have an adverse effect on cultural heritage. However, the policy explicitly states that proposals for recycling facilities must be appropriate to the character of the surrounding built environment and not adversely affect the built or historic environment. As such, it is considered that the policy would have a minor positive effect on this objective. However, this is uncertain as the location and nature of the proposal would not be known until the planning application stage.
2.2 To conserve below ground archaeological assets	+?	Policy 5 seeks to promote the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities, which could have an adverse effect on below ground archaeological assets. The policy explicitly states that proposals for recycling facilities must not adversely affect the historic environment. As such, it is considered that the policy would have a minor positive effect on this objective. However, this is uncertain as the location and nature of the proposal would not be known until the planning application stage.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	+?	Policy 5 seeks to promote the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities, which could help to supply some locally distinctive building materials (if the recycled aggregate came from local demolitions). As such, it is considered that the policy would have a minor positive effect on this objective. However, this is uncertain as it would depend on the source and nature of the recycled aggregates.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+	Policy 5 seeks to promote the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities, which could have an adverse effect on landscape character and quality. However, the policy explicitly states that proposals for recycling facilities must demonstrate that the landscaping and screening of the site is designed to effectively mitigate the impact of the proposal. As such, a minor positive effect is considered likely.
4.1 To protect the quality of ground and surface water	+?	Policy 5 seeks to promote the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities, which could have an adverse effect on water quality. However, the policy explicitly states that proposals for recycling facilities must be appropriate to the character of the surrounding natural environment and not adversely impact upon the natural environment. As such, it is considered that the policy would have a minor positive effect on this objective. However, this is uncertain as the location and nature of the proposal would not be known until the planning application stage.
4.2 To protect the quantity of	+?	Policy 5 seeks to promote the use of secondary and recycled aggregates and permit development proposals for

SA Objective and Sub Questions	SA Score	Justification
ground and surface water from over abstraction		new recycling/reprocessing facilities, which could have an adverse effect on water quantity. The policy explicitly states that proposals for recycling facilities must be appropriate to the character of the surrounding natural environment and not adversely impact upon the natural environment. As such, it is considered that the policy would have a minor positive effect on this objective. However, this is uncertain as the location and nature of the proposal would not be known until the planning application stage.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+/-	Policy 5 seeks to promote the use of secondary and recycled aggregates, which could contribute to reducing emissions associated with operation of primary mineral extraction sites. In addition, where recycled aggregate facilities are located within existing mineral sites, transport of the recycled aggregate may be reduced. However, there are likely to still be some operational and transport emissions from new secondary and recycled aggregate facilities that are not co-located with other mineral sites. As such, it is considered that policy would have a mixed minor positive and negative effect on this objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?	Policy 5 seeks to promote the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities. Development applications submitted under this policy may propose to use small-scale on-site renewable energy sources to power machinery used in the recycling process and/or on-site infrastructure (e.g. buildings/ offices). However, this would not be known until the planning application stage. Therefore, an uncertain minor positive effect is likely.
6.1 To protect against the risk of flooding	+?	Policy 5 seeks to promote the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities, which could have an effect on flooding depending on the nature of the facility. However, the policy explicitly states that proposals for recycling facilities must demonstrate that the development is appropriate to the character of the surrounding natural environment and that it would not adversely impact upon the natural environment or human health. As such, it is considered that the policy would have a minor positive effect on this objective. However, this is uncertain as the location and nature of the proposal would not be known until the planning application stage.
6.2 To provide opportunities for flood alleviation / mitigation during the	0	Policy 5 does not explicitly discuss the need to provide opportunities for flood alleviation when considering applications which relate to secondary or recycled aggregates. As such, it is considered that a negligible effect is likely.

SA Objective and Sub Questions	SA Score	Justification
restoration of the site		
7.1 To encourage the use of recycled and secondary aggregates	++	Policy 5 seeks to encourage the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities. As such, it is considered that a significant positive effect is likely.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	Policy 5 seeks to encourage the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities. Secondary and recycled aggregates are important resources and support a wide range of end uses. As such, it is important that there is sufficient supply of these materials to provide infrastructure, buildings, energy and goods that Hertfordshire needs. The handling of the materials within the County will make a positive contribution to the local and national economy, as such a minor positive effect is considered likely.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	Policy 5 seeks to encourage the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities. Supporting this industry will help to ensure that there is a steady and adequate supply of secondary and recycled aggregates to supply infrastructure and building projects, energy, and goods that Hertfordshire needs. As such, a minor positive effect is considered likely.
8.3 To ensure that mineral sterilisation is minimised	0	Policy 5 seeks to support the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities. It is therefore considered that the policy will not have an impact on minimising mineral sterilisation. As such, a negligible effect is considered likely.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-?	Policy 5 seeks to support the use of secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities. The exact land-take and location of any proposed secondary/recycled aggregates facility will not be known until the planning application stage. As such, the potential loss of high quality agricultural land (i.e. Grades 1-3), and whether improvements to soil quality through soil restoration are possible is unknown at this stage. Therefore, an uncertain minor negative effect is considered likely.
Social		
9.1 To protect the health and amenity of local residents	+?	Policy 5 seeks to support secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities, which could have an adverse effect on health and amenity. It explicitly states

SA Objective and Sub Questions	SA Score	Justification
and communities from the impacts of minerals workings and associated transport		that proposals for recycling facilities must demonstrate that it would not adversely impact on amenity or human health. As such, a minor positive effect is considered likely. However, this is uncertain as the location and nature of the proposal would not be known until the planning application stage.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	-?	Policy 5 seeks to support secondary and recycled aggregates and permit development proposals for new recycling/reprocessing facilities, which could have an adverse effect on PRowWs, access, recreation areas and open space. The policy does not explicitly reference the protection of PRowWs, access, recreation areas or open space. As such, a minor negative effect is considered likely. However, the effect is uncertain as the land-take of a proposed development will not be known until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	0	Policy 5 does not seek opportunities to improve health and/or amenity. As such, a negligible effect is considered likely on this objective.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	The processing of secondary or recycled aggregates is not considered to attract significant amounts of birds due to the nature of the operation. As such, a negligible effect is considered likely.

Policy 6: Brick Clay

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	-?	Policy 6 sets out criteria required to permit brick clay workings in the County. As such, sites which come forward under this policy to extract brick clay may result in the loss of priority habitats, biodiversity and species. Therefore, a minor negative effect is considered likely. However, the effect is considered uncertain as the details and location of any proposal will not be known until the planning application stage.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Policy 6 sets out criteria required to permit brick clay workings in the County. Mineral operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, mineral sites post-restoration could have a positive effect on biodiversity, in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. As such, an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	-?	Policy 6 sets out criteria required to permit brick clay workings in the County. As such, sites which come forward under this policy to extract brick clay may result in the deposition of dust from mineral extraction and pollutants from HGVs on designated nature conservation sites. Although such adverse effects have been discounted in relation to European Sites through the Appropriate Assessment in the HRA, there is still potential for national and local sites to be adversely effected. Therefore, a minor negative effect is considered likely. However, the effect is uncertain as the location of any proposal will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	-/+?	Policy 6 sets out criteria required to permit brick clay workings in the County. As such, sites which come forward under this policy to extract brick clay may result in adverse impacts on sites of geological interest. Conversely, exposure of geological faces through mineral extraction can provide educational opportunities and sometimes create new sites of geological conservation interest. As such, an uncertain mixed minor negative and positive effect is considered likely. However, the effect is uncertain as the location of any proposal will not be known until the planning application stage.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and	-?	Policy 6 sets out criteria required to permit brick clay workings in the County.. As such, sites which come forward under this policy to extract brick clay may result in adverse impacts on above ground heritage assets and their setting. Therefore, a minor negative effect is considered likely. However, the effect is considered uncertain as the

SA Objective and Sub Questions	SA Score	Justification
their setting		location of any proposal will not be known until the planning application stage.
2.2 To conserve below ground archaeological assets	-?	Policy 6 sets out criteria required to permit brick clay workings in the County.. As such, sites which come forward under this policy to extract brick clay could remove/truncate any below ground archaeological assets within the site. Therefore, a minor negative effect is considered likely. However, the effect is considered uncertain as the location of any proposal and the presence of below ground archaeological assets would not be known until the planning application stage.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	+	Policy 6 sets out criteria required to permit brick clay workings in the County, which is used in the construction and restoration of traditional brick and flint building styles, complementing the County's local heritage. As such, it is considered that the policy will have a minor positive effect on this objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-/+?	<p>Policy 6 sets out criteria required to permit brick clay workings in the County. As such, minor negative effects are considered likely as the operation of brick clay mineral sites may have an adverse impact on the character and quality of the landscape.</p> <p>However, mineral operators are becoming increasingly aware of the need to restore sites to a high standard. As such, a proposed site could be restored to a standard which enhances the character and quality of the landscape having a minor positive effect on this objective. However, the effect is uncertain as any restoration proposals would not be known until the planning application stage.</p>
4.1 To protect the quality of ground and surface water	-?	<p>Policy 6 sets out criteria required to permit brick clay workings in the County.. Hertfordshire contains a number of Source Protection Zone 1s (SPZ1s) and proposed mineral sites within SPZ1s could lead to accidental pollution incidents that could contaminate the quality of groundwater, which could have a significant negative effect. Furthermore, sites may also contain a watercourse or water body and accidental pollution incidents could also result in the contamination of surface water. However, this would not be known until the planning application stage when specific proposals have been brought forward identifying a site.</p> <p>As such, an overall uncertain minor negative effect is considered likely.</p>
4.2 To protect the quantity of ground and surface water from over abstraction	?	Policy 6 seeks to secure the continued supply of brick clay. All mineral activity could potentially require the use of water resources, but the extent of water use would not be known until the planning application stage where proposals are brought forward. Therefore, an uncertain effect on this objective is considered likely.

SA Objective and Sub Questions	SA Score	Justification
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?/-	<p>Policy 6 sets out criteria required to permit brick clay workings in the County.. Mineral applications submitted under this policy may propose to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/ offices). However, this would not be known until the planning application stage. Therefore, an uncertain minor positive effect is likely.</p> <p>However, mineral operations could lead to the production of carbon dioxide and other greenhouse gases from on-site vehicles and machinery. The policy is therefore also likely to have a minor negative effect.</p>
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?	<p>Policy 6 sets out criteria required to permit brick clay workings in the County.. Mineral applications submitted under this policy may propose to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/ offices). However, this would not be known until the planning application stage. Therefore, an uncertain minor positive effect is likely.</p>
6.1 To protect against the risk of flooding	0?	<p>Policy 6 sets out criteria required to permit brick clay workings in the County.. Mineral workings and processing are classed as less vulnerable development which means they are potentially compatible with all flood zones except for Flood Zone 3b, which clay sites are unlikely to be located in. As such, a negligible effect is considered likely. However, the effect is considered uncertain as the type of minerals development and its location with regard to Flood Risk Zones would not be known until the planning application stage.</p>
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	+?	<p>Policy 6 sets out criteria required to permit brick clay workings in the County. Mineral workings can potentially reduce flood risk by providing flood storage and attenuation, and could have a minor positive effect on reducing vulnerability to flooding. However, these effects are uncertain until further assessment has been undertaken at the planning application stage.</p>
7.1 To encourage the use of recycled and secondary aggregates	-	<p>Policy 6 sets out criteria required to permit brick clay workings in the County. This does not encourage the use of recycled and secondary aggregates. As such, a minor negative effect is considered likely.</p>
Economic		
8.1 To provide opportunities	+	<p>Policy 6 sets out criteria required to permit brick clay workings in the County.. As such, direct and indirect minor</p>

SA Objective and Sub Questions	SA Score	Justification
for local people to access employment and skills both during and after extraction		positive effects are considered likely on increasing employment levels during site preparation, operation and restoration as mineral workings are likely to result in a small amount of job creation for local people in both rural and urban areas.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	Policy 6 sets out criteria required to permit brick clay workings in the County.. However, due to the fact that no site options have come forward for the extraction of brick clay, a negligible effect is considered likely on this objective.
8.3 To ensure that mineral sterilisation is minimised	+	Policy 6 sets out criteria required to permit brick clay workings in the County. As such, sites that come forward under this policy would allow the mineral to be extracted, thus removing the possibility of that mineral resource being sterilised by a non-mineral development. As such, a minor positive effect is considered likely.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-?	Policy 6 sets out criteria required to permit brick clay workings in the County.. As such, sites that come forward under this policy may be located on land that is considered to be best and most versatile agricultural land which could be lost as a result of the mineral extraction. However, the exact land take and location according to agricultural land quality (i.e. Grades 1 – 5), and whether improvements to soil quality through site restoration are possible; would not be known until the planning application stage, therefore effects on this objective overall are likely to be minor negative uncertain.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-	Policy 6 sets out criteria required to permit brick clay workings in the County.. Therefore, this may continue to subject local residents and communities within Hertfordshire to impacts such as dust, noise, vibration and traffic associated with the existing mineral workings or impact new residents/ land uses as a result of new sites. Therefore, a minor negative is expected on this objective.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas	-?	Policy 6 sets out criteria required to permit brick clay workings in the County.. As such, sites that come forward under this policy could have an impact on PRow, access, recreation areas or open space. However, the effect is uncertain as it would depend on the exact nature of the proposed development, which would not be known until

SA Objective and Sub Questions	SA Score	Justification
and open space		the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	Policy 6 seeks to secure the continued supply of brick clay. As such, it could have a minor positive effect on this objective as mineral operators are becoming increasingly aware of the need restore sites to a high standard which could come in the form a new/enhanced recreational areas or PRow. However, the effect is uncertain as it would depend on the exact nature of the proposed development, which would not be known until the planning application stage.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	-?	Policy 6 seeks to secure the continued supply of brick clay. Any site which comes forward under this policy may fall within an Airport Safeguarding Zone. As such, an uncertain minor negative effect is considered likely as the location of any proposal would not be known until the planning application stage.

Policy 7: Chalk

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	-?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. As such, sites which come forward under this policy to extract chalk may result in the loss of priority habitats, biodiversity and species. Therefore, a minor negative effect is considered likely. However, the effect is considered uncertain as the details and location of any proposal would not be known until the planning application stage.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Policy 7 seeks permits chalk extraction providing there is demonstrated demand from agriculture. Mineral operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, mineral sites post-restoration could have a positive effect on biodiversity, in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. As such, an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	-?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. As such, sites which come forward under this policy to extract chalk may result in the deposition of dust from mineral extraction and pollutants from HGVs on designated nature conservation sites. Although such adverse effects have been discounted in relation to European Sites through the Appropriate Assessment in the HRA, there is still potential for national and local sites to be adversely effected. Therefore, a minor negative effect is considered likely. However, the effect is uncertain as the location of any proposal will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	-/+?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. As such, sites which come forward under this policy to extract chalk may result in adverse impacts on sites of geological interest. Conversely, exposure of geological faces through mineral extraction can provide educational opportunities and sometimes create new sites of geological conservation interest. As such, an uncertain mixed minor negative and positive effect is considered likely. However, the effect is uncertain as the location of any proposal will not be known until the planning application stage.
2.1 To conserve and enhance the County's cultural heritage, including above	-?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. As such, sites which come forward under this policy to extract chalk may result in adverse impacts on above ground heritage assets and their setting. Therefore, a minor negative effect is considered likely. However, the effect is considered

SA Objective and Sub Questions	SA Score	Justification
ground heritage assets and their setting		uncertain as the location of any proposal will not be known until the planning application stage.
2.2 To conserve below ground archaeological assets	-?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. As such, sites which come forward under this policy to extract chalk could remove/truncate any below ground archaeological assets within the site. Therefore, a minor negative effect is considered likely. However, the effect is considered uncertain as the location of any proposal and the presence of below ground archaeological assets would not be known until the planning application stage.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	+	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. It is noted that the chalk contains locally important flints, which are used in the construction and maintenance of roads and buildings, often as part of heritage restoration of older buildings. Although not a building material, the flints are considered to be a locally distinctive product, as such, it is considered likely that the policy will have a minor positive effect on this objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-/+?	<p>Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. As such, minor negative effects are considered likely as the operation of chalk mineral sites may have an adverse impact on the character and quality of the landscape.</p> <p>Mineral operators are becoming increasingly aware of the need to restore sites to a high standard. As such, a proposed site could be restored to a standard which enhances the character and quality of the landscape having a minor positive effect on this objective. However, the effect is uncertain as any restoration proposals would not be known until the planning application stage.</p>
4.1 To protect the quality of ground and surface water	-?	<p>Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. Hertfordshire contains a number of Source Protection Zone 1s (SPZ1s) and proposed mineral sites within SPZ1s could lead to accidental pollution incidents that could contaminate the quality of groundwater, which could have a significant negative effect. Furthermore, sites may also contain a watercourse or water body and accidental pollution incidents could also result in the contamination of surface water. However, this would not be known until the planning application stage when specific proposals have been brought forward identifying a site.</p> <p>As such, an overall uncertain minor negative effect is considered likely.</p>
4.2 To protect the quantity of ground and surface water	?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. All mineral activity could potentially require the use of water resources, but the extent of water use would not be known until the

SA Objective and Sub Questions	SA Score	Justification
from over abstraction		planning application stage where proposals are brought forward. Therefore, an uncertain effect on this objective is considered likely.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?/-	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. Mineral applications submitted under this policy may propose to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/ offices). However, this would not be known until the planning application stage. Therefore, an uncertain minor positive effect is likely. However, mineral operations could lead to the production of carbon dioxide and other greenhouse gases from on-site vehicles and machinery. The policy is therefore also likely to have a minor negative effect.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. Mineral applications submitted under this policy may propose to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/ offices). However, this would not be known until the planning application stage. Therefore, an uncertain minor positive effect is likely.
6.1 To protect against the risk of flooding	0?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. Mineral workings and processing are classed as less vulnerable development which means they are potentially compatible with all flood zones except for Flood Zone 3b, which chalk sites are unlikely to be located in due to the nature of the geological resource. As such, a negligible effect is considered likely. However, the effect is considered uncertain, as the type of minerals development and its location with regard to Flood Risk Zones would not be known until the planning application stage.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	+?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. Mineral workings can potentially reduce flood risk by providing flood storage and attenuation, and could have a minor positive effect on reducing vulnerability to flooding. However, these effects are uncertain until further assessment has been undertaken at the planning application stage.
7.1 To encourage the use of recycled and secondary	-	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture, which would be extraction of a primary aggregate. As such, a minor negative effect is considered likely.

SA Objective and Sub Questions	SA Score	Justification
aggregates		
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. As such, direct and indirect minor positive effects are considered likely on increasing employment levels during site preparation, operation and restoration as mineral workings are likely to result in a small amount of job creation for local people in both rural and urban areas. However this is uncertain as it is possible that no sites will come forward over the plan period.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. However, due to the fact that no site options have come forward for the extraction of chalk, a negligible effect is considered likely on this objective.
8.3 To ensure that mineral sterilisation is minimised	+?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. As such, sites that come forward under this policy would allow the mineral to be extracted, thus removing the possibility of that mineral resource being sterilised by a non-mineral development. As such, a minor positive effect is considered likely. However, this is uncertain as it is possible that no sites will come forward over the plan period and no Minerals Safeguarding Areas for chalk have been identified in the plan.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. As such, sites that come forward under this policy may be located on land that is considered to be best and most versatile agricultural land which could be lost as a result of the mineral extraction. However, the exact land take and location according to agricultural land quality (i.e. Grades 1 – 5), and whether improvements to soil quality through site restoration are possible; would not be known until the planning application stage, therefore effects on this objective overall are likely to be minor negative uncertain.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated	-/+?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. This may subject local residents, and communities within Hertfordshire to impacts such as dust, noise, vibration and traffic associated with the existing mineral workings or impact new residents/land uses as a result of new sites. However, the policy may also have minor positive effects as the supply of minerals could come from extensions

SA Objective and Sub Questions	SA Score	Justification
transport		to existing sites therefore not resulting in new sites or impacts on previously unaffected local residents and communities within Hertfordshire. Therefore, mixed minor negative /minor positive effects are expected on this objective. Uncertainty has been identified in relation to this effect, as this depends on whether any chalk sites come forward and where they are located.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	-?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. As such, sites that come forward under this policy could have an impact on PRow, access, recreation areas or open space. However, the effect is uncertain as it would depend on the exact nature of the proposed development, which would not be known until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. As such, it could have a minor positive effect on this objective as mineral operators are becoming increasingly aware of the need restore sites to a high standard which could come in the form a new/enhanced recreational areas or PRow. However, the effect is uncertain as it would depend on the exact nature of the proposed development, which would not be known until the planning application stage.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	-?	Policy 7 permits chalk extraction providing there is demonstrated demand from agriculture. Any site which comes forward under this policy may fall within an Airport Safeguarding Zone. As such, an uncertain minor negative effect is considered likely as the location of any proposal would not be known until the planning application stage.

Policy 8: Mineral Safeguarding

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+/-?	<p>Policy 8 identifies Mineral Safeguarding Areas and seeks to avoid sterilisation from non-minerals development. As such, it may potentially restrict or delay non-mineral development within these areas that could otherwise have a negative impact on priority habitats. Therefore, a minor positive effect is considered likely. The effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>However, the safeguarding of minerals could lead to more mineral extraction which could have adverse effects on this objective. In addition, prior extraction of minerals at a non-mineral development site could have adverse effects on this objective. This effect is also uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction. As such, an overall uncertain, mixed minor positive and minor negative effect is likely.</p>
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	0	<p>Policy 8 identifies Mineral Safeguarding Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place, therefore it is considered unlikely to affect this objective.</p>
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	+/-?	<p>Policy 8 identifies Mineral Safeguarding Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. As such, it may potentially restrict or delay non-mineral development within these areas that could otherwise have a negative impact of designated nature conservation sites through the deposition of dust and other pollutants. Therefore, a minor positive effect is considered likely. The effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>However, the safeguarding of minerals could lead to more mineral extraction which could have adverse effects on this objective and prior extraction of minerals at a non-mineral development site could itself have adverse effects on this objective. Although such adverse effects have been discounted in relation to European Sites through the Appropriate Assessment in the HRA, there is still potential for national and local sites to be adversely effected. Therefore, a minor negative effect is considered likely. However, the effect is uncertain as the location of any</p>

SA Objective and Sub Questions	SA Score	Justification
		proposal will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	+?	Policy 8 identifies Mineral Safeguarding Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. This policy could have a minor positive effect on this objective, if prior extraction of any mineral within the MSA/MCA exposes geological faces of educational value or interest. However, this effect is uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction, and is of any geological interest.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	+/-?	<p>Policy 8 identifies Mineral Safeguarding Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. As such, it may potentially restrict or delay non-mineral development within these areas that could otherwise have a negative impact on the County's above ground cultural heritage assets. Therefore, a minor positive effect is considered likely. The effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>However, the safeguarding of minerals could lead to more mineral extraction, which could have adverse effects on this objective and the prior extraction of minerals at non-mineral development sites could itself have adverse impacts on this objective. This effect is also uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction. As such, an overall uncertain, mixed minor positive and minor negative effect is likely.</p>
2.2 To conserve below ground archaeological assets	+/-?	<p>Policy 8 identifies Mineral Safeguarding Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. As such, it may potentially restrict or delay non-mineral development within these areas that could otherwise have a negative impact on the County's below ground archaeological assets. Therefore, a minor positive effect is considered likely. The effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>However, the safeguarding of minerals could lead to more mineral extraction which could have adverse effects on this objective and the prior extraction of minerals at non-mineral development sites could itself have adverse effects on this objective. This effect is also uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction. As such, an overall uncertain, mixed minor positive and minor negative effect is likely.</p>

SA Objective and Sub Questions	SA Score	Justification
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	+?	Policy 8 identifies Mineral Safeguarding Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. As such, it may potentially restrict or delay non-mineral development that could otherwise prevent the supply of locally distinctive materials. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the whether the proposed non-mineral development is permitted, and whether the mineral resource is considered viable and worth prior extraction.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+/-?	<p>Policy 8 identifies Mineral Safeguarding Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. As such, it may potentially restrict or delay non-mineral development within these areas that could otherwise have a negative impact on the landscape. Therefore, a minor positive effect is considered likely. The effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>However, the safeguarding of minerals could lead to more mineral extraction which could have adverse effects on this objective and the prior extraction of minerals could itself have adverse effects on this objective. This effect is also uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction. As such, an overall uncertain, mixed minor positive and minor negative effect is likely.</p>
4.1 To protect the quality of ground and surface water	+/-?	<p>Policy 8 identifies Mineral Safeguarding Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. As such, it may potentially restrict or delay non-mineral development within these areas that could otherwise have a negative impact on the quality of ground and surface water. Therefore, a minor positive effect is considered likely. The effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>However, the safeguarding of minerals could lead to more mineral extraction which could have adverse effects on this objective and the prior extraction of minerals could itself have adverse effects on this objective. This effect is also uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction. As such, an overall uncertain, mixed minor positive and minor negative effect is likely.</p>
4.2 To protect the quantity of ground and surface water from over abstraction	+/-?	Policy 8 identifies Mineral Safeguarding Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. As such, it may potentially restrict non-mineral development within these areas that

SA Objective and Sub Questions	SA Score	Justification
		<p>could otherwise have a negative impact on the quantity of ground and surface water as a result of over abstraction. The effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>However, the safeguarding of minerals could lead to more mineral extraction which could have adverse effects on this objective and the prior extraction of minerals could itself have adverse effects on this objective. This effect is also uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction. As such, an overall uncertain, mixed minor positive and minor negative effect is likely.</p>
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+/-?	<p>Policy 8 identifies Mineral Safeguarding Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. As such, it may potentially restrict non-mineral development within these areas that could otherwise have a negative impact on this objective. The effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted. In addition, the policy states that full consideration should be given to the use of the raised sand and gravel material on site in construction projects. Therefore, this would help to reduce the distance the prior extracted mineral resource needs to travel, and help to reduce emissions.</p> <p>However, the safeguarding of minerals could lead to more mineral extraction which could have adverse effects on this objective. This effect is also uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction. As such, an overall uncertain, mixed minor positive and minor negative effect is likely.</p>
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	<p>Policy 8 identifies Mineral Safeguarding Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place, therefore it is considered unlikely to affect this objective.</p>
6.1 To protect against the risk of flooding	0	<p>Policy 8 identifies Mineral Safeguarding Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals</p>

SA Objective and Sub Questions	SA Score	Justification
		development takes place, therefore it is considered unlikely to affect this objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	+	Policy 8 identifies Mineral Safeguarding Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. It could therefore have a temporary positive effect on flood alleviation through the provision of flood storage areas while the mineral is being extracted.
7.1 To encourage the use of recycled and secondary aggregates	-	Policy 8 identifies Mineral Safeguarding Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. This would help to safeguard primary mineral resources from sterilisation by non-mineral development. The policy will therefore ensure primary mineral resources are not needlessly sterilised allowing the resource to be extracted at a later date or prior to the construction of a non-mineral development. As such, a minor negative effect on this objective is considered likely because it does not encourage the use of recycled and secondary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+?/-	<p>Policy 8 identifies Mineral Safeguarding Area and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. As such, the policy could help safeguard minerals resources from sterilisation and, therefore, have a minor positive effect on the local economy as minerals could be extracted at a later date, providing employment opportunities. The effect is uncertain as the identification of these areas does not mean that mineral extraction will definitely take place, only that it is safeguarded so that it could take place if viable and needed at a later date.</p> <p>However, it may potentially restrict or delay non-mineral development within these areas that could otherwise have a positive effect on the local economy. Therefore, a minor negative effect is also considered likely.</p>
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	Policy 8 identifies Mineral Safeguarding Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. This provides weight to the protection of mineral resources when applications for non-mineral development have been submitted. As such, the policy seeks to maintain the mineral resources within the County so that they can be worked when required ensuring that there is a steady and adequate supply of

SA Objective and Sub Questions	SA Score	Justification
		minerals to meet Hertfordshire's needs. Therefore, a minor positive effect is considered likely.
8.3 To ensure that mineral sterilisation is minimised	++?	Policy 8 identifies Mineral Safeguarding Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. This provides weight to the protection of mineral resources when applications for non-mineral development have been submitted. As such, a significant positive effect is considered likely. However, the effect is uncertain as the identification of these areas does not completely rule out non-mineral development from taking place, only that mineral sterilisation and prior extraction are considered as part of a planning application.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	+/-?	<p>Policy 8 identifies Mineral Safeguarding Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. As such, it may potentially restrict or delay non-mineral development within these areas that could otherwise have a negative effect on the best and most versatile agricultural land. Therefore, a minor positive effect is considered likely. The effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>However, the safeguarding of minerals could lead to more mineral extraction which could have adverse effects on this objective and the prior extraction of minerals could itself have adverse effects on this objective. This effect is also uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction. As such, an overall uncertain, mixed minor positive and minor negative effect is likely.</p>
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+/-?	<p>Policy 8 identifies Mineral Safeguarding Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. As such, it may potentially restrict non-mineral development within these areas that could otherwise have a negative effect on the health and amenity of nearby residents. Therefore, a minor positive effect is considered likely. The effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>However, the safeguarding of minerals could lead to more mineral extraction which could have adverse effects on this objective and the prior extraction of minerals could itself have adverse effects on this objective. This effect is also uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction. As such, an overall uncertain, mixed minor positive and minor negative effect is likely.</p>

SA Objective and Sub Questions	SA Score	Justification
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+/-?	<p>Policy 8 identifies Mineral Safeguarding Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place. As such, it may potentially restrict non-mineral development within these areas that could otherwise have a negative effect on PRow, access, recreation areas or open space. Therefore, a minor positive effect is considered likely. The effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>However, the safeguarding of minerals could lead to more mineral extraction which could have adverse effects on this objective and the prior extraction of minerals could itself have adverse effects on this objective. This effect is also uncertain as it depends on whether the mineral resource is considered viable and worth prior extraction. As such, an overall uncertain, mixed minor positive and minor negative effect is likely.</p>
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	0	<p>Policy 8 identifies Mineral Safeguarding Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place, therefore it is considered unlikely to affect this objective.</p>
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	<p>Policy 8 identifies Mineral Safeguarding Areas and seeks to avoid mineral sterilisation from non-minerals development through encouraging prior extraction of viable mineral resources before the non-minerals development takes place, therefore it is considered unlikely to affect this objective.</p>

Policy 9: Safeguarding Bulk Transport and Bulk Handling and Processing Sites

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+?	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves, concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it may potentially restrict non-mineral development near to mineral infrastructure that could otherwise have a negative impact on priority habitats, biodiversity and species. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	0	Policy 9 seeks to safeguard rail heads and wharves, concrete batching, asphalt and coated stone plants from development that would compromise their operation. This is considered unlikely to affect this objective. As such, a negligible effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	+?	<p>Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves, concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it may potentially restrict non-mineral development near to mineral infrastructure that could otherwise have a negative impact of designated nature conservation sites through the deposition of dust and other pollutants. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>Although safeguarding such facilities may prolong any existing adverse effects, these are not considered here as these effects would have been considered when the existing infrastructure was originally developed.</p>
1.4 To protect and enhance sites of geological conservation interest	0	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves, concrete batching, asphalt and coated stone plants from development that would compromise their operation and is considered unlikely to affect this objective.
2.1 To conserve and enhance the County's cultural	+?	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves, concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it

SA Objective and Sub Questions	SA Score	Justification
heritage, including above ground heritage assets and their setting		<p>may potentially restrict non-mineral development near to mineral infrastructure that could otherwise have a negative impact on the County's above ground cultural heritage assets. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>Although safeguarding such facilities may prolong any existing adverse effects, these are not considered here as these effects would have been considered when the existing infrastructure was originally developed.</p>
2.2 To conserve below ground archaeological assets	+?	<p>Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves, concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it may potentially restrict non-mineral development near to mineral infrastructure that could otherwise have a negative impact on the County's below ground archaeological assets. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p>
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	<p>Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves, concrete batching, asphalt and coated stone plants from development that would compromise their operation and is considered unlikely to affect this objective.</p>
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+?	<p>Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves, concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it may potentially restrict non-mineral development near to mineral infrastructure that could otherwise have a negative impact on the landscape. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>Although safeguarding such facilities may prolong any existing adverse effects, these are not considered here as these effects would have been considered when the existing infrastructure was originally developed.</p>
4.1 To protect the quality of ground and surface water	+?	<p>Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves, concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it may potentially restrict non-mineral development near to mineral infrastructure that could otherwise have a negative impact on the quality of ground and surface water. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral</p>

SA Objective and Sub Questions	SA Score	Justification
		development and whether it is permitted.
4.2 To protect the quantity of ground and surface water from over abstraction	+?	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves, concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it may potentially restrict non-mineral development near to mineral infrastructure that could otherwise have a negative impact on the quantity of ground and surface water as a result of over abstraction. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	++?	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves, concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it is considered that the policy promotes the use of sustainable transport methods when transporting minerals. This would make a significant contribution to reducing operational emissions with regard to transportation. It could also restrict non-mineral development near to mineral infrastructure that could otherwise have a negative impact on this objective. Therefore, a significant positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves, concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it is considered unlikely that the policy will have an effect on this objective.
6.1 To protect against the risk of flooding	0	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves, concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it is considered unlikely that the policy will have an effect on this objective.
6.2 To provide opportunities for flood alleviation / mitigation during the	0	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves, concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it is considered unlikely that the policy will have an effect on this objective.

SA Objective and Sub Questions	SA Score	Justification
restoration of the site		
7.1 To encourage the use of recycled and secondary aggregates	0	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves, concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it is considered unlikely that the policy will have an effect on this objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves, concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it is considered that the continued operation and safeguarding of such facilities will provide opportunities for local people to access employment. Therefore, a minor positive effect is considered likely.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves, concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it is considered that the continued operation of such plant and the safeguarding of planned and potential plants will ensure that there is a steady and adequate and supply of these aggregates to meet Hertfordshire's needs. Therefore, a minor positive effect is considered likely.
8.3 To ensure that mineral sterilisation is minimised	0	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves, concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it is considered unlikely that the policy will have an effect on this objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	0	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves, concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it is considered unlikely that the policy will have an effect on this objective.
Social		
9.1 To protect the health and amenity of local residents	+?	Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves, concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it

SA Objective and Sub Questions	SA Score	Justification
and communities from the impacts of minerals workings and associated transport		<p>may potentially restrict non-mineral development near to mineral infrastructure that could otherwise have a negative effect on the health and amenity of nearby residents. However, this is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted. Safeguarding rail heads and wharves to transport minerals will also contribute to reducing that the number of HGVs transporting minerals via the road network thereby reducing the impact on the health and amenity of nearby residents. These effects are considered to be uncertain minor positive.</p> <p>Although safeguarding such facilities may prolong any existing adverse effects on the health and amenity of residents, these are not considered here as these effects would have been considered when the existing infrastructure was originally developed.</p>
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+?	<p>Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves, concrete batching, asphalt and coated stone plants from development that would compromise their operation. As such, it may potentially restrict non-mineral development near to mineral infrastructure that could otherwise have a negative effect on PRoW, access, recreation areas or open space. Therefore, a minor positive effect is considered likely. However, the effect is uncertain as it depends on the nature and location of the proposed non-mineral development and whether it is permitted.</p> <p>Although safeguarding such facilities may prolong any existing adverse effects on PRoW, access, recreation areas or open space, these are not considered here as these effects would have been considered when the existing infrastructure was originally developed.</p>
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	0	<p>Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves, concrete batching, asphalt and coated stone plants from development that would compromise their operation and is considered unlikely to affect this objective.</p>
9.4 To ensure that mineral sites do not compromise the operation and safety of	0	<p>Policy 9 seeks to safeguard existing, planned and potential rail heads, rail links to quarries and wharves, concrete batching, asphalt and coated stone plants from development that would compromise their operation and is</p>

SA Objective and Sub Questions	SA Score	Justification
commercial/civil or military aerodromes		considered unlikely to affect this objective.

Policy 10: Borrow Pits

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	-?	Policy 10 addresses the use of borrow pits. The extraction of aggregates from borrow pits may have an adverse effect on biodiversity within a site or on land surrounding a site. As such, a minor negative effect is likely. However, this is uncertain as the location of any borrow pit will not be known until the planning application stage. In addition, the supporting text to the policy notes the advantages borrow pits have, however, it also notes that their short term nature should not outweigh any environmental damage. It goes on to say that biodiversity is a particular feature which needs to be considered when considering a borrow pit.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Policy 10 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use such as a construction project. Through the restoration of the borrow pit there may be opportunities to improve biodiversity. As such, a minor positive effect is considered likely. The effect is considered uncertain as any restoration proposal will not be known until the planning application stage.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	+?	Policy 10 addresses the use of borrow pits. As borrow pits need to be located in close proximity to the construction project the aggregates are required for, they should help to reduce travel and therefore deposition of air pollutants arising from HGV movements. As such, a minor positive effect is likely. However, this is uncertain as the location of any borrow pit will not be known until the planning application stage and there may still be some impacts on nearby nature conservation sites from dust associated with the aggregate extraction.
1.4 To protect and enhance sites of geological conservation interest	-/+?	Policy 10 addresses the use of borrow pits. Borrow pits could be located within sites of geological conservation interest. As such, adverse impacts could result on these sites and their qualifying features. Conversely, exposure of geological faces through mineral extraction can provide educational opportunities and sometimes create new sites of geological conservation interest. As such, an uncertain mixed minor negative and positive effect is considered likely. The effect is considered uncertain as the location of any borrow pit will not be known until the planning application stage.
2.1 To conserve and enhance	-?	Policy 10 addresses the use of borrow pits. Borrow pits could be located within or in close proximity to one of the

SA Objective and Sub Questions	SA Score	Justification
the County's cultural heritage, including above ground heritage assets and their setting		County's above ground heritage assets. As such, the qualifying features of the asset or its setting could be adversely affected by a borrow pit. Therefore a minor negative effect is considered likely. The effect is considered uncertain as the location of any borrow pit will not be known until the planning application stage.
2.2 To conserve below ground archaeological assets	-?	Policy 10 addresses the use of borrow pits. The extraction of aggregates from borrow pits may have an adverse effect on archaeology within a site. As such, a minor negative effect is likely. However, this is uncertain as the location of any borrow pit will not be known until the planning application stage. In addition, the supporting text to the policy notes the advantages borrow pits have, however, it also notes that their short term nature should not outweigh any environmental damage. It goes on to say that archaeology is a particular feature which needs to be considered when considering a borrow pit.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	Policy 10 addresses the use of borrow pits where aggregate extraction takes places over a limited period of time for an exclusive use in a specific construction project. As such, it is unlikely to be used to supply locally distinctive building materials, and it is considered the policy will have a negligible effect on this objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-/+?	<p>Policy 10 addresses the use of borrow pits. The extraction of aggregates from borrow pits may have an adverse effect on landscape character and quality. As such, a minor negative effect is likely. However, this is uncertain as the location of any borrow pit will not be known until the planning application stage. In addition, the supporting text to the policy notes the advantages borrow pits have, however, it also notes that its short term nature should not outweigh any environmental damage. It goes on to say that the landscape is a particular feature which needs to be considered when considering a borrow pit.</p> <p>Furthermore, the restoration of the borrow pit may enhance the character and quality the landscape, having an uncertain minor positive effect. Overall, the policy is considered likely to have a mixed minor negative/minor positive but uncertain effect.</p>
4.1 To protect the quality of ground and surface water	-?	Policy 10 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use in a specific construction project. Hertfordshire contains a number of Source Protection Zone 1s (SPZ1s) and sites within SPZ1s could lead to accidental pollution incidents that could contaminate the quality of groundwater, which could have a significant negative effect. Furthermore, sites may also contain a watercourse or water body and accidental pollution incidents could also result in the contamination of surface water. However, this would not be known until the planning application stage when specific proposals have been brought forward

SA Objective and Sub Questions	SA Score	Justification
		identifying a site. As such, an overall uncertain minor effect is considered likely.
4.2 To protect the quantity of ground and surface water from over abstraction	?	Policy 10 addresses the use of borrow pits. All mineral activity could potentially require the use of water resources, but the extent of water use would not be known until the planning application stage where proposals are brought forward. Therefore, an uncertain effect on this objective is considered likely.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	++/-	Policy 10 addresses the use of borrow pits. It explicitly states proposals for borrow pits will be permitted where it can be demonstrated that the site's proximity to the construction project is more sustainable than importing aggregate. As such, a significant positive effect is considered likely. However, the extraction of minerals at a borrow pit is still likely to produce carbon dioxide and other emissions through the operation of vehicles, machinery and plant. As such, a minor negative effect is considered likely.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	Policy 10 addresses the use of borrow pits and it is considered unlikely that it will effect this objective. As such, a negligible effect is considered likely.
6.1 To protect against the risk of flooding	0?	Policy 10 addresses the use of borrow pits. Mineral workings and processing are classed as less vulnerable development with the exception of sand and gravel workings which are considered to be water compatible development. As such, a negligible effect is considered likely. However, the effect is considered uncertain the type of minerals development and its location with regard to Flood Risk Zones would not be known until the planning application stage.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	+?	Policy 10 addresses the use of borrow pits. Mineral workings (particularly sand and gravel sites) can potentially reduce flood risk by providing flood storage and attenuation, and could have a minor positive effect on reducing vulnerability to flooding. However, these effects are uncertain until further assessment has been undertaken at the planning application stage.

SA Objective and Sub Questions	SA Score	Justification
7.1 To encourage the use of recycled and secondary aggregates	-	Policy 10 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use in a specific construction project. As such, the policy will not encourage the use of recycled or secondary aggregates and a minor negative effect is considered likely.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	Policy 10 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use in a specific construction project. Direct and indirect minor positive effects are considered likely on increasing employment levels during site preparation and operation as the mineral workings are likely to result in a small amount of job creation for local people.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	Policy 10 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use in a specific construction project. As such, the policy is considered likely to have a minor positive effect on ensuring a steady and adequate supply of minerals to meet Hertfordshire's needs.
8.3 To ensure that mineral sterilisation is minimised	+	Policy 10 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use in a specific construction project. As such, the extraction of minerals via a borrow pit will ensure that minerals are not sterilised. Therefore, a minor positive effect is considered likely.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-?	Policy 10 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use in a specific construction project. As such, borrow pits may be located on land that is considered to be best and most versatile agricultural land which could be lost as a result of the mineral extraction. However, the exact land take and location according to agricultural land quality (i.e. Grades 1-5) would not be known until the planning application stage, therefore effects on this objective overall are likely to be minor negative uncertain.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals	-?	Policy 10 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use in a specific construction project. The extraction of minerals could result in adverse impacts on the health and amenity of local residents during site preparation and extraction. As such, a minor negative effect is considered likely. The effect is uncertain as the location of any borrow pit and its proximity to local residents

SA Objective and Sub Questions	SA Score	Justification
workings and associated transport		would not be known until the planning application stage.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	-?	Policy 10 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use in a specific construction project. The extraction of minerals could result in adverse impacts on PRow, access, recreation areas or open space. As such, a minor negative effect is considered likely. The effect is uncertain as the location of any borrow pit would not be known until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	Policy 10 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use in a specific construction project. Through the restoration of the borrow pit there may be opportunities to improve health and amenity through the delivery of green infrastructure, PRow or recreation areas. As such, a minor positive effect is considered likely. The effect is uncertain as any restoration proposal will not be known until the planning application stage.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	-?	Policy 10 addresses the use of borrow pits where mineral extraction takes place over a limited period of time for an exclusive use in a specific construction project. Any borrow pit may fall within an Airport Safeguarding Zone. As such, an uncertain minor negative effect is considered likely, as the location of any proposal would not be known until the planning application stage.

Policy 11: Incidental Extraction

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	-?	Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. Development of this kind could result in the loss of priority habitats, biodiversity or species. As such, a minor negative effect is considered likely. However, the effect is uncertain as the land take for any development proposal will not be known until the planning application stage.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. The policy states that proposals would be looked upon favourably where they provide an opportunity to achieve net gains across the three dimensions of sustainable development. As such, it is considered that the policy would seek to secure biodiversity enhancement under the environmental dimension of sustainable development. As such, a minor positive effect is considered likely. The effect is uncertain as any proposal will not be known until the planning application stage.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	-?	Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. Development of this kind could result in adverse impacts on designated nature conservation sites as a result of dust and other pollutants. Although such adverse effects have been discounted in relation to European Sites through the Appropriate Assessment in the HRA, there is still potential for national and local sites to be adversely effected. Therefore, a minor negative effect is considered likely. However, the effect is uncertain as the location of any proposal will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	-/+?	Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that not been allocated as a specific site or within a Preferred Area. Development of this kind could result in adverse impacts on sites of geological conservation depending on proximity of the sites to geological sites. Conversely, exposure of geological faces through mineral extraction can provide educational opportunities and sometimes create new sites of geological conservation interest. As such, an uncertain mixed minor negative and positive effect is considered likely. However, the effect is uncertain as the location of any proposal will not be known until the planning application stage.

SA Objective and Sub Questions	SA Score	Justification
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	-?	Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. Development of this kind could result in adverse impacts on the County's above ground heritage assets. As such, a minor negative effect is considered likely. However, the effect is uncertain as the location for any development proposal would not be known until the planning application stage.
2.2 To conserve below ground archaeological assets	-?	Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. Development of this kind could result in adverse impacts on the County's below ground archaeological assets. As such, a minor negative effect is considered likely. However, the effect is uncertain as the location for any development proposal would not be known until the planning application stage.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	?	Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. It will not be known until the planning application stage which mineral would be extracted. As such, an uncertain effect is considered likely on this objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-/+?	<p>Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. Development of this kind could result in adverse impacts on the character and quality of Hertfordshire's landscape. As such, a minor negative effect is likely.</p> <p>Conversely, the supporting text to the policy states that proposals would be looked upon favourably where the mineral is to be used to enhance the character and quality of Hertfordshire's landscape. As such, a minor positive effect is also possible.</p> <p>However, both effects are uncertain subject to the detailed proposals which would not be known until the planning application stage.</p>
4.1 To protect the quality of ground and surface water	-?	Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. Hertfordshire contains a number of Source Protection Zone 1s (SPZ1s) and sites within SPZ1s could lead to accidental pollution incidents that could contaminate the quality of groundwater, which could have a significant negative effect. Furthermore, sites may also contain a watercourse or water body and accidental pollution incidents could also result in the

SA Objective and Sub Questions	SA Score	Justification
		contamination of surface water. However, this would not be known until the planning application stage when specific proposals have been brought forward identifying a site. Overall, an uncertain minor negative effect is considered likely.
4.2 To protect the quantity of ground and surface water from over abstraction	?	Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. All mineral activity could potentially require the use of water resources, but the extent of water use would not be known until the planning application stage where proposals are brought forward. Therefore, an uncertain effect on this objective is considered likely.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+/-?	Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. The policy states that the transportation of extracted materials should not have a significant adverse impact on highway safety or the effective operation of the highway network, therefore it is likely that most minerals will be transported by road. However, the supporting text notes that proposals would be looked upon favourably where the extracted mineral will be used onsite or close to the extraction site. As such, a minor positive effect is considered likely. The extraction of minerals is still likely to produce carbon dioxide and other emissions through the operation of vehicles, machinery and plant. Therefore, a minor negative effect is also considered likely, although both effects are uncertain as details of the proposals would not be known until the planning application stage.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?	Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. Applications submitted under this policy may propose to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/ offices). However, this would not be known until the planning application stage. Therefore, an uncertain minor positive effect is likely.
6.1 To protect against the risk of flooding	0?	Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. Mineral workings and processing are classed as less vulnerable development with the exception of sand and gravel workings which are

SA Objective and Sub Questions	SA Score	Justification
		considered to be water compatible development. As such, a negligible effect is considered likely. However, the effect is considered uncertain as the type of minerals development and its location with regard to Flood Risk Zones would not be known until the planning application stage.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	+?	Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. Mineral workings (particularly sand and gravel sites) can potentially reduce flood risk by providing flood storage and attenuation, and could have a minor positive effect on reducing vulnerability to flooding. However, these effects are uncertain until further assessment has been undertaken at the planning application stage.
7.1 To encourage the use of recycled and secondary aggregates	-	Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. This type of development will extract primary aggregate. Therefore, a minor negative effect is considered likely on this objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. Direct and indirect minor positive effects are considered likely on increasing employment levels during site preparation and operation as mineral workings are likely to result in a small amount of job creation for local people in both rural and urban areas.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. The policy states that the proposals will only be permitted where it is demonstrated that the amount of mineral to be extracted is consistent with the purpose and scale of the development. It is therefore considered that the policy would ensure that there will not be an overworking of the mineral source which could contribute to an oversupply of minerals within Hertfordshire. As such, a minor positive effect is considered likely.
8.3 To ensure that mineral sterilisation is minimised	+	Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. The policy will support the extraction of primary aggregate when a proposal meets the criteria set out within the policy. As such, this will minimise mineral sterilisation. Therefore, a minor positive effect is considered likely.

SA Objective and Sub Questions	SA Score	Justification
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-?	Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. As such, applications may be submitted on land that is considered to be best and most versatile agricultural land which could be lost as a result of the mineral extraction. However, the exact land take and location according to agricultural land quality (i.e. Grades 1 – 5) would not be known until the planning application stage, therefore effects on this objective overall are likely to be minor negative uncertain.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. As such, new sites for mineral extraction may have an adverse impact on the health and amenity of local residents. Therefore, a minor negative effect is considered likely. However, the effect is uncertain as the location of any proposal will not be known until the planning application stage.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	-?	Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. As such, new sites for mineral extraction may have an adverse impact on PRoW, access, recreation areas or open space. Therefore, a minor negative effect is considered likely. However, the effect is uncertain as the location of any proposal would not be known until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another development that has not been allocated as a specific site or within a Preferred Area. The policy states that proposals would be looked upon favourably where they provide an opportunity to achieve net gains across the three dimensions of sustainable development. As such, it is considered that the policy would seek to secure recreational enhancements under the social dimension of sustainable development. As such, a minor positive effect is considered likely. The effect is uncertain as any proposal will not be known until the planning application stage.
9.4 To ensure that mineral	-?	Policy 11 covers the incidental extraction of mineral as a subordinate and ancillary element of another

SA Objective and Sub Questions	SA Score	Justification
sites do not compromise the operation and safety of commercial/civil or military aerodromes		development that has not been allocated as a specific site or within a Preferred Area. Any new site may fall within an Airport Safeguarding Zone. As such, an uncertain minor negative effect is considered likely as the location of any proposal would not be known until the planning application stage.

Hertfordshire Proposed Submission MLP Development Management Policy Appraisals

Policy 12: Green Belt

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+?	Despite enabling mineral extraction in the Green Belt, this policy will ensure that the five purposes of the Green Belt are upheld including 'safeguarding the countryside', which could have a positive impact on protecting green space and habitats within the Green Belt which are important in the protection against the loss of priority habitats, biodiversity and species. A minor positive effect is likely on this SA objective, although it is uncertain as it will depend on the specific proposals for the mineral extraction site within the Green Belt and whether there might still be loss of habitats and species.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Mineral extraction can result in the loss of important habitats and species. However, this policy seeks to ensure that the proposed restoration of the site does not conflict with the five purposes of the Green Belt and where possible enhances the beneficial use and improves the character and appearance of the countryside. Although not specifically mentioned in the policy or supporting text, this could provide opportunities for enhancing biodiversity and achieve net gains in biodiversity. As such, a minor positive but uncertain effect is likely on this SA objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
1.4 To protect and enhance sites of geological conservation interest	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and	+	The fundamental aim of Green Belt Policy is to prevent urban sprawl by keeping land permanently open. The open landscape is important to the setting of Hertfordshire's rich historic assets including Listed Buildings with concentrations in the historic towns such as Hertford and St Albans. This policy will help to ensure that proposals comply with national Green Belt policy and siting of minerals related machinery does not impact upon the

SA Objective Sub Questions	SA Score	Justification
their setting		openness of the Green Belt throughout the duration of the minerals operations. As such, a minor positive effect is likely on this SA objective.
2.2 To conserve below ground archaeological assets	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	++	With over half of Hertfordshire designated as Metropolitan Green Belt, it contributes to Hertfordshire's rich variety of character. Through helping to protect the Green Belt from urban sprawl, keeping land permanently open and maintaining the essential characteristics of openness and permanence a significant positive effect is likely on this SA objective.
4.1 To protect the quality of ground and surface water	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
appropriate renewable or lower carbon energy sources on site		
6.1 To protect against the risk of flooding	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
7.1 To encourage the use of recycled and secondary aggregates	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	The fundamental aim of Green Belt Policy is to prevent urban sprawl by keeping land permanently open. The supporting text to the policy recognises that mineral development is temporary and not deemed as inappropriate development in the NPPF, and as such will support proposals for mineral extraction and associated development in the Green Belt subject to compliance with national Green Belt policy and other local plan policies. Therefore, a minor positive effect is likely on this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality		
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+	The development of a minerals site could have an adverse impact on the local amenity of local residents and communities. By seeking to uphold the purposes of the Green Belt during the development and restoration of mineral sites, this policy could help to protect the amenity of towns and villages adjacent to and within the Green Belt in Hertfordshire. As such, a minor positive effect is likely on this SA objective.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+	Upholding the purposes of the Green Belt by keeping land permanently open and maintaining the essential characteristics of openness could contribute to protecting against the loss of Public Rights of Way, access, recreation areas and open space. Therefore, a minor positive effect is likely on this SA objective.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	This policy supports proposed restoration, which enhances the beneficial use of the Green Belt and improves the character and appearance of the countryside. This could lead to opportunities to improve health and amenity such as the delivery of enhanced public rights of way and improved access. However, it is difficult to determine whether this can be achieved as it will depend upon the location of the site and the detailed restoration plan, which will not be known until the planning application has been submitted.
9.4 To ensure that mineral sites do not compromise the operation and safety of	0	Upholding the purposes of the Green Belt during the development and restoration of mineral sites and associated development is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
commercial/civil or military aerodromes		

Policy 13: Cumulative Impact

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	?	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The policy and supporting text identify the natural environment where a cumulative effect could occur, but the wording does not specifically mention biodiversity and therefore an uncertain effect has been identified.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	0	Consideration of cumulative effects from minerals development is unlikely to affect this SA objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	?	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The policy and supporting text identify the natural environment where a cumulative effect could occur, but the wording does not specifically mention biodiversity and therefore an uncertain effect has been identified.
1.4 To protect and enhance sites of geological conservation interest	+	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The supporting text identifies geology as a potential area of the natural environment, where a cumulative effect is likely. As such, a minor positive effect is likely on this SA objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	+	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The supporting text identifies the historic environment as a potential area for cumulative effect. As such, a minor positive effect is likely on this SA objective.
2.2 To conserve below ground	+	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of

SA Objective Sub Questions	SA Score	Justification
archaeological assets		different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The supporting text identifies archaeological assets as a potential area for cumulative effect. As such, a minor positive effect is likely on this SA objective.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	Consideration of cumulative effects from minerals development is unlikely to affect this SA objective. Therefore, no effects are expected for this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The supporting text includes the appearance, quality and character of the landscape in Hertfordshire where a cumulative effect could occur. A minor positive effect is therefore identified on this SA objective.
4.1 To protect the quality of ground and surface water	+	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The supporting text identifies the quality of the water courses as a potential area for cumulative effect. As such, a minor positive effect is likely on this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	+	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The supporting text identifies groundwater and surface water as a potential area for cumulative effect. As such, a minor positive effect is likely on this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The supporting text identifies particle emissions and transport networks as a potential area for cumulative effect. As such, a minor positive effect is likely on this SA objective.

SA Objective Sub Questions	SA Score	Justification
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	Consideration of cumulative effects from minerals development is unlikely to affect this SA objective. Therefore, no effects are expected for this SA objective.
6.1 To protect against the risk of flooding	?	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The supporting text identifies the water environment where a cumulative effect could occur, but the wording does not specifically mention flood risk and therefore an uncertain effect has been identified. It is recommended that a bullet point be added under the 'Natural Environment' heading in the supporting text to include flood risk.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	?	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The policy and supporting text identify the water environment where a cumulative effect could occur, but the wording does not specifically mention flood alleviation or mitigation and therefore an uncertain effect has been identified. It is recommended that a bullet point be added under the 'Natural Environment' heading in the supporting text to include flood risk/alleviation.
7.1 To encourage the use of recycled and secondary aggregates	0	Consideration of cumulative effects from minerals development is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	0	Consideration of cumulative effects from minerals development is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	Consideration of cumulative effects from minerals development is unlikely to affect this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	Consideration of cumulative effects from minerals development is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	+	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The supporting text identifies agricultural land as where a cumulative effect could occur. As such, a minor positive effect is likely on this SA objective.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+	The policy states that mineral development proposals will only be permitted where the cumulative impact will not create an unacceptable adverse impact on the environment of an area or on the amenity or health of a local community, either in relation to the collective effects of different impacts of an individual proposal or in relation to the effects of a number of developments occurring either concurrently or successively. The policy and supporting text specifically refer to human health and amenity and the supporting text refers to the potential impacts of noise, dust, particle emissions and blasting vibrations. As such, a minor positive effect is likely on this SA objective.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The supporting text identifies general amenity and Public Rights of Way where a cumulative effect could occur. As such, a minor positive effect is likely on this SA objective.
9.3 To provide opportunities to improve health and amenity	0	Consideration of cumulative effects from minerals development is unlikely to affect this SA objective. Therefore, no effects are expected for this SA objective.

SA Objective Sub Questions	SA Score	Justification
through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site		
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	+	The policy states that mineral development proposals will be permitted where the cumulative impact would not result in unacceptable adverse impacts on the environment of an area, either in relation to the collective effects of different impacts of an individual proposal, or in relation to the effects of a number of developments occurring either concurrently or successively. The policy and supporting text identifies aviation safety, and in particular risk of bird strike within the Aerodrome Safeguarding Areas around London Luton Aerodrome and London Stansted Aerodrome, as where a cumulative effect could occur. As such, a minor positive effect is expected on this SA objective.

Policy 14: Water Management

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+	The policy seeks to ensure that there are no unacceptable impacts on the quality of water and nature conservation. Flooding can also damage habitats and this policy seeks to minimise flood risk through requiring proposals to take account of climate change allowances and direct proposals away from areas of high risk of flooding and reduce surface water run-off. Therefore, a minor positive effect is likely on this SA objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+	This policy seeks to protect both the quality of water and nature conservation, during development and in the reclamation of sites. Flooding can also damage habitats; however, the policy seeks to ensure that proposals take account of flood risk and implement mitigation, which includes the use of Sustainable Drainage Systems (SuDS), which can support the enhancement of habitats and achieve net gains in biodiversity. Therefore, a minor positive effect is likely on this SA objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.
1.4 To protect and enhance sites of geological conservation interest	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.
2.2 To conserve below ground archaeological assets	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.
2.3 Seek to ensure the supply of	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
locally distinctive building materials for historic building methods		
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+	Flooding can damage buildings and settlements and also adversely affect the characteristics of landscapes. As this policy seeks to minimise flood risk through requiring proposals to take account of climate change allowances, be directed away from areas of high risk of flooding and reduce surface water run-off, therefore a minor positive effect is likely on this SA objective.
4.1 To protect the quality of ground and surface water	++	The supporting text states that mineral developments must not cause any unacceptable adverse impact on local water bodies, as roughly 70% of Hertfordshire is covered by Source Protection Zones, which provide much of the county's drinking water and maintain the flow in many rivers. The policy itself requires water quality to be taken into account and in particular proposals must demonstrate that there is no unacceptable adverse impact to water quality and they will not cause unacceptable adverse impacts on the flow and quality of surface and groundwater on the site and elsewhere. A significant positive effect is therefore likely on this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	++	The supporting text states that mineral developments must not cause any unacceptable adverse impact on local water bodies, as roughly 70% of Hertfordshire is covered by Source Protection Zones, which provide much of the county's drinking water and maintain the flow in many rivers. The policy itself requires water supply to be taken into account and in particular proposals must demonstrate that they will not cause unacceptable adverse impacts on the flow and quality of surface and groundwater on the site and elsewhere. A significant positive effect is therefore likely on this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
on site		
6.1 To protect against the risk of flooding	++	The policy is likely to have significant positive effects on this SA objective as it supports proposals that reduce the likelihood and impact of flooding both on and off-site. This is required in Hertfordshire where there are a number of settlements along the flood plain, especially on Broxbourne-Epping Forest border and Cheshunt. Therefore, a significant positive effect is likely on this SA objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	++	Minerals sites can contribute to reducing flood risk as they can offer opportunities for water storage. The policy requires proposals to reduce flood risk, taking account of climate change allowances, flow and quality of surface and groundwater on the site and elsewhere. It also requires reclamation of the site to demonstrate that it will enhance water management and alleviate the risk of flooding. The supporting text states that the County Council would support proposals that provide beneficial impacts related to flooding. This may involve increasing the capacity of the floodplain and/or the free flow of floodwater through the development's design. Therefore, a significant positive effect is likely on this SA objective.
7.1 To encourage the use of recycled and secondary aggregates	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality		
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	++	This policy aims to protect water supply and water quality and avoid flood risk in Hertfordshire. This will help to protect public drinking water supplies, which will prevent any effects on the health and wellbeing of local communities within Hertfordshire. Flooding can endanger lives; damage settlements and can also adversely affect the health of people. This policy is also likely to prevent proposals which increase flood risk. The supporting text states that the County Council would support proposals that provide beneficial impacts related to flooding. This may involve increasing the capacity of the floodplain and/or the free flow of floodwater through the development's design. Overall, this policy is likely to have a significant effect on this SA objective.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.
9.4 To ensure that mineral sites do not compromise the operation and safety of	0	Protecting, water supply, water quality and avoiding flood risk in Hertfordshire is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
commercial/civil or military aerodromes		

Policy 16: Historic Environment

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
1.4 To protect and enhance sites of geological conservation interest	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	++	Hertfordshire contains an interesting variety of heritage assets, including 170 Scheduled Ancient Monuments, 110 Grade I, 472 Grade II*, 7,477 Grade II listed buildings, 45 parks and gardens of including two Grade I, nine Grade II* and 34 Grade II parks and gardens and 64 Conservation Areas ¹⁶⁷ . As it requires the protection, conservation and where appropriate, the enhancement of the historic environment as well as the consideration of the significance of any heritage assets affected by the proposals, including their setting, integrity and distinctiveness, this policy is likely to have a significant positive effect on this SA objective.
2.2 To conserve below ground	++	As well as all of the known heritage assets, there are many below ground and non-designated heritage assets including archaeology sites in Hertfordshire. This policy specifically requires the protection, conservation of all

¹⁶⁷ <http://hc.historicengland.org.uk/content/pub/2015/local-authority-profiles-2015.xls>

SA Objective Sub Questions	SA Score	Justification
archaeological assets		heritage assets including archaeological assets. Applicants are encouraged to provide an assessment of these assets using relevant historic, archaeological, environmental and heritage asset records and appropriate expertise. In addition, the supporting text encourages public display of the archive collection and publicly available studies associated with the excavation of artefacts. Therefore, a significant positive effect is considered likely.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	+	There are isolated and localised pockets of brick clay in the north west of the county and this specific mineral can be used in locally distinct historic building methods. This policy aims to support mineral extraction where it can be demonstrated that the proposal will protect, conserve and where appropriate enhance the historic environment. Therefore, this policy could help to ensure the continued supply of locally distinctive building materials for historic buildings in the County. However, this will be dependent upon whether brick clay sites are brought forward by developers and therefore an uncertain positive effect has been given for this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	++	Hertfordshire's environment contains an interesting variety of historic landscapes. Through the protection of these designations which contribute to landscape character and quality within Hertfordshire, the policy is likely to have a significant positive effect on this SA objective
4.1 To protect the quality of ground and surface water	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
on site		
6.1 To protect against the risk of flooding	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
7.1 To encourage the use of recycled and secondary aggregates	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	Protecting, conserving and where appropriate enhancing the historic environment within Hertfordshire is unlikely to affect this SA objective.

Policy 16: Landscape and Green Infrastructure

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+	The policy seeks to protect designated landscapes and sites (e.g. Ancient Woodlands) from mineral workings. The supporting text notes that reference should be given to the Hertfordshire Local Nature Partnership Guiding principles. As such, a minor positive effect is likely on this SA objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	++	The policy seeks to protect designated landscapes and sites (e.g. Ancient Woodlands) from mineral workings. It also requires proposals for mineral extraction to continue long term improvements made to the wider ecological networks and green infrastructure, which should result in enhancements to habitats and the achievement of net gains in biodiversity. As such, a significant positive effect is likely on this SA objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.
1.4 To protect and enhance sites of geological conservation interest	+	Hertfordshire has a rich variety of character, including the chalk landscape of the Chilterns character area, which is important to geological conservation. The supporting text states that these should be conserved and enhanced to demonstrate their importance and the contribution that they make to wider ecological networks. As such, a minor positive effect is likely on this SA objective
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	+	In Hertfordshire there are a large number of designations relating to the historic environment many of which contribute to wider landscape quality and character. Therefore, as an indirect effect of protecting the landscape, this policy could also help to conserve these historic environment designations. As such, a minor positive effect is likely on this SA objective.
2.2 To conserve below ground archaeological assets	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	++	There are five types of important and valued landscapes of national and local importance in Hertfordshire including The Chilterns AONB; two Regional Parks; Watling Chase Community Forest; Landscapes of local importance and value; and Registered parks and gardens and other landscapes of historic interest. Through seeking to protect these designated landscapes and important sites, the policy aims to conserve and enhance the landscape, local distinctiveness and landscape character in Hertfordshire. It states that mineral development proposals must assess the landscape character, quality and visual impact through a full Landscape and Visual Impact Assessment, which takes into account existing local studies. As such, a significant positive effect is likely on this SA objective.
4.1 To protect the quality of ground and surface water	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
on site		
6.1 To protect against the risk of flooding	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.
7.1 To encourage the use of recycled and secondary aggregates	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+	The development of a minerals site could have an adverse impact on local amenity for local residents and communities. This policy aims to protect both the designated landscapes, sites and local distinctive areas from inappropriate development. As such, a minor positive effect is likely on this SA objective.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+	The policy aims to protect both designated landscapes and the landscape more generally within Hertfordshire from minerals development. In achieving this, access to the countryside, open spaces and Public Rights of Way could be protected and as such, a minor positive effect is identified on this SA objective.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	++	The policy requires mineral proposals to demonstrate that throughout the lifetime of the development (including restoration) continued long term improvements are made to wider ecological networks and green infrastructure. In addition, the supporting text states that restoration proposals should seek to demonstrate their contribution to meeting local green infrastructure needs, including multifunctional green infrastructure assets. This could provide increased opportunities to access recreational facilities such as public rights of way. Therefore, this policy is considered likely to have significant positive effects on this SA objective.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	Protecting and/or enhancing landscape character, quality and visual amenity is unlikely to affect this SA objective.

Policy 17: Biodiversity

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	++	This policy seeks to ensure that protected sites and priority habitats for nature conservation and species in Hertfordshire are given the appropriate level of protection. A significant positive effect is therefore likely on this SA objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	++	This policy seeks to ensure that there are opportunities for the delivery of measureable net gains in national and local biodiversity, ecological networks and the Strategic Green Infrastructure. The supporting text also seeks to ensure that consideration is given to the guiding principles of the Local Nature Partnership, which includes the integration of biodiversity within new development. Furthermore, sites should be restored to a high environmental standard and where possible contribute or enhance the natural and local environment, including ecological networks. A significant positive effect is therefore likely on this SA objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	++?	This policy requires proposals to demonstrate how the loss of or damage to habitats and/or species will be minimised. Although not specifically stated, this might include the avoidance of the deposition of levels of nitrogen oxides and sulphur dioxide, produced by minerals transport on biodiversity sites. Therefore, an uncertain but significant effect is likely on this SA objective, however this is dependent upon the level of HGV traffic generated by minerals sites through the County and likely routes taken by vehicles travelling to and from the site.
1.4 To protect and enhance sites of geological conservation interest	++	Hertfordshire contains four main National Character Areas (NCAs) which reflect the distinctive landscapes and habitats across the county, including the chalk streams of the Chilterns. In addition, Hertfordshire has 43 sites of Special Scientific Interest (SSSI) and other nationally and locally designated ecological and geological sites. This policy seeks to ensure that there is no irreversible or significant adverse impact on these specific sites. The supporting text also states that where possible, the restoration of sites should contribute to the enhancement of the natural and local environment. A significant positive effect is therefore likely on this SA objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	+?	Hertfordshire contains four NCAs covering distinct geographical areas which reflect the distinctive landscapes and historic characteristics of the County. Habitats and biodiversity are often linked to local landscapes. Therefore an indirect minor positive effect is considered likely on this SA objective.
2.2 To conserve below ground archaeological assets	0	This policy seeks to ensure that protected sites and priority habitats for nature conservation and species in Hertfordshire are given the appropriate level of protection. Therefore, no effects are expected for this SA objective.

SA Objective Sub Questions	SA Score	Justification
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	This policy seeks to ensure that protected sites and priority habitats for nature conservation and species in Hertfordshire are given the appropriate level of protection. Therefore, no effects are expected for this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+?	Important habitats and biodiversity are interlinked with landscapes. Hertfordshire contains four National Character Areas (NCAs) and the Chilterns AONB, which reflect the distinctive landscapes and habitats across the county, including the chalk streams of the Chilterns. The conservation and enhancement of biodiversity in this policy could therefore have an indirect minor positive effect on this SA objective, as it will also protect and contribute towards the important landscapes within Hertfordshire.
4.1 To protect the quality of ground and surface water	+?	Ensuring that protected and non-protected sites for nature conservation are given the appropriate level of protection and that there are opportunities for the delivery of measureable net gains in national and local biodiversity, ecological networks and the Strategic Green Infrastructure in Hertfordshire could have an indirect minor positive effect on this SA objective, where the nature conservation sites, ecological networks and strategic green infrastructure include water bodies. This effect is uncertain as it will depend on the nature of the conservation sites being protected.
4.2 To protect the quantity of ground and surface water from over abstraction	0	This policy seeks to ensure that protected sites and priority habitats for nature conservation and species in Hertfordshire are given the appropriate level of protection. Therefore, no effects are expected for this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	0	This policy seeks to ensure that protected sites and priority habitats for nature conservation and species in Hertfordshire are given the appropriate level of protection. Therefore, no effects are expected for this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	This policy seeks to ensure that protected sites and priority habitats for nature conservation and species in Hertfordshire are given the appropriate level of protection. Therefore, no effects are expected for this SA objective.

SA Objective Sub Questions	SA Score	Justification
6.1 To protect against the risk of flooding	+?	Ensuring that protected and non-protected sites for nature conservation are given the appropriate level of protection and that there are opportunities for the delivery of measurable net gains in national and local biodiversity, ecological networks and the Strategic Green Infrastructure in Hertfordshire could have an indirect minor positive effect on this SA objective, where the nature conservation sites, ecological networks and strategic green infrastructure include water bodies. This effect is uncertain as it will depend on the nature of the conservation sites being protected.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	+?	Ensuring that protected and non-protected sites for nature conservation are given the appropriate level of protection and that there are opportunities for the delivery of measurable net gains in national and local biodiversity, ecological networks and the Strategic Green Infrastructure in Hertfordshire could have an indirect minor positive effect on this SA objective, where the nature conservation sites, ecological networks and strategic green infrastructure include water bodies. This effect is uncertain as it will depend on the nature of the conservation sites being protected.
7.1 To encourage the use of recycled and secondary aggregates	0	This policy seeks to ensure that protected sites and priority habitats for nature conservation and species in Hertfordshire are given the appropriate level of protection. Therefore, no effects are expected for this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	0	This policy seeks to ensure that protected sites and priority habitats for nature conservation and species in Hertfordshire are given the appropriate level of protection. Therefore, no effects are expected for this SA objective.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	This policy seeks to ensure that protected sites and priority habitats for nature conservation and species in Hertfordshire are given the appropriate level of protection. Therefore, no effects are expected for this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	This policy seeks to ensure that protected sites and priority habitats for nature conservation and species in Hertfordshire are given the appropriate level of protection. Therefore, no effects are expected for this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in	0	This policy seeks to ensure that protected sites and priority habitats for nature conservation and species in Hertfordshire are given the appropriate level of protection. Therefore, no effects are expected for this SA objective.

SA Objective Sub Questions	SA Score	Justification
preference to that of a higher quality		
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+	This policy seeks to ensure that biodiversity networks can be enhanced and contribute to the wider ecological networks and local green infrastructure. Although this will primarily benefit biodiversity it will also provide indirect benefits to people, through the provision of recreational, aesthetic and environmental health improvements. As such, a minor positive effect is likely on this SA objective.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+	This policy requires proposals to take into account the Hertfordshire Strategic Green Infrastructure Plan during mineral extraction, restoration and associated development. The supporting text states that proposals should recognise the value of the natural environment and the range of benefits and services it provides. The protection of nature conservation and species can therefore have an indirect benefit upon protecting against the loss of Public Rights of Way, access, recreation areas and open space. As such, a minor positive effect is likely on this SA objective.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	This policy requires proposals to take into account the Hertfordshire Strategic Green Infrastructure Plan during mineral extraction, restoration and associated development. Although the enhancement and growth of the wider ecological network will be primarily for the benefit of biodiversity, indirect benefits are also likely in relation to increasing access and provision to formal and informal recreation infrastructure. However, this will be dependent on the type of infrastructure created and its accessibility to the public, which cannot be known until the application stage of the planning process. As such, an uncertain minor positive effect is likely on this SA objective.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	+?	This policy requires proposals to include an ecological survey and scheme for monitoring biodiversity within the site prior to, during and after extraction. This could include the monitoring of bird species on sites within an Airport Safeguarding Zone, although neither the policy nor supporting text specifically require this and therefore the effect of this policy upon this policy is uncertain minor positive.

Policy 18: Protection and Enhancement of Amenity

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	++	This policy requires applicants to consider the impact upon natural environment and local amenity and the supporting text highlights the impacts of lighting, noise, dust, vibration and other emissions, including those arising from traffic. All of these issues could have a detrimental impact on priority habitats, biodiversity and species. As such, a significant positive effect is likely on this SA objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	The policy seeks to ensure that consideration has been given to the natural and built environment and where required appropriate mitigation and possible enhancements are included in minerals development proposals. This could provide opportunities for measureable net gains in biodiversity as part of the development and restoration of a site. As such, a minor positive but uncertain effect is likely on this SA objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	++	The supporting text states that proposals will be expected to undertake an early analysis of potential impacts of air quality on the integrity of any internationally designated Natura 2000 sites (that is, Special Areas of Conservation, Special Protection Areas) and Ramsar sites, in order to establish any need for mitigation measures. Therefore, this policy could protect against the deposition of air and other pollutants on designated nature conservation sites and as such, a significant positive effect is likely on this SA objective.
1.4 To protect and enhance sites of geological conservation interest	+?	The policy seeks to ensure that consideration has been given to the natural environment and where appropriate, adequate mitigation is provided. Therefore, although not mentioned specifically in policy this could support the protection and enhancement of geological sites of interest and as such, an uncertain minor positive effect is likely on this SA objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	++	Hertfordshire contains an interesting variety of heritage assets and this policy seeks to ensure that consideration has been given to the historic environment and where required appropriate mitigation and possible enhancements are included in minerals development proposals. As such, a significant positive effect is likely on this SA objective.
2.2 To conserve below ground archaeological assets	+?	Hertfordshire contains an interesting variety of heritage assets, including archaeology sites and this policy aims to ensure that consideration has been given to the historic environment and where required appropriate mitigation and possible enhancements are included in minerals development proposals. Therefore, although not mentioned specifically in policy this could support the protection and enhancement of archaeological sites and as such, an uncertain minor positive effect is likely on this SA objective.

SA Objective Sub Questions	SA Score	Justification
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	Protecting against adverse impacts of minerals development upon the natural, built and historic environment, public health and safety, quality of life and amenity is unlikely to affect this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	++	The supporting text highlights the potential for impacts from lighting, noise and vibration. These could have an adverse impact upon Hertfordshire's nationally and locally distinctive landscapes. This policy requires applicants to consider the impact upon natural, built and historic environment (which all contribute to landscape character) and local amenity and where required provide appropriate mitigation. Therefore, a significant positive effect is likely on this SA objective.
4.1 To protect the quality of ground and surface water	+?	The policy seeks to ensure that consideration has been given to the natural environment and where appropriate, adequate mitigation is provided. Therefore, although not mentioned specifically in policy this could provide protection to the quality of water and as such, an uncertain minor positive effect is likely on this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	+?	The policy seeks to ensure that consideration has been given to the natural environment and where appropriate, adequate mitigation is provided. Therefore, although not mentioned specifically in policy this could provide protection to the quantity of ground and surface water from over abstraction and as such, an uncertain minor positive effect is likely on this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	The supporting text states that proposals will be expected to undertake an early analysis of potential impacts of air quality on human health, in order to establish any need for mitigation measures. Therefore, this policy could protect against the deposition of air and other pollutants and as such, an uncertain minor positive effect is likely on this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	Protecting against adverse impacts of minerals development upon the natural, built and historic environment, public health and safety, quality of life and amenity is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
6.1 To protect against the risk of flooding	+?	The policy seeks to ensure that consideration has been given to the natural environment and where appropriate, adequate mitigation is provided. Therefore, although not mentioned specifically in policy this could provide protection against the risk of flooding and as such, an uncertain minor positive effect is likely on this SA objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	+?	The policy seeks to ensure that consideration has been given to the natural environment and where appropriate, adequate mitigation is provided. Therefore, although not mentioned specifically in policy this could flood mitigation methods including water storage and SuDs and as such, an uncertain minor positive effect is likely on this SA objective.
7.1 To encourage the use of recycled and secondary aggregates	0	Protecting against adverse impacts of minerals development upon the natural, built and historic environment, public health and safety, quality of life and amenity is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	0	Protecting against adverse impacts of minerals development upon the natural, built and historic environment, public health and safety, quality of life and amenity is unlikely to affect this SA objective.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	Protecting against adverse impacts of minerals development upon the natural, built and historic environment, public health and safety, quality of life and amenity is unlikely to affect this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	Protecting against adverse impacts of minerals development upon the natural, built and historic environment, public health and safety, quality of life and amenity is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	+?	The policy seeks to ensure that consideration has been given to the natural environment and where appropriate, adequate mitigation is provided. Therefore, although not mentioned specifically in policy this could provide protection of the County's best and most versatile agricultural land and as such, an uncertain minor positive effect is likely on this SA objective.
Social		

SA Objective Sub Questions	SA Score	Justification
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	++	The policy seeks to ensure that consideration has been given to the natural, built and historic environment, public health and safety, quality of life and amenity and that appropriate mitigation has been identified. The supporting text states that applications will also be expected to submit a Health Impact Assessment to assess all potential impacts on health as a result of the proposed development. The supporting text also highlights the need for consideration to be given to specific issues such as those arising from lighting, noise, dust, vibration and other emissions, including those arising from traffic, which can all have a detrimental impact on public health and safety and quality of life. As such, a significant positive effect is likely on this SA objective.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+?	The policy seeks to ensure that consideration has been given to the natural, built and historic environment and where required appropriate mitigation and possible enhancements are included in minerals development proposals. Although not specifically stated in the policy or supporting text, this could include the protection against the loss of recreational facilities. Therefore, an uncertain but minor positive effect is likely on this SA objective.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	The policy requires mineral proposals to demonstrate that where possible, enhancements have been made to enhance the natural, built and historic environment and amenity. Although not specifically stated in the policy or supporting text, this could include the delivery of green infrastructure, enhanced public rights of way and improved access to recreation. Therefore, an uncertain but minor positive effect is likely on this SA objective.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	Protecting against adverse impacts of minerals development upon the natural, built and historic environment, public health and safety, quality of life and amenity is unlikely to affect this SA objective.

Policy 19: Health and Wellbeing

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	0	This policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed, how the scheme will offer enhanced access to the natural environment in the long term and that reclamation will contribute to positive health and wellbeing outcomes. Encouraging access to the natural environment has the potential to increase the number of people in close proximity to protected habitats and species, increasing the likelihood of recreational disturbance which could have negative effects against this objective. However, the restoration works would involve creating new habitats alongside the provision of new recreation opportunities allowing for the conflicts between the two be actively managed and avoided. Therefore, there is likely to be a negligible effect on existing protected habitats and species.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	This policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed, how the scheme will offer enhanced access to the natural environment in the long term and that reclamation will contribute to positive health and wellbeing outcomes. Encouraging access to the natural environment has the potential to increase the number of people in close proximity to protected habitats and species, increasing the likelihood of recreational disturbance which could have negative effects against this objective. However, the restoration works would involve creating new habitats alongside the provision of new recreation opportunities allowing for the conflicts between the two be actively managed and avoided. Therefore, overall a minor positive effect is recorded in acknowledgement of the potential to create new habitats as part of restoration. This effect would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	+	This policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed, how the scheme will offer enhanced access to the natural environment in the long term and that reclamation will contribute to positive health and wellbeing outcomes. Promoting consideration to health and wellbeing in minerals planning will likely result in the minimisation of air pollutants including dust from operational minerals sites, which is likely to have an indirect positive effect on this objective.
1.4 To protect and enhance sites of geological conservation interest	0	This policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed, how the scheme will offer enhanced access to the natural environment in the long term and that reclamation will contribute to positive health and wellbeing outcomes. Therefore a negligible effect is recorded against this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and	0	This policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed, how the scheme will offer enhanced access to the natural environment in the long term and that reclamation will contribute to positive health and wellbeing outcomes. Therefore a negligible effect is recorded against this objective.

SA Objective Sub Questions	SA Score	Justification
their setting		
2.2 To conserve below ground archaeological assets	0	This policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed, how the scheme will offer enhanced access to the natural environment in the long term and that reclamation will contribute to positive health and wellbeing outcomes. Therefore a negligible effect is recorded against this objective.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	This policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed, how the scheme will offer enhanced access to the natural environment in the long term and that reclamation will contribute to positive health and wellbeing outcomes. Therefore a negligible effect is recorded against this objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+	This policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed, how the scheme will offer enhanced access to the natural environment in the long term and that reclamation will contribute to positive health and wellbeing outcomes. Restoration works would involve restoring the landscape alongside the provision of new recreation opportunities. Therefore, overall a minor positive effect is.
4.1 To protect the quality of ground and surface water	+?	This policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed. This will require proposals to demonstrate that ground and water quality are adequately protected. Therefore a minor positive effect is recorded against this objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
4.2 To protect the quantity of ground and surface water from over abstraction	0	This policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed, how the scheme will offer enhanced access to the natural environment in the long term and that reclamation will contribute to positive health and wellbeing outcomes. Therefore a negligible effect is recorded against this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	0	This policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed, how the scheme will offer enhanced access to the natural environment in the long term and that reclamation will contribute to positive health and wellbeing outcomes. Therefore a negligible effect is recorded against this objective.
5.2 To promote energy efficiency, i.e. by	0	This policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed, how the scheme will offer enhanced access to the natural environment in the long

SA Objective Sub Questions	SA Score	Justification
encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site		term and that reclamation will contribute to positive health and wellbeing outcomes. Therefore a negligible effect is recorded against this objective.
6.1 To protect against the risk of flooding	0	This policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed, how the scheme will offer enhanced access to the natural environment in the long term and that reclamation will contribute to positive health and wellbeing outcomes. Therefore a negligible effect is recorded against this objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	This policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed, how the scheme will offer enhanced access to the natural environment in the long term and that reclamation will contribute to positive health and wellbeing outcomes. Therefore a negligible effect is recorded against this objective.
7.1 To encourage the use of recycled and secondary aggregates	0	This policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed, how the scheme will offer enhanced access to the natural environment in the long term and that reclamation will contribute to positive health and wellbeing outcomes. Therefore a negligible effect is recorded against this objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	0	This policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed, how the scheme will offer enhanced access to the natural environment in the long term and that reclamation will contribute to positive health and wellbeing outcomes. Therefore a negligible effect is recorded against this objective.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	This policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed, how the scheme will offer enhanced access to the natural environment in the long term and that reclamation will contribute to positive health and wellbeing outcomes. Therefore a negligible effect is recorded against this objective.
8.3 To ensure that mineral sterilisation is minimised	0	This policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed, how the scheme will offer enhanced access to the natural environment in the long term and that reclamation will contribute to positive health and wellbeing outcomes. Therefore a negligible effect is recorded against this objective.

SA Objective Sub Questions	SA Score	Justification
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	0	This policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed, how the scheme will offer enhanced access to the natural environment in the long term and that reclamation will contribute to positive health and wellbeing outcomes. Therefore a negligible effect is recorded against this objective.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	++?	This policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed, how the scheme will offer enhanced access to the natural environment in the long term and that reclamation will contribute to positive health and wellbeing outcomes. Therefore a significant positive effect is recorded against this objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+++	This policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed, how the scheme will offer enhanced access to the natural environment in the long term and that reclamation will contribute to positive health and wellbeing outcomes. In the supporting text to the policy this includes improved public access, new and improved local amenity and recreational facilities. Therefore a significant positive effect is recorded against this objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and	+++	This policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed, how the scheme will offer enhanced access to the natural environment in the long term and that reclamation will contribute to positive health and wellbeing outcomes. In the supporting text to the policy this includes improved public access, new and improved local amenity and recreational facilities. Therefore a significant positive effect is recorded against this objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.

SA Objective Sub Questions	SA Score	Justification
restoration of a site		
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	+	This policy seeks to ensure that proposals adequately promote health and wellbeing by demonstrating how health impacts have been assessed. Therefore an indirect minor positive effect is recorded against this objective.

Policy 20: Strategic Transport

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+?	Mineral workings can generate road traffic which can have negative impacts on biodiversity e.g. through the deposition of pollutants. The policy seeks to reduce associated minerals traffic on the road and proposals must consider the use of sustainable modes of transport (rail and water). A minor positive effect is identified as these measures will reduce adverse effects such as noise, air pollution, vibration, protect habitats and species. However, any effects would be uncertain as the potential for effects will depend on the exact nature and design of proposals, which will not be known until the planning application stage.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	++?	<p>There are currently 32 Air Quality Management Areas (AQMAs) across eight of the 10 districts in Hertfordshire, with Stevenage and Welwyn Hatfield being the only two districts with no designated AQMAs. Minerals working can generate road traffic which can have negative impacts on air quality and the deposition of air and other pollutants on designated nature conservation sites. This policy seeks to encourage mineral operations to utilise sustainable transport modes and where possible minimise transport movements and distance travelled by road. Furthermore, the policy requires proposals to take into account unacceptable adverse impacts generated by traffic on wildlife habitats and the natural environment.</p> <p>However, the policy also states that the County will support proposals for new or replacement aggregate terminals for rail and water transport, subject to the suitability of the local road network for secondary collection and distribution. However, any effects would be uncertain as the potential for effects will depend on the exact nature and design of proposals, location and proximity / viability to connect to the existing transport network, which will not be known until the planning application stage.</p> <p>Therefore, a significant uncertain positive effect is likely for this SA objective.</p>
1.4 To protect and enhance sites of geological	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
conservation interest		
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	+?	Vibrations and emissions from HGV transport can harm historic assets. Therefore by encouraging the use Hertfordshire's primary route network and sustainable transport modes, this policy could reduce the potential impact on historic assets. A minor positive effect is identified as these measures will reduce adverse effects such as noise, air pollution, and vibration which would protect habitats and protected species. However, any effects would be uncertain as the potential for effects will depend on the exact nature and design of proposals, location and proximity / viability to connect to the existing transport network, which will not be known until the planning application stage.
2.2 To conserve below ground archaeological assets	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+?	Transport is a major issue when considering proposals for mineral development as the generation of additional HGV traffic can have negative impacts on the environment and landscape. The proposed policy may have minor positive effects on this SA objective as applicants must demonstrate how they have considered sustainable modes of transport (rail and water) in their proposals. However, any effects would be uncertain as the potential for effects will depend on the exact nature and design of proposals, location and proximity / viability to connect to the existing transport network, which will not be known until the planning application stage.
4.1 To protect the quality of ground and surface water	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	++?	This policy is likely to have a significant positive effect on this SA objective as it encourages the use of sustainable transport modes as a means of transport of minerals as well as minimising transport movements and distances travelled by road. The supporting text states that proposals must acknowledge the existing highway situation and, in accordance with national policy, seek to minimise travel and actively promote alternatives to road transport. Furthermore, the policy states that the County will support proposals for new or replacement aggregate terminals

SA Objective Sub Questions	SA Score	Justification
		for rail and water transport, subject to the suitability of the local road network for secondary collection and distribution. The effect is uncertain though because the supporting text recognises that more sustainable modes may not always be feasible, therefore it will depend on the specific proposals that come forward.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
6.1 To protect against the risk of flooding	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
7.1 To encourage the use of recycled and secondary aggregates	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
8.3 To ensure that mineral sterilisation is minimised	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+?	Transport is a major issue when considering proposals for mineral development as the generation of HGV traffic can have negative impacts on the wellbeing and health of local communities. Mineral workings are not wide spread across the county and are predominantly restricted to the sand and gravel belt where they naturally occur. As a result, there is more chance of there being concentrations of mineral related traffic in some areas in the County. However, this policy states that mineral extraction sites and associated development must be well located in relation to the primary route network, which should minimise the use of local roads and reduce the volume of lorries near local communities. This policy may have minor positive effects on this SA objective as it supports proposals that use rail or water to transport minerals. However, any effects would be uncertain as the potential for effects will depend on the exact nature and design of proposals, location and proximity / viability to connect to the existing transport network, which will not be known until the planning application stage.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
recreation as part of the development and restoration of a site		
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	Encouraging the use Hertfordshire's primary route network and sustainable transport modes as a means to transport minerals is unlikely to affect this SA objective.

Policy 21: Operational Transport

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+?	This policy requires that where significant transport movements are expected, they must be supported by a Transport Assessment which addresses proximity to nearby environmental designations or sensitive areas. It also states that mineral proposals must demonstrate that the traffic impacts generated would not have an unacceptable adverse impact on the natural, built and historic environment. Furthermore, where appropriate, the County will use routeing restrictions and planning obligations to mitigate and/or compensate for the effects of minerals development. Therefore, a minor positive effect is likely. However, any effects would be uncertain as the potential for effects will depend upon the exact nature and design of proposals and its location in relation to biodiversity sites which will not be known until the planning application stage.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Where there are likely to be significant adverse effects upon the natural environment that cannot be mitigated by planning conditions, the County will use routeing restrictions and planning obligations to mitigate and/or compensate for adverse effects of minerals development. Therefore, a minor positive effect is likely as compensation may include enhancement for biodiversity. However, any effects would be uncertain as the potential for effects will depend on the exact nature and design of proposals and its location in relation to biodiversity sites which will not be known until the planning application stage.

SA Objective Sub Questions	SA Score	Justification
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	+?	Minerals working can generate road traffic which can have negative impacts on biodiversity e.g. through the deposition of pollutants. This policy aims to protect against adverse impacts upon biodiversity, which could include the re-routing of traffic on less sensitive roads. Therefore, a minor positive effect is likely. However, any effects would be uncertain as the potential for effects will depend upon the exact nature and design of proposals and its location in relation to nature conservation sites which will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	+?	This policy seeks to ensure that proposals do not have an unacceptable adverse effect on the natural, built and historic environment. The policy requires Transport Assessments to be prepared which detail proximity to nearby environmental designations or sensitive areas. This could include designated heritage assets and Conservation Areas. Therefore, a minor positive effect is likely. However, any effects would be uncertain as the potential for effects will depend upon the exact nature and design of proposals, which will not be known until the planning application stage.
2.2 To conserve below ground archaeological assets	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+?	This policy seeks to ensure that proposals do not have an unacceptable adverse effect on the natural, built and historic environment. The policy requires Transport Assessments to be prepared which detail proximity to nearby environmental designations or sensitive areas. This could include landscape designations, as such, a minor positive effect is likely. However, any effects would be uncertain as the potential for effects will depend upon the exact nature and design of proposals, which will not be known until the planning application stage.
4.1 To protect the quality of ground and surface water	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
4.2 To protect the quantity of	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
ground and surface water from over abstraction		
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
6.1 To protect against the risk of flooding	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
7.1 To encourage the use of recycled and secondary aggregates	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
during and after extraction		
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+?	This policy requires that where significant transport movements are expected, they must be supported by a Transport Assessment which addresses potential cumulative impacts arising from transport movements, proximity to nearby environmental designations or sensitive areas and the availability of public transport (presumably for employees). It also states that mineral proposals must demonstrate that the traffic impacts generated would not have an unacceptable adverse impact on amenity or human health. A minor positive effect is identified as the policy should help to reduce adverse effects such as noise and air pollution on local communities. However, any effects would be uncertain as the potential for effects will depend upon the exact nature and design of proposals, which will not be known until the planning application stage.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.
9.3 To provide opportunities to improve health and amenity through delivery of green	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site		
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	Detailing the approach to vehicle movement within the site, access to and from the site and the conditions of the local highway network is unlikely to affect this SA objective.

Policy 22: Public Rights of Way

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+?	This policy supports the creation of new rights of way and linkages where possible to the Rights of Way Improvement Plan and Green Infrastructure Plans. This could result in improvements to biodiversity. However, this will be dependent on the location of the proposed mineral site, local biodiversity and habitats as well as the proposed replacements and new route locations.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	This policy supports the creation of new rights of way and linkages where possible to the Rights of Way Improvement Plan and Green Infrastructure Plans. This could result in improvements to biodiversity. However, this will be dependent on the location of the proposed mineral site, local biodiversity and habitats as well as the proposed replacements and new route locations.
1.3 To protect against the deposition of air and other	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
pollutants on designated nature conservation sites		
1.4 To protect and enhance sites of geological conservation interest	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
2.2 To conserve below ground archaeological assets	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+	The location of mineral extraction sites is usually within the countryside, which means there is the potential for impacts upon existing Rights of Way and general access to open space. This policy seeks to ensure that Public Rights of Way are protected and enhancements are made to support access into the countryside. Therefore, an indirect impact of this policy is that it could help to conserve and enhance the character and quality of Hertfordshire's landscapes. A minor positive effect is likely on this SA objective.
4.1 To protect the quality of ground and surface water	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
5.1 To reduce operational emissions through	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
improved/enhanced technologies and sustainable transport		
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
6.1 To protect against the risk of flooding	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
7.1 To encourage the use of recycled and secondary aggregates	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
8.3 To ensure that mineral sterilisation is minimised	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+	This policy seeks to ensure that Public Rights of Way are protected and enhancements are made to support access into the countryside. Therefore, this policy could contribute to protecting local amenity around communities and improving health through access to the countryside and therefore a minor positive effect is likely on this SA objective.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	++?	The location of mineral extraction sites is usually within the countryside, which means there is the potential for impacts upon existing Rights of Way and general access to open space. This policy seeks to ensure that Public Rights of Way are protected and not adversely affected by a proposal and where this is not possible, good quality, safe and convenient alternative provision is made or suitable replacement Right(s) of Way are secured. This policy also supports the creation of new rights of way, which link where possible to the Rights of Way Improvement Plan and Green Infrastructure Plans. Overall, a significant positive effect is likely on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to	++?	This policy supports the creation of new rights of way, which link where possible to the Rights of Way Improvement Plan and Green Infrastructure Plans. It is likely that this will increase opportunities to improve health and amenity through delivery of green infrastructure and enhanced public rights of way and therefore a significant positive effect is likely on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.

SA Objective Sub Questions	SA Score	Justification
recreation as part of the development and restoration of a site		
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	Ensuring that Public Rights of Way are protected and not adversely affected by the proposal is unlikely to affect this SA objective.

Policy 23: Soils and Agricultural Land

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+?	Mineral developments can result in the loss of soil and the habitats it supports but the policy seeks to ensure that original soil profiles are reinstated or an appropriate alternative soil profile created, which could therefore contribute to restoration of habitats. In addition, while the policy safeguards against the loss of best and most versatile agricultural land, this may be allowed to occur if it can be demonstrated that available lower grade land has an environmental value which outweighs agricultural considerations. Therefore, habitats and species protection may indirectly occur off-site. These measures are likely to benefit biodiversity and as such, a minor positive effect is likely on this SA objective. However, this will be dependent on the location of the proposed mineral site, local biodiversity and habitats as well as the proposed soil reinstatement proposals (e.g. if the site is returned to agricultural land it would be unlikely to improve biodiversity).
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Mineral developments can result in the loss of soil and the habitats it supports but the policy seeks to ensure that original soil profiles are reinstated or an appropriate alternative soil profile created, which could therefore contribute to restoration of habitats and as such, a minor positive effect is likely on this SA objective. However, this will be dependent on the location of the proposed mineral site, local biodiversity and habitats as well as the proposed soil reinstatement proposals (e.g. if the site is returned to agricultural land it would be unlikely to improve biodiversity).
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
1.4 To protect and enhance sites of geological conservation interest	+?	Mineral developments can result in the loss of soil profiles and layers, which can contribute to geological interest as they form the upper most part of rock formations and can help to understand past environmental conditions and geological processes. The policy seeks to ensure that original soil profiles are reinstated or an appropriate alternative soil profile created, which could therefore help to protect or enhance sites of geological conservation interest and as such, a minor positive effect is likely on this SA objective. However, this will be dependent on the intrinsic geological value of the proposed mineral site as well as the proposed soil reinstatement proposals.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
their setting		
2.2 To conserve below ground archaeological assets	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+	The policy seeks to ensure that there are no unacceptable impacts on the quality of soil resulting from mineral development in Hertfordshire and also against the permanent loss of best and most versatile agricultural land. A minor positive effect is likely on this SA objective through protecting soil which is a basic element contributing to the landscape, and also agricultural land which can contribute to landscape character and quality.
4.1 To protect the quality of ground and surface water	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
appropriate renewable or lower carbon energy sources on site		
6.1 To protect against the risk of flooding	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
7.1 To encourage the use of recycled and secondary aggregates	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	Although this policy permits development on the best and most versatile agricultural land in certain circumstances, it seeks to prevent the permanent loss of the best and most versatile agricultural land. Therefore, it could have a long term, indirect minor positive effect on this SA objective because it would help to retain the economic benefits of agricultural land within Hertfordshire.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in	++	Although this policy permits development on the best and most versatile agricultural land in certain circumstances, it seeks to prevent the permanent loss of the best and most versatile agricultural land. Therefore, the reclamation of sites must ensure that agricultural land is returned to at least the equivalent grade or better quality prior to mineral extraction. Therefore, overall a significant positive effect is expected for this SA objective.

SA Objective Sub Questions	SA Score	Justification
preference to that of a higher quality		
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	0	Although this policy permits development on the best and most versatile agricultural land in certain circumstances, it seeks to prevent the permanent loss of the best and most versatile agricultural land.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	0	Although this policy permits development on the best and most versatile agricultural land in certain circumstances, it seeks to prevent the permanent loss of the best and most versatile agricultural land.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	0	Although this policy permits development on the best and most versatile agricultural land in certain circumstances, it seeks to prevent the permanent loss of the best and most versatile agricultural land.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	Although this policy permits development on the best and most versatile agricultural land in certain circumstances, it seeks to prevent the permanent loss of the best and most versatile agricultural land.

Policy 24: Restoration

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	0	The restoration of mineral sites is unlikely to affect this SA objective, which relates more to effects during operation of the site.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+	The policy states that mineral extraction is temporary and there is a range potential after uses, which include the creation of new habitats for biodiversity. As such, a minor positive effect is likely on this SA objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0	The restoration of mineral sites is unlikely to affect this SA objective, which relates more to effects during operation of the site.
1.4 To protect and enhance sites of geological conservation interest	?	Through encouraging high quality restoration that is appropriate to the area, this policy could contribute to protecting and conserving the geodiversity assets in Hertfordshire. However, the policy and supporting text do not mention geodiversity in the range of potential after-uses and as such an uncertain effect is identified on this SA objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	?	Through encouraging high quality restoration that is appropriate to the area, this policy could contribute to protecting and conserving cultural heritage in Hertfordshire. However, the policy and supporting text do not mention cultural heritage and as such; an uncertain effect is identified on this SA objective.
2.2 To conserve below ground archaeological assets	?	Through encouraging high quality restoration that is appropriate to the area, this policy could contribute to protecting and conserving archaeological assets in Hertfordshire. However, the policy and supporting text do not mention archaeological assets and as such; an uncertain effect is identified on this SA objective.

SA Objective Sub Questions	SA Score	Justification
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	The restoration of mineral sites is unlikely to affect this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+?	The supporting text notes that restoration refers to measures taken to ensure the land is returned to its original or former condition. As such, a minor positive effect is likely on this SA objective. However, effects would be uncertain as it is dependent on the appropriateness of the site for development in the first instance, the type of restoration proposed and after-use eventually developed on a site, which will not be known until the planning application stage.
4.1 To protect the quality of ground and surface water	?	Through encouraging high quality restoration that is appropriate to the area, this policy could contribute to protecting and conserving the quality of ground and surface water in Hertfordshire. However, the policy and supporting text do not mention water quality or restoration to water uses and as such an uncertain effect is identified on this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	?	Through encouraging high quality restoration that is appropriate to the area, this policy could contribute to protecting and conserving ground and surface water quantity in Hertfordshire. However, the policy and supporting text do not mention water quantity or restoration to water uses and as such an uncertain effect is identified on this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	0	The restoration of mineral sites is unlikely to affect this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	The restoration of mineral sites is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
6.1 To protect against the risk of flooding	+?	The policy supports proposals for mineral extraction and temporary minerals infrastructure development that are accompanied by comprehensive restoration schemes. The supporting text states a range potential after uses, which could include agricultural uses and forestry which could help to alleviate flooding and reduce flood risk. Therefore a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	+?	The policy supports proposals for mineral extraction and temporary minerals infrastructure development that are accompanied by comprehensive restoration schemes. The supporting text states a range potential after uses, which could include agricultural uses and forestry which could be used to alleviate flooding. Therefore a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
7.1 To encourage the use of recycled and secondary aggregates	0	The restoration of mineral sites is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+?	The policy supports proposals for mineral extraction and temporary minerals infrastructure development that is accompanied by comprehensive restoration schemes. The supporting text states that this could include the re-use of the site for agriculture; forestry; recreational activities; waste management, including waste storage; and the built environment, such as residential, industrial and retail where appropriate. All of these activities are likely to provide employment opportunities in the longer term. Therefore, minor positive effects are expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	The restoration of mineral sites is unlikely to affect this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	The restoration of mineral sites is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile	+	The policy encourages high quality restoration which could include the protection and possible enhancement of soil quality and reinstatement of the best and most versatile land. Where agricultural land is used, the policy

SA Objective Sub Questions	SA Score	Justification
agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality		requires that it must be returned to at least the equivalent grade prior to mineral extraction. As such, a minor positive effect is likely on this SA objective.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+?	The policy supports proposals that will provide high quality and practicable restoration and aftercare which could enhance the local amenity for residents and visitors to Hertfordshire. The policy also supports a phased restoration occurring at the earliest opportunity. As such, a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+?	The policy supports proposals that will provide high quality and practicable restoration. The supporting text states that this includes recreational after-uses and therefore a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	The supporting text to the policy suggests that restoration could include the creation of new habitats and recreational areas. Therefore, a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	?	The policy states that mineral extraction is temporary and there is a range potential after uses, which include the creation of new habitats for biodiversity, which might include new habitats for birds, which could affect aerodrome safety; however, this is not addressed in the policy wording and the impact will not be known until the planning application stage. Therefore, an uncertain effect is considered likely in relation to this SA objective.

Policy 25: Aftercare and After-use

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+	This policy requires proposals to demonstrate consideration to support and enhance existing places of nature conservation for habitats and species. As such, a minor positive effect is expected on this SA objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+	This policy requires proposals to demonstrate consideration to support and enhance existing places of nature conservation for habitats and species. As such, a minor positive effect is expected on this SA objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0	The aftercare and after-use of mineral sites is unlikely to affect this SA objective.
1.4 To protect and enhance sites of geological conservation interest	+	This policy requires proposals to demonstrate consideration to maximising opportunities for sites of geological interest. As such, a minor positive effect is expected on this SA objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	+	This policy requires proposals to demonstrate consideration to the compatibility of the after-use to the landscape character of the area including landscape quality and setting of heritage assets. As such, a minor positive effect is expected on this SA objective.
2.2 To conserve below ground	?	This policy requires proposals to demonstrate consideration to the compatibility of the after-use to the quality and setting of heritage assets, which could include archaeological assets, although this is not specifically mentioned in the policy wording. As such, an uncertain effect is expected on this SA objective.

SA Objective Sub Questions	SA Score	Justification
archaeological assets		
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	The aftercare and after use of mineral sites is unlikely to affect this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+	This policy requires proposals to demonstrate consideration to the compatibility of the after-use to the landscape character of the area. As such, a minor positive effect is expected on this SA objective.
4.1 To protect the quality of ground and surface water	?	This policy requires proposals to demonstrate consideration to the after-use supporting and enhancing existing places of nature conservation for habitats and species, which may include surface water bodies, although this is not specifically mentioned in the policy wording. As such, an uncertain effect is expected on this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	0	The aftercare and after use of mineral sites is unlikely to affect this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+	This policy requires proposals to demonstrate consideration of the after-use to integrating sustainable transport options such as walking and cycling with public transport. As such, a minor positive effect is expected on this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	The aftercare and after use of mineral sites is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
6.1 To protect against the risk of flooding	?	This policy requires proposals to demonstrate consideration to the after-use supporting and enhancing existing places of nature conservation for habitats and species, which may help to reduce flood risk through maintaining permeable surfaces (rather than built development), although this is not specifically mentioned in the policy wording and the after-use would not be known until the planning application stage. As such, an uncertain effect is expected on this SA objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	?	This policy requires proposals to demonstrate consideration to the after-use supporting and enhancing existing places of nature conservation for habitats and species, which may help to provide flood alleviation through maintaining permeable surfaces (rather than built development) or even water storage, although this is not specifically mentioned in the policy wording and the after-use would not be known until the planning application stage. As such, an uncertain effect is expected on this SA objective.
7.1 To encourage the use of recycled and secondary aggregates	0	The aftercare and after use of mineral sites is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This policy requires after-use proposals to demonstrate consideration to supporting the local economy. As such, a minor positive effect is expected on this SA objective.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	The aftercare and after use of mineral sites is unlikely to affect this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	The aftercare and after use of mineral sites is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a	?	This policy requires after-use proposals to demonstrate consideration to the quality of the area, which might include agricultural quality, although this is not mentioned in the policy and therefore an uncertain effect is expected.

SA Objective Sub Questions	SA Score	Justification
higher quality		
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+?	This policy requires after-use proposals to demonstrate consideration to the enhancement of the local character of the area as well as providing opportunities to access the countryside and recreational facilities which could help improve health and well-being. As such, a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+?	This policy requires after-use proposals to demonstrate consideration to providing opportunities to access the countryside and recreational facilities which could include Public Rights of Way. As such, a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	This policy requires after-use proposals to demonstrate consideration to improved and increased public access to the countryside and the creation of public open space for recreation. As such, a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	?	This policy requires after-use proposals to demonstrate contribution to the local economy. This could include support for the aviation economy, by reducing the potential for bird strike and the increased risk to aerodrome safety, but this is not mentioned in the wording of the policy and as such an uncertain effect is expected for this SA objective.

Policy 23: Soils and Agricultural Land

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+?	Mineral developments can result in the loss of soil and the habitats it supports but the policy seeks to ensure that original soil profiles are reinstated or an appropriate alternative soil profile created, which could therefore contribute to restoration of habitats. In addition, while the policy safeguards against the loss of best and most versatile agricultural land, this may be allowed to occur if it can be demonstrated that available lower grade land has an environmental value which outweighs agricultural considerations. Therefore, habitats and species protection may indirectly occur off-site. These measures are likely to benefit biodiversity and as such, a minor positive effect is likely on this SA objective. However, this will be dependent on the location of the proposed mineral site, local biodiversity and habitats as well as the proposed soil reinstatement proposals (e.g. if the site is returned to agricultural land it would be unlikely to improve biodiversity).
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Mineral developments can result in the loss of soil and the habitats it supports but the policy seeks to ensure that original soil profiles are reinstated or an appropriate alternative soil profile created, which could therefore contribute to restoration of habitats and as such, a minor positive effect is likely on this SA objective. However, this will be dependent on the location of the proposed mineral site, local biodiversity and habitats as well as the proposed soil reinstatement proposals (e.g. if the site is returned to agricultural land it would be unlikely to improve biodiversity).
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
1.4 To protect and enhance sites of geological conservation interest	+?	Mineral developments can result in the loss of soil profiles and layers, which can contribute to geological interest as they form the upper most part of rock formations and can help to understand past environmental conditions and geological processes. The policy seeks to ensure that original soil profiles are reinstated or an appropriate alternative soil profile created, which could therefore help to protect or enhance sites of geological conservation interest and as such, a minor positive effect is likely on this SA objective. However, this will be dependent on the intrinsic geological value of the proposed mineral site as well as the proposed soil reinstatement proposals.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
their setting		
2.2 To conserve below ground archaeological assets	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+	The policy seeks to ensure that there are no unacceptable impacts on the quality of soil resulting from mineral development in Hertfordshire and also against the permanent loss of best and most versatile agricultural land. A minor positive effect is likely on this SA objective through protecting soil which is a basic element contributing to the landscape, and also agricultural land which can contribute to landscape character and quality.
4.1 To protect the quality of ground and surface water	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
lower carbon energy sources on site		
6.1 To protect against the risk of flooding	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
7.1 To encourage the use of recycled and secondary aggregates	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	Although this policy permits development on the best and most versatile agricultural land in certain circumstances, it seeks to prevent the permanent loss of the best and most versatile agricultural land. Therefore, it could have a long term, indirect minor positive effect on this SA objective because it would help to retain the economic benefits of agricultural land within Hertfordshire.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	The policy protects against the permanent loss of the best and most versatile agricultural land in Hertfordshire therefore it is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a	++	Although this policy permits development on the best and most versatile agricultural land in certain circumstances, it seeks to prevent the permanent loss of the best and most versatile agricultural land. Therefore, the restoration of sites must ensure that agricultural land is returned to at least the equivalent grade or better quality prior to mineral extraction. Therefore, overall a significant positive effect is expected for this SA objective.

SA Objective Sub Questions	SA Score	Justification
higher quality		
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	0	Although this policy permits development on the best and most versatile agricultural land in certain circumstances, it seeks to prevent the permanent loss of the best and most versatile agricultural land.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	0	Although this policy permits development on the best and most versatile agricultural land in certain circumstances, it seeks to prevent the permanent loss of the best and most versatile agricultural land.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	0	Although this policy permits development on the best and most versatile agricultural land in certain circumstances, it seeks to prevent the permanent loss of the best and most versatile agricultural land.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	Although this policy permits development on the best and most versatile agricultural land in certain circumstances, it seeks to prevent the permanent loss of the best and most versatile agricultural land.

Policy 24: Restoration

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	0	The restoration of mineral sites is unlikely to affect this SA objective, which relates more to effects during operation of the site.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+	The policy states that mineral extraction is temporary and there is a range potential after uses, which include the creation of new habitats for biodiversity. As such, a minor positive effect is likely on this SA objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0	The restoration of mineral sites is unlikely to affect this SA objective, which relates more to effects during operation of the site.
1.4 To protect and enhance sites of geological conservation interest	?	Through encouraging high quality restoration that is appropriate to the area, this policy could contribute to protecting and conserving the geodiversity assets in Hertfordshire. However, the policy and supporting text do not mention geodiversity in the range of potential after-uses and as such an uncertain effect is identified on this SA objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	?	Through encouraging high quality restoration that is appropriate to the area, this policy could contribute to protecting and conserving cultural heritage in Hertfordshire. However, the policy and supporting text do not mention cultural heritage and as such; an uncertain effect is identified on this SA objective.
2.2 To conserve below ground archaeological assets	?	Through encouraging high quality restoration that is appropriate to the area, this policy could contribute to protecting and conserving archaeological assets in Hertfordshire. However, the policy and supporting text do not mention archaeological assets and as such; an uncertain effect is identified on this SA objective.

SA Objective Sub Questions	SA Score	Justification
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	The restoration of mineral sites is unlikely to affect this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+?	The supporting text notes that restoration refers to measures taken to ensure the land is returned to its original or former condition. As such, a minor positive effect is likely on this SA objective. However, effects would be uncertain as it is dependent on the appropriateness of the site for development in the first instance, the type of restoration proposed and after-use eventually developed on a site, which will not be known until the planning application stage.
4.1 To protect the quality of ground and surface water	?	Through encouraging high quality restoration that is appropriate to the area, this policy could contribute to protecting and conserving the quality of ground and surface water in Hertfordshire. However, the policy and supporting text do not mention water quality or restoration to water uses and as such an uncertain effect is identified on this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	?	Through encouraging high quality restoration that is appropriate to the area, this policy could contribute to protecting and conserving ground and surface water quantity in Hertfordshire. However, the policy and supporting text do not mention water quantity or restoration to water uses and as such an uncertain effect is identified on this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	0	The restoration of mineral sites is unlikely to affect this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	The restoration of mineral sites is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
6.1 To protect against the risk of flooding	+?	The policy supports proposals for mineral extraction and temporary minerals infrastructure development that are accompanied by comprehensive restoration schemes. The supporting text states a range potential after uses, which could include agricultural uses and forestry which could help to alleviate flooding and reduce flood risk. Therefore a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	+?	The policy supports proposals for mineral extraction and temporary minerals infrastructure development that are accompanied by comprehensive restoration schemes. The supporting text states a range potential after uses, which could include agricultural uses and forestry which could be used to alleviate flooding. Therefore a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
7.1 To encourage the use of recycled and secondary aggregates	0	The restoration of mineral sites is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+?	The policy supports proposals for mineral extraction and temporary minerals infrastructure development that is accompanied by comprehensive restoration schemes. The supporting text states that this could include the re-use of the site for agriculture; forestry; recreational activities; waste management, including waste storage; and the built environment, such as residential, industrial and retail where appropriate. All of these activities are likely to provide employment opportunities in the longer term. Therefore, minor positive effects are expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	The restoration of mineral sites is unlikely to affect this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	The restoration of mineral sites is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile	+	The policy encourages high quality restoration which could include the protection and possible enhancement of soil quality and reinstatement of the best and most versatile land. Where agricultural land is used, the policy

SA Objective Sub Questions	SA Score	Justification
agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality		requires that it must be returned to at least the equivalent grade prior to mineral extraction. As such, a minor positive effect is likely on this SA objective.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+?	The policy supports proposals that will provide high quality and practicable restoration and aftercare which could enhance the local amenity for residents and visitors to Hertfordshire. The policy also supports a phased restoration occurring at the earliest opportunity. As such, a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+?	The policy supports proposals that will provide high quality and practicable restoration. The supporting text states that this includes recreational after-uses and therefore a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	The supporting text to the policy suggests that restoration could include the creation of new habitats and recreational areas. Therefore, a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	?	The policy states that mineral extraction is temporary and there is a range potential after uses, which include the creation of new habitats for biodiversity, which might include new habitats for birds, which could affect aerodrome safety; however, this is not addressed in the policy wording and the impact will not be known until the planning application stage. Therefore, an uncertain effect is considered likely in relation to this SA objective.

Policy 25: Aftercare and After-use

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	+	This policy requires proposals to demonstrate consideration to support and enhance existing places of nature conservation for habitats and species. As such, a minor positive effect is expected on this SA objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+	This policy requires proposals to demonstrate consideration to support and enhance existing places of nature conservation for habitats and species. As such, a minor positive effect is expected on this SA objective.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0	The aftercare and after-use of mineral sites is unlikely to affect this SA objective.
1.4 To protect and enhance sites of geological conservation interest	+	This policy requires proposals to demonstrate consideration to maximising opportunities for sites of geological interest. As such, a minor positive effect is expected on this SA objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	+	This policy requires proposals to demonstrate consideration to the compatibility of the after-use to the landscape character of the area including landscape quality and setting of heritage assets. As such, a minor positive effect is expected on this SA objective.
2.2 To conserve below ground	?	This policy requires proposals to demonstrate consideration to the compatibility of the after-use to the quality and setting of heritage assets, which could include archaeological assets, although this is not specifically mentioned in the policy wording. As such, an uncertain effect is expected on this SA objective.

SA Objective Sub Questions	SA Score	Justification
archaeological assets		
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	The aftercare and after use of mineral sites is unlikely to affect this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	+	This policy requires proposals to demonstrate consideration to the compatibility of the after-use to the landscape character of the area. As such, a minor positive effect is expected on this SA objective.
4.1 To protect the quality of ground and surface water	?	This policy requires proposals to demonstrate consideration to the after-use supporting and enhancing existing places of nature conservation for habitats and species, which may include surface water bodies, although this is not specifically mentioned in the policy wording. As such, an uncertain effect is expected on this SA objective.
4.2 To protect the quantity of ground and surface water from over abstraction	0	The aftercare and after use of mineral sites is unlikely to affect this SA objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+	This policy requires proposals to demonstrate consideration of the after-use to integrating sustainable transport options such as walking and cycling with public transport. As such, a minor positive effect is expected on this SA objective.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	0	The aftercare and after use of mineral sites is unlikely to affect this SA objective.

SA Objective Sub Questions	SA Score	Justification
6.1 To protect against the risk of flooding	?	This policy requires proposals to demonstrate consideration to the after-use supporting and enhancing existing places of nature conservation for habitats and species, which may help to reduce flood risk through maintaining permeable surfaces (rather than built development), although this is not specifically mentioned in the policy wording and the after-use would not be known until the planning application stage. As such, an uncertain effect is expected on this SA objective.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	?	This policy requires proposals to demonstrate consideration to the after-use supporting and enhancing existing places of nature conservation for habitats and species, which may help to provide flood alleviation through maintaining permeable surfaces (rather than built development) or even water storage, although this is not specifically mentioned in the policy wording and the after-use would not be known until the planning application stage. As such, an uncertain effect is expected on this SA objective.
7.1 To encourage the use of recycled and secondary aggregates	0	The aftercare and after use of mineral sites is unlikely to affect this SA objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This policy requires after-use proposals to demonstrate consideration to supporting the local economy. As such, a minor positive effect is expected on this SA objective.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	0	The aftercare and after use of mineral sites is unlikely to affect this SA objective.
8.3 To ensure that mineral sterilisation is minimised	0	The aftercare and after use of mineral sites is unlikely to affect this SA objective.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a	?	This policy requires after-use proposals to demonstrate consideration to the quality of the area, which might include agricultural quality, although this is not mentioned in the policy and therefore an uncertain effect is expected.

SA Objective Sub Questions	SA Score	Justification
higher quality		
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	+?	This policy requires after-use proposals to demonstrate consideration to the enhancement of the local character of the area as well as providing opportunities to access the countryside and recreational facilities which could help improve health and well-being. As such, a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	+?	This policy requires after-use proposals to demonstrate consideration to providing opportunities to access the countryside and recreational facilities which could include Public Rights of Way. As such, a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	This policy requires after-use proposals to demonstrate consideration to improved and increased public access to the countryside and the creation of public open space for recreation. As such, a minor positive effect is expected on this SA objective. However, effects would be uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	?	This policy requires after-use proposals to demonstrate contribution to the local economy. This could include support for the aviation economy, by reducing the potential for bird strike and the increased risk to aerodrome safety, but this is not mentioned in the wording of the policy and as such an uncertain effect is expected for this SA objective.

Appendix 7

Detailed SA matrices for the potential mineral site options and Preferred Areas

Sites Submitted and Assessed in 2016/early 2017

MLPCS001/MLPCS001RS: Land at Cromer Hyde Farm

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--?	The site is adjacent to Benstead's Wood and Long Spring and Long Grove Plantation Local Wildlife Sites, therefore it is considered to have potential significant negative effects on this objective. However, these effects would be uncertain as the potential for effects will depend on the exact nature and design of any proposals which come forward at the site.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	--?	The site is located within 1km of the Hertfordshire Primary Route Network (A1 (M) and A6129). HDV movements from the site could travel along the A1 (M), which is within 200m of Sherrardspark Wood SSSI. Therefore, this site has the potential to have a significant negative effect on this nature conservation site through increased deposition of air pollutants. Although this effect is dependent on the likely increase in HDV annual average daily traffic flows along the road passing within 200m of the nature conservation site (in combination with HDV movements from other existing and potential minerals sites). Although such adverse effects on European Sites have been discounted for the sites allocated in Policy 4 of the MLP through the Appropriate Assessment in the HRA, this site has not been allocated. Furthermore, there is still potential for national and local sites to be adversely effected. However, the effect is uncertain as the detailed routing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	This site is over 500m from a national site of geological interest (SSSI) or Local Geological Site, therefore, this site is considered unlikely to affect this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	--?	This site scored 'red' in the MLP site assessment, because part of the Grade II Listed Brocket Hall Registered Park and Garden is within the site. The majority of the registered park and garden, and all of its associated listed buildings, lie to the north of the site. The listed buildings include the grade I Brocket Hall, two sets of listed gates – one grade II*, the other grade II – the temple and bridge – which are both grade II* – as well as the stables, former laundry, former laundry and pump house, the garden house and walled gardens, and Brocket Lea (a house), all of which are grade II listed. The

SA Objective Sub Questions	SA Score	Justification
		<p>park would experience physical and setting change, and there is the potential for setting change to the listed main house and gates.</p> <p>Four grade II listed buildings lie just beyond the edge of the proposed site. These include Gosmoor (Lemsford Boarding Kennels and Cattery), The Crooked Chimney public house, 12/14 and 16/18 Cromer Hyde. With the exception of Gosmoor, none of these appear to have a relationship with the site that would be result in a meaningful change to their setting and significance.</p> <p>Further listed buildings in close proximity to the site include Upper Cromer Hyde Farmhouse, Symondshyde Farmhouse, the Old Cottage and the Church of St John the Evangelist – all of which are grade II listed. While the two farmhouses could have a functional/ historical relationship with parts of the site, development is unlikely to result in meaningful setting change to either them. Noise, dust and increased traffic could potentially have a minor effect on the setting of the church.</p> <p>There are two more grade II listed buildings to the north of the site – Warren Farm and granary – and eleven more within Lemsford to the northeast of the site. These are unlikely to experience setting change as they are separated from the site by the registered park and garden and do not appear to have a visual, functional or historical relationship with the site.</p> <p>No locally designated assets have been identified within the site or its immediate environs.</p> <p>Overall this site is considered to have the potential for a significant negative effect. This has been judged based on the potential for physical and setting change to the registered park and garden, and the potential for further setting change to a number of other listed buildings. However, these effects are uncertain and will depend on the way in which the assets' setting contributes to its heritage significance; and the change wrought to that setting and significance as a result of development.</p>
2.2 To conserve below ground archaeological assets	--?	<p>Hertfordshire HER¹⁶⁸ indicates that there are non-designated assets within the site, part of which is also an area of archaeological interest (AAS10). Being principally sub-surface remains in the form of features cut into the subsoil, these assets are all highly susceptible to physical change e.g. damage/ removal. Further assessment of the assets and their significance, as well as the magnitude of development impact would be required to properly understand the scale of effect, and determine</p>

¹⁶⁸ The HER was interrogated online via Heritage Gateway.

SA Objective Sub Questions	SA Score	Justification
		whether it may be appropriately mitigated.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	This site is being promoted for sand and gravel extraction and would not contribute towards this objective as these are not locally distinctive building materials. A negligible effect is therefore considered likely for this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	--	According to the LUC Landscape and Visual Sensitivity Study 2018, this site was considered to have a 'moderate-high' landscape sensitivity due to the valued features and sense of openness. Therefore, development at this site could have a significant negative effect on designated landscapes, local landscape character and/or tranquillity.
4.1 To protect the quality of ground and surface water	0?	This site is outside SPZ1 and there are no known water bodies on site. Therefore, this site is assessed as having a minor adverse effect with uncertainty relating to the operation activities (e.g. dewatering). However, this effect would be uncertain as it would be very dependent on the exact nature, working and proposed design of the site.
4.2 To protect the quantity of ground and surface water from over abstraction	?	All mineral activity could potentially require the use of water resources, but the extent of water use will not be known until the planning application stage where proposals are brought forward. Therefore, it is considered that all potential mineral activities will have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This site is within 10 km of strategic development locations, for example, Policy SP 24: New Village at Symondshyde (1,130 new homes) and Policy SP 22: North West Hatfield (1,650 new homes) north west of Hatfield in the Welwyn Hatfield Proposed Submission Local Plan (August 2016) and could therefore contribute to reducing transport distances of aggregates for construction. However, this is uncertain as it is not known where aggregates will be transported to from each site.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for this site to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, the site could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, the site is also likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.

SA Objective Sub Questions	SA Score	Justification
6.1 To protect against the risk of flooding	0?	This site is being promoted for sand and gravel and is therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Mineral sites not located on land designated as Flood Zones 2, 3a or 3b are likely to have limited potential to reduce flood risk and are therefore likely to have a negligible effect on this objective.
7.1 To encourage the use of recycled and secondary aggregates	-?	All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This minerals site could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed, there will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	This site would contribute towards providing minerals to meet Hertfordshire's need.
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and would have a positive effect on this objective as they provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	--	This site is large (103.6ha) and just over half of the site is located on Grade 2 BMV agricultural land, while the remainder of the site is on Grade 3 BMV agricultural land. Therefore, it is considered that this site will have a significant negative effect on protecting or enhancing soil/land quality.

SA Objective Sub Questions	SA Score	Justification
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	<p>There are several residential properties on Corner Hyde Lane and businesses on Marford Road and Green Lanes which are all within 100m of this site. In addition, Stanborough and Lemsford settlements, which include St John's VA C of E Primary School is located to the east of Marford Road. Therefore, development at this site is considered to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. Although, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore, in all cases these effects are minor negative uncertain.</p> <p>This site is within 1km of settlements at Welwyn Garden City and Hatfield. This site is also adjacent to an allocated site (Policy SP 24) for residential development within the Welwyn Hatfield Proposed Submission Local Plan (August 2016). Furthermore, the site is located approximately 100m to the north of another allocated site (Policy SP 22) within the Proposed Submission Local Plan. Policy SP 22 notes that mineral extraction will be required prior to housing development and as such, there is unlikely to be direct impact upon the health of residents and the local amenity. There are no AQMAs or active mineral sites within 1km of this site. Overall, there is unlikely to be a cumulative effect on amenity, and overall a minor negative effect is considered likely.</p>
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	--?	<p>This site scored 'red' for the 'recreation' criterion of the MLP Site Assessment Study. This site contains a PRoW (no: 050) in the north western area of the site and there are others located adjacent to the site (052 and 054) as well as a Bridleway (049). According to the MLP Site Assessment Study, Bocket Park Golf Course is also located to the north of the site. Therefore, this site could have a significant negative effect on the amenity of users of PRoW and other users of the countryside in the County, as development of the sites would mean either removing part of a facility/open space, or removing or temporarily closing land which has potential for recreation/access to the countryside. However, it is not possible to determine whether diversion is required for PRoW until the planning application stage.</p>
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure,	+?	<p>All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRoW and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an</p>

SA Objective Sub Questions	SA Score	Justification
enhanced public rights of way and improved access to recreation as part of the development and restoration of a site		uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	According to the MLP Site Assessment Study, this site is not located within an Airport Safeguarding Zone and is therefore unlikely to have any impact on the safe operation of aerodromes/airports if restored to a water-based use.

MLPCS002: Land at Salisbury Hall

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	-?	This site is between 250m and 1km of several local wildlife sites including Broad Colney Lakes and surrounds, River Colne by Bowmansgreen Farm, Coursers Road Gravel Pit, Shenley Lodge Farm Wood, Salisbury Hall Farm Copse and Dell Grove. Therefore, minor negative effects are considered likely on this objective, however, these effects would be uncertain as the potential for effects will depend on the exact nature and design of any proposals which come forward at the site.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	--?	This site is adjacent to the Hertfordshire Primary Road Network (M25 and A1081). The M25 to the east is within 200m of Epping Forest SAC. Although such adverse effects on European Sites have been discounted for the sites allocated in Policy 4 of the MLP through the Appropriate Assessment in the HRA, this site has not been allocated. Furthermore, there is still potential for national and local sites to be adversely effected. However, the effect is uncertain as the detailed routing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	This site is located over 500m from a national site of geological interest (SSSI) or Local Geological Site, therefore, this site is considered unlikely to affect this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	--?	<p>There are no designated assets within the site. Immediately to the south east of the site is the grade II* listed building, Salisbury Hall; around which there is a cluster of further listed buildings. These buildings are all grade II listed and include: The Old Coach House, Nell Gwynn Cottage, Nell Gwynn bridge, Gateposts and revetment to moat, Granary and barns. These buildings are set back from Ridge Hill Road, along private entrances which are contained within large hedgerows, landscaped gardens and moated site, but it is likely that there will be some intervisibility and direct impact upon the setting of those assets which have either a functional or historical relationship with the site.</p> <p>Further south there are two grade II listed milestones along the B556. These assets have a roadside setting that is unlikely to be meaningfully impacted.</p>

		<p>To the northwest of the site lies London Colney Conservation area, within which there are multiple grade II listed buildings. It is unlikely given their distance from the site and the intervening built development that any of these assets would be affected by development of the site.</p> <p>There are no locally designated assets within the site, or its immediate environs.</p> <p>Overall, there is the potential for development of this site to result in a significant negative effect on the setting on designated assets. These effects are considered uncertain as the actual effects on historic assets will depend on the visual, functional and historic relationship with the site and the way, and extent to which, its setting contributes to these assets' heritage significance. Further assessment at the planning application stage will be required to understand the significance of the heritage assets, the contribution that their setting makes to that significance and the impact of development.</p>
2.2 To conserve below ground archaeological assets	-?	<p>The site does not lie within an archaeological area of importance but the HER does indicate that there are non-designated assets, in the form of cropmarks, within and around the site. Being principally sub-surface remains in the form of features cut into the subsoil, these assets are all highly susceptible to physical change e.g. damage/removal as a result of development. This would result in a negative effect, the scale of which would be dependent on their significance. Without further information, the scale of effect has been assessed as minor negative. Once proposals are known a more detailed assessment would be required in order to identify the extent and significance of the assets, the impact to them and an appropriate scheme of mitigation.</p>
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	<p>This site is being promoted for sand and gravel extraction and would not contribute towards this objective as these are not locally distinctive building materials. A negligible effect is therefore considered likely for this SA objective.</p>
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-	<p>According to the LUC Landscape and Visual Sensitivity Study 2018, this site was considered to have 'low-moderate' landscape sensitivity to mineral extraction due to the lack of valued features and proximity to existing built development and ability to mitigate impacts. Therefore, development at this site could have a minor negative effect on designated landscapes, local landscape character and/or tranquillity.</p>
4.1 To protect the quality of ground and surface water	-?	<p>This site is outside SPZ1, but according to the MLP Site Assessment Study, it does contain a small water body. Therefore it has been assessed as having a minor adverse effect with uncertainty relating to the operation activities (e.g. dewatering). However, this effect would be uncertain as it would be very dependent on the exact nature, working and proposed design of the site.</p>
4.2 To protect the quantity of ground and surface water from over abstraction	?	<p>All mineral activity could potentially require the use of water resources, but this will not be known until the planning application stage where proposals are brought forward. Therefore, it is considered that all potential mineral activities will have an uncertain effect on this objective.</p>

5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+	This site is within 10 km of strategic development locations, for example, policy SADM25 of the proposed Hertsmere Site Allocations and Development Management Policies Plan (2015).. Furthermore, the site is relatively close to Policy SP 24: New Village at Symondshyde (1,130 new homes) and Policy SP 22: North West Hatfield (1,650 new homes) north west of Hatfield in the Welwyn Hatfield Proposed Submission Local Plan (August 2016). In addition, the site is located within close proximity of a large site being promoted through the Hertsmere Borough Council Local Plan process for 6,000 dwellings. However, the HELAA site (HEL392) has not yet been selected as a preferred option. Therefore, the site could contribute to reducing transport distances of aggregates for construction. However, this is uncertain as it is not known where aggregates will be transported to from each site.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for this site to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, this site could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, this site is likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	This site is being promoted for sand and gravel and is therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Mineral sites not located on land designated as Flood Zones 2, 3a or 3b are likely to have limited potential to reduce flood risk and are therefore likely to have a negligible effect on this objective.
7.1 To encourage the use of recycled and secondary aggregates	-?	All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This minerals site could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed in the County will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals	+	This site would contribute towards providing minerals to meet Hertfordshire's need.

to meet Hertfordshire's needs		
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and would have a positive effect on this objective as they provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-	This site is small (14.4ha). Most of this site is on Grade 2 BMV agricultural land and a small area in the south west of the site is on Grade 3 BMV agricultural land. Therefore, it is considered to have a minor negative effect on protecting or enhancing soil/land quality.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	<p>Salisbury Hall Farm is adjacent to the southern area of the site, while the University College and Hospital Sports Ground is within 200m of the west of the site. Therefore, development at this site is considered to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. Although, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive use in relation to the prevailing wind direction and visibility), the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore, in all cases these effects are minor negative uncertain.</p> <p>The site is located approximately 120m to the south of settlements at London Colney and 520m to the east of Old Cottages. The site is also within 1km of a large site being promoted through the Hertsmere Borough Council Local Plan process for 6,000 dwellings. However, the HELAA site (HEL392) is yet to be fully tested through the Borough's plan making process and is not an allocation at this stage.. However, this site is not within 1km of an AQMA or an active mineral site. Overall, development at this site is unlikely to lead to a cumulative effect. Development at this site could therefore have a minor negative effect on the amenity of the local community.</p>
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	--?	This site scored 'red' for the 'recreation' criterion of the MLP Site Assessment Study. The site contains a PRoW (No:027) and is immediately adjacent to a number of other PRoWs (No:013 and 042). According to the MLP Site Assessment Study, the Watford Football Club Training Ground is located immediately to the west of the site. Therefore, development at this site could have a significant negative effect on the amenity of users of PRoW and other users of the countryside in the County, as development of the sites would mean either removing part of a facility/open space, or removing or temporarily closing land which has potential for recreation/access to the countryside. However, it is not possible to determine whether diversion is required for PRoW until the planning application stage.

<p>9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site</p>	<p>+?</p>	<p>All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRow and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.</p>
<p>9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes</p>	<p>0</p>	<p>According to the MLP Site Assessment Study, this site is not located within an Airport Safeguarding Zone and is therefore unlikely to have any impact on the safe operation of aerodromes/airports if restored to a water-based use.</p>

MLPCS003: Land at Ware Park

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--?	This site is adjacent to several local nature conservation sites including St Johns Wood (Rickneys Quarry), Rickneys Quarry and Great Mole Wood Local Wildlife Site and Waterford Heath (South) Local Wildlife Site and Local Nature Reserve. In addition, Waterford Heath (North) Local Wildlife Site and Local Nature Reserve, Flowersash Wood and Waterford Marsh East Local Wildlife Sites are between 250m and 1km of this site. Therefore, overall a significant negative effect is considered likely on this objective. However, these effects would be uncertain as the potential for effects will depend on the exact nature and design of any proposals which come forward at the site.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	--?	HDV flows could travel along the A1 (M) which is within 200m of Water End Swallow Holes SSSI. Therefore, this site has the potential to have a significant negative effect on this nature conservation site through increased deposition of air pollutants. Although this effect is dependent on the likely increase in HDV annual average daily traffic flows along the road passing within 200m of the nature conservation site (in combination with HDV movements from other existing and potential minerals sites). Although such adverse effects on European Sites have been discounted for the sites allocated in Policy 4 of the MLP through the Appropriate Assessment in the HRA, this site has not been allocated. Furthermore, there is still potential for national and local sites to be adversely effected. However, the effect is uncertain as the detailed routing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	This site is located over 500m from a national site of geological interest (SSSI) or Local Geological Site, therefore, this site is considered unlikely to affect this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	-?	<p>This site is within 1km of several heritage assets. Hertford Conservation Area lies to the south of the site and may potentially be affected by setting change if development occurs on the site. Within the conservation area there are eight listed buildings – grade II and II* - within 1km of the site. These listed buildings are unlikely to experience setting change as a result of development as they do not appear to have a visual, functional or historical relationship with the site.</p> <p>To the southwest of the site is Goldings, a grade II registered park and garden, within which there are a number</p>

SA Objective and Sub Questions	SA Score	Justification
		<p>of listed buildings. Four of these listed buildings lie within 1km of the site and are grade II listed. Neither the park nor the listed buildings appear to have a relationship with the site that would result in setting change.</p> <p>There are another eleven grade II listed buildings and one grade I listed building west of the site, located either along the A119 or in Waterford. The majority of these do not appear to have a relationship with the site, a Waterford Hall and granary could potentially be functionally/ historically related and therefore subject to low level setting change.</p> <p>To the east of the site there are four grade II listed buildings associated with the non-designated Ware Park. The listed structures include the south lodge, the forecourt wall to the pomarium, the pomarium and walled garden and hermitage and grotto gardens. The setting of these assets relates to the park and house, and as such, development of the site should not affect their heritage significance.</p> <p>There are no locally listed buildings within the immediate vicinity of the site.</p> <p>Overall, minor negative effects are considered likely, owing mainly to the potential impact of the proposed site upon the Hertford Conservation Area. These effects are considered uncertain as the actual effects on historic assets will depend on the visual, functional and historic relationship with the site, the way, and extent to which, its setting contributes to the assets heritage significance, and the change wrought to that setting and significance as a result of development. Further assessment will be required at the planning application stage to understand the significance of the heritage assets, the contribution that their setting makes to that significance and the impact of development.</p>
2.2 To conserve below ground archaeological assets	-?	<p>The site is not an area of archaeological interest but the HER indicates that there are non-designated archaeological assets within it. Where these comprise sub-surface remains in the form of features cut into the subsoil, they will be highly susceptible to physical change e.g. damage/ removal as a result of development. This would result in a negative effect, the scale of which would be dependent on their significance. Without further information, the scale of effect has been assessed as minor negative. However, once proposals are known, a more detailed assessment would be required in order to identify the extent and significance of the assets, the impact to them and an appropriate scheme of mitigation.</p>
2.3 Seek to ensure the supply of	0	<p>This site is being promoted for sand and gravel extraction and would not contribute towards this objective as these are not locally distinctive building materials. A negligible effect is therefore considered likely for this SA</p>

SA Objective and Sub Questions	SA Score	Justification
locally distinctive building materials for historic building methods		objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-	According to the LUC Landscape and Visual Sensitivity Study 2018, this site was considered to have a 'low-moderate' landscape sensitivity. Although landscape is gently undulating and the site is largely enclosed, the openness to the east could result in an adverse impact on the unified rural character of the wider river valley. Therefore, development at this site could have a minor negative effect on designated landscapes, local landscape character and/or tranquillity.
4.1 To protect the quality of ground and surface water	--?	A large area (approximately 45%) of the northern section of the site is within SPZ1. The southern area of the site is located in SPZ2, while the central area of the site is located outside a SPZ. Therefore, this site is considered to have a significant adverse effect. However, this effect would be uncertain as it would be very dependent on the exact nature, working and proposed design of the site.
4.2 To protect the quantity of ground and surface water from over abstraction	?	All mineral activity could potentially require the use of water resources, but this will not be known until the planning application stage where proposals are brought forward. Therefore, it is considered that all potential mineral activities will have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	The site is located immediately to the north of Policy HERT4: North of Hertford (150 new homes) in the recently adopted East Herts District Plan (2018). Therefore, the site could contribute to reducing transport distances of aggregates for construction. However, this is uncertain as it is not known where aggregates will be transported to from each site.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for this site to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, this site could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, this site is likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	This site is being promoted for sand and gravel and is therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the	0	Mineral sites not located on land designated as Flood Zones 2, 3a or 3b are likely to have limited potential to reduce flood risk and are therefore likely to have a negligible effect on this objective.

SA Objective and Sub Questions	SA Score	Justification
site		
7.1 To encourage the use of recycled and secondary aggregates	-?	All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This minerals site could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed in the County will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	This site would contribute towards providing minerals to meet Hertfordshire's need.
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and would have a positive effect on this objective as they provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-	This site is large (35.5ha) and located on Grade 3 BMV agricultural land. Therefore, it is considered to have a minor negative effect on protecting or enhancing soil/land quality.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	There are several properties located to the east and west of the site on Sacombe Road and Wadesmill Road. In addition, Bengo Primary School is located 440m to the south of the site in Hertford. Therefore, development at this site is considered to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. Although, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive use in relation to the prevailing wind direction and visibility), the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning

SA Objective and Sub Questions	SA Score	Justification
		<p>application stage. Therefore, in all cases these effects are minor negative uncertain.</p> <p>The site is located immediately to a settlement to the north of Hertford and approximately 400m to the east of Waterford, 680m south of Crouchfield and 700m west of Ware Park. Additionally, the site is located immediately to the north of Policy HERT4: North of Hertford (150 new homes) in the recently adopted East Herts District Plan (2018). However, the site is not within 1km of an AQMA or an active minerals site. Overall, development at this site is unlikely to have a cumulative effect on the amenity of the local community.</p>
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	--?	<p>This site scored 'red' for the 'recreation' criterion in the MLP Site Assessment Study. This site contains a PRoW (no: 001) in the central eastern area of the site and there are others adjacent to the site including 013 and 003 to the north, 013 to the east and 009 to the south. According to the MLP Site assessment study, this site is also located on the opposite side of the road to the Waterford Heath Local Nature Reserve. Therefore, development at this site could have a significant negative effect on the amenity of users of PRoW and other users of the countryside in the County, as development of the sites would mean either removing part of a facility/open space, or removing or temporarily closing land which has potential for recreation/access to the countryside. However, it is not possible to determine whether diversion is required for PRoW until the planning application stage.</p>
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	<p>All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRoW and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.</p>
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	<p>According to the MLP Site Assessment Study, this site is not located within an Airport Safeguarding Zone and is therefore unlikely to have any impact on the safe operation of aerodromes/airports if restored to a water-based use.</p>

MLPCS004: Land at Pynesfield

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--?	This site is within 250m of Colne Valley Gravel Pits Local Wildlife Site. It is also between 250m and 1km of two segments of Mid Colne Valley SSSI. Therefore, a significant negative effect is considered likely on this objective. However, these effects would be uncertain as the potential for effects will depend on the exact nature and design of any proposals which come forward at the site.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	--?	The site is located adjacent to the Hertfordshire Primary Route Network Road, Denham Way, North Orbital (A412). HDV flows along this route could pass within 200m of two SSSIs at Mid Colne Valley and Fray's Farm Meadows. Therefore, this site has the potential to have a significant negative affect on this nature conservation site through increased deposition of air pollutants. Although this effect is dependent on the likely increase in HDV annual average daily traffic flows along the road passing within 200m of the nature conservation site (in combination with HDV movements from other existing and potential minerals sites). Although such adverse effects on European Sites have been discounted for the sites allocated in Policy 4 of the MLP through the Appropriate Assessment in the HRA, this site has not been allocated. Furthermore, there is still potential for national and local sites to be adversely effected. However, the effect is uncertain as the detailed routeing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	This site is within 500m of Mid Colne Valley (SSSI). However, the Mid Colne Valley is of significant ornithological interest, particularly for the diversity of breeding woodland and wetland birds, and for the number of wintering wildfowl. Therefore, this site is considered to have a negligible effect on this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	0-?	<p>There are no designated heritage assets within the site. To the northeast of the site is the Grade II Listed Building, Corner Hall. To the north of it, there are three more grade II listed buildings within 1km of the site; these include Pynchfield Manor, May Cottage and the Church of St Thomas of Canterbury. It is unlikely that the development of the site would result in meaningful setting change to these assets. To the east of the site, on the other side of Pynesfield Lake is Coppermill Lock conservation area. The effect of development within the site on this asset is unclear.</p> <p>HER indicates that a short distance to the southwest of the site there is the non-designated garden of Little</p>

SA Objective and Sub Questions	SA Score	Justification
		<p>Halings - a Gertrude Jekyll commission.</p> <p>Development within the site has the potential to affect the setting of designated and non-designated assets, but such effects are unlikely to be significant. There is some uncertainty attached to the predicted level of impact because the potential effects to the setting of assets will not only depend on their visual relationship with the site but also their functional and historical relationship, and the way, and extent to which, their setting contributes to their heritage significance. As such, further assessment will be required at the planning application stage to understand the significance of the heritage assets, the contribution that their setting makes to that significance and the impact of development.</p>
2.2 To conserve below ground archaeological assets	-?	<p>The site is not an area of archaeological interest but the HER indicates that there are non-designated archaeological assets within it. Where these comprise sub-surface remains in the form of features cut into the subsoil, they will be highly susceptible to physical change e.g. damage/ removal as a result of development. This would result in a negative effect, the scale of which would be dependent on their significance. Without further information, the scale of effect has been assessed as minor negative. Once proposals are known, a more detailed assessment would be required in order to identify the extent and significance of the assets, the impact to them and an appropriate scheme of mitigation.</p>
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	<p>This site is being promoted for sand and gravel extraction and would not contribute towards this objective as these are not locally distinctive building materials. A negligible effect is therefore considered likely for this SA objective.</p>
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-	<p>According to the LUC Landscape and Visual Sensitivity Study 2018, this site was considered to have a 'low-moderate' landscape sensitivity to mineral extraction due to the lack of valued features and proximity to existing and potential transport infrastructure. The area is effectively screened by topography to the west and boundary vegetation to the south and east. Therefore, development at this site could have a minor negative effect on designated landscapes, local landscape character and/or tranquillity.</p>
4.1 To protect the quality of ground and surface water	0?	<p>This site is outside SPZ1 and there are no waterbodies in site therefore assessed as having a negligible effect with uncertainty relating to the operation activities (e.g. dewatering). However, this effect would be uncertain as it would be very dependent on the exact nature, working and proposed design of the site.</p>
4.2 To protect the quantity of ground and surface water from over abstraction	?	<p>All mineral activity could potentially require the use of water resources, but this will not be known until the planning application stage where proposals are brought forward. Therefore, it is considered that all potential mineral activities will have an uncertain effect on this objective.</p>

SA Objective and Sub Questions	SA Score	Justification
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This site is within 10 km of strategic development locations within Rickmansworth in the Three Rivers District Site Allocations Development Plan Document (2014) and could therefore contribute to reducing transport distances of aggregates for construction. However, this is uncertain as it is not known where aggregates will be transported to from each site.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for this site to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, this site could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, this site is likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	This site is being promoted for sand and gravel and is therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Mineral sites not located on land designated as Flood Zones 2, 3a or 3b are likely to have limited potential to reduce flood risk and are therefore likely to have a negligible effect on this objective.
7.1 To encourage the use of recycled and secondary aggregates	-?	All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This minerals site could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed in the County will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to	+	This site would contribute towards providing minerals to meet Hertfordshire's need.

SA Objective and Sub Questions	SA Score	Justification
meet Hertfordshire's needs		
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and would have a positive effect on this objective as they provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-	This site is small (14.5ha) and located on Grade 3 BMV agricultural land. Therefore, it is considered to have a minor negative effect on protecting or enhancing soil/land quality.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	<p>The site is located approximately 85m to the west of a property along Old Uxbridge Road. However, it should be noted that the A412 separates the property from the site. The Tilehouse is also located to the south of the site. Therefore, development at this site is considered to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. Although, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), and the type of mineral site, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore, in all cases these effects are minor negative uncertain.</p> <p>This site is within 1km of a settlement at West Hyde, but is not within a strategic allocation of the Three Rivers District Local Plan 2014 or Issues & Options consultation document (January / March 2016). The site is not within 1km of an AQMA or an active minerals site. Overall, development at this site is unlikely to have a minor negative effect on the amenity of the local community.</p>
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	-?	This site scored 'amber' in the MLP Site Assessment Study 'recreation' criterion. This site is within 100m of two PRoW (No's: 002 and 004). Therefore, development at this site could have a minor negative effect on the amenity of users of PRoW and other users of the countryside in the County, or enjoyment of the AONB by making the facilities/countryside less attractive for users and impacting on amenity. However, it is not possible to determine whether diversion is required for PRoW until the planning application stage.
9.3 To provide opportunities to	+?	All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRoW and other users of the

SA Objective and Sub Questions	SA Score	Justification
improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site		countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	According to the MLP Site Assessment Study, this site is not located within an Airport Safeguarding Zone and is therefore unlikely to have any impact on the safe operation of aerodromes/airports if restored to a water-based use.

MLPCS006: Hatfield Aerodrome

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--?	This site is adjacent to Home Covert & Round Wood Local Wildlife Site. Therefore, a significant negative effect is considered likely on this objective. However, these effects would be uncertain as the potential for effects will depend on the exact nature and design of any proposals which come forward at the site.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	--?	The site is located within 1km of the Hertfordshire Primary Route Network; Hatfield Road (A1057), (A1 (M) and A6129). HDV flows along the A1 (M) are within 200m of Sherrardspark Wood SSSI. Therefore, this site has the potential to have a significant negative affect on this nature conservation site through increased deposition of air pollutants. Although this effect is dependent on the likely increase in HDV annual average daily traffic flows along the road passing within 200m of the nature conservation site (in combination with HDV movements from other existing and potential minerals sites). Although such adverse effects on European Sites have been discounted for the sites allocated in Policy 4 of the MLP through the Appropriate Assessment in the HRA, including this site, there is still potential for national and local sites to be adversely effected. However, the effect is uncertain as the detailed routing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	This site is located over 500m from a national site of geological interest (SSSI) or Local Geological Site, therefore, this site is considered unlikely to affect this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	--?	There are no designated heritage assets within the site, but there are a number of listed buildings immediately to the south of it. These include Popefield Farmhouse, Barn range, Granary and adjoining outbuilding, all of which are grade II listed. These assets appear to have a functional and historical relationship with their rural setting that aids their legibility; this would be significantly reduced as a result of development.

SA Objective and Sub Questions	SA Score	Justification
		<p>Immediately to the southwest of the site are two more grade II listed buildings - the Three Horseshoes Public House and a milestone; the setting of these assets are unlikely to be meaningfully affected by development.</p> <p>Further south, there are several more grade II listed buildings around Wilkin's Green. These include the grade II* listed Torilla, and the grade II listed Great Nast Hyde - including front garden wall, Barns on the north and west of the farmyard, and the Cottage - as well as Forge Cottage, Sunnyside, Nast Hyde Farmhouse. The agricultural buildings may have a functional/ historical relationship with the site that could be affected by development.</p> <p>Even further south is Sleapshyde Conservation Area, within which there are a number of grade II listed buildings. Two of these – The Plough Inn and Farm Cottage – lie within 1km of the site, but it is unlikely that they would be affected by development.</p> <p>There are no locally listed buildings assets within the site, or its immediate environs.</p> <p>This site is adjacent to three Grade II Listed Buildings associated with The assets most susceptible to setting change are Popefield Farmhouse and its associated buildings, which could lose a significant part of their rural setting, potentially resulting in a Overall, significant negative effects are considered likely, but uncertain because the potential effects to the setting of assets will not only depend on their visual relationship with the site but also their functional and historical relationship, and the way, and extent to which, their setting contributes to their heritage significance. . Further assessment at the planning application stage will be needed to determine the scale of potential effect on the setting and heritage significance of this asset, as well as that of other nearby assets.</p>
2.2 To conserve below ground archaeological assets	? - ?	<p>The site is not located in an area of archaeological interest but the HER indicates that there are non-designated archaeological assets within, and near, to the site. Where these comprise sub-surface remains in the form of features cut into the subsoil, they will be highly susceptible to physical change e.g. damage/ removal as a result of development. This would result in a negative effect, the scale of which would be dependent on their significance. Without further information, the scale of effect has been assessed as minor negative. Once proposals are known, a more detailed assessment would be required in order to identify the extent and significance of the assets, the impact to them and an appropriate scheme of mitigation.</p>

SA Objective and Sub Questions	SA Score	Justification
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	This site is being promoted for sand and gravel extraction and would not contribute towards this objective as these are not locally distinctive building materials. A negligible effect is therefore considered likely for this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	0	According to the LUC Landscape and Visual Sensitivity Study 2018, this site was considered to have a 'low' landscape sensitivity to mineral extraction due to its former industrial use. The area is flat and heavily screened and post-extraction restoration could improve the existing landscape character. Therefore, development at this site could have a negligible effect on designated landscapes, local landscape character and/or tranquillity.
4.1 To protect the quality of ground and surface water	--?	This site is outside SPZ1 however, it does contain a small waterbody (drains), in the north and south of the site. Development within the site could have a negative effect on the water body. In addition, there is a plume of bromate coincident with this Preferred Area with a concentration of 750 µg/l to more than 1000 µg/l in a substantial part of the area, which poses a risk of groundwater contamination. Contamination of the water body could have significant adverse effects, but uncertainty remains as the effect depends on the exact location, nature, working and design of a site.
4.2 To protect the quantity of ground and surface water from over abstraction	?	All mineral activity could potentially require the use of water resources, but this will not be known until the planning application stage where proposals are brought forward. Therefore, it is considered that all potential mineral activities will have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This site is within 10 km of strategic development locations, for example, Policy SP 24: New Village at Symondshyde (1,130 new homes) and Policy SP 22: North West Hatfield (1,650 new homes) north west of Hatfield in the Welwyn Hatfield Local Plan (August 2016) and could therefore contribute to reducing transport distances of aggregates for construction. However, this is uncertain as it is not known where aggregates will be transported to from each site.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for this site to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, this site could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, this site is likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.

SA Objective and Sub Questions	SA Score	Justification
6.1 To protect against the risk of flooding	0?	This site is being promoted for sand and gravel and is therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	+?	The mineral site is located on land designated as Flood zone 2. Therefore the site could have minor positive effects on reducing flood risk through flood alleviation and the provision of flood storage and attenuation. However, until the extent of the extraction is known and the nature of the subsequent restoration is defined, this effect is recorded as uncertain.
7.1 To encourage the use of recycled and secondary aggregates	-?	All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This minerals site could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed in the County will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	This site would contribute towards providing minerals to meet Hertfordshire's need.
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and would have a positive effect on this objective as they provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	--	This site is large (86.6ha) and most of the site is located on Grade 2 BMV agricultural land, while the remainder of the site is classified as Grade 3 BMV agricultural land and urban land. Therefore, it is considered to have a significant negative effect on protecting or enhancing soil/land quality.

SA Objective and Sub Questions	SA Score	Justification
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	<p>This site is sandwiched between Hatfield in the east and Smallford to the west. In addition, there is Popefield farm is to the south of the site on Hatfield Road (A1057) and Beach Cottage is to the north east of the site.</p> <p>Therefore, development at this site is considered to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. Although, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), and the type of mineral site, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore, in all cases these effects are minor negative uncertain.</p> <p>This site is also within 1km of settlements at St Albans and Sleafshyde and Howe Dell Primary School. This site is not within 1km of strategic development locations within St. Albans District Local Plan 1994, St. Albans draft Strategic Local Plan 2016 and the Welwyn Hatfield District Local Plan 2005. However, the site falls within close proximity to the existing Cemex Hatfield Quarry processing plant on Oaklands Lane and Policy SP 24: New Village at Symondshyde (1,130 new homes) and Policy SP 22: North West Hatfield (1,650 new homes) within Welwyn Hatfield's Proposed Submission Local Plan (August 2006). In addition, this site is not within 1km of an AQMA or within 1km of an active mineral site. Therefore, this site is unlikely to have a cumulative effect on the local community.</p>
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	--?	<p>This site scored 'red' in in the 'recreation' criterion of the MLP Site Assessment Study. The site contains two PRoW (No's:014 and 015) and is within close proximity of two additional PRoW (No's: 012 and 062). The MLP Site Assessment study also noted that the site is used for informal recreation. Therefore, development at this site could have a significant negative effect on the amenity of users of PRoW and other users of the countryside in the County, as development of the sites would mean either removing part of a facility/open space, or removing or temporarily closing land which has potential for recreation/access to the countryside. However, it is not possible to determine whether diversion is required for PRoW until the planning application stage.</p>
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure,	+?	<p>All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRoW and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an</p>

SA Objective and Sub Questions	SA Score	Justification
enhanced public rights of way and improved access to recreation as part of the development and restoration of a site		uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	-?	According to the MLP Site Assessment Study, this site is located within the Luton Airport Safeguarding Zone and could have minor negative effects on the safe operation of the airport if restored to a water-based use that is likely to attract large numbers of birds and increase the risk of bird strike. However, this effect is uncertain as it is dependent on the type of restoration proposed and eventually developed on site, which will not be known until a later stage in the Minerals Local Plan preparation or even at the planning application stage.

MLPCS007: Barwick

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--	This site is immediately adjacent to Plashes Wood SSSI. Great Barwick Manor Area Local Wildlife Site lies partially within this proposed allocation. In addition, this site is also adjacent to Sawtrees Wood and New Plantation Local Wildlife Sites. Overall, a significant negative effect is considered likely on this objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	--?	The site is located approximately 680m to the east of the strategic road network (A10). HDV flows along this route are likely to pass within 200m of Plashes Wood SSSI, Thorley Flood Pound SSSI and Lee Valley SPA. Therefore, this site has the potential to have a significant negative affect on this nature conservation site through increased deposition of air pollutants. Although this effect is dependent on the likely increase in HDV annual average daily traffic flows along the road passing within 200m of the nature conservation site (in combination with HDV movements from other existing and potential minerals sites). Although such adverse effects on European Sites have been discounted for the sites allocated in Policy 4 of the MLP through the Appropriate Assessment in the HRA, this site has not been allocated. Furthermore, there is still potential for national and local sites to be adversely effected. However, the effect is uncertain as the detailed routeing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	This site is immediately adjacent to of Plashes Wood SSSI. However, this SSSI is a rich and diverse woodland site consisting largely of Oak/Hornbeam woodland close to the northern limit of its natural distribution and not a geological site. Therefore, a negligible effect is considered likely in relation to this SA objective
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	--?	<p>There are no designated assets within the site. However, a number of listed buildings at Great Barwick Manor, including the grade II* Farmhouse and West Barn, and the grade II listed Granary, North barn, Stable and Little Barwick Farm, lie to the immediate east of the site and are partly encircled by it. The rural setting of these assets is important to their legibility and development would potentially significantly diminish this.</p> <p>To the southwest of the site there are further grade II listed buildings. These include the Sawtrees Manor and the East Barn, West Barn and Granary. Again, the ability to read these assets is related to their rural setting of which the site may form part, although any effect to these assets would likely be less than significant.</p>

SA Objective and Sub Questions	SA Score	Justification
		<p>Further to the southeast of the site lies Youngsbury, a grade II* registered park and garden, within which there is a number of listed buildings and a scheduled monument. These include the grade II* Youngsbury stable blocks, the grade II Youngsbury and garden wall, and the Youngsbury Roman barrows. The site may form an important part of the barrows setting and could feature in views from the park and house. As such there is the potential for development to result in some change to these assets setting.</p> <p>Adjacent to the park is Home Farm, which comprises four grade II listed buildings: Home Farm farmhouse, east barn, west barn and a farm building. Again, the ability to read these assets is related to their rural setting, of which the site may form part, however, development is unlikely to result in meaningful setting change.</p> <p>To the north of the site lies the grade II Plashes Farm, adjacent to which is a grade II* listed barn and stables. There are also three grade II listed cottages along the road by Hanging Wood. Again, the ability to read these assets is likely related to their rural setting, of which the site may form part, but development is unlikely to result in meaningful setting change.</p> <p>There are no locally listed buildings within, or immediate to, the site.¹⁶⁹</p> <p>Overall, there is the potential for significant negative effects to the setting of these designated assets, particularly those such as Great Barwick Manor, which have a functional and historical relationship with their rural setting. However, without more detailed proposals and their assessment, the effects on the setting and heritage significance of these assets remains uncertain.</p>
2.2 To conserve below ground archaeological assets	?	The site is not located within an area of archaeological interest and the HER does not record any archaeological assets within the site. Nonetheless, the predicted effect remains uncertain as there are HER records around the site, and further assessment may suggest a potential for archaeology.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	This site is being promoted for sand and gravel extraction and would not contribute towards this objective as these are not locally distinctive building materials. A negligible effect is therefore considered likely for this SA objective.
3.1 To conserve and enhance the character and quality of	--	According to the LUC Landscape and Visual Sensitivity Study 2018, this site was considered to have a 'moderate-high' landscape sensitivity to mineral extraction due to the varied landform and land cover pattern and its sense

¹⁶⁹ St Albans does not hold a local list.

SA Objective and Sub Questions	SA Score	Justification
Hertfordshire's landscapes		of tranquillity. Mineral extraction operations are likely to adversely affect the distinctive rural character of the area. Therefore, development at this site could have a significant negative effect on designated landscapes, local landscape character and/or tranquillity.
4.1 To protect the quality of ground and surface water	--?	The southern area of this site is located in SPZ1. The River Rib flows through the eastern part of this site. Therefore a significant adverse effect with uncertainty relating to the operation activities (e.g. dewatering). However, this effect would be uncertain as it would be very dependent on the exact nature, working and proposed design of the site.
4.2 To protect the quantity of ground and surface water from over abstraction	?	All mineral activity could potentially require the use of water resources, but this will not be known until the planning application stage where proposals are brought forward. Therefore, it is considered that all potential mineral activities will have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This site is within 10km of strategic allocated sites for development, according to Policy WARE2: Land North and East of Ware (1,000 new homes) in the recently adopted East Herts District Plan (2018). Therefore, this site could contribute to reducing transport distances of aggregates for construction and a minor positive is considered appropriate. However, this is uncertain as it is not known where aggregates will be transported to from each site.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for this site to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, this site could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, this site is likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	This site is being promoted for sand and gravel and is therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	+?	The mineral site is located on land designated as Flood zones 1 and 2. Therefore, the site could have positive effects on reducing flood risk through flood alleviation and the provision of flood storage and attenuation. However, until the extent of the extraction is known and the nature of the subsequent restoration is defined, this effect is recorded as uncertain.
7.1 To encourage the use of recycled and secondary aggregates	-?	All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.

SA Objective and Sub Questions	SA Score	Justification
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This minerals site could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed in the County will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	This site would contribute towards providing minerals to meet Hertfordshire's need.
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and would have a positive effect on this objective as they provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-	This site is large (120.3ha) and most of the site is on land classified as Grade 3 BMV agricultural land, although there are some areas of Grade 2 BMV agricultural land. Therefore, it is considered to have a minor negative effect on protecting or enhancing soil/land quality.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	<p>The site is located immediately adjacent to a settlement at Barwick, in addition to properties immediately north of Sawtrees ancient woodland (also within close proximity to Barwick Ford). Therefore, development at this site is considered to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. Although, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), and the type of mineral site, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore, in all cases these effects are minor negative uncertain.</p> <p>This site is not within 1km of Latchford, Bakers End, Meadows View Cottages and Youngsbury. However, it is located within close proximity to Policy WARE2: Land North and East of Ware (1,000 new homes) in the recently</p>

SA Objective and Sub Questions	SA Score	Justification
		adopted East Herts District Plan (2018). The site is not within 1km of an AQMA or an active mineral site. Therefore development at this site is unlikely to produce a cumulative effect.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	--?	This site scored 'light red' for the 'recreation' criterion in the MLP Site Assessment Study. The site contains two PRow including No's 045 and 060 and is immediately adjacent to a number of other PRow including 011 and 062. Therefore, development at this site could have a significant negative effect on the amenity of users of PRow and other users of the countryside in the County, as development of the sites would mean either removing or temporarily closing land which has potential for recreation/access to the countryside. However, it is not possible to determine whether diversion is required for PRow until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRow and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	According to the MLP Site Assessment Study, this site is not located within an Airport Safeguarding Zone and is therefore unlikely to have any impact on the safe operation of aerodromes/airports if restored to a water-based use.

MLPCS008: Hatfield Quarry - Furze Field

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	-?	This site is adjacent to Furze Field Wood (near Hatfield) Local Wildlife Site and therefore, a significant negative effect is considered likely on this objective. However, these effects would be uncertain as the potential for effects will depend on the exact nature and design of any proposals which come forward at the site.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0?	This site is over 1km from the Hertfordshire Primary Route Network and HDV flows are unlikely to pass within 200m of nature conservation site. Consideration is given to the effects of the site on the Epping Forest SAC in the accompanying HRA. However, such adverse effects on European Sites have been discounted for the sites allocated in Policy 4 through the Appropriate Assessment in the HRA. Therefore a negligible effect is recorded against this objective. However, the effect is uncertain as the detailed routing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	This site is located over 500m from a national site of geological interest (SSSI) or Local Geological Site, therefore, this site is considered unlikely to affect this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	-?	<p>There are no designated heritage assets on this site, but there is a grade II listed building, Astwick Manor (now the British Aerospace Technical School), a short distance to the south west of it. The Listed Building is set back from the road behind an existing property, trees and shrubbery. Coopers Green Lane is tree lined, has a slight downward gradient and is winding, meaning that there may be limited potential for intervisibility and it is possible that it could experience minor setting change.</p> <p>There is also a grade II listed building – The Old Cottage - to the northeast of the site. It is not likely to be meaningfully affected by setting change.</p> <p>Overall there is the potential for minor negative effects, but this is uncertain and further assessment will be required at the planning application stage to fully understand the significance of the heritage assets, the contribution that their setting makes to that significance, and the impact of development.</p>

SA Objective and Sub Questions	SA Score	Justification
2.2 To conserve below ground archaeological assets	-?	The site is not located within an area of archaeological interest but the HER indicates that there are non-designated assets within and around the site. Where these are sub-surface remains in the form of features cut into the subsoil, they will be highly susceptible to physical change e.g. damage/ removal. Further assessment of the assets and their significance, as well as the magnitude of development impact would be required to properly understand the scale of effect and determine whether it may be appropriately mitigated.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	This site is being promoted for sand and gravel extraction and would not contribute towards this objective as these are not locally distinctive building materials. A negligible effect is therefore considered likely for this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-	According to the LUC Landscape and Visual Sensitivity Study 2018, this site was considered to have a 'low-moderate' landscape sensitivity due to the flat landform and simple land cover pattern. There could be a slight adverse impact on the perceptual character of the landscape but the area is screened and impacts could be mitigated by woodland screening along the boundary and setting excavation back from the ancient woodland. Therefore, development at this site could have a minor negative effect on designated landscapes, local landscape character and/or tranquillity.
4.1 To protect the quality of ground and surface water	--?	This site is outside SPZ1 however, there are waterbodies (drains), in the northern and southern areas of the site. Development within the site could have a negative effect on these water bodies. In addition, there is a plume of bromate coincident with this Site with a concentration of 750 µg/l to more than 1000 µg/l in a substantial part of the area, which poses a risk of groundwater contamination. Contamination of these water bodies could have significant adverse effects, but uncertainty remains as the effect depends on the exact location, nature, working and design of a site.
4.2 To protect the quantity of ground and surface water from over abstraction	?	All mineral activity could potentially require the use of water resources, but this will not be known until the planning application stage where proposals are brought forward. Therefore, it is considered that all potential mineral activities will have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This site is within 10 km of a strategic development locations, for example, Policy SP 24: New Village at Symondshyde (1,130 new homes) and Policy SP 22: North West Hatfield (1,650 new homes) north west of Hatfield within the Welwyn Hatfield Proposed Submission Local Plan (August 2016) and could therefore contribute to reducing transport distances of aggregates for construction. However, this is uncertain as it is not known where aggregates will be transported to from each site.

SA Objective and Sub Questions	SA Score	Justification
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for this site to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, this site could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, this site is likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	This site is being promoted for sand and gravel and is therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Mineral sites not located on land designated as Flood Zones 2, 3a or 3b are likely to have limited potential to reduce flood risk and are therefore likely to have a negligible effect on this objective.
7.1 To encourage the use of recycled and secondary aggregates	-?	All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This minerals site could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed in the County will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	This site would contribute towards providing minerals to meet Hertfordshire's need.
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and would have a positive effect on this objective as they provide a degree of protection to minerals resources from inappropriate non-mineral development.

SA Objective and Sub Questions	SA Score	Justification
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-	This site is small (17.3ha) and most of the site is located on Grade 2 BMV agricultural land, while the remainder of the site is classified as urban land. Therefore, it is considered to have a minor negative effect on protecting or enhancing soil/land quality.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	<p>This site is within 100m of Astwick Manor. The settlement at Hatfield is also adjacent to the southern area of the site, although the MLP Site Assessment Study notes that it <i>'is industrial/warehousing and not considered to be a sensitive land use'</i>. Therefore, development at this site is considered to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. Although, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), and the type of mineral site, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore, in all cases these effects are minor negative uncertain.</p> <p>This site is over 1km from another settlement, but is located within Policy SP 22: North West Hatfield (1,650 new homes) and within close proximity to Policy SP 24: New Village at Symondshyde (1,130 new homes) of Welwyn Hatfield Proposed Submission Local Plan (August 2016). Policy SP 22 states that mineral extraction will be required prior to housing development and as such, there is unlikely to be direct impact upon the health of residents and the local amenity. This site is also not within 1km of an active mineral site. Therefore, this site is unlikely to have a cumulative effect on the local community.</p>
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	-?	According to the MLP Site Assessment Study, this site scored 'amber' in the 'recreation' criterion of the MLP Site Assessment Study. The site is located approximately 20m north of a PRoW. Therefore, development at this site could have a minor negative effect on the amenity of users of PRoW and other users of the countryside in the County, or enjoyment of the AONB by making the facilities/countryside less attractive for users and impacting on amenity. However, it is not possible to determine whether diversion is required for PRoW until the planning application stage.
9.3 To provide opportunities to improve health and amenity	+?	All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRoW and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive

SA Objective and Sub Questions	SA Score	Justification
through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site		effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	-?	According to the MLP Site Assessment Study, this site is located within the Luton Airport Safeguarding Zone and could have minor negative effects on the safe operation of the airport if restored to a water-based use that is likely to attract large numbers of birds and increase the risk of bird strike. However, this effect is uncertain as it is dependent on the type of restoration proposed and eventually developed on site, which will not be known until a later stage in the Minerals Local Plan preparation or even at the planning application stage.

MLPCS009: Hatfield Quarry - Land Adjoining Coopers Green Lane

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--?	This site is within 250m of Meadow West of Stanborough Yachting Lake Local Wildlife Site and therefore, a significant negative effect is considered likely on this objective. However, these effects would be uncertain as the potential for effects will depend on the exact nature and design of any proposals which come forward at the site.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	--?	The site is located within 1km of the Hertfordshire Primary Route Network (A1 (M) and A6129). HDV flows along the A1 (M) are within 200m of Sherrardspark Wood SSSI. Therefore, this site has the potential to have a significant negative affect on this nature conservation site through increased deposition of air pollutants. Although this effect is dependent on the likely increase in HDV annual average daily traffic flows along the road passing within 200m of the nature conservation site (in combination with HDV movements from other existing and potential minerals sites). Although such adverse effects on European Sites have been discounted for the sites allocated in Policy 4 of the MLP through the Appropriate Assessment in the HRA, including this site, there is still potential for national and local sites to be adversely effected. However, the effect is uncertain as the detailed routeing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	This site is located over 500m from a national site of geological interest (SSSI) or Local Geological Site, therefore, this site is considered unlikely to affect this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	--?	<p>There are no designated assets in the site. One grade II listed building – The Old Cottage - is surrounded by the site, which currently provides it with a rural setting. This asset may have a functional/ historical relationship with its rural setting, which development could result in the loss of.</p> <p>In the wider vicinity there are a number of other grade II listed buildings. To the south, within Hatfield, there are six buildings that are unlikely to have any relationship with the site and should not therefore be affected by its development. The remaining assets - Astwick Manor to the west, Gosmoor to the north and Woodhall to the east – could all potentially have a functional or historic relationship with the site that may change as a result of development but probably only at a minor or negligible level.</p>

SA Objective and Sub Questions	SA Score	Justification
		Overall there is the potential for significant negative effects, owing mostly to the potential impact on The Old Cottage. However, without more detailed proposals and their assessment, the effects on the setting and heritage significance of these assets remain uncertain.
2.2 To conserve below ground archaeological assets	--?	The site includes two areas of archaeological interest (AAS12 and AAS52) and the HER has records of non-designated assets within the site. Being principally sub-surface remains in the form of features cut into the subsoil, these assets are all highly susceptible to physical change e.g. damage/ removal. This could result in a significant negative effect. Further assessment of the assets and their significance, as well as the magnitude of development impact would be required to properly understand the scale of effect and determine whether it may be appropriately mitigated.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	This site is being promoted for sand and gravel extraction and would not contribute towards this objective as these are not locally distinctive building materials. A negligible effect is therefore considered likely for this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-	According to the LUC Landscape and Visual Sensitivity Study 2018, this site was considered to have a 'low-moderate' landscape sensitivity due to the flat landform and simple land cover pattern and the levels of existing development along the A1(M) corridor. Therefore, development at this site could have a minor negative effect on designated landscapes, local landscape character and/or tranquillity.
4.1 To protect the quality of ground and surface water	--?	This site is outside SPZ1 however, it does contain a small waterbody (drains), in the western section of the site. Development within the site could have a negative effect on this water body. In addition, there is a plume of bromate coincident with this site with a concentration of 750 µg/l to more than 1000 µg/l in a substantial part of the area, which poses a risk of groundwater contamination. Contamination of the water body could have significant adverse effects, but uncertainty remains as the effect depends on the exact location, nature, working and design of a site.
4.2 To protect the quantity of ground and surface water from over abstraction	?	All mineral activity could potentially require the use of water resources, but this will not be known until the planning application stage where proposals are brought forward. Therefore, it is considered that all potential mineral activities will have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This site is within 10 km of a strategic development locations, for example, Policy SP 24: New Village at Symondshyde (1,130 new homes) and Policy SP 22: North West Hatfield (1,650 new homes) north west of Hatfield in the Welwyn Hatfield Proposed Submission Local Plan (August 2016) and could therefore contribute to reducing transport distances of aggregates for construction. However, this is uncertain as it is not known where aggregates will be transported to from each site.

SA Objective and Sub Questions	SA Score	Justification
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for this site to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, this site could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, this site is likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	This site is being promoted for sand and gravel and is therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Mineral sites not located on land designated as Flood Zones 2, 3a or 3b are likely to have limited potential to reduce flood risk and are therefore likely to have a negligible effect on this objective.
7.1 To encourage the use of recycled and secondary aggregates	-?	All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This minerals site could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed in the County will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	This site would contribute towards providing minerals to meet Hertfordshire's need.
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and would have a positive effect on this objective as they provide a degree of protection to minerals resources from inappropriate non-mineral development.

SA Objective and Sub Questions	SA Score	Justification
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	--	This site is large (124.5ha) and just over half of the site is located on Grade 2 BMV agricultural land, while the remainder of the site is classified as urban and Grade 3 BMV agricultural land. Therefore, it is considered to have a significant negative effect on protecting or enhancing soil/land quality.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	<p>This site is approximately 40m to the east of a property located at the junction of Hatfield Avenue and Coopers Green Lane. Stanboroughbury Farm is also adjacent to north eastern area of the site and the settlement at Stanborough is also in the same vicinity. Hatfield Settlement is adjacent to the southern area of the site. Green Lanes Primary School is also within 100m of the central southern section of this site. Therefore, development at this site is considered to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. Although, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore, in all cases these effects are minor negative uncertain.</p> <p>This site is also within 1km of Lemsford to the north and Welwyn Garden City, but this is to the west of the A1(M). This site is located within Policy SP 22: North West Hatfield (1,650 new homes) and within close proximity to Policy SP 24: New Village at Symondshyde (1,130 new homes) of Welwyn Hatfield's Proposed Submission Local Plan (August 2016). Policy SP 22 states that mineral extraction will be required prior to housing development and as such, there is unlikely to be direct impact upon the health of residents and the local amenity. In addition, this site is not within 1km of an AQMA or within 1km of an active mineral site. Therefore, this site is unlikely to have a cumulative effect on the local community.</p>
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	--?	This site scored 'red' for the 'recreation' criterion of the MLP Site Assessment Study. This site contains two PRoW (no: 034 and 037) in the eastern section of the site and there are others located adjacent to the site (033, 041 and 042). According to the MLP Site Assessment Study, this site is also immediately adjacent to two designated areas of open space. Therefore, development at this site could have a significant negative effect on the amenity of users of PRoW and other users of the countryside in the County, as development of the sites would mean either removing part of a facility/open space, or removing or temporarily closing land which has potential for recreation/access to the countryside. However, it is not possible to determine whether diversion is required for

SA Objective and Sub Questions	SA Score	Justification
		PRow until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRow and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	-?	According to the MLP Site Assessment Study, this site is located within the Luton Airport Safeguarding Zone and could have minor negative effects on the safe operation of the airport if restored to a water-based use that is likely to attract large numbers of birds and increase the risk of bird strike. However, this effect is uncertain as it is dependent on the type of restoration proposed and eventually developed on site, which will not be known until a later stage in the Minerals Local Plan preparation or even at the planning application stage.

MLPCS010: The Briggens Estate – Olives Farm

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--?	This site is within 250m of Newlands Meadow (Stanstead Abbots) Local Wildlife Sites and two Ancient woodlands / Local Wildlife Sites at Stanstead Lodge Wood. Therefore, a significant negative effect is considered likely on this objective. However, these effects would be uncertain as the potential for effects will depend on the exact nature and design of any proposals which come forward at the site.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	--?	The site is adjacent to the Hertfordshire Primary Route Network (A414). HDV flows along the A414 are within 200m of Lee Valley SPA and Hunsdon Mead and Plashes Wood SSSI. Therefore, this site has the potential to have a significant negative affect on this nature conservation site through increased deposition of air pollutants. Although this effect is dependent on the likely increase in HDV annual average daily traffic flows along the road passing within 200m of the nature conservation site (in combination with HDV movements from other existing and potential minerals sites). Although such adverse effects on European Sites have been discounted for the sites allocated in Policy 4 of the MLP through the Appropriate Assessment in the HRA, including this site, there is still potential for national and local sites to be adversely effected. However, the effect is uncertain as the detailed routeing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	This site is located over 500m from a national site of geological interest (SSSI) or Local Geological Site, therefore, this site is considered unlikely to affect this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	--?	<p>The only known record of historic significance within the site is a WWII plane crash site under the Protection of Military Remains Act 1986. Immediately to the northeast of the site is the grade II* listed building, Olives Farmhouse, associated with which are four more grade II listed buildings - the barn, stables, granary and the Old Bungalow. These are likely to have a functional/ historical relationship with the site that would be diminished by development of the site.</p> <p>Beyond Olives Farm lies the grade II listed Bonningtons, a former farmhouse. Its garden wall, gates and gate piers are also grade II listed. These assets are unlikely to be meaningfully affected by development within the</p>

SA Objective and Sub Questions	SA Score	Justification
		<p>site.</p> <p>There are multiple listed buildings further to the northeast of the site within Hudsonbury. These are all grade II listed, with the exception of Hunsdown House and the Church of St Dunstan's, which are both grade II* listed, and the Scheduled Hunsdon Brook Tudor Fishpond. These assets are visually separated from the site by Bury Plantation and Lord's Wood and are unlikely to have a relationship with the site that would result in meaningful setting change should development occur.</p> <p>Newlands, a grade II listed building, lies just north of the site, on the opposite side of the B180. North of it lies Windmill Cottage, Little Briggens and the Coach House at Little Briggens, all of which are grade II listed buildings. Development of the site is unlikely to result in meaningful setting change to these assets as they do not appear to have a deliberate visual or historical/ functional relationship with the site.</p> <p>To the west of the site there is a large a number of further listed buildings – all grade II and II *. These all lie within the Stanstead Abbott's Conservation Area, which directly abuts the site. The character and special interest of the conservation area is likely to be susceptible to change as a result of development.</p> <p>The listed buildings within the conservation area that area closest to the site include: Netherfield Cottages, The Coach House and gatescreen, piers and gates, an ornamental dairy and Eventide House. The cottages and dairy may have a relationship with the rural land that forms the site and could be susceptible to setting change.</p> <p>Immediately south of the site, on the opposite side of the A414, is the Grade II registered park and garden - Stanstead Bury. Within and adjacent to this park are another 19 listed buildings. These include, the Old Church of St James, which is Grade I listed, and Standstead Bury, which is grade II* listed. The remaining buildings and structures are grade II listed and include the barn, granary, Ha Ha, stables, granary, north wall of the east garden, the bull house, dairy, outhouse and boundary wall, and several monuments/tombs associated with the church. There may be views out of the park/ house that may be affected by development and it is possible that the site once formed part of the agricultural lands associated with the site.</p> <p>To the southeast of the site are a further four grade II Listed buildings – Briggens Farmhouse, stables, and aisled barn and Stanstead Lodge. There is also a second grade II registered park and garden, Briggens, in which there are six grade II listed structures – Briggens House, gates and gate piers, lodge, kitchen garden walls, stable block, and west terrace and steps. Again, the rural land within the site could be related to some of these assets</p>

SA Objective and Sub Questions	SA Score	Justification
		<p>in such a way that development would result in setting change.</p> <p>Overall, there is the potential for significant negative effects as a result of setting change to a number of designated assets. Further assessment will be required at the planning application stage to understand the significance of the heritage assets, the contribution that their setting makes to that significance, and the impact of development.</p>
2.2 To conserve below ground archaeological assets	--?	<p>There are four areas of archaeological significance within the site and the HER indicates that there is non-designated assets within the site. Being principally sub-surface remains in the form of features cut into the subsoil, these assets are all highly susceptible to physical change e.g. damage/ removal. This could result in a significant negative effect. Further assessment of the assets and their significance, as well as the magnitude of development impact would be required to properly understand the scale of effect and determine whether it may be appropriately mitigated.</p>
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	<p>This site is being promoted for sand and gravel extraction and would not contribute towards this objective as these are not locally distinctive building materials. A negligible effect is therefore considered likely for this SA objective.</p>
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-	<p>According to the LUC Landscape and Visual Sensitivity Study 2018, this site was considered to have a 'low-moderate' landscape sensitivity due to the gently undulating landform and its enclosure by both topography and existing vegetation. Therefore, development at this site could have a minor negative effect on designated landscapes, local landscape character and/or tranquillity.</p>
4.1 To protect the quality of ground and surface water	-?	<p>This site is outside SPZ1 however, it does contain a small waterbody, in the north western section of the site and therefore this site is assessed as having a minor adverse effect with uncertainty relating to the operation activities (e.g. dewatering). However, this effect would be uncertain as it would be very dependent on the exact nature, working and proposed design of the site.</p>
4.2 To protect the quantity of ground and surface water from over abstraction	?	<p>All mineral activity could potentially require the use of water resources, but this will not be known until the planning application stage where proposals are brought forward. Therefore, it is considered that all potential mineral activities will have an uncertain effect on this objective.</p>
5.1 To reduce operational emissions through improved/enhanced	+?	<p>This site is within 10km of strategic allocated sites for development, according to Policy GA1: The Gilston Area (10,000 new homes) in the recently adopted East Herts District Plan (2018). Therefore, this site could contribute to reducing transport distances of aggregates for construction and a minor positive is considered likely. However,</p>

SA Objective and Sub Questions	SA Score	Justification
technologies and sustainable transport		this is uncertain as it is not known where aggregates will be transported to from each site.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for this sites to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, this site could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, this site is likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	This site is being promoted for sand and gravel and is therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Mineral sites not located on land designated as Flood Zones 2, 3a or 3b are likely to have limited potential to reduce flood risk and are therefore likely to have a negligible effect on this objective.
7.1 To encourage the use of recycled and secondary aggregates	-?	All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This minerals site could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed in the County will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	This site would contribute towards providing minerals to meet Hertfordshire's need.

SA Objective and Sub Questions	SA Score	Justification
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and would have a positive effect on this objective as they provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	--	This site is large (104.4ha) and approximately half of the site is located on Grade 2 BMV agricultural land, while the other half is classified as Grade 3 BMV agricultural land. Therefore, it is considered to have a significant negative effect on protecting or enhancing soil/land quality.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	<p>The site is also located immediately adjacent to Home Farm, Olives Farm and properties along Roydon Road and Hunsdon Road. Therefore, development at this site is considered to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. Although, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), and the type of mineral site, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore, in all cases these effects are minor negative uncertain.</p> <p>This site is adjacent to Hunsdon Road Cottages and within 1km of Stanstead Abbots and Hunsdonbury. Additionally, the site is located within close proximity to Policy GA1: The Gilston Area (10,000 new homes) in the recently adopted East Herts District Plan (2018). However, the site is not within 1km of an AQMA or an active minerals site. Therefore, a cumulative effect on these communities is unlikely.</p>
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	--?	This site scored 'red' in the site selection methodology for 'recreation' in the MLP Site Assessment Study. This site contains three PRoW (No's:002, 020 and 023). In addition, PRoW 022 is adjacent to the site. Development at this site could have a significant negative effect on the amenity of users of PRoW and other users of the countryside in the County, as development would mean removing or temporarily closing land which has potential for recreation/access to the countryside. However, it is not possible to determine whether diversion is required for PRoW until the planning application stage. Overall a significant negative effect is considered likely.
9.3 To provide opportunities to	+?	All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRoW and other users of the

SA Objective and Sub Questions	SA Score	Justification
improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site		countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	According to the MLP Site Assessment Study, this site is not located within an Airport Safeguarding Zone and is therefore unlikely to have any impact on the safe operation of aerodromes/airports if restored to a water-based use.

MLPCS011: Water Hall Quarry - Farm Fields Area

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--?	This site is adjacent to River Lea, Water Hall to Leaside Cottage Local Wildlife Site and is also within 250m of four other Local Wildlife Sites (Ditches in former Bayfordbury Meadow, Pollard Wood, Alder Wood and Roxford Area). Therefore, a significant negative effect is considered likely on this objective. However, these effects would be uncertain as the potential for effects will depend on the exact nature and design of any proposals which come forward at the site.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0?	This site is over 1km from the Hertfordshire Primary Route Network and HDV movements are unlikely to travel within 200m of designated conservation sites. Therefore development at this site is considered unlikely to have an impact on protecting sites from the deposition of air pollutants, although this impact is very dependent on the type of mineral site, likely routes to be taken by HDVs, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore a negligible effect is recorded against this objective. However, the effect is uncertain as the detailed routeing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	This site is located over 500m from a national site of geological interest (SSSI) or Local Geological Site, therefore, this site is considered unlikely to affect this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	--?	<p>There are no designated heritage assets within the site. Immediately to the north of the site is Roxford Moated site, a scheduled monument comprising earthworks and buried remains, which may be susceptible to setting change.</p> <p>Adjacent to the scheduled monument is a group of grade II listed buildings. These include Roxford House, Roxford Barns, a bridge, and ice house. It is possible that the site encroaches on the former parkland associated with these assets, meaning that development could affect their setting.</p> <p>Slightly further north lies another scheduled monument, a Baroque Garden in Grotto Wood comprised of an</p>

SA Objective and Sub Questions	SA Score	Justification
		<p>earthwork and buried remains. There is the potential for setting change to this asset, but possibly not in a meaningful way, given that it survives as an earthwork and buried remains.</p> <p>Even further north lies the East End Green Conservation Area, containing three grade II listed buildings – two cottages and a farmhouse. Just north of the conservation area is Hazeldene a grade II listed building. Development within the site is unlikely to result in meaningful setting change to any of these assets.</p> <p>To the immediate west of the site is another grade II listed building, Water Hall Farm House. It is likely to have a functional and historical relationship with the surrounding rural landscape, including the site. Development would diminish this, and the ability to read the building.</p> <p>Further west is a grade II listed summer house at Arkley Hole. It is sited in Spring Wood and unlikely to be affected by development within the site.</p> <p>Some distance to the south of the site is Little Berkhamstead Conservation Area. To the east of which is the grade II listed Stockings, a former farmhouse with four associated outbuildings that are also all grade II listed. East of this is the grade II listed Bayford Hall. None of these assets are likely to experience meaningful setting change as a result of development of the site.</p> <p>A short distance to the east of the site is Bayfordbury, a grade II registered park and garden, in which there are four listed buildings. Three of these lie within 1km of the site; these include Bayfordbury House, which is grade II* listed building, and the garden and stables, both grade II listed. It is possible that views from the house and garden may be affected as a result of setting change.</p> <p>Just north of the Bayfordbury is the grade II listed Bayfordbury Park Farmhouse. Four grade II listed buildings are associated with it – a barn, stable, granary and shelter. It is possible that the agricultural land forming the site may at one point have had a relationship with the farm and these buildings.</p> <p>To the west of Bayfordbury Park Farm is a grade II listed bridge over the river Lea. Its heritage significance will relate to the road and river, and development within the site is unlikely to affect it.</p> <p>Overall, there is the potential for significant negative effects owing to the number of designated assets with the potential to be affected through changes to their setting. However, these effects are considered uncertain as the actual effects on historic assets will depend on the visual, functional and historic relationship with the site and the</p>

SA Objective and Sub Questions	SA Score	Justification
		way, and extent to which, its setting contributes to the assets heritage significance. Further assessment will be required at the planning application stage to understand the significance of the heritage assets, the contribution that their setting makes to that significance and the impact of development.
2.2 To conserve below ground archaeological assets	?	The site does not contain any areas of archaeological interest, nor does the HER record any non-designated assets in the site. However, as the absence of known archaeological assets does not necessarily preclude the absence of archaeology - especially given that part of the site is adjacent to a scheduled monument - the effects of development remain uncertain.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	This site is being promoted for sand and gravel extraction and would not contribute towards this objective as these are not locally distinctive building materials. A negligible effect is therefore considered likely for this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-	According to the LUC Landscape and Visual Sensitivity Study 2018, this site was considered to have a 'low-moderate' landscape sensitivity due to the flat landform, the enclosed nature of the site and the proximity to existing mineral extraction sites. Therefore, development at this site could have a minor negative effect on designated landscapes, local landscape character and/or tranquillity.
4.1 To protect the quality of ground and surface water	-?	This site is outside SPZ1 however, there are waterbodies throughout the site and a section of the River Lea flows adjacent to the northern boundary of the site and therefore this site is assessed as having a minor adverse effect. However, this effect would be uncertain as it would be very dependent on the exact nature, working and proposed design of the site.
4.2 To protect the quantity of ground and surface water from over abstraction	?	All mineral activity could potentially require the use of water resources, but this will not be known until the planning application stage where proposals are brought forward. Therefore, it is considered that all potential mineral activities will have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This site is within 10km of strategic allocated sites for development, according to Policy GA1: The Gilston Area (10,000 new homes) in the recently adopted East Herts District Plan (2018). Therefore, this site could contribute to reducing transport distances of aggregates for construction and a minor positive is considered appropriate. However, this is uncertain as it is not known where aggregates will be transported to from each site.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and	+?/-	There may be an opportunity for this site to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain

SA Objective and Sub Questions	SA Score	Justification
plant, and the use of appropriate renewable or lower carbon energy sources on site		minor positive effect is likely. However, this site could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, this site is likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	This site is being promoted for sand and gravel and is therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	++?	The mineral site is located on land designated as Flood zone 2, 3a and 3b. Therefore, the site could have significant positive effects on reducing flood risk through flood alleviation and the provision of flood storage and attenuation. However, until the extent of the extraction is known and the nature of the subsequent restoration is defined, this effect is recorded as uncertain.
7.1 To encourage the use of recycled and secondary aggregates	-?	All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This minerals site could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed in the County will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	This site would contribute towards providing minerals to meet Hertfordshire's need.
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and would have a positive effect on this objective as they provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land	-	This site is large (24.3ha) and located on Grade 3 BMV agricultural land. Therefore, it is considered to have a minor negative effect on protecting or enhancing soil/land quality.

SA Objective and Sub Questions	SA Score	Justification
in preference to that of a higher quality		
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	<p>This site is within 100m of a number of properties to the south of Lower Hatfield Road. Water Hall farm is also within 100m to the west of the site and there is another property of the north of the site. Therefore, development at this site is considered to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. Although, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore, in all cases these effects are minor negative uncertain.</p> <p>This site is within 1km of Broad Green Wood and Little Berkhamsted. This site is not located within or in close proximity to a site allocation within the recently adopted East Herts District Plan (2018). In addition, this site is not within 1km of an AQMA or within 1km of an active mineral site, however, the MLP Site Assessment Study noted that this site is immediately adjacent to Waterhall Farm Quarry. However, it is inactive with regard to mineral extraction. Furthermore, the site has been put forward by the owner of the existing quarry and it is considered that extraction at this site will only commence once works on the existing quarry have been completed. Therefore development at this site is unlikely to produce a cumulative effect.</p>
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	-?	<p>This site scored 'light red' for the 'recreation' criterion in the MLP Site Assessment Study. The site is located immediately adjacent to a PRoW (No: 074) and is within 100m of three more PRoW (No's: 054, 074 and 254). Therefore, development at this site could have a minor negative effect on the amenity of users of PRoW and other users of the countryside in the County, or enjoyment of the AONB by making the facilities/countryside less attractive for users and impacting on amenity. However, it is not possible to determine whether diversion is required for PRoW until the planning application stage.</p>
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of	+?	<p>All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRoW and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.</p>

SA Objective and Sub Questions	SA Score	Justification
the development and restoration of a site		
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	According to the MLP Site Assessment Study, this site is not located within an Airport Safeguarding Zone and is therefore unlikely to have any impact on the safe operation of aerodromes/airports if restored to a water-based use.

MLPCS012: Water Hall Quarry – Broad Green Area

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--?	This site is within 250m of Ditches in former Bayfordbury Meadow Local Wildlife Site. Therefore, a significant negative effect is considered likely on this objective. However, these effects would be uncertain as the potential for effects will depend on the exact nature and design of any proposals which come forward at the site.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0?	This site is over 1km of the Hertfordshire Primary Route Network and HDV flows are unlikely to pass within 200m of a designated nature conservation site. Therefore development at this site is considered unlikely to have an impact on protecting sites from the deposition of air pollutants, although this impact is very dependent on the type of mineral site, likely routes to be taken by HDVs, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore a negligible effect is recorded against this objective. However, the effect is uncertain as the detailed routing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	This site is located over 500m from a national site of geological interest (SSSI) or Local Geological Site, therefore, this site is considered unlikely to affect this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	-?	<p>There are no designated heritage assets within the site. To the east is Bayfordbury, a grade II registered park and garden in which there are four listed buildings. Three of these lie within 1km of the site; these include Bayfordbury House, which is grade II* listed building, and the garden and stables, both grade II listed. It is possible that the house and garden may be affected, but probably only to a limited extent as a result of setting change.</p> <p>Just north of the Bayfordbury is the grade II listed Bayfordbury Park Farmhouse. Four grade II listed buildings are associated with it – a barn, stable, granary and shelter. It is possible that the agricultural land forming the site may at one point have had a relationship with the farm but any setting change would be very limited.</p> <p>To the west of Bayfordbury Park Farm is a grade II listed bridge over the river Lea. Its heritage significance will</p>

SA Objective and Sub Questions	SA Score	Justification
		<p>relate to the road and river and development within the site is unlikely to affect it.</p> <p>To the north of the site is Roxford Moated site, a scheduled monument comprising earthworks and buried remains. It is possible that it has a relationship with the site but setting change would be limited.</p> <p>Adjacent to the scheduled monument is a group of grade II listed buildings. These include Roxford House, Roxford Barns, a bridge, and ice house. It is possible that the site encroaches on the former parkland associated with these assets, meaning that development could affect their setting to a limited extent.</p> <p>Slightly further north lies another scheduled monument, a Baroque Garden in Grotto Wood. It is possible that it has a relationship with the site but setting change would be limited.</p> <p>To the west of the site is the grade II listed Waterhall Farm House. It is likely to have a functional and historical relationship with the surrounding rural landscape, potentially including the site. Development would diminish this, and the ability to read the building.</p> <p>There are no locally listed assets within or in the immediate vicinity of the site.</p> <p>Overall it is considered that there is a potential for minor negative effects. However, these effects are considered uncertain as the actual effects on historic assets will depend on the visual, functional and historic relationship with the site and the way, and extent to which, its setting contributes to the assets heritage significance. Further assessment will be required at the planning application stage to understand the significance of the heritage assets, the contribution that their setting makes to that significance and the impact of development.</p>
2.2 To conserve below ground archaeological assets	?	The site does not contain any areas of archaeological interest, nor does the HER record any non-designated assets in the site. However, as the absence of known archaeological assets does not necessarily preclude the absence of archaeology the effects of development remain uncertain.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	This site is being promoted for sand and gravel extraction and would not contribute towards this objective as these are not locally distinctive building materials. A negligible effect is therefore considered likely for this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-	According to the LUC Landscape and Visual Sensitivity study 2018, this site was considered to have a 'low-moderate' landscape sensitivity due to the gently sloping landform, simple land cover pattern and its enclosed nature. The site's proximity to former and operational mineral sites decreases the rural quality of the immediate

SA Objective and Sub Questions	SA Score	Justification
		area. Therefore, development at this site could have a minor negative effect on designated landscapes, local landscape character and/or tranquillity.
4.1 To protect the quality of ground and surface water	0?	This site is outside SPZ1 and does not contain any water bodies. Therefore it is unlikely to have an effect on water quality. However, this effect would be uncertain as it would be very dependent on the exact nature, working and proposed design of the site. There is a plume of bromate coincident with this site with a concentration of 750 µg/l to more than 1000 µg/l in a substantial part of the area. The implications of mineral extraction on groundwater contamination in this area remain uncertain.
4.2 To protect the quantity of ground and surface water from over abstraction	?	All mineral activity could potentially require the use of water resources, but this will not be known until the planning application stage where proposals are brought forward. Therefore, it is considered that all potential mineral activities will have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This site is within 10km of several allocated sites for development, according to the recently adopted East Hertfordshire District Plan (2018). This includes Hertford and Ware to the north east of the site. Therefore, this site could contribute to reducing transport distances of aggregates for construction and a minor positive is considered appropriate. However, this is uncertain as it is not known where aggregates will be transported to from each site.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for this site to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, this site could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, this site is likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	This site is being promoted for sand and gravel and is therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Mineral sites not located on land designated as Flood Zones 2, 3a or 3b are likely to have limited potential to reduce flood risk and are therefore likely to have a negligible effect on this objective.
7.1 To encourage the use of recycled and secondary	-?	All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.

SA Objective and Sub Questions	SA Score	Justification
aggregates		
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This minerals site could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed in the County will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	This site would contribute towards providing minerals to meet Hertfordshire's need.
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and would have a positive effect on this objective as they provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-	This site is small (11.8ha) and located on Grade 3 BMV agricultural land. Therefore, it is considered to have a minor negative effect on protecting or enhancing soil/land quality.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	<p>There are several properties located to the south of the site at the settlement Broad Green Wood. In addition, it is also within 100m of properties on Lower Hatfield road to the north. Therefore, development at this site is considered to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. Although, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), and the type of mineral site, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore, in all cases these effects are minor negative uncertain.</p> <p>This site is also within 1km of a settlement at Bayford, but is not located within or in close proximity to a site</p>

SA Objective and Sub Questions	SA Score	Justification
		allocation within the recently adopted East Herts District Plan 2018. In addition, this site is not within 1km of an AQMA or within 1km of an active mineral site. However, the MLP Site Assessment Study noted that ' <i>Bunkers Hills Quarry is within close proximity but its currently being restored</i> '.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	0?	This site scored 'light green' in the MLP Site assessment recreation criterion and does not contain any PRow or local recreational facility including a public park or open space adjacent to the site and is over 100m from a leisure or recreational facility or open space, including PRow. Therefore, this site is considered unlikely to have an effect on the amenity of users of PRow and other users of the countryside in the County. However, it is not possible to determine whether diversion is required for PRow until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRow and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	According to the MLP Site Assessment Study, this site is not located within an Airport Safeguarding Zone and is therefore unlikely to have any impact on the safe operation of aerodromes/airports if restored to a water-based use.

MLPCS013: Harry's Field

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--?	This site is within 250m of Pocketsdell Lane Local Wildlife Site. Therefore, a significant negative effect is considered likely on this objective. However, these effects would be uncertain as the potential for effects will depend on the exact nature and design of any proposals which come forward at the site.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0?	This site is over 1km of the Hertfordshire Primary Route Network and HDV flows are unlikely to pass within 200m of a designated nature conservation site. Therefore development at this site is considered unlikely to have an impact on protecting sites from the deposition of air pollutants, although this impact is very dependent on the type of mineral site, likely routes to be taken by HDVs, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore a negligible effect is recorded against this objective. However, the effect is uncertain as the detailed routeing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	This site is located over 500m from a national site of geological interest (SSSI) or Local Geological Site, therefore, this site is considered unlikely to affect this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	-?	<p>There are no designated heritage assets on the site. To the north of the site, on the opposite side of the road, there are two grade II listed buildings – Marchant's Farm house and a double barn. These buildings derive significance from their rural setting, which would likely be diminished by development of the site.</p> <p>To the north of the site, on the opposite side of Leyhill Road, there are two grade II listed buildings - Marchants Farm house and a double barn. These buildings derive significance from their rural setting, which would likely be diminished by development of the site.</p> <p>To the northeast of the site there are three grade II listed buildings along Chesham Road. These include Whepley Ash Farm and barn, and White Hart Cottage. These buildings are likely to also derive significance from their rural setting, with which they may share a functional/ historical relationship. However, development of the</p>

SA Objective and Sub Questions	SA Score	Justification
		<p>site is unlikely to result in particularly meaningful change to their setting.</p> <p>There are another three grade II listed buildings to the east of the site, along Long Lane and Green Lane. These include Pudds Orchard, Green Farmhouse, and Red Lion Cottage. The farmhouse will derive significance from its rural setting but this should not be affected to an extent that would result in particularly meaningful setting change. The heritage significance of the other two buildings would not be affected via their setting.</p> <p>There are no locally designated assets within the site, or its immediate environs.</p> <p>Overall, a minor negative effect is considered likely, owing largely to the loss of part of the rural landscape with which Marchant's Farm may share a functional and historical relationship. However, the overall effects are considered uncertain as the actual effects on historic assets will depend on the visual, functional and historic relationship with the site and the way, and extent to which, its setting contributes to the assets heritage significance. Further assessment will be required at the planning application stage to understand the significance of the heritage assets, the contribution that their setting makes to that significance and the impact of development.</p>
2.2 To conserve below ground archaeological assets	?	The site does not contain any areas of archaeological interest, nor does the HER record any non-designated assets in the site. However, as the absence of known archaeological assets does not necessarily preclude the absence of archaeology the effects of development remain uncertain.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	+	This site is being promoted for brick clay mineral extraction and therefore considered to have a minor positive effect in relation to this objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-	According to the LUC Landscape and Visual Sensitivity Study 2018, this site was considered to have a 'low-moderate' landscape sensitivity due to flat landform, and enclosure from hedgerows and hedgerow trees. The site's proximity to existing built development also reduces its sensitivity. Therefore, development at this site could have a minor negative effect on designated landscapes, local landscape character and/or tranquillity.
4.1 To protect the quality of ground and surface water	0?	This site is outside SPZ1 and does not contain any water bodies. Therefore it is unlikely to have an effect on water quality. However, this effect would be uncertain as it would be very dependent on the exact nature, working and proposed design of the site.
4.2 To protect the quantity of ground and surface water from	?	All mineral activity could potentially require the use of water resources, but this will not be known until the planning application stage where proposals are brought forward. Therefore, it is considered that all potential

SA Objective and Sub Questions	SA Score	Justification
over abstraction		mineral activities will have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This site is within 10km of strategic allocated sites for development, according to Dacorum Borough Local Plan Core Strategy DPD (adopted September 2013) Site Allocations (adopted July 2017) and Proposals Maps – for example Allocation LA6 (Chesham Road/Molyneaux Avenue). Therefore, this site could contribute to reducing transport distances of aggregates for construction and a minor positive is considered appropriate. However, this is uncertain as it is not known where aggregates will be transported to from each site.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for this site to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, this site could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery, although brick clay sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, this site is likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	This site is being promoted for brick clay and whilst clay extraction sites are not deemed suitable developments within flood zone 3b, the potential layout of the site should avoid the plant site and other infrastructure being located within the areas of the site that may fall within flood zones 2 and 3. However, this site is not within either flood risk zone 2 or 3 or a flood storage zone and therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Mineral sites not located on land designated as Flood Zones 2, 3a or 3b are likely to have limited potential to reduce flood risk and are therefore likely to have a negligible effect on this objective.
7.1 To encourage the use of recycled and secondary aggregates	-?	All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This minerals site could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed in the County will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be

SA Objective and Sub Questions	SA Score	Justification
		significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	This site would contribute towards providing minerals to meet Hertfordshire's need.
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and would have a positive effect on this objective as they provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-	This site is small (4.6ha) and most of the site is on land classified as Grade 2 BMV agricultural land with a small area in the south west of the site classified as Grade 3 BMV agricultural land. Therefore, it is considered to have a minor negative effect on protecting or enhancing soil/land quality.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	<p>The site is located immediately adjacent to properties along Shantock Lane. The site is also to the south of Leyhill Road where there are a number of additional properties. Therefore, development at this site is considered to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. Although, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore, in all cases these effects are minor negative uncertain.</p> <p>This site is within 1km of a settlement at Shantock Hall and Bovingdon. The site is not located within close proximity to an existing settlement nor is it located within or in close proximity to a site allocation within the Dacorum District Core Strategy 2013. The site is within close proximity to a development allocation at Bovingdon in the Site Allocations DPD (July 2017). In addition, this site is not within 1km of an AQMA or an active mineral site. Therefore development at this site is unlikely to result in a cumulative effect.</p>
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open	-?	This site scored 'amber' in the 'recreation' criterion in the MLP Site Assessment Study. This site is located within 100m of two PRoW (No's: 007 and 009). Therefore, development at this site could have a minor negative effect on the amenity of users of PRoW and other users of the countryside in the County, or enjoyment of the AONB

SA Objective and Sub Questions	SA Score	Justification
space		by making the facilities/countryside less attractive for users and impacting on amenity. However, it is not possible to determine whether diversion is required for PRow until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRow and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	According to the MLP Site Assessment Study, this site is not located within an Airport Safeguarding Zone and is therefore unlikely to have any impact on the safe operation of aerodromes/airports if restored to a water-based use.

MLPCS014: Water Hall Quarry – Bunkers Hill South Area

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	-??	Bayford Wood Ancient Woodland / Local Wildlife Site is adjacent to the western area of the site and therefore, a significant negative effect is considered likely on this objective. However, these effects would be uncertain as the potential for effects will depend on the exact nature and design of any proposals which come forward at the site.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0?	This site is over 1km from the Hertfordshire Primary Route Network and is unlikely to pass within 200m of a designated nature conservation site. Therefore development at this site is considered unlikely to have an impact on protecting sites from the deposition of air pollutants, although this impact is very dependent on the type of mineral site, likely routes to be taken by HDVs, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore a negligible effect is recorded against this objective. However, the effect is uncertain as the detailed routeing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	This site is located over 500m from a national site of geological interest (SSSI) or Local Geological Site, therefore, this site is considered unlikely to affect this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	-?	<p>There are no designated heritage assets within the site boundary. A short distance to the south of the site is Bayford Hall, a grade II listed building. The setting of this asset may have a relationship with the site that will be affected by its development.</p> <p>Further south is the grade II* Church of St Mary, associated with which are five grade II listed structures. These include the Church Cottages, three burial monuments and a lych gate. The setting of these assets is unlikely to be affected in a meaningful way.</p> <p>To the east of the site is Bayfordbury, a grade II registered park and garden, within which there are four listed structures. One of these structures – the walls of the walled garden – lies within 1km from the site. There is the potential for the park to be affected by development of the site to a minor extent, but the walls of the walled</p>

SA Objective and Sub Questions	SA Score	Justification
		<p>garden are unlikely to be affected.</p> <p>To the north of the site is Roxford Moated site, a scheduled monument comprising earthworks and buried remains. Adjacent to the scheduled monument is a group of grade II listed buildings. These include Roxford House, Roxford Barns, a bridge, and ice house. Slightly further north lies another scheduled monument, a Baroque Garden in Grotto Wood. It is unlikely that these assets would experience meaningful setting change as a result of the site's development.</p> <p>The grade II listed Waterhall Farm House also lies to the north of the site. It may have a functional and historical relationship with the surrounding rural landscape, including the site. However, the effect of its development would probably be very limited.</p> <p>To the southwest of the site there are five more grade II listed buildings associated with Stockings Farm. Little Berkhamsted Conservation Area also lies to the south of the site. Development is unlikely to result in meaningful setting change to these assets.</p> <p>There are no locally listed assets within the site, or its immediate environs.</p> <p>Overall, there is a potential for minor negative effects as a result of setting change to designated assets. However, the overall effects are considered uncertain as the actual effects on historic assets will depend on the visual, functional and historic relationship with the site and the way, and extent to which, its setting contributes to the assets heritage significance. Further assessment will be required at the planning application stage to understand the significance of the heritage assets, the contribution that their setting makes to that significance and the impact of development.</p>
2.2 To conserve below ground archaeological assets	?	The site does not contain any areas of archaeological interest, nor does the HER record any non-designated assets in the site. However, as the absence of known archaeological assets does not necessarily preclude the absence of archaeology the effects of development remain uncertain.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	This site is being promoted for sand and gravel extraction and would not contribute towards this objective as these are not locally distinctive building materials. A negligible effect is therefore considered likely for this SA objective.
3.1 To conserve and enhance the character and quality of	-	According to the LUC Landscape and Visual Sensitivity Study 2018, this site was considered to have a 'low-moderate' landscape sensitivity due to gently undulating landform, simple land cover pattern and proximity to

SA Objective and Sub Questions	SA Score	Justification
Hertfordshire's landscapes		restored or operational mineral sites which decrease the rural quality of the immediate area. Therefore, development at this site could have a minor negative effect on designated landscapes, local landscape character and/or tranquillity.
4.1 To protect the quality of ground and surface water	0?	This site is outside SPZ1 and does not contain any water bodies. Therefore it is unlikely to have an effect on water quality. However, this effect would be uncertain as it would be very dependent on the exact nature, working and proposed design of the site. There is a plume of bromate coincident with this site with a concentration of 750 µg/l to more than 1000 µg/l in a substantial part of the area. The implications of mineral extraction on groundwater contamination in this area remain uncertain.
4.2 To protect the quantity of ground and surface water from over abstraction	?	All mineral activity could potentially require the use of water resources, but this will not be known until the planning application stage where proposals are brought forward. Therefore, it is considered that all potential mineral activities will have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This site is within 10km of strategic allocated sites for development, according to the recently adopted East Hertfordshire District Plan 2018. This includes Hertford and Ware to the north east of the site. Therefore, this site could contribute to reducing transport distances of aggregates for construction and a minor positive is considered appropriate. However, this is uncertain as it is not known where aggregates will be transported to from each site.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for this site to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, this site could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, this site is likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	This site is being promoted for sand and gravel and is therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Mineral sites not located on land designated as Flood Zones 2, 3a or 3b are likely to have limited potential to reduce flood risk and are therefore likely to have a negligible effect on this objective.
7.1 To encourage the use of	-?	All the potential minerals sites would have a minor negative effect on this objective because they would

SA Objective and Sub Questions	SA Score	Justification
recycled and secondary aggregates		contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This minerals site could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed in the County will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	This site would contribute towards providing minerals to meet Hertfordshire's need.
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and would have a positive effect on this objective as they provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-	This site is small (18.1ha) and located on Grade 3 BMV agricultural land. Therefore, it is considered to have a minor negative effect on protecting or enhancing soil/land quality.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	Bayford Hall and Bayford Hall Farm are immediately adjacent to the south eastern area of this site. Therefore, development at this site is considered to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. Although, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), and the type of mineral site, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore, in all cases these effects are minor negative uncertain.

SA Objective and Sub Questions	SA Score	Justification
		This site is also within 1km of Broad Green Wood to the north east, Bayford to the south east and Little Berkhamsted to the southwest. This site is not located within or in close proximity to a site allocation within the recently adopted East Herts District Plan (2018). In addition, this site is not within 1km of an AQMA or within 1km of active mineral site. However, the MLP Site Assessment Study noted that this site is adjacent to Bunkers Hill Quarry but it is currently being restored. Therefore, this site is unlikely to have a cumulative effect on the local community.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	-?	This site scored 'red' in the MLP Site assessment 'recreation' criterion. It is immediately adjacent to PRoW (No: 004). Therefore, development at this site could have a minor negative effect on the amenity of users of PRoW and other users of the countryside in the County, or enjoyment of the AONB by making the facilities/countryside less attractive for users and impacting on amenity. However, it is not possible to determine whether diversion is required for PRoW until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRoW and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	According to the MLP Site Assessment Study, this site is not located within an Airport Safeguarding Zone and is therefore unlikely to have any impact on the safe operation of aerodromes/airports if restored to a water-based use.

MLPCS015: Plashes Farm

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--	A section of Plashes Wood SSSI (and Ancient Woodland) is within this site. Plashes Farm Buildings Local Wildlife Site is located within the northern area of this site. In addition, both sections of Badgerseye Plantation Ancient Woodland / Local Wildlife Site are also located to the south western area of the site. Therefore, a significant negative effect is considered likely on this objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	--?	The site is located within 1km of the Hertfordshire Primary Route Network (A10). HDV flows along the A10 are within 200m of Plashes Wood SSSI and Lee Valley SPA. Therefore, this site has the potential to have a significant negative affect on this nature conservation site through increased deposition of air pollutants. Although this effect is dependent on the likely increase in HDV annual average daily traffic flows along the road passing within 200m of the nature conservation site (in combination with HDV movements from other existing and potential minerals sites). Although such adverse effects on European Sites have been discounted for the sites allocated in Policy 4 of the MLP through the Appropriate Assessment in the HRA, this site has not been allocated. Furthermore, there is still potential for national and local sites to be adversely effected. However, the effect is uncertain as the detailed routeing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	A section of Plashes Wood SSSI (and Ancient Woodland) is within this site. The site is a rich and diverse woodland site consisting largely of Oak/Hornbeam woodland close to the northern limit of its natural distribution and not of geological interest. Therefore, a negligible effect is considered likely in relation to this SA objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	--?	<p>There are no designated heritage assets within the site boundary. Immediately to the north of the site there are two listed buildings. These include Plashes Farm, which is grade II listed, and the barn and stables are grade II* listed. The legibility of these buildings is related to their agricultural setting, which comprises the site and would be lost via its development.</p> <p>Further north there is a group of 14 listed buildings – 13 grade II and one grade II* listed - at Colliers End. To the east of these there is Dowsett's Farm, another grade II listed building. All of these assets are visually</p>

SA Objective and Sub Questions	SA Score	Justification
		<p>separated from the site by Plashes Wood, and are unlikely to be subject to setting change.</p> <p>To the east of the site there are three grade II listed cottages, along the road. These are separated from the site by Hanging Wood and are unlikely to be affected by development of the site.</p> <p>There are no locally listed assets within the site or its immediate environs¹⁷⁰.</p> <p>Overall, there is the potential for a significant negative effect, owing primarily to the effect on Plashes Farm. Further assessment will be required at the planning application stage to fully understand the significance of the heritage assets, the contribution that their setting makes to that significance and the impact of development.</p>
2.2 To conserve below ground archaeological assets	?--?	The HER indicates that there are non-designated assets within the site, and the majority of it is an area of archaeological significance. These assets will primarily comprise sub-surface remains in the form of features cut into the subsoil, they will be highly susceptible to physical change e.g. damage/ removal as a result of development. This could result in a significant negative effect. Once proposals are known, a more detailed assessment would be required in order to identify the extent and significance of the assets, the impact to them and an appropriate scheme of mitigation.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	This site is being promoted for sand and gravel extraction and would not contribute towards this objective as these are not locally distinctive building materials. A negligible effect is therefore considered likely for this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	--	According to the LUC Landscape and Visual Sensitivity Study 2018, this site was considered to have a 'moderate-high' landscape sensitivity due to the varied landform, historic field pattern and valued landscape features. Mineral extraction is likely to disturb the strong rural character of the site. Therefore, development at this site could have a significant negative effect on designated landscapes, local landscape character and/or tranquillity.
4.1 To protect the quality of ground and surface water	-?	This site is outside SPZ1 however, there is a small waterbody, in the north of the site and there are small water bodies located adjacent to the central area of the site, outside the site boundaries and therefore this site is assessed as having a minor adverse effect. However, this effect would be uncertain as it would be very dependent on the exact nature, working and proposed design of the site.
4.2 To protect the quantity of	?	All mineral activity could potentially require the use of water resources, but this will not be known until the

¹⁷⁰ East Hertfordshire does not maintain a local list.

SA Objective and Sub Questions	SA Score	Justification
ground and surface water from over abstraction		planning application stage where proposals are brought forward. Therefore, it is considered that all potential mineral activities will have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This site is within 10km of strategic allocated sites for development, according to Policy WARE2: Land North and East of Ware (1,000 new homes) in the recently adopted East Herts District Plan (2018). This includes Ware and Bishops Stortford as well as Category 1 villages, which will contribute to the Borough wide target need at Hertford Heath, Much-Hadham and Hunsdon. Therefore, this site could contribute to reducing transport distances of aggregates for construction and a minor positive is considered appropriate. However, this is uncertain as it is not known where aggregates will be transported to from each site.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for this site to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, this site could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, this site is likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	This site is being promoted for sand and gravel and is therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Mineral sites not located on land designated as Flood Zones 2, 3a or 3b are likely to have limited potential to reduce flood risk and are therefore likely to have a negligible effect on this objective.
7.1 To encourage the use of recycled and secondary aggregates	-?	All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This minerals site could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed in the County will not be a large number each year, the

SA Objective and Sub Questions	SA Score	Justification
		total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	This site would contribute towards providing minerals to meet Hertfordshire's need.
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and would have a positive effect on this objective as they provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-	This site is large (24.4ha) and located on Grade 3 BMV agricultural land. Therefore it is considered to have a minor negative effect on protecting or enhancing soil/land quality.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	<p>The site is located immediately adjacent to Plashes Farm. Therefore, development at this site is considered to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. Although, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), and the type of mineral site, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore, in all cases these effects are minor negative uncertain.</p> <p>This site is within 1km of Barwick, Latchford and Colliers End and Wellington Cottages to the west of the A10. This site is not located within 1km or in close proximity to a site allocation within the recently adopted East Herts District Plan (2018). In addition, this site is not within 1km of an AQMA or within 1km of an active mineral site. Therefore a cumulative effect on the local community is considered unlikely.</p>
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open	--?	This site scored 'red' in the site selection methodology for recreation in the MLP Site Assessment Study. This site contains three PRoW (No's: 041, 043, 044). Therefore, development at this site could have a significant negative effect on the amenity of users of PRoW and other users of the countryside in the County, as development of the sites would mean either removing or temporarily closing land which has potential for recreation/access to the

SA Objective and Sub Questions	SA Score	Justification
space		countryside. However, it is not possible to determine whether diversion is required for PRoW until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRoW and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	According to the MLP Site Assessment Study, this site is not located within an Airport Safeguarding Zone and is therefore unlikely to have any impact on the safe operation of aerodromes/airports if restored to a water-based use.

MLPCS016: Water Hall Quarry - Howe Green Area

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--?	This site is within 250m of several Local Wildlife Sites including three sections of Bedwell Chalk Quarry, Meadow at Howe Green South, Spring Wood (near Howe Green), Veteran trees near Ashfield Farm and River Lea, Water Hall to Leaside Cottage. Culver Wood Local Wildlife Site/ Ancient Woodland is also within 250m of this site. Therefore, a significant negative effect is considered likely on this objective. However, these effects would be uncertain as the potential for effects will depend on the exact nature and design of any proposals which come forward at the site.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0?	This site is over 1km of the Hertfordshire Primary Route Network and HDV flows are unlikely to pass within 200m of a designated nature conservation site. Therefore development at this site is considered unlikely to have an impact on protecting sites from the deposition of air pollutants, although this impact is very dependent on the type of mineral site, likely routes to be taken by HDVs, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore a negligible effect is recorded against this objective. However, the effect is uncertain as the detailed routeing and volume of traffic generated by the site will not be known until the planning application stage..
1.4 To protect and enhance sites of geological conservation interest	0	This site is located over 500m from a national site of geological interest (SSSI) or Local Geological Site, therefore, this site is considered unlikely to affect this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	0?	<p>There are no designated heritage assets within the site boundary. To the west of the site is a grade II listed building, Laurel Cottage, which may experience some setting change but probably not to a meaningful level. Further west is Hertford Lodge, another grade II listed building. It is unlikely to have a relationship with the site that would cause it to experience setting change as a result of development.</p> <p>To the north of the site is the grade II* listed building, Wollmer's Park the parkland to which is non-designated. It contains the grade II listed summer house at Arkley Hole, which is located in Spring Wood. It is unlikely that</p>

SA Objective and Sub Questions	SA Score	Justification
		<p>any meaningful setting change would occur to the setting of these assets.</p> <p>To the northeast of the site is the grade II listed Waterhall Farmhouse. It may have a functional and historical relationship with the surrounding rural landscape, including the site. However, the effect of its development to the asset's heritage significance would probably be very limited.</p> <p>To the southeast of the site there are five more grade II listed buildings associated with Stockings Farm. Little Berkhamsted Conservation Area also lies to the south of the site. It is unlikely that these assets would experience meaningful setting change as result of the site's development.</p> <p>None of the assets identified are on the heritage at risk register. There are no locally designated assets within the site, or its immediate environs.</p> <p>Overall, there is the potential for negligible effects. However, this is uncertain and further assessment at the planning application stage will be required to fully understand the significance of the heritage assets, the contribution that their setting makes to that significance and the impact of development.</p>
2.2 To conserve below ground archaeological assets	--?	<p>There are two areas of archaeological significance within the site and the HER indicates that there are non-designated assets in the site. These assets will primarily comprise sub-surface remains in the form of features cut into the subsoil, they will be highly susceptible to physical change e.g. damage/ removal as a result of development. This could result in a significant negative effect. Once proposals are known, a more detailed assessment would be required in order to identify the extent and significance of the assets, the impact to them and an appropriate scheme of mitigation.</p>
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	<p>This site is being promoted for sand and gravel extraction and would not contribute towards this objective as these are not locally distinctive building materials. A negligible effect is therefore considered likely for this SA objective.</p>
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-	<p>According to the LUC Landscape and Visual Sensitivity Study 2018, this site was considered to have a 'moderate' landscape sensitivity. Therefore, development at this site could have a minor negative effect on designated landscapes, local landscape character and/or tranquillity.</p>
4.1 To protect the quality of ground and surface water	--?	<p>A small area in the north eastern area of the site is located in SPZ1. In addition a small area in the western part of the southern section of this site is also within SPZ1. There are also water bodies adjacent to the north western and eastern boundaries of the site. Therefore a significant adverse effect is likely. However, this effect</p>

SA Objective and Sub Questions	SA Score	Justification
		would be uncertain as it would be very dependent on the exact nature, working and proposed design of the site.
4.2 To protect the quantity of ground and surface water from over abstraction	?	All mineral activity could potentially require the use of water resources, but this will not be known until the planning application stage where proposals are brought forward. Therefore, it is considered that all potential mineral activities will have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This site is within 10km of strategic allocated sites for development, according to the recently adopted East Hertfordshire District Plan (2018). This includes Hertford and Ware to the north east of the site. Therefore, this site could contribute to reducing transport distances of aggregates for construction and a minor positive is considered appropriate. However, this is uncertain as it is not known where aggregates will be transported to from each site.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for this site to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, this site could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, this site is likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	This site is being promoted for sand and gravel and is therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Mineral sites not located on land designated as Flood Zones 2, 3a or 3b are likely to have limited potential to reduce flood risk and are therefore likely to have a negligible effect on this objective.
7.1 To encourage the use of recycled and secondary aggregates	-?	All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This minerals site could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the

SA Objective and Sub Questions	SA Score	Justification
		overall number of mineral sites likely to be developed in the County will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	This site would contribute towards providing minerals to meet Hertfordshire's need.
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and would have a positive effect on this objective as they provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-	This site is large (25.8ha) and most of the site is on Grade 3 BMV agricultural land, although the northern area of the site is on Grade 2 BMV agricultural land. Therefore, it is considered to have a minor negative effect on protecting or enhancing soil/land quality.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	<p>This site is within close proximity to a property at Ashfield Farm to the south and several properties to the south of Lower Hatfield Road. Therefore, development at this site is considered to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. Although, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), and the type of mineral site, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore, in all cases these effects are minor negative uncertain.</p> <p>This site is also adjacent to a settlement at Howe Green and within 1km of Little Berkhamsted to the south and Letty Green to the north. This site is not located within or in close proximity to a site allocation within the recently adopted East Herts District Plan (2018). However, the site is located immediately adjacent to Bedwell Park Quarry. The site is not within 1km of an AQMA. According to the MLP Site Assessment Study, this site is located immediately adjacent to Bedwell Park Quarry both of which are within close proximity to Howe Green and therefore a cumulative effect on the local community is considered likely.</p>

SA Objective and Sub Questions	SA Score	Justification
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	--?	This site scored 'red' in the site selection methodology for 'recreation' in the MLP Site Assessment Study. This site contains one PRow (No: 074) and Bridleway (074) to the west and is within 100m of one other PRow (No: 074) to the south. Therefore, development at this site could have a significant negative effect on the amenity of users of PRow and other users of the countryside in the County, as development of the sites would mean either removing or temporarily closing land which has potential for recreation/access to the countryside. However, it is not possible to determine whether diversion is required for PRow until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRow and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	According to the MLP Site Assessment Study, this site is not located within an Airport Safeguarding Zone and is therefore unlikely to have any impact on the safe operation of aerodromes/airports if restored to a water-based use.

MLPCS017: Robins Nest Hill

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--?	Wood South of Pollards Pit, Culver Wood and Spring Wood (near Howe Green) Local Wildlife Sites are within 250m of this site. Therefore, a significant negative effect is considered likely on this objective. However, these effects would be uncertain as the potential for effects will depend on the exact nature and design of any proposals which come forward at the site.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0?	This site is over 1km from the Hertfordshire Primary Route Network and HDV flows are unlikely to pass within 200m of a designated nature conservation site. Therefore development at this site is considered unlikely to have an impact on protecting sites from the deposition of air pollutants, although this impact is very dependent on the type of mineral site, likely routes to be taken by HDVs, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore a negligible effect is recorded against this objective. However, the effect is uncertain as the detailed routing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	This site is located over 500m from a national site of geological interest (SSSI) or Local Geological Site, therefore, this site is considered unlikely to affect this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	0?	<p>There are no designated heritage assets within the site boundary. However, to the northwest of the site there are two grade II listed buildings – Laurel Cottage and Hertford Lodge. It is unlikely that either building would experience meaningful setting change as a result of development.</p> <p>To the north of the site is the grade II* listed building, Wollmer's Park the parkland to which is non-designated. It contains the grade II listed summer house at Arkley Hole, which is located in Spring Wood. Again, it is unlikely that any meaningful setting change would occur to the setting of these assets.</p>

SA Objective and Sub Questions	SA Score	Justification
		<p>To the northeast of the site is the grade II listed Waterhall Farmhouse. It could have a functional and historical relationship with the surrounding rural landscape, including the site. However, if there was an effect on this asset's setting, it would probably be very limited.</p> <p>To the southeast of the site there are five more grade II listed buildings associated with Stockings Farm. Little Berkhamsted Conservation Area also lies to the south of the site, and within it (and 1km of the site) is the Grade II* listed Stratton's Tower. It is unlikely that these assets would experience meaningful setting change as result of the site's development.</p> <p>Overall, a negligible effect is considered possible. However, the overall effects are considered uncertain as the actual effects on historic assets will depend on the visual, functional and historic relationship with the site and the way, and extent to which, its setting contributes to the assets heritage significance. Further assessment will be required at the planning application stage to understand the significance of the heritage assets, the contribution that their setting makes to that significance and the impact of development.</p>
2.2 To conserve below ground archaeological assets	?	The site is not located within an area of archaeological interest and the HER does not record any archaeological assets within the site. Nonetheless, the predicted effect remains uncertain as there are HER records around the site, and further assessment may suggest a potential for archaeology.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	This site is being promoted for sand and gravel extraction and would therefore, not contribute towards this objective as these are not locally distinctive building materials and a negligible effect is therefore considered likely.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-	According to the LUC Landscape and Visual Sensitivity study 2018, this site was considered to have a 'moderate' landscape sensitivity. Therefore, development at this site could have a minor negative effect on designated landscapes, local landscape character and/or tranquillity.
4.1 To protect the quality of ground and surface water	--?	This site is outside SPZ1 however, there is a small waterbody, adjacent to the western area of this site. Development within the site could have a negative effect on these water body. In addition, there is a plume of bromate coincident with this site with a concentration of 750 µg/l to more than 1000 µg/l in a substantial part of the area, which poses a risk of groundwater contamination. Contamination of the water body could have significant adverse effects, but uncertainty remains as the effect depends on the exact location, nature, working and design of a site.
4.2 To protect the quantity of ground and surface water from	?	All mineral activity could potentially require the use of water resources, but this will not be known until the planning application stage where proposals are brought forward. Therefore, it is considered that all potential mineral activities will have an uncertain effect on this objective.

SA Objective and Sub Questions	SA Score	Justification
over abstraction		
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This site is within 10km of strategic allocated sites for development, according to the recently adopted East Hertfordshire District Plan (2018) – for example Policy HERT3: West of Hertford (550 new homes). This includes Hertford and Ware to the north east of the site. Therefore, this site could contribute to reducing transport distances of aggregates for construction and a minor positive is considered appropriate. However, this is uncertain as it is not known where aggregates will be transported to from each site.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for this site to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, this site could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, this site is likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	This site is being promoted for sand and gravel and is therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Mineral sites not located on land designated as Flood Zones 2, 3a or 3b are likely to have limited potential to reduce flood risk and are therefore likely to have a negligible effect on this objective.
7.2 To encourage the use of recycled and secondary aggregates	-?	All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This minerals site could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed in the County will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.

SA Objective and Sub Questions	SA Score	Justification
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	This site would contribute towards providing minerals to meet Hertfordshire's need.
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and would have a positive effect on this objective as they provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-	This site is small (11.7ha) and most of the site is on Grade 3 BMV agricultural land, although the northern area is on Grade 2 BMV agricultural land. Therefore, it is considered to have a minor negative effect on protecting or enhancing soil/land quality.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	<p>This site is within 100m of properties on Robins Nest Hill to the east and Robins Nest Farm to the south. Therefore, development at this site is considered to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. Although, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), and the type of mineral site, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore, in all cases these effects are minor negative uncertain.</p> <p>This site is also within 100m of a settlement at Little Berkhamsted and within 1km of Howe Green. This site is not located within or in close proximity to a site allocation within the recently adopted East Herts District Plan (2018). In addition, this site is not within 1km of an AQMA or within 1km of an active mineral site and therefore it is unlikely to have a cumulative effect on the local community.</p>
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	0?	This site scored 'light green' in the MLP Site assessment recreation criterion and does not contain any PRoW or local recreational facility including a public park or open space adjacent to the site and is over 100m from a leisure or recreational facility or open space, including PRoW . Therefore, this site is considered unlikely to have an effect on the amenity of users of PRoW and other users of the countryside in the County. However, it is not possible to determine whether diversion is required for PRoW until the planning application stage.

SA Objective and Sub Questions	SA Score	Justification
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRoW and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	According to the MLP Site Assessment Study, this site is not located within an Airport Safeguarding Zone and is therefore unlikely to have any impact on the safe operation of aerodromes/airports if restored to a water-based use.

MLPCS018: Southfield Wood East

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--?	Southfield Wood Local Wildlife Site and Ancient Woodland is adjacent to the south western area of the site. In addition, Cole Green Way, Alder Wood, Terrace Wood (also Ancient Woodland) Local Wildlife Sites are within 250m of the site. Therefore, a significant negative effect is considered likely on this objective. However, these effects would be uncertain as the potential for effects will depend on the exact nature and design of any proposals which come forward at the site.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	--?	This site is within 1km of the Hertfordshire Primary Route Network road, the A414 (Hertfordbury Road). HDV flows along the A414 eastwards are likely to pass within 200m of Lee Valley SPA. Therefore, this site has the potential to have a significant negative effect on this nature conservation site through increased deposition of air pollutants. Although this effect is dependent on the likely increase in HDV annual average daily traffic flows along the road passing within 200m of the nature conservation site (in combination with HDV movements from other existing and potential minerals sites). Although such adverse effects on European Sites have been discounted for the sites allocated in Policy 4 of the MLP through the Appropriate Assessment in the HRA, this site has not been allocated. Furthermore, there is still potential for national and local sites to be adversely effected. However, the effect is uncertain as the detailed routeing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	This site is located over 500m from a national site of geological interest (SSSI) or Local Geological Site, therefore, this site is considered unlikely to affect this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	--?	There are no designated heritage assets within the site boundary. To the south of the site, over the River Lea, is Roxford Bridge, a grade II listed building. The setting elements important to its heritage significance are the road and river, which would not be affected by development of the site. A short distance from the bridge, are a number of grade II listed buildings at Bayfordbury Farm. These include Bayfordbury Park Farmhouse, brick stable, western shelter shed, barn and granary. Beyond these, lies Bayfordbury, a grade II registered park and garden, in which there are four designated assets – three of which lie within 1km of the site. These include the Bayfordbury House, stable and walls of the walled garden. There is the

SA Objective and Sub Questions	SA Score	Justification
		<p>potential for setting change to affect the significance of some of these assets.</p> <p>Abutting the north of the site is Hertfordbury Conservation Area. Within which there is a large number of grade II and II* listed buildings. It is unlikely that the setting of any of these listed buildings will be affected as they are unlikely to have a relationship with the site. However, development of the site could adversely affect the setting of the conservation area.</p> <p>To the northeast of the site is the grade II listed Hertingfordbury Park, which is now a school. Its non-designated parkland extends to the opposite side of St Mary's Lane to the site. Development may affect the non-designated parkland but is unlikely to result in meaningful change to the listed building.</p> <p>To the northwest of the site are three more grade II listed buildings – The Old Curatage, The Bury Farmhouse and Mayflower Place Memorial Hall. Setting change is possible to the farmhouse as it may have a functional/historical relationship with the site. However, any change would likely be very limited.</p> <p>To the west of the site is Hazeldene, a grade II listed building. Near to this is East End Green Conservation Area, in which there are three grade II listed buildings. Two of these are within 1km of the site – East End Green Farmhouse and Keeper's Cottage. It is unlikely that any of these assets would experience meaningful setting change as a result of development.</p> <p>To the southwest of the site lies a scheduled monument, a Baroque Garden in Grotto Wood. There is the potential for setting change to this asset but probably not in a meaningful way, given that it survives as an earthwork and buried remains.</p> <p>Also to the southeast of the site is Roxford Moated site, a scheduled monument, adjacent to which are a group of grade II listed buildings. These include Roxford House, Roxford Barns, a bridge, and ice house. It is possible that the site encroaches on the former parkland associated with these assets, meaning that development could affect their setting.</p> <p>Overall, significant negative effects are considered likely, owing to the potential effect on the Conservation Area and Listed Buildings within the immediate vicinity of the site. However, these overall effects are considered uncertain as the actual effects on historic assets will depend on the visual, functional and historic relationship with the site and the way, and extent to which, its setting contributes to the assets heritage significance. Further assessment will be required at the planning application stage to understand the significance of the heritage assets, the contribution that their setting makes to that significance and the impact of development.</p>

SA Objective and Sub Questions	SA Score	Justification
2.2 To conserve below ground archaeological assets	?	The site is not within an area of archaeological significance but the HER does record a non-designated asset within the site. If this asset comprises sub-surface remains in the form of features cut into the subsoil, they will be highly susceptible to physical change e.g. damage/ removal as a result of development. Once proposals are known, a more detailed assessment would be required in order to identify the extent and significance of the assets, the impact to them and an appropriate scheme of mitigation.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	This site is being promoted for sand and gravel extraction and would not contribute towards this objective as these are not locally distinctive building materials. A negligible effect is therefore considered likely for this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-	According to the LUC Landscape and Visual Sensitivity Study 2018, this site was considered to have a 'low-moderate' landscape sensitivity due to the gently undulating landform, and its elevated and enclosed position above the River Lea. Therefore, development at this site could have a minor negative effect on designated landscapes, local landscape character and/or tranquillity.
4.1 To protect the quality of ground and surface water	0?	This site is outside SPZ1 and does not contain any water bodies. Therefore it is unlikely to have an effect on water quality. However, this effect would be uncertain as it would be very dependent on the exact nature, working and proposed design of the site.
4.2 To protect the quantity of ground and surface water from over abstraction	?	All mineral activity could potentially require the use of water resources, but this will not be known until the planning application stage where proposals are brought forward. Therefore, it is considered that all potential mineral activities will have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This site is within 10km of strategic allocated sites for development, according to the recently adopted East Hertfordshire District Plan (2018). This includes Hertford and Ware to the north east of the site. Therefore, this site could contribute to reducing transport distances of aggregates for construction and a minor positive is considered appropriate. However, this is uncertain as it is not known where aggregates will be transported to from each site.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower	+?/-	There may be an opportunity for this site to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, this site could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, this site is likely to have

SA Objective and Sub Questions	SA Score	Justification
carbon energy sources on site		minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	This site is being promoted for sand and gravel and is therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Mineral sites not located on land designated as Flood Zones 2, 3a or 3b are likely to have limited potential to reduce flood risk and are therefore likely to have a negligible effect on this objective.
7.1 To encourage the use of recycled and secondary aggregates	-?	All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This minerals site could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed in the County will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	This site would contribute towards providing minerals to meet Hertfordshire's need.
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and would have a positive effect on this objective as they provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher	-	This site is small (16.7ha) and located on Grade 3 BMV agricultural land. Therefore, it is considered to have a minor negative effect on protecting or enhancing soil/land quality.

SA Objective and Sub Questions	SA Score	Justification
quality		
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	<p>The site is located within close proximity of a number of properties along St. Mary's Lane. Therefore, development at this site is considered to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. Although, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), and the type of mineral site, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore, in all cases these effects are minor negative uncertain.</p> <p>This site is not within 100m of a settlement, but is within 1km of Hertingfordbury, Hertford, Birch Green and Broad Green Wood. It is located within close proximity to Policy HERT3: West of Hertford (550 new homes) in the recently adopted East Herts District Plan (2018). In addition, this site is not within 1km of an AQMA or within 1km of an existing mineral site. However, the MLP Site Assessment Study noted that this site is located immediately adjacent to Waterhall Farm Quarry. However, it is inactive with regard to mineral extraction. Furthermore, the site has been put forward by the owner of the existing quarry and it is considered that extraction at this site will only commence once works on the existing quarry have been completed. Therefore, this site is unlikely to have a cumulative effect on the local community.</p>
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	--?	<p>This site scored 'red' in the MLP Site Assessment Study 'recreation' criterion. This site includes two ProW (Nos: 002 and 057). Therefore, development at this site could have a significant negative effect on the amenity of users of PROW and other users of the countryside in the County, as development of the sites would mean either removing or temporarily closing land which has potential for recreation/access to the countryside. However, it is not possible to determine whether diversion is required for PROW until the planning application stage.</p>
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and	+?	<p>All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PROW and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.</p>

SA Objective and Sub Questions	SA Score	Justification
restoration of a site		
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	According to the MLP Site Assessment Study, this site is not located within an Airport Safeguarding Zone and is therefore unlikely to have any impact on the safe operation of aerodromes/airports if restored to a water-based use.

MLPCS019: Pipers End

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--?	Spring Wood (near Howe Green) Local Wildlife Site is adjacent to the south western area of this site. Therefore, a significant negative effect is considered likely on this objective. However, these effects would be uncertain as the potential for effects will depend on the exact nature and design of any proposals which come forward at the site.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	0?	This site is over 1km of the Hertfordshire Primary Route Network and HDV flows are unlikely to pass within 200m of a designated nature conservation site. Therefore development at this site is considered unlikely to have an impact on protecting sites from the deposition of air pollutants, although this impact is very dependent on the type of mineral site, likely routes to be taken by HDVs, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore a negligible effect is recorded against this objective. However, the effect is uncertain as the detailed routing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	This site is located over 500m from a national site of geological interest (SSSI) or Local Geological Site, therefore, this site is considered unlikely to affect this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	--?	<p>There are no nationally or locally designated heritage assets within the site boundary. To the west of the site lies Woolmers Park, a grade II* listed building, located within Woolmers Park non-designated parkland, which extends into the site. Further listed buildings associated with Woolmers Park include a gardener's cottage and kitchen garden wall and summer house, which are all grade II listed. Development of the site would cause physical and setting change to the parkland and potentially affect the setting of the listed buildings within it.</p> <p>To the south of the site there are two more grade II listed buildings – Hertford Lodge and Laurel Cottage, and Waterhall Farm house. As the site comprises parkland associated with Woolmer's Park these assets are unlikely</p>

SA Objective and Sub Questions	SA Score	Justification
		<p>to be related to the site and its development should therefore not result in any meaningful setting change to them.</p> <p>To the northwest of the site is a scheduled monument, a Baroque Garden in Grotto Wood. There is the potential for setting change to this asset, but probably not in a meaningful way given that it survives as an earthwork and buried remains.</p> <p>Also to the northwest of the site is East End Green Conservation Area, which contains three grade II listed buildings – two cottages and a farmhouse. Just north of the conservation area is Hazeldene a grade II listed building. Development within the site is unlikely to result in meaningful setting change to any of these listed buildings but may affect the conservation area.</p> <p>To the north of the site there are five grade II listed buildings scattered between Birch Green, Labby Green and Letty Green. These include a church, a farmhouse and three houses. There is also a scheduled monument, which includes the buried remains of a settlement site. It is unlikely that any of these assets have a relationship with the site that would be affected by its development.</p> <p>one. Further assessment will be required at the planning application stage to establish the exact scale of effects to Woolmer park and the other nearby assets, but worst case scenario it may be significant negative.</p>
2.2 To conserve below ground archaeological assets	?	The site is not located within an area of archaeological interest and the HER does not record any archaeological assets within the site. Nonetheless, the predicted effect remains uncertain as there are HER records around the site, and further assessment may suggest a potential for archaeology.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	This site is being promoted for sand and gravel extraction and would not contribute towards this objective as these are not locally distinctive building materials. A negligible effect is therefore considered likely for this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-	According to the LUC Landscape and Visual Sensitivity Study 2018, this site was considered to have a 'moderate' landscape sensitivity. Therefore, development at this site could have a negative effect on designated landscapes, local landscape character and/or tranquillity.
4.1 To protect the quality of ground and surface water	--?	This site is outside SPZ1 however, there is a small waterbody, within the central area of the site and to the south western area. Development within the site could have a negative effect on these water bodies. In addition, there is a plume of bromate coincident with this site with a concentration of 750 µg/l to more than 1000 µg/l in a

SA Objective and Sub Questions	SA Score	Justification
		substantial part of the area, which poses a risk of groundwater contamination. Contamination of these water bodies could have significant adverse effects, but uncertainty remains as the effect depends on the exact location, nature, working and design of a site.
4.2 To protect the quantity of ground and surface water from over abstraction	?	All mineral activity could potentially require the use of water resources, but this will not be known until the planning application stage where proposals are brought forward. Therefore, it is considered that all potential mineral activities will have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This site is within 10km of strategic allocated sites for development, according to policy HSG1 in the adopted Hertfordshire Local Plan 2007 and the recently adopted East Hertfordshire District Plan (2018). This includes Hertford and Ware to the north east of the site. Therefore, this site could contribute to reducing transport distances of aggregates for construction and a minor positive is considered appropriate. However, this is uncertain as it is not known where aggregates will be transported to from each site.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for this site to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, this site could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, this site is likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	This site is being promoted for sand and gravel and is therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Mineral sites not located on land designated as Flood Zones 2, 3a or 3b are likely to have limited potential to reduce flood risk and are therefore likely to have a negligible effect on this objective.
7.1 To encourage the use of recycled and secondary aggregates	-?	All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access	+	This minerals site could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local

SA Objective and Sub Questions	SA Score	Justification
employment and skills both during and after extraction		people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed in the County will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	This site would contribute towards providing minerals to meet Hertfordshire's need.
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and would have a positive effect on this objective as they provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-	This site is large (25.2ha) and located on Grade 3 BMV agricultural land. Therefore it is considered to have a minor negative effect on protecting or enhancing soil/land quality.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	<p>The site is located immediately adjacent to a number of properties along Woolmer's Lane to the north and Woolmer's Park and Mansion House to the west. Therefore, development at this site is considered to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. Although, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), and the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore, in all cases these effects are minor negative uncertain.</p> <p>This site is also within 100m of a settlement at Letty Green and is within 1km of other settlements at Birch Green, Cole Green and Howe Green. This site is not located within or in close proximity to a site allocation within the recently adopted East Herts District Plan (2018). In addition, this site is not within 1km of an AQMA or within 100m of an active mineral site. According to the MLP Site assessment Study, this site is located within close</p>

SA Objective and Sub Questions	SA Score	Justification
		proximity to Waterhall Farm Quarry. However, it is inactive with regard to mineral extraction. Furthermore, the site has been put forward by the owner of the existing quarry and it is considered that extraction at this site will only commence once works on the existing quarry have been completed. Therefore, this site is unlikely to have a cumulative effect on the local community.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	--?	This site scored 'red' for the 'recreation' criterion of the MLP Site Assessment Study. This site is not within 100m of a PRoW, but according to the MLP Site assessment Study, this site is located within the grounds of the Hertfordshire Polo Club. Therefore, development of this site could have a significant negative effect on the amenity of users of this facility and the countryside in the County, as development of the sites would either mean removing part of a facility or temporarily closing land which has potential for recreation /access to the countryside.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRoW and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	According to the MLP Site Assessment Study, this site is not located within an Airport Safeguarding Zone and is therefore unlikely to have any impact on the safe operation of aerodromes/airports if restored to a water-based use.

MLPCS020: Roundhill Wood

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--	The site lies entirely within Roundhill Wood Local Wildlife Site. Therefore, a significant negative effect is considered likely on this objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	--?	This site is just over 2km from the Hertfordshire Primary Route Network road, the A4251. The main strategic access to the site would be via the A41, which passes Chiltern Beechwoods SAC, although HDV traffic from the site can also head south to the M25. This effect is dependent on the likely increase in HDV annual average daily traffic flows along the road passing within 200m of the nature conservation site (in combination with HDV movements from other existing and potential minerals sites). Although such adverse effects on European Sites have been discounted for the sites allocated in Policy 4 of the MLP through the Appropriate Assessment in the HRA, this site has not been allocated. Furthermore, there is still potential for national and local sites to be adversely effected. However, the effect is uncertain as the detailed routing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	The site is located over 500m from a national site of geological interest (SSSI) or Local Geological Site, therefore, this site is considered unlikely to affect this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	-?	There are no nationally or locally designated heritage assets within the site, or its immediate vicinity. In the wider area there is one listed building – a grade II barn - and a scheduled monument – Cholesbury Camp, a large multivallate hill fort. There is limited potential for setting change to the scheduled monument. These potential effects are uncertain without more detailed assessment to fully understand the significance of the heritage assets, the contribution that their setting makes to that significance and the impact of development.
2.2 To conserve below ground archaeological assets	?	The site does not contain any areas of archaeological interest, nor does the HER record any non-designated assets in the site. However, as the absence of known archaeological assets does not necessarily preclude the absence of archaeology the effects of development remain uncertain.

SA Objective and Sub Questions	SA Score	Justification
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	+	This site is being promoted for brick clay extraction, a locally distinctive building material. Therefore, this site option is considered to contribute positively towards this objective. A minor positive effect is therefore considered likely for this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	--	According to the LUC Landscape and Visual Sensitivity Study 2018, this site was considered to have a 'moderate-high' landscape sensitivity. Therefore, development at this site could have a significant negative effect on designated landscapes, local landscape character and/or tranquillity. In addition, this site is located entirely within the Chilterns AONB.
4.1 To protect the quality of ground and surface water	-?	The entirety of the site is located within SPZ 3. A small water body sits within the centre of the site. Therefore, this site is assessed as having a minor adverse effect with uncertainty relating to the operation activities (e.g. dewatering). However, this effect would be uncertain as it would be very dependent on the exact nature, working and proposed design of the site.
4.2 To protect the quantity of ground and surface water from over abstraction	?	All mineral activity could potentially require the use of water resources, but this will not be known until the planning application stage where proposals are brought forward. Therefore, it is considered that all potential mineral activities will have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This site is within 10km of a strategic developments sites allocated in the Dacorum District Core Strategy DPD (2013) and Site Allocations DPD (2017) and Proposals Map – for example a number of allocations on the edge of Berkhamsted. Therefore, this site could contribute to reducing transport distances of aggregates for construction and a minor positive is considered appropriate. However, this is uncertain as it is not known where the resultant bricks will be transported to for use.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for this site to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the detailed proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, this site could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery. Therefore, this site is likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	This site is being promoted for brick clay extraction and whilst clay extraction sites are not deemed suitable developments within flood zone 3b, the potential layout of the site should avoid the plant site and other infrastructure being located within the areas of the site that may fall within flood zones 2 and 3. However, this site is not within either flood risk zones 2 or 3 or a flood storage zone and is therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, these effects would be uncertain

SA Objective and Sub Questions	SA Score	Justification
		as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Mineral sites not located on land designated as Flood Zones 2, 3a or 3b are likely to have limited potential to reduce flood risk and are therefore likely to have a negligible effect on this objective.
7.1 To encourage the use of recycled and secondary aggregates	-?	All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This minerals site could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed in the County will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	This site would contribute towards providing minerals to meet Hertfordshire's need.
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and would have a positive effect on this objective as they provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	--	This site is wholly located within Grade 2 agricultural land. Therefore it is considered to have a significant negative effect on protecting or enhancing soil/land quality.

SA Objective and Sub Questions	SA Score	Justification
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	<p>The site is located in close proximity to residential properties along the Cholesbury Road. Therefore, development at this site is considered to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. However, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), and the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore, in all cases these effects are minor negative uncertain.</p> <p>The site is not located within close proximity to an existing settlement nor is it located within or in close proximity to a site allocation within the Dacorum District Core Strategy 2013 or Dacorum District Site Allocations DPD (July 2017). This site is not within close proximity to an active minerals site or within 1km of an AQMA, and is therefore unlikely to have a cumulative effect on the local community.</p>
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	--?	The site scored 'red' in the 'recreation' criterion in the MLP Site Assessment Study. This site is located within 100m of two PRoW (No's: 009 and 011). Therefore, development at this site could have a negative effect on the amenity of users of PRoW and other users of the countryside in the county by making the facilities/countryside less attractive for users and impacting on amenity. However, it is not possible to determine whether diversion is required for PRoW until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRoW and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	According to the MLP Site Assessment Study, this site is not located within an Airport Safeguarding Zone and is therefore unlikely to have any impact on the safe operation of aerodromes/airports if restored to a water-based use.

Preferred Area 1: Land close to the existing Hatfield Quarry

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--?	The Preferred Area is located immediately adjacent to Home Covert and Round Wood, which has been identified as a Local Wildlife Site. In addition, the Preferred Area is partly within an area identified as having no main habitat but additional BAP habitats present. Minerals extraction in the area would be likely to have negative effects on these features, but effects would be uncertain as they will depend on the exact nature and design of new sites
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	--?	The Preferred Area is in close proximity to the Hatfield Road (A1057), (A1 (M)). The Home Wood and Land Near Smallford Nurseries Key Wildlife Sites lie adjacent to the A1057 and further wildlife sites are adjacent to this road to the west. In addition, HDV flows along the A1 (M) are within 200m of Sherrardspark Wood SSSI and increases in traffic along the M25 could affect the Epping Forest SAC. This Preferred Area has the potential to have a significant negative affect on this nature conservation site through increased deposition of air pollutants. Although this effect is dependent on the likely increase in HDV annual average daily traffic flows along the road passing within 200m of the nature conservation site (in combination with HDV movements from other existing and potential minerals sites). Although such adverse effects on European Sites have been discounted for the sites allocated in Policy 4 of the MLP through the Appropriate Assessment in the HRA, this Preferred Area has not been allocated. Furthermore, there is still potential for national and local sites to be adversely effected. However, the effect is uncertain as the detailed routeing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	This Preferred Area is further than 500m from a geological SSSI and further than 500m from an LGS.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	--?	Immediately east of the site is Astwick Manor is a Grade II listed building, and part of the land that forms the site could be related historically/ functionally to the site. Adjacent to the south of the site lies the grade II listed Popefield Farmhouse, and its grade II listed barn and granary. All of these buildings are susceptible to setting change as a result of the development of this site. To the southwest of the site there is a grade II listed milepost and the Three Horseshoes public house. Neither of

SA Objective and Sub Questions	SA Score	Justification
		<p>these assets are likely to experience meaningful setting change.</p> <p>In the wider area to the south of the site there are six grade II listed buildings and a grade I listed building located around Wilkins Green, a grade II listed station at Smallford and Sleafshyde Conservation area, in which there are a cluster of grade II listed buildings. None of these assets are likely to experience meaningful setting change.</p> <p>To the east of the site, off the A1057, lie a grade II listed milepost and The Comet Public House. Neither of these assets is likely to be affected by meaningful setting change. A grade II* listed British Aerospace flight test hangar, offices and fire station and control tower also lie to the east of the site. The HER indicates that the site was once part of Hatfield Aerodrome, which was later used by British Aerospace. The site was therefore once part of the setting of this asset, however, subsequent development now divides the two entirely and development of the site is unlikely to have a meaningful effect.</p> <p>To the west of the site there is a grade II listed cottage along Coopers Green road. Further southwest, a grade II listed farmhouse and two grade II listed barns are set back from the road. Development of the site is unlikely to have an effect on their setting.</p> <p>Overall there is the potential for significant negative effect, primarily as a result of the potential change to the setting of Popefield Farm and Astwick Manor. These potential effects are uncertain without more detailed assessment to fully understand the significance of the heritage assets, the contribution that their setting makes to that significance, the impact of development and the potential for mitigation.</p> <p>Development within the Preferred Area has potential to negatively affect these heritage assets, although the effect of any workings depends on the exact siting, scale, type of development and vulnerabilities of these heritage assets.</p>
2.2 To conserve below ground archaeological assets	-?	<p>There are no archaeological areas of significance within the site, but there is one immediately adjacent to it at Astwick Manor. The HER records that the site was formerly part of Hatfield Aerodrome and features relating to that use may survive. These would be highly susceptible to physical change e.g. damage/ removal as a result of development. Once proposals are known, a more detailed assessment would be required in order to identify the extent and significance of the assets, the impact to them and an appropriate scheme of mitigation.</p>
2.3 Seek to ensure the supply of locally distinctive building materials for historic building	0	<p>The minerals available for extraction in this Preferred Area are sand and gravel, which are not locally distinctive building materials, therefore effects are expected to be negligible with regards to this objective.</p>

SA Objective and Sub Questions	SA Score	Justification
methods		
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	0	According to the LUC Landscape and Visual Sensitivity Study 2018, this site was considered to have a 'low' landscape sensitivity, due to its former industrial use, and it is not in proximity to any landscape designations. Therefore, development at this site is expected to have negligible effects with regards to landscape character.
4.1 To protect the quality of ground and surface water	--?	There are a number of water bodies adjacent to the Preferred Area. The Ellen Brook runs through the eastern part of the Preferred Area. The River Nast also runs in a culvert through the Preferred Area. Development within the Preferred Area could have a negative effect on these water bodies. In addition, there is a plume of bromate coincident with this Preferred Area with a concentration of 750 µg/l to more than 1000 µg/l in a substantial part of the area, which poses a risk of groundwater contamination. Contamination of these water bodies could have significant adverse effects, but uncertainty remains as the effect depends on the exact location, nature, working and design of a site.
4.2 To protect the quantity of ground and surface water from over abstraction	?	All mineral activity could potentially require the use of water resources, but the extent of water use will not be known until the planning application stage where proposals are brought forward. Therefore it is considered that all potential mineral activities will have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This Preferred Area is within 10 km of strategic development locations, for example, Policy SP 24: New Village at Symondshyde (1,130 new homes) and Policy SP 22: North West Hatfield (1,650 new homes) north west of Hatfield in the Welwyn Hatfield Local Plan (August 2016) and could therefore contribute to reducing transport distances of aggregates for construction. However, this is uncertain as it is not known where aggregates will be transported to from each site.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for minerals sites within this Preferred Area to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, minerals sites in this Preferred Area could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, this site is likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	Any mineral workings in the Preferred Area would be sand and gravel sites, which are considered unlikely to have an effect on flood risk and unlikely to increase risk of flooding elsewhere. In addition, the Preferred Area lies entirely within Flood Zone 1, which is land at low risk of flooding. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.

SA Objective and Sub Questions	SA Score	Justification
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	As the Preferred Area lies entirely within Flood Zone 1, there is limited potential to reduce or impact on flood risk and therefore effects on this objective are likely to be negligible.
7.1 To encourage the use of recycled and secondary aggregates	-?	Any sites within the Preferred Area would contribute to the extraction and use of primary aggregates, therefore having a negative effect on this objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	Development of minerals sites within this Preferred Area could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed in the County will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	Minerals sites within the Preferred Area would contribute towards providing minerals to meet Hertfordshire's need, therefore having a positive effect on this objective.
8.3 To ensure that mineral sterilisation is minimised	+	Identifying this area as a Preferred Area would have a positive effect on this objective as it is expected to provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-	This Preferred Area consists mostly of non-agricultural land, but there is an area of Grade 2 agricultural land (which is considered best and most versatile) in the northern part of the site. Development in the northern part of the site could lead to loss of this resource, leading to a negative effect on this objective.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts	-?	The Preferred Area is within close proximity to existing residential development in Hatfield, although it is largely separated from these dwellings by a series of water bodies in Ellenbrook Park. Nevertheless, minerals workings in the east of the Preferred Area could have negative effects on health due to the potential for dust (PM10) to have

SA Objective and Sub Questions	SA Score	Justification
of minerals workings and associated transport		<p>a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. This is dependent on potential mitigating effects of Ellenbrook Park and on local circumstances (such as the topography and the respective location of the site and the nearest residential property or other sensitive use in relation to the prevailing wind direction and visibility), and the type of mineral site, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. This has led to an assessment of minor negative effects with uncertainty.</p> <p>In addition, Preferred Area 1 is within 1km of Hatfield and could therefore have a cumulative effect on the amenity of the local community. Furthermore, it is located within close proximity to Land at North West Hatfield (Policy SP 22), which is allocated in Welwyn Hatfield's Proposed Submission Local Plan (August 2016). This site is not within close proximity to an active minerals site or within 1km of an AQMA, and is therefore unlikely to have a cumulative effect on the local community.</p>
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	--?	This Preferred Area consists of Ellenbrook Fields, a local recreational space. Development of minerals workings would lead to closure of a large part of this resource, having a significant negative effect on users. However, it is not possible to determine whether compensatory measures will be required (such as diversion of rights of way) until the planning application stage. Restoration is expected to include recreational space, but this may not be realised until the long term, after the plan period.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRoW and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	-?	This Preferred Area lies within Luton airport safeguarding zone. Minerals sites within this area could have minor negative effects on the safe operating of aerodromes/airports if restored to a water-based use that is likely to attract large numbers of birds and increase the risk of bird strike. This effects is uncertain as it is dependent on the type of restoration proposed and eventually developed on a site, which will not be known until a later stage in the Minerals Local Plan preparation or even at the planning application stage.

Preferred Area 2: Land to the north of the existing Rickneys Quarry

SA Objective and Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--	Upper Stonyhills Wood and Flowersash Wood Key Wildlife Sites lie partially within the Preferred Area. In addition, Lower Stonyhills Wood and Bardon Clumps Key Wildlife Sites lie adjacent to the Preferred Area. These coincide with areas of deciduous ancient woodland, and important and irreplaceable BAP habitat. Therefore, overall a significant negative effect is considered likely on this objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practice with respect to post-extraction restoration and therefore, any minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration of the minerals site, which would not be known until the planning application stage.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	--?	HDV flows could travel along the A414, A10 or A602, leading to the A1 (M) which is within 200m of Water End Swallow Holes SSSI. There are a number of designated nature conservation sites along the other primary roads identified, including Panshanger Park Key Wildlife Site along the A414 and King's meads, which straddles the A10. The HRA concluded that this Preferred Area may lead to significant effects on the Lee Valley SPA and Ramsar sites and Hoddesdonpark Wood SAC due to increased traffic on the A414 and A10. The Preferred Area may also lead to significant effects on the Epping Forest SAC, either alone or in combination, due to increased traffic on the M25 eastbound. This site has the potential to have a significant negative effect on this nature conservation site through increased deposition of air pollutants. Although this effect is dependent on the likely increase in HDV annual average daily traffic flows along the road passing within 200m of the nature conservation site (in combination with HDV movements from other existing and potential minerals sites). Although such adverse effects on European Sites have been discounted for the sites allocated in Policy 4 of the MLP through the Appropriate Assessment in the HRA, this Preferred Area has not been allocated. Furthermore, there is still potential for national and local sites to be adversely effected. However, the effect is uncertain as the detailed routeing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	There are no sites of geological interest within 500m of this Preferred Area, therefore minerals extraction in the Preferred Area is unlikely to affect this objective.

SA Objective and Sub Questions	SA Score	Justification
<p>2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting</p>	<p>-?</p>	<p>To the east of the site there are three grade II listed buildings, including a granary at High Trees Farm and two timber-framed houses at Chapmore End. There is the potential for setting change to these assets, but it may not be meaningful.</p> <p>To the south of the site is Hertford Conservation Area. Within 1km of the site the conservation area includes four grade II listed buildings and two grade II* listed buildings. The buildings are unlikely to be affected by setting change but the conservation area may be to a very limited extent.</p> <p>To the southwest of the site is Goldings, a grade II registered park and garden, within which there are a number of listed buildings. Four of these listed buildings lie within 1km of the site and are grade II listed. Neither the park nor the listed buildings appear to have a relationship with the site that would result in setting change.</p> <p>There are another eleven grade II listed buildings and one grade I listed building west of the site, located either along the A119 or in Waterford. The majority of these do not appear to have a relationship with the site, and as such would be unlikely to be affected by setting change.</p> <p>To the northwest of the site is the grade II* Church of St Mary the Virgin, and to the northeast there are two grade II listed buildings – a water tower and the Robin Hood Public House. It is not considered likely that any of these assets would experience adverse setting change.</p> <p>To the southeast of the site is the non-designated Ware Park, in which there are a number of listed buildings – although these lie beyond 1km away. The park and buildings are unlikely to be affected by setting change.</p> <p>There are no locally listed buildings within the immediate vicinity of the site.</p> <p>A maximum case scenario has been assumed, but the potential effects are uncertain without more detailed assessment to fully understand the significance of the heritage assets, the contribution that their setting makes to that significance, the impact of development and the potential for mitigation.</p>
<p>2.2 To conserve below ground archaeological assets</p>	<p>--?</p>	<p>The site includes two areas of archaeological significance and the HER has records of non-designated assets within the site. Being principally sub-surface remains in the form of features cut into the subsoil, these assets are all highly susceptible to physical change e.g. damage/ removal. This could result in a significant negative effect. Further assessment of the assets and their significance, as well as the magnitude of development impact would be required to properly understand the scale of effect and determine whether it may be appropriately</p>

SA Objective and Sub Questions	SA Score	Justification
		mitigated.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	The minerals available for extraction in this Preferred Area are sand and gravel, which are not locally distinctive building materials, therefore effects are expected to be negligible with regards to this objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-	According to the LUC Landscape and Visual Sensitivity Study 2018, this site was considered to have a 'moderate' landscape sensitivity, as openness to the east could result in an adverse impact on the unified rural character of the wider river valley. Therefore, development at this site could have a negative effect on local landscape character and/or tranquillity.
4.1 To protect the quality of ground and surface water	--?	The southern part of this Preferred Area is located within SPZ 1 and there are also substantial areas of SPZ 2 within the area, therefore a significant negative effect on this objective is likely. This is uncertain as effects are dependent on the exact nature, working and proposed design of the site.
4.2 To protect the quantity of ground and surface water from over abstraction	?	All mineral activity could potentially require the use of water resources, but the extent of water use will not be known until the planning application stage where proposals are brought forward. Therefore it is considered that all potential mineral activities will have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	The site is within 10km of strategic allocations – for example it is located immediately to the north of Policy HERT4: North of Hertford (150 new homes) in the recently adopted East Herts District Plan (2018). Therefore, the site could contribute to reducing transport distances of aggregates for construction. However, this is uncertain as it is not known where aggregates will be transported to from each site.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for minerals sites within this Preferred Area to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, minerals sites in this Preferred Area could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, this site is likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.

SA Objective and Sub Questions	SA Score	Justification
6.1 To protect against the risk of flooding	0?	Any mineral workings in the Preferred Area would be sand and gravel sites, which are considered unlikely to have an effect on flood risk and unlikely to increase risk of flooding elsewhere. In addition, the Preferred Area lies entirely within Flood Zone 1, which is land at low risk of flooding. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	As the Preferred Area lies entirely within Flood Zone 1, there is limited potential to reduce or impact on flood risk and therefore effects on this objective are likely to be negligible.
7.1 To encourage the use of recycled and secondary aggregates	-?	Any minerals sites within the Preferred Area would contribute to the extraction and use of primary aggregates, therefore having a negative effect on this objective.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	Development of minerals sites within this Preferred Area could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed in the County will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	Minerals sites within the Preferred Area would contribute towards providing minerals to meet Hertfordshire's need, therefore having a positive effect on this objective.
8.3 To ensure that mineral sterilisation is minimised	+	Identifying this area as a Preferred Area would have a positive effect on this objective as it is expected to provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-	This Preferred Area consists entirely of Grade 3 agricultural land. Grade 3a land is considered best and most versatile agricultural land, thus loss of this resource through minerals working could have a minor negative effect on protecting or enhancing soil/land quality.

SA Objective and Sub Questions	SA Score	Justification
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	<p>The Preferred Area is within 100m of a limited number of dwellings at Chapmore End, Dimmings, Stonyhill and the former Rickneys Farmhouse, although it is not within proximity to any local plan site allocations or an AQMA. Development in the northern or eastern parts of this Preferred Area are considered likely to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. Although, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive use in relation to the prevailing wind direction and visibility), and the type of mineral site, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore, in all cases these effects are uncertain (-?).</p> <p>In addition, the Preferred Area is within 1km of a number of small settlements, such as Tonwell, Chapmore End, Stapleford and Waterford and could therefore have a cumulative effect on the amenity of the local community. Furthermore, it is located within close proximity to Policy HERT4: North of Hertford (150 new homes) in the recently adopted East Herts District Plan (2018). The site is not within close proximity to an active minerals site or within 1km of an AQMA, and is therefore unlikely to have a cumulative effect on the local community.</p>
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	--?	Several public rights of way cross this Preferred Area, including Bengo Rural 014, Bengo Rural 012, Bengo Rural 022, Bengo Rural 002 and Bengo Rural 009. Development of minerals sites within the Preferred Area could have a significant negative effect on the amenity of users of PRoW and other users of the countryside in the County, as development of the sites would mean removing or temporarily closing land which has potential for recreation/access to the countryside. However, it is not possible to determine whether diversion is required for PRoW until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRoW and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.
9.4 To ensure that mineral sites do	0	The Preferred Area is not located within an Airport Safeguarding Zone and is therefore unlikely to have any impact upon the safe operation of aerodromes/airports if restored to a water-based use.

SA Objective and Sub Questions	SA Score	Justification
not compromise the operation and safety of commercial/civil or military aerodromes		

Sites Submitted after Draft Minerals Local Plan consultation and assessed in 2018

MLPCS021: Land adjacent to Coursers Farm (North Mymms West)

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--	This site contains Scrubby Grassland Local Wildlife Site and is also located directly adjacent to Frederick's Wood, Walsingham Wood and North Mymms Park Local Wildlife Sites. The site is also located adjacent to Colney Heath Local Nature Reserve. Therefore, significant negative effects are considered likely on this objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	--?	The site is located within 1km of the Hertfordshire Primary Route Network (A1 (M)). HDV movements from the site could travel along the A1 (M), which is within 200m of Sherrardspark Wood SSSI, West End Swallow Holes SSSI and Knebworth Woods SSSI. Therefore, this site has the potential to have a significant negative effect on these nature conservation sites through increased deposition of air pollutants. Although this effect is dependent on the likely increase in HDV annual average daily traffic flows along the road passing within 200m of the nature conservation site (in combination with HDV movements from other existing and potential minerals sites). Although such adverse effects on European Sites have been discounted for the sites allocated in Policy 4 of the MLP through the Appropriate Assessment in the HRA, this site has not been allocated. Furthermore, there is still potential for national and local sites to be adversely effected. However, the effect is uncertain as the detailed routing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	This site is over 500m from a national site of geological interest (SSSI) or Local Geological Site, therefore, this site is considered unlikely to affect this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	--?	<p>There is a grade II listed structure – a London Coal duty marker - within the site. This could be subject to significant physical and setting change.</p> <p>To the west of the site is a grade II listed barn. It is unlikely to be affected by meaningful setting change.</p> <p>To the south of the site is the grade I listed building, North Mymms Park. Its non-designated parkland includes the site and several grade II and II* listed buildings. Development within the site would result in physical and setting change to the park and could affect the setting of the main house and designated assets related to it.</p> <p>To the north of the site there are is a group of grade II listed buildings in Colney Heath. These are unlikely to have their setting meaningfully affected by development within the site.</p>

SA Objective Sub Questions	SA Score	Justification
		Overall, there is the potential for significant negative effects as a result of setting change to a number of designated assets. Further assessment will be required at the planning application stage to understand the significance of the heritage assets, the contribution that their setting makes to that significance, and the impact of development.
2.2 To conserve below ground archaeological assets	-?	There are no locally designated assets within the site, or its immediate vicinity. The site is not located in an area of archaeological significance but the HER does record archaeological assets within it. These would be removed/damaged by development. Once proposals are known, a more detailed assessment would be required in order to identify the extent and significance of the assets, the impact to them and an appropriate scheme of mitigation.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	Sites providing sand and gravel are not considered to contribute towards this objective as these are not locally distinctive building materials. A negligible effect is therefore considered likely for this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-	According to the LUC Landscape and Visual Sensitivity Study 2018, this site was considered to have a 'low-moderate' landscape sensitivity due to the fact that view from properties and Rights of Way tend to be screened by woodland. Therefore, development at this site could have a minor negative effect on designated landscapes, local landscape character and/or tranquillity.
4.1 To protect the quality of ground and surface water	0?	The entirety of the site is located within SPZ 3. No water body sits within the site. Therefore, this site is assessed as having a negligible effect with uncertainty relating to the operation activities (e.g. dewatering).
4.2 To protect the quantity of ground and surface water from over abstraction	?	All mineral activity could potentially require the use of water resources, but this will not be known until the planning application stage where proposals are brought forward. Therefore, it is considered that all potential mineral activities will have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This site is within 10 km of strategic development locations, for example, policy SADM25 of the proposed Hertsmeare Site Allocations and Development Management Policies Plan (2015).. Furthermore, the site is relatively close to Policy SP 24: New Village at Symondshyde (1,130 new homes) and Policy SP 22: North West Hatfield (1,650 new homes) north west of Hatfield in the Welwyn Hatfield Proposed Submission Local Plan (August 2016). In addition, the site is located within close proximity of a large site being promoted through the Hertsmeare Borough Council Local Plan process for 6,000 dwellings. However, the HELAA site (HEL392) has not yet been selected as a preferred option. Therefore, the site could contribute to reducing transport distances of aggregates for construction. However, this is uncertain as it is not known where aggregates will be transported to from each site.

SA Objective Sub Questions	SA Score	Justification
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for this site to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, the site could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, the site is also likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	This site is being promoted for sand and gravel and is therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Mineral sites not located on land designated as Flood Zones 2, 3a or 3b are likely to have limited potential to reduce flood risk and are therefore likely to have a negligible effect on this objective.
7.1 To encourage the use of recycled and secondary aggregates	-?	All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This minerals site could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed, there will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	This site would contribute towards providing minerals to meet Hertfordshire's need.
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and would have a positive effect on this objective as they provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural	-	The site is large (25ha). The majority of the site is located on Grade 3 BMV agricultural land and a small area in the north west of the site is on Grade 2 BMV agricultural land. Therefore, it is considered to have a minor negative

SA Objective Sub Questions	SA Score	Justification
land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality		effect on protecting or enhancing soil/land quality.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	<p>Coursers Farm is located within 200m of the western edge of this site whilst the site is also located within close proximity of Park Cottage, Tyttenhanger Farm and the Grade I listed North Mymms Park. Therefore, development at this site is considered to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. Although, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore, in all cases these effects are minor negative uncertain.</p> <p>The site is located approximately 400m south of the settlement at Colney Heath. The site is also within 1km of a large site being promoted through the Hertsmere Borough Council Local Plan process for 6,000 dwellings. However, the HELAA site (HEL392) is yet to be fully tested through the Borough's plan making process and is not an allocation at this stage. The site is not within 1km of an AQMA or an active mineral site. Overall, development at this site is unlikely to lead to a cumulative effect. Development at this site could therefore have a minor negative effect on the amenity of the local community.</p>
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	-?	The site scored 'amber' for the 'recreation' in the MLP Site Assessment Study 'recreation' criterion. The site does not contain a PRoW but is located immediately adjacent to a PRoW (No. 32). Therefore, development at this site could have a minor negative effect on the amenity of users of PRoW and other users of the countryside in the County, or enjoyment of the AONB by making the facilities/countryside less attractive for users and impacting on amenity. However, it is not possible to determine whether diversion is required for PRoW until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation	+?	All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRoW and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.

SA Objective Sub Questions	SA Score	Justification
as part of the development and restoration of a site		
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	According to the MLP Site Assessment Study, this site is not located within an Airport Safeguarding Zone and is therefore unlikely to have any impact on the safe operation of aerodromes/airports if restored to a water-based use.

MLPCS022: Land adjacent to Coursers Farm (North Mymms East)

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--	This site contains part of the North Mymms Park Local Wildlife Site. Therefore, significant negative effects are considered likely on this objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	--?	The site is located within 1km of the Hertfordshire Primary Route Network (A1 (M)). HDV movements from the site could travel along the A1 (M), which is within 200m of Sherrardspark Wood SSSI, West End Swallow Holes SSSI and Knebworth Woods SSSI. Therefore, this site has the potential to have a significant negative effect on these nature conservation sites through increased deposition of air pollutants. Although this effect is dependent on the likely increase in HDV annual average daily traffic flows along the road passing within 200m of the nature conservation site (in combination with HDV movements from other existing and potential minerals sites). Although such adverse effects on European Sites have been discounted for the sites allocated in Policy 4 of the MLP through the Appropriate Assessment in the HRA, this site has not been allocated. Furthermore, there is still potential for national and local sites to be adversely effected. However, the effect is uncertain as the detailed routing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	This site is over 500m from a national site of geological interest (SSSI) or Local Geological Site, therefore, this site is considered unlikely to affect this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	--?	<p>There are no designated assets within the site. To the west are a grade II listed London Coal duty marker and barn. Neither of these is likely to be experience meaningful setting change as a result of development.</p> <p>To the south of the site is the grade I listed North Mymms Park, the non-designated parkland of which includes the site and contains several more grade II and II* listed structures. Development would result in physical and setting change to the park, and could potentially affect the house and other assets.</p> <p>To the west of the site is a grade II listed barn. It is unlikely to be affected by meaningful setting change.</p> <p>To the north of the site there is a group of grade II listed buildings in Colney Heath. These are unlikely to have</p>

SA Objective Sub Questions	SA Score	Justification
		<p>their setting meaningfully affected by development within the site.</p> <p>There are no locally designated assets within the site, or its immediate vicinity.</p> <p>Overall, there is the potential for significant negative effects as a result of setting change to a number of designated assets. Further assessment will be required at the planning application stage to understand the significance of the heritage assets, the contribution that their setting makes to that significance, and the impact of development.</p>
2.2 To conserve below ground archaeological assets	?	The site is not located in an area of archaeological significance and the HER records no assets other than the parkland. However, this does not preclude the potential for archaeology and further more detailed assessment may be required.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	Sites providing sand and gravel are not considered to contribute towards this objective as these are not locally distinctive building materials. A negligible effect is therefore considered likely for this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	--	According to the LUC Landscape and Visual Sensitivity Study 2018, this site was considered to have a 'moderate-high' landscape sensitivity due to the open view from adjacent properties and the Rights of Way. Therefore, development at this site could have a minor negative effect on designated landscapes, local landscape character and/or tranquillity.
4.1 To protect the quality of ground and surface water	-?	The entirety of the site is located within SPZ 3. Two small water bodies sit within the eastern corner of the site. Therefore, this site is assessed as having a minor adverse effect. The effect would be uncertain as it would be very dependent on the exact nature, working and proposed design of the site.
4.2 To protect the quantity of ground and surface water from over abstraction	?	All mineral activity could potentially require the use of water resources, but this will not be known until the planning application stage where proposals are brought forward. Therefore, it is considered that all potential mineral activities will have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This site is within 10 km of strategic development locations, for example, policy SADM25 of the proposed Hertsmere Site Allocations and Development Management Policies Plan (2015). Furthermore, the site is relatively close to Policy SP 24: New Village at Symondshyde (1,130 new homes) and Policy SP 22: North West Hatfield (1,650 new homes) north west of Hatfield in the Welwyn Hatfield Proposed Submission Local Plan (August 2016). In addition, the site is located within close proximity of a large site being promoted through the Hertsmere Borough Council Local Plan process for 6,000 dwellings. However, the HELAA site (HEL392) has not yet been selected as a preferred option. Therefore, the site could contribute to reducing transport distances of aggregates for construction. However, this is uncertain as it is not known where aggregates will be transported to from each site.

SA Objective Sub Questions	SA Score	Justification
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for this site to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, the site could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, the site is also likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	This site is being promoted for sand and gravel and is therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Mineral sites not located on land designated as Flood Zones 2, 3a or 3b are likely to have limited potential to reduce flood risk and are therefore likely to have a negligible effect on this objective.
7.1 To encourage the use of recycled and secondary aggregates	-?	All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This minerals site could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed, there will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	This site would contribute towards providing minerals to meet Hertfordshire's need.
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and would have a positive effect on this objective as they provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural	-	The site is small (12ha) and located on Grade 3 BMV agricultural land. Therefore, it is considered to have a minor negative effect on protecting or enhancing soil/land quality.

SA Objective Sub Questions	SA Score	Justification
land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality		
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	<p>Park Cottage is located adjacent to the site. The site is also located within close proximity to the Grade I listed North Mymms Park. Therefore, development at this site is considered to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. Although, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore, in all cases these effects are minor negative uncertain.</p> <p>The site is located approximately 300m south east of the settlement at Colney Heath. The site is also within 1km of a large site being promoted through the Hertsmere Borough Council Local Plan process for 6,000 dwellings. However, the HELAA site (HEL392) is yet to be fully tested through the Borough's plan making process and is not an allocation at this stage. The site is not within 1km of an AQMA or an active mineral site. Overall, development at this site is unlikely to lead to a cumulative effect. Development at this site could therefore have a minor negative effect on the amenity of the local community.</p>
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	-?	<p>The site scored 'amber' for the 'recreation' in the MLP Site Assessment Study 'recreation' criterion. The site does not contain a PRoW but is located within close proximity to a number of PRoWs (No's. 055 and 029). Therefore, development at this site could have a minor negative effect on the amenity of users of PRoW and other users of the countryside in the County, or enjoyment of the AONB by making the facilities/countryside less attractive for users and impacting on amenity. However, it is not possible to determine whether diversion is required for PRoW until the planning application stage.</p>
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation	+?	<p>All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRoW and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.</p>

SA Objective Sub Questions	SA Score	Justification
as part of the development and restoration of a site		
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	According to the MLP Site Assessment Study, this site is not located within an Airport Safeguarding Zone and is therefore unlikely to have any impact on the safe operation of aerodromes/airports if restored to a water-based use.

MLPCS023: Warren Farm

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--	This site contains part of the Tyttenhanger Gravel Pits North Local Wildlife Site and is located directly adjacent to the New Plantation, Coursers Farm Area and Colney Heath Common Local Wildlife Sites (Colney Heath is also a Local Nature Reserve). Therefore, significant negative effects are considered likely on this objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this minerals site could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	--?	The site is located within 1km of the Hertfordshire Primary Route Network (A414). HDV flows along the A414 are within 200m of Lee Valley SPA and Hunsdon Mead and Plashes Wood SSSI. Therefore, this site has the potential to have a significant negative effect on this nature conservation site through increased deposition of air pollutants. Although this effect is dependent on the likely increase in HDV annual average daily traffic flows along the road passing within 200m of the nature conservation site (in combination with HDV movements from other existing and potential minerals sites). Although such adverse effects on European Sites have been discounted for the sites allocated in Policy 4 of the MLP through the Appropriate Assessment in the HRA, this site has not been allocated. Furthermore, there is still potential for national and local sites to be adversely effected. However, the effect is uncertain as the detailed routing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	This site is over 500m from a national site of geological interest (SSSI) or Local Geological Site, therefore, this site is considered unlikely to affect this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	-?	<p>There are no nationally or locally designated assets within the site. To the south of the site is a grade II listed barn. It is unlikely to be affected by meaningful setting change.</p> <p>To the southeast of the site is a grade II listed structure – a London Coal duty marker, which may be subject to setting change.</p> <p>To the east and north of the site there are a group of grade II listed buildings in Colney Heath. With the exception of the Mill at Mill House and the coal duty marker, the setting of these assets is unlikely to be meaningfully affected by development within the site.</p> <p>To the west of the site is the grade I listed Tyttenger House and grade II listed stable and kitchen garden wall</p>

SA Objective Sub Questions	SA Score	Justification
		<p>where there may be limited potential for setting change.</p> <p>There are no locally designated assets within the site, or its immediate vicinity.</p> <p>Overall, there is the potential for minor negative effects as a result of setting change to a number of designated assets. Further assessment will be required at the planning application stage to understand the significance of the heritage assets, the contribution that their setting makes to that significance, and the impact of development.</p>
2.2 To conserve below ground archaeological assets	-?	The site is not located in an area of archaeological significance but the HER indicates that it contains a non-designated archaeological asset. This would be subject to damage/ removal. Once proposals are known, further assessment would be necessary to clarify the potential significance of this asset, the potential for further assets, and the potential effect to its significance.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	Sites providing sand and gravel are not considered to contribute towards this objective as these are not locally distinctive building materials. A negligible effect is therefore considered likely for this SA objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-	According to the LUC Landscape and Visual Sensitivity Study 2018, this site was considered to have a 'low-moderate' landscape sensitivity due to the valued features and sense of openness. Therefore, development at this site could have a minor negative effect on designated landscapes, local landscape character and/or tranquillity.
4.1 To protect the quality of ground and surface water	--?	A large area (approximately 75%) of the site is within SPZ 3, whilst 15% is within SPZ 2 and 10% within SPZ 1. One small water body sits within the centre of the site. Therefore, this site is assessed as having a significant adverse effect. The effect would be uncertain as it would be very dependent on the exact nature, working and proposed design of the site.
4.2 To protect the quantity of ground and surface water from over abstraction	?	All mineral activity could potentially require the use of water resources, but this will not be known until the planning application stage where proposals are brought forward. Therefore, it is considered that all potential mineral activities will have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This site is within 10 km of strategic development locations, for example, policy SADM25 of the proposed Hertsmere Site Allocations and Development Management Policies Plan (2015). Furthermore, the site is relatively close to Policy SP 24: New Village at Symondshyde (1,130 new homes) and Policy SP 22: North West Hatfield (1,650 new homes) north west of Hatfield in the Welwyn Hatfield Proposed Submission Local Plan (August 2016). In addition, the site is located within close proximity of a large site being promoted through the Hertsmere Borough Council Local Plan process for 6,000 dwellings. However, the HELAA site (HEL392) has not yet been selected as a preferred option. Therefore, the site could contribute to reducing transport distances of aggregates

SA Objective Sub Questions	SA Score	Justification
		for construction. However, this is uncertain as it is not known where aggregates will be transported to from each site.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for this site to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, the site could lead to the production of carbon dioxide or other greenhouse gases from on-site vehicles and machinery, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, the site is also likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	This site is being promoted for sand and gravel and is therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, these effects would be uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	Mineral sites not located on land designated as Flood Zones 2, 3a or 3b are likely to have limited potential to reduce flood risk and are therefore likely to have a negligible effect on this objective.
7.1 To encourage the use of recycled and secondary aggregates	-?	All the potential minerals sites would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This minerals site could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; and given that the overall number of mineral sites likely to be developed, there will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	+	This site would contribute towards providing minerals to meet Hertfordshire's need.
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and would have a positive effect on this objective as they provide a degree of protection to minerals resources from inappropriate non-mineral development.

SA Objective Sub Questions	SA Score	Justification
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	-	The site is large (48.1ha) and located within Grade 2 and 3 BMV agricultural land. Therefore, it is considered to have a minor negative effect on protecting or enhancing soil/land quality.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	<p>Coursers Farm is located adjacent to the site, as well as Tyttenhanger Farm. Therefore, development at this site is considered to have minor negative effects on health due to the potential for dust (PM10) to have a negative effect on the health of local residents, communities and visitors to the County, and minor negative effects on amenity. Although, this is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore, in all cases these effects are minor negative uncertain.</p> <p>The site is located approximately 200m south of the settlement at Colney Heath. The site is also within 1km of a large site being promoted through the Hertsmere Borough Council Local Plan process for 6,000 dwellings. However, the HELAA site (HEL392) is yet to be fully tested through the Borough's plan making process and is not an allocation at this stage. The site is not within 1km of an AQMA or an active mineral site. Overall, development at this site is unlikely to lead to a cumulative effect. Development at this site could therefore have a minor negative effect on the amenity of the local community.</p>
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	--?	The site scored 'red for the 'recreation' in the MLP Site Assessment Study 'recreation' criterion. The site contains a PRow (No. 004) and is immediately adjacent to a number of other PRows including No's 032 and 008. Therefore, the site could have a significant negative effect on the amenity of users of PRow and other users of the countryside in the County, as development of the sites would mean either removing part of a facility/open space, or removing or temporarily closing land which has potential for recreation/access to the countryside. However, it is not possible to determine whether diversion is required for PRow until the planning application stage.
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced	+?	All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRow and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded

SA Objective Sub Questions	SA Score	Justification
public rights of way and improved access to recreation as part of the development and restoration of a site		until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	0	According to the MLP Site Assessment Study, this site is not located within an Airport Safeguarding Zone and is therefore unlikely to have any impact on the safe operation of aerodromes/airports if restored to a water-based use.

Grouped options assessed in 2017

Hertfordshire Grouped Options Assessments

Option 1: Based on recommendations within the Site Selection report (Sites 004, 012, 017, 008, Preferred Area 1 (remaining northern part), 006, 009, 018, Preferred Area 2)

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--?	All constituent sites in this option are within 250m of a Local Wildlife Site and Upper Stonyhills Wood and Flowersash Wood Key Wildlife Sites lie partially within Preferred Area 2. A significant negative effect is considered likely with regards to this objective, however there is some uncertainty as effects will depend on the exact nature and design of any proposals which come forward.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this option could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once sites are restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	--?	Most constituent sites, except MLPCS012, MLPCS017 and MLPCS008, are located within 1km of the Hertfordshire primary route network. All of the sites within 1km of the primary route network have potential to increase HGV flows within 200m of one or more sites designated for nature conservation, including SSSIs, wildlife sites and the Lee Valley SPA. Therefore, this option has the potential to have a significant negative affect on this nature conservation site through increased deposition of air pollutants, although this effect is dependent on the likely increase in HDV annual average daily traffic flows along the road passing within 200m of the nature conservation site (in combination with HDV movements from other existing and potential minerals sites). Although such adverse effects on European Sites have been discounted for the sites allocated in Policy 4 of the MLP through the Appropriate Assessment in the HRA, not all of these sites have not been allocated. Furthermore, there is still potential for national and local sites to be adversely effected. However, the effect is uncertain as the detailed routing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	None of the potential development areas under this option lie within 500m of a site designated for geological interest (i.e. a geological SSSI or LGS). As such, this option is likely to have a negligible effect on this objective.

SA Objective Sub Questions	SA Score	Justification
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	--?	This option may lead to significant negative effects with regards to this objective as sites MLPCS006, MLPCS009, MLPCS018 and Preferred Area 1 are directly adjacent to listed buildings, the settings of which could be negatively affected by minerals workings at these sites. Additionally, other listed buildings within the vicinity of these sites and preferred area could be affected by development. All other potential development areas under this option are within 1km of one or more heritage assets, particularly listed buildings. However, effects of development at these other sites are expected to be minor or negligible due to existing screening and the existing context of the sites. These effects are considered uncertain as the actual effects on historic assets will depend on the asset and the exact siting, scale and type of development.
2.2 To conserve below ground archaeological assets	--?	This option may lead to significant negative effects with regards to this objective as sites MLPCS009 and Preferred Area 2 both contain two areas of archaeological interest and the HER has records of non-designated assets within each. The features found within each site are all highly susceptible to physical change which could result in a significant negative effect. Further assessment of the assets and their significance, as well as the scale of development impact would be required to properly understand the scale of effect and determine whether it may be appropriately mitigated.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	The minerals available for extraction in this option are sand and gravel, which are not locally distinctive building materials, therefore effects are expected to be negligible with regards to this objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-	This option is expected to have an overall minor negative effect on the landscape of Hertfordshire. According to the LUC Landscape and Visual Sensitivity study 2018 all potential development locations are assessed as having a low-moderate or moderate landscape sensitivity to mineral extraction, with the exception of Preferred Area 1 and MLPCS006, which are identified as having negligible effects.
4.1 To protect the quality of ground and surface water	--?	The majority of potential development areas in this option are not within SPZ1, although a number of sites have a waterbody on or adjacent to the site. The southern part of Preferred Area 2 is located within SPZ 1 and there are also substantial areas of SPZ 2 within the Preferred Area, therefore there is a risk of significant negative effects if extraction should take place in this area. In addition, there is a plume of bromate coincident with Preferred Area 1, with a concentration of 750 µg/l to more than 1000 µg/l in a substantial part of the area, which poses a risk of groundwater contamination. Contamination of water bodies could have significant adverse effects, but uncertainty remains as the effect depends on the exact location, nature, working and design of a site.
4.2 To protect the quantity of ground and surface	?	All mineral activity could potentially require the use of water resources, but the extent of water use will not be known until the planning application stage where proposals are brought forward. Therefore it is considered that all

SA Objective Sub Questions	SA Score	Justification
water from over abstraction		options will have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This option would lead to minerals extraction within 10km of a number of sites allocated for development. This site could contribute to reducing transport distances of aggregates for construction and thus a minor positive is considered appropriate. However, this is uncertain as it is not known where aggregates will be transported to from each site.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for this option to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, the option could lead to the production of carbon dioxide or other greenhouse gases from vehicles and machinery at minerals sites, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, the site is also likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	The site options within this grouped option are being promoted for sand and gravel extraction and are therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, potential effects of development on flood risk are uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	The majority of land in this option lies outside Flood Zones 2 and 3, and is therefore at low risk of flooding. There is a small area of Flood Zone 2 within site MLPCS006, but this is such a small proportion of the site and the areas to be developed in this option as a whole, that this is considered to be negligible in the context of this option.
7.1 To encourage the use of recycled and secondary aggregates	-?	All options would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access	+	This option could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as it is likely to result in a small amount of job creation for local people in

SA Objective Sub Questions	SA Score	Justification
employment and skills both during and after extraction		both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; given that the overall number of mineral sites likely to be developed, there will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	++	This option could provide 21,750,000 tonnes minerals, which equates to over-provision of Hertfordshire's needs by 4,385,716 tonnes (excluding Permitted Reserves), therefore a significant positive effect is considered likely.
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and this option would have a positive effect on this objective, as it would provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	--	The majority of potential development areas in this option consist of Grade 3 agricultural land, which would lead to minor negative effects if minerals were to be extracted at these sites. However, the option is likely to have significant negative effects on this objective, as sites MLPCS006 and MLP009 are large sites that consist mostly of Grade 2 agricultural land which would be lost to minerals extraction.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	This option would lead to development within close proximity (100m) of residential properties and some sites are located close to existing settlements and/or other sensitive receptors, such as schools. Furthermore, site MLPCS006 is in close proximity to the existing Cemex Hatfield Quarry processing plant on Oaklands Lane. This plant will remain in operation if one or a combination of sites MLPCS008 and MLPCS009 are allocated for extraction. As such, development under this option is considered to have minor negative effects on health due to the potential for dust (PM10) and loss of amenity to have a negative effect on the health of local residents, communities and visitors to the County. This is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), and the type of mineral site, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore these effects are minor negative uncertain.

SA Objective Sub Questions	SA Score	Justification
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	--?	<p>This option is expected to have significant negative effects with regards to this objective, as a number of constituent sites (Preferred Area 1, MLPCS006, MLPCS009, MLPCS018 and Preferred Area 2) scored 'red' in the 'recreation' criterion of the MLP Site Assessment Study, as they would lead to loss of recreational space and/or PRow. Development at these sites could have significant negative effects on the amenity of users of PRow and other users of the countryside in the County, as development of the sites would mean either removing part of a facility/open space, or removing or temporarily closing land which has potential for recreation/access to the countryside. However, it is not possible to determine whether diversion is required for PRow until the planning application stage, therefore there is some uncertainty involved.</p> <p>Two other constituent sites (MLPCS004 and MLPCS008) scored 'amber' as they are within 100m of PRow and the remaining two (MLPCS012 and MLPCS017) scored 'light green', as they are over 100m from a PRow or other recreational resource.</p>
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRow and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	-?	The majority of sites within this option are not within an Airport Safeguarding Zone. However, sites MLPCS008, MLPCS006, MLPCS009 and Preferred Area 1 are within the Luton Airport Safeguarding Zone. This could have minor negative effects on the safe operation of the airport if restored to a water-based use that is likely to attract large numbers of birds and increase the risk of bird strike. However, this effect is uncertain as it is dependent on the type of restoration proposed and eventually developed on site, which will not be known until a later stage in the Minerals Local Plan preparation or even at the planning application stage.

Option 2: Based on recommendations within the Site Selection report but focusing on those with 'green' economic viability (Sites 012, 008, Preferred Area 1 (remaining northern part), 006, 009, Preferred Area 2)

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--	This option may lead to significant negative effects with regards to this objective as Preferred Area 2 partially contains Upper Stonyhills Wood and Flowersash Wood Key Wildlife Site. All other sites in this option are within 250m of a Local Wildlife Site. A significant negative effect is considered likely with regards to this objective.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this option could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once sites are restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	--?	Most constituent sites, except MLPCS012 and MLPCS008, are located within 1km of the Hertfordshire primary route network. All of the sites within 1km of the primary route network have potential to increase HGV flows within 200m of one or more sites designated for nature conservation, including SSSIs, wildlife sites and the Lee Valley SPA. Therefore, this option has the potential to have a significant negative affect on this nature conservation site through increased deposition of air pollutants, although this effect is dependent on the likely increase in HDV annual average daily traffic flows along the road passing within 200m of the nature conservation site (in combination with HDV movements from other existing and potential minerals sites. Although such adverse effects on European Sites have been discounted for the sites allocated in Policy 4 of the MLP through the Appropriate Assessment in the HRA, not all of these sites have been allocated. Furthermore, there is still potential for national and local sites to be adversely effected. However, the effect is uncertain as the detailed routing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	None of the potential development areas under this option lie within 500m of a site designated for geological interest (i.e. a geological SSSI or LGS). As such, this option is likely to have a negligible effect on this objective.
2.1 To conserve and enhance the County's cultural	--?	This option may lead to significant negative effects with regards to this objective as MLCPS006, MLCPS009 and Preferred Area 1 lie directly adjacent to listed buildings, the settings of which could be negatively affected by

SA Objective Sub Questions	SA Score	Justification
heritage, including above ground heritage assets and their setting		minerals workings at these sites. All other potential development areas under this option are within 1km of one or more heritage assets, particularly listed buildings. However, effects of development at these other sites are expected to be minor or negligible due to existing screening and the existing context of the sites. These effects are considered uncertain as the actual effects on historic assets will depend on the asset and the exact siting, scale and type of development.
2.2 To conserve below ground archaeological assets	--?	This option may lead to significant negative effects with regards to this objective as sites MLPCS009 and Preferred Area 2 both contain two areas of archaeological interest and the HER has records of non-designated assets within each. The features found within each site are all highly susceptible to physical change which could result in a significant negative effect. Further assessment of the assets and their significance, as well as the scale of development impact would be required to properly understand the scale of effect and determine whether it may be appropriately mitigated.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	The minerals available for extraction in this option are sand and gravel, which are not locally distinctive building materials, therefore effects are expected to be negligible with regards to this objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-	This option is expected to have an overall minor negative effect on the landscape of Hertfordshire. According to the LUC Landscape and Visual Sensitivity study 2018 all potential development locations are assessed as having a low-moderate or moderate landscape sensitivity to mineral extraction, with the exception of Preferred Area 1 and MLPCS006, which are identified as having negligible effects.
4.1 To protect the quality of ground and surface water	--?	The majority of potential development areas in this option are not within SPZ1, although a number of sites have a waterbody on or adjacent to the site. The southern part of Preferred Area 2 is located within SPZ 1 and there are also substantial areas of SPZ 2 within this Preferred Area, therefore there is a risk of significant negative effects if extraction should take place in this area. In addition, there is a plume of bromate coincident with Preferred Area 1, with a concentration of 750 µg/l to more than 1000 µg/l in a substantial part of the area, which poses a risk of groundwater contamination. Contamination of water bodies could have significant adverse effects, but uncertainty remains as the effect depends on the exact location, nature, working and design of a site.
4.2 To protect the quantity of ground and surface water from over abstraction	?	All mineral activity could potentially require the use of water resources, but the extent of water use will not be known until the planning application stage where proposals are brought forward. Therefore it is considered that all options will have an uncertain effect on this objective.

SA Objective Sub Questions	SA Score	Justification
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This option would lead to minerals extraction within 10km of a number of sites allocated for development. This site could contribute to reducing transport distances of aggregates for construction and thus a minor positive is considered appropriate. However, this is uncertain as it is not known where aggregates will be transported to from each site.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for this option to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, the option could lead to the production of carbon dioxide or other greenhouse gases from vehicles and machinery at minerals sites, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, the site is also likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	The site options within this grouped option are being promoted for sand and gravel extraction and are therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, potential effects of development on flood risk are uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	The majority of land in this options lies outside Flood Zones 2 and 3, and is therefore at low risk of flooding. There is a small area of Flood Zone 2 within site MLPCSO06, but this is such a small proportion of the site and the areas to be developed in this option as a whole, that this is considered to be negligible in the context of this option.
7.1 To encourage the use of recycled and secondary aggregates	-?	All options would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after	+	This option could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as it is likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; given that the overall number of mineral sites likely to be developed, there will not be a large number each year, the total number of new

SA Objective Sub Questions	SA Score	Justification
extraction		employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	++	This option could provide an estimated 19,900,000 tonnes of minerals, which equates to over-provision of Hertfordshire's needs by 2,535,716 tonnes (excluding Permitted Reserves), therefore a significant positive effect is considered likely.
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and this option would have a positive effect on this objective, as it would provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	--	The majority of potential development areas in this option consist of Grade 3 agricultural land, which would lead to minor negative effects if minerals were to be extracted at these sites. However, the option is likely to have significant negative effects on this objective, as sites MLPCS006 and MLP009 are large sites that consist mostly of Grade 2 agricultural land which would be lost to minerals extraction.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	This option would lead to development within close proximity (100m) of residential properties and some sites are located close to existing settlements and/or other sensitive receptors, such as schools. Furthermore, site MLPCS006 is in close proximity to the existing Cemex Hatfield Quarry processing plant on Oaklands Lane. This plant will remain in operation if site MLPCS009 is allocated for extraction. As such, development under this option is considered to have minor negative effects on health due to the potential for dust (PM10) and loss of amenity to have a negative effect on the health of local residents, communities and visitors to the County. This is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), and the type of mineral site, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore these effects are minor negative uncertain.
9.2 To protect against the loss of Public Rights of Way, access, recreation	--?	This option is expected to have significant negative effects with regards to this objective, as a number of constituent sites (Preferred Area 1, MLPCS006, MLPCS009 and Preferred Area 2) scored 'red' in the 'recreation' criterion of the MLP Site Assessment Study, as they would lead to loss of recreational space and/or PRoW.

SA Objective Sub Questions	SA Score	Justification
areas and open space		<p>Development at these sites could have significant negative effects on the amenity of users of PRow and other users of the countryside in the County, as development of the sites would mean either removing part of a facility/open space, or removing or temporarily closing land which has potential for recreation/access to the countryside. However, it is not possible to determine whether diversion is required for PRow until the planning application stage, therefore there is some uncertainty involved.</p> <p>One other constituent site (MLPCS008) scored 'amber' as they are within 100m of PRow and the remaining one (MLPCS012) scored 'light green', as they are over 100m from a PRow or other recreational resource.</p>
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRow and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	-?	The majority of sites within this option are not within an Airport Safeguarding Zone. However, sites MLPCS008, MLPCS006, MLPCS009 and Preferred Area 1 are within the Luton Airport Safeguarding Zone. This could have minor negative effects on the safe operation of the airport if restored to a water-based use that is likely to attract large numbers of birds and increase the risk of bird strike. However, this effect is uncertain as it is dependent on the type of restoration proposed and eventually developed on site, which will not be known until a later stage in the Minerals Local Plan preparation or even at the planning application stage.

Option 3: Combination of specific sites and existing Preferred Area (Sites 008, 006, 009, Preferred Area 2, 003)

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--	This option may lead to significant negative effects with regards to this objective as Preferred Area 2 partially contains upper Stonyhills Wood and Flowersash Wood Key Wildlife Site. All other sites in this option are within 250m of a Local Wildlife Sites and other nature conservation designations. A significant negative effect is considered likely with regards to this objective.

SA Objective Sub Questions	SA Score	Justification
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this option could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once sites are restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	--?	Most constituent sites, except MLPCS008, are located within 1km of the Hertfordshire primary route network. All of the sites within 1km of the primary route network have potential to increase HGV flows within 200m of one or more sites designated for nature conservation, including SSSIs, wildlife sites and the Lee Valley SPA. Therefore, this option has the potential to have a significant negative affect on this nature conservation site through increased deposition of air pollutants, although this effect is dependent on the likely increase in HDV annual average daily traffic flows along the road passing within 200m of the nature conservation site (in combination with HDV movements from other existing and potential minerals sites). Although such adverse effects on European Sites have been discounted for the sites allocated in Policy 4 of the MLP through the Appropriate Assessment in the HRA, not all of these sites have not been allocated. Furthermore, there is still potential for national and local sites to be adversely effected. However, the effect is uncertain as the detailed routing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	None of the potential development areas under this option lie within 500m of a site designated for geological interest (i.e. a geological SSSI or LGS). As such, this option is likely to have a negligible effect on this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	--?	This option may lead to significant negative effects with regards to this objective as MLCPS006 and MLCPS009 lie directly adjacent to listed buildings, the settings of which could be negatively affected by minerals workings at these sites. All other potential development areas under this option are within 1km of one or more heritage assets, particularly listed buildings. However, effects of development at these other sites are expected to be minor or negligible due to existing screening and the existing context of the sites. These effects are considered uncertain as the actual effects on historic assets will depend on the asset and the exact siting, scale and type of development.
2.2 To conserve below ground archaeological assets	--?	This option may lead to significant negative effects with regards to this objective as sites MLPCS009 and Preferred Area 2 both contain two areas of archaeological interest and the HER has records of non-designated assets within each. The features found within each site are highly susceptible to physical change which could result in a significant negative effect. Further assessment of the assets and their significance, as well as the scale of development impact would be required to properly understand the scale of effect and determine whether it may

SA Objective Sub Questions	SA Score	Justification
		be appropriately mitigated.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	The minerals available for extraction in this option are sand and gravel, which are not locally distinctive building materials, therefore effects are expected to be negligible with regards to this objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-	This option is expected to have an overall minor negative effect on the landscape of Hertfordshire. According to the LUC Landscape and Visual Sensitivity study 2018 all potential development locations are assessed as having a low-moderate or moderate landscape sensitivity to mineral extraction, with the exception of MLPCS006, which was identified as having negligible effects.
4.1 To protect the quality of ground and surface water	--?	The majority of potential development areas in this option are not within SPZ1, although a number of sites have a waterbody on or adjacent to the site. Approximately 45% of the northern part of site MLPCS003 is within SPZ1 and the southern part of the site is in SPZ2, whilst the central area is not within an SPZ. The southern part of Preferred Area 2 is located within SPZ 1 and there are also substantial areas of SPZ 2 within this Preferred Area, therefore there is a risk of significant negative effects if extraction should take place in this area. Contamination of water bodies could have significant adverse effects, but uncertainty remains as the effect depends on the exact location, nature, working and design of a site.
4.2 To protect the quantity of ground and surface water from over abstraction	?	All mineral activity could potentially require the use of water resources, but the extent of water use will not be known until the planning application stage where proposals are brought forward. Therefore it is considered that all options will have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This option would lead to minerals extraction within 10km of a number of sites allocated for development. This site could contribute to reducing transport distances of aggregates for construction and thus a minor positive is considered appropriate. However, this is uncertain as it is not known where aggregates will be transported to from each site.
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings	+?/-	There may be an opportunity for this option to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, the option could lead to the production of carbon dioxide or other greenhouse

SA Objective Sub Questions	SA Score	Justification
and plant, and the use of appropriate renewable or lower carbon energy sources on site		gases from vehicles and machinery at minerals sites, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, the site is also likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	The site options within this grouped option are being promoted for sand and gravel extraction and are therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, potential effects of development on flood risk are uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	The majority of land in this option lies outside Flood Zones 2 and 3, and is therefore at low risk of flooding. There is a small area of Flood Zone 2 within site MLPCS006, but this is such a small proportion of the site and the areas to be developed in this option as a whole, that this is considered to be negligible in the context of this option.
7.1 To encourage the use of recycled and secondary aggregates	-?	All options would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This option could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as it is likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; given that the overall number of mineral sites likely to be developed, there will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	++	This option could provide an estimated 21,050,000 tonnes of minerals, which equates to over-provision of Hertfordshire's needs by 4,035,716 tonnes (excluding Permitted Reserves), therefore a significant positive effect is considered likely.
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and this option would have a positive effect on this objective, as it would provide a degree of protection to minerals resources from inappropriate non-mineral development.

SA Objective Sub Questions	SA Score	Justification
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	--	The majority of potential development areas in this option consist of Grade 3 agricultural land, which would lead to minor negative effects if minerals were to be extracted at these sites. However, the option is likely to have significant negative effects on this objective, as sites MLPCS006 and MLP009 are large sites that consist mostly of Grade 2 agricultural land, which would be lost to minerals extraction.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	This option would lead to development within close proximity (100m) of residential properties and some sites are located close to existing settlements and/or other sensitive receptors, such as schools. Furthermore, site MLPCS006 is in close proximity to the existing Cemex Hatfield Quarry processing plant on Oaklands Lane. This plant will remain in operation if one or a combination of the sites MLPCS008 and MLPCS009 are allocated for extraction. As such, development under this option is considered to have minor negative effects on health due to the potential for dust (PM10) and loss of amenity to have a negative effect on the health of local residents, communities and visitors to the County. This is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), and the type of mineral site, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore these effects are minor negative uncertain.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	--?	<p>This option is expected to have significant negative effects with regards to this objective, as a number of constituent sites (MLPCS006, MLPCS009, MLPCS003 and Preferred Area 2) scored 'red' in in the 'recreation' criterion of the MLP Site Assessment Study, as they would lead to loss of recreational space and/or PRoW. Development at these sites could have significant negative effects on the amenity of users of PRoW and other users of the countryside in the County, as development of the sites would mean either removing part of a facility/open space, or removing or temporarily closing land which has potential for recreation/access to the countryside. However, it is not possible to determine whether diversion is required for PRoW until the planning application stage, therefore there is some uncertainty involved.</p> <p>One other constituent site (MLPCS008) scored 'amber' as it is within 100m of PRoW.</p>
9.3 To provide opportunities to improve health and	+?	All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRoW and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive

SA Objective Sub Questions	SA Score	Justification
amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site		effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	-?	The majority of sites within this option are not within an Airport Safeguarding Zone. However, sites MLPCS008, MLPCS006, MLPCS009 and Preferred Area 1 are within the Luton Airport Safeguarding Zone. This could have minor negative effects on the safe operation of the airport if restored to a water-based use that is likely to attract large numbers of birds and increase the risk of bird strike. However, this effect is uncertain as it is dependent on the type of restoration proposed and eventually developed on site, which will not be known until a later stage in the Minerals Local Plan preparation or even at the planning application stage.

Option 4: Combination of specific sites and New Preferred Area (Sites 008, 006, 009, Preferred Area: 010 Briggens Estate – Olives Farm)

SA Objective Sub Questions	SA Score	Justification
Environmental		
1.1 To protect against the loss of priority habitats, biodiversity and species	--?	All constituent sites in this option are within 250m of a Local Wildlife Sites and other nature conservation designations or ancient woodland. A significant negative effect is considered likely with regards to this objective, however there is some uncertainty as effects will depend on the exact nature and design of any proposals which come forward.
1.2 To provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site	+?	Minerals operators are increasingly adopting innovative practices with regard to post-extraction restoration and, therefore, this option could have positive effects on landscape character, biodiversity, amenity and recreation in the longer term, once sites are restored. However, this would be very dependent on the exact nature and proposed design of the restoration, which would not be known until the planning application stage. Therefore an uncertain minor positive effect is considered likely.
1.3 To protect against the deposition of air and other pollutants on designated nature conservation sites	--?	All constituent sites, except MLPCS008, are located within 1km of the Hertfordshire primary route network. All of the sites within 1km of the primary route network have potential to increase HGV flows within 200m of one or more sites designated for nature conservation, including SSSIs, wildlife sites and the Lee Valley SPA. Therefore, this option has the potential to have a significant negative effect on this nature conservation site through increased deposition of air pollutants, although this effect is dependent on the likely increase in HDV annual average daily traffic flows along the road passing within 200m of the nature conservation site (in combination with HDV movements from other existing and potential minerals sites). Although such adverse effects on European Sites have been discounted for these sites allocated in Policy 4 of the MLP through the Appropriate Assessment in the HRA, there is still potential for national and local sites to be adversely effected. However, the effect is uncertain as the detailed routing and volume of traffic generated by the site will not be known until the planning application stage.
1.4 To protect and enhance sites of geological conservation interest	0	None of the potential development areas under this option lie within 500m of a site designated for geological interest (i.e. a geological SSSI or LGS). As such, this option is likely to have a negligible effect on this objective.
2.1 To conserve and enhance the County's cultural heritage, including above ground heritage assets and their setting	--?	This option may lead to significant negative effects with regards to this objective as MLPCS006, MLPCS009 and Preferred Area: 010 Briggens Estate – Olives Farm lie directly adjacent to listed buildings, the settings of which could be negatively affected by minerals workings at these sites. All other potential development areas under this option are within 1km of one or more heritage assets, particularly listed buildings. However, effects of development at these other sites are expected to be minor or negligible due to existing screening and the existing context of the sites. These effects are considered uncertain as the actual effects on historic assets will depend on

SA Objective Sub Questions	SA Score	Justification
		the asset and the exact siting, scale and type of development.
2.2 To conserve below ground archaeological assets	--?	This option may lead to significant negative effects with regards to this objective as sites MLPCS009 and Preferred Area: 010 Briggens Estate – Olives Farm both contain areas of archaeological interest and the HER has records of non-designated assets within each. The features found within each site are highly susceptible to physical change which could result in a significant negative effect. Further assessment of the assets and their significance, as well as the scale of development impact would be required to properly understand the scale of effect and determine whether it may be appropriately mitigated.
2.3 Seek to ensure the supply of locally distinctive building materials for historic building methods	0	The minerals available for extraction in this option are sand and gravel, which are not locally distinctive building materials, therefore effects are expected to be negligible with regards to this objective.
3.1 To conserve and enhance the character and quality of Hertfordshire's landscapes	-	This option is expected to have an overall minor negative effect on the landscape of Hertfordshire. According to the LUC Landscape and Visual Sensitivity study 2018 all potential development locations are assessed as having low-moderate landscape sensitivity to mineral extraction, with the exception of MLPCS006, which was identified as having negligible effects.
4.1 To protect the quality of ground and surface water	--?	None of the potential development areas in this option are within SPZ1, although all sites contain a waterbody. Development could lead to contamination of water bodies, which could have significant adverse effects, but uncertainty remains as the effect depends on the exact location, nature, working and design of a site.
4.2 To protect the quantity of ground and surface water from over abstraction	?	All mineral activity could potentially require the use of water resources, but the extent of water use will not be known until the planning application stage where proposals are brought forward. Therefore it is considered that all options will have an uncertain effect on this objective.
5.1 To reduce operational emissions through improved/enhanced technologies and sustainable transport	+?	This option would lead to minerals extraction within 10km of a number of sites allocated for development. This site could contribute to reducing transport distances of aggregates for construction and thus a minor positive is considered appropriate. However, this is uncertain as it is not known where aggregates will be transported to from each site.

SA Objective Sub Questions	SA Score	Justification
5.2 To promote energy efficiency, i.e. by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site	+?/-	There may be an opportunity for this option to use small-scale on-site renewable energy sources to power machinery used in the extraction process and/or on-site infrastructure (e.g. buildings/offices), but this will depend on the proposal, which would be assessed at the planning application stage and therefore an uncertain minor positive effect is likely. However, the option could lead to the production of carbon dioxide or other greenhouse gases from vehicles and machinery at minerals sites, although sand and gravel sites, such as this site, are likely to be less intensive than crushed rock sites thus having smaller effects. Therefore, the site is also likely to have minor negative effects on the production of greenhouse gases from on-site vehicles and machinery.
6.1 To protect against the risk of flooding	0?	The site options within this grouped option are being promoted for sand and gravel extraction and are therefore considered unlikely to have an effect on flood risk or increase the risk of flooding elsewhere. However, potential effects of development on flood risk are uncertain as a more detailed assessment would be required once specific proposals are known.
6.2 To provide opportunities for flood alleviation / mitigation during the restoration of the site	0	The majority of land in this option lies outside Flood Zones 2 and 3, and is therefore at low risk of flooding. There is a small area of Flood Zone 2 within site MLPCS006, but this is such a small proportion of the site and the areas to be developed in this option as a whole, that this is considered to be negligible in the context of this option.
7.1 To encourage the use of recycled and secondary aggregates	-?	All options would have a minor negative effect on this objective because they would contribute to the use of primary aggregates.
Economic		
8.1 To provide opportunities for local people to access employment and skills both during and after extraction	+	This option could have a direct and indirect positive effect on increasing employment levels during site preparation, operation and restoration, as it is likely to result in a small amount of job creation for local people in both rural and urban areas, thereby encouraging the development and provision of more local skills. However, job creation is not expected to be significant within the Hertfordshire economy; given that the overall number of mineral sites likely to be developed, there will not be a large number each year, the total number of new employment opportunities likely to be provided within the County is not considered to be significant.
8.2 To ensure a steady and adequate supply of minerals to meet Hertfordshire's needs	++	This option could provide an estimated 25,750,000 tonnes of minerals, which equates to over-provision of Hertfordshire's needs by 8,735,716 tonnes (excluding Permitted Reserves), therefore a significant positive effect is considered likely.

SA Objective Sub Questions	SA Score	Justification
8.3 To ensure that mineral sterilisation is minimised	+	New potential mineral sites are not classed as inappropriate development and this option would have a positive effect on this objective, as it would provide a degree of protection to minerals resources from inappropriate non-mineral development.
8.4 Protect the County's best and most versatile agricultural land by seeking to use areas of poorer quality agricultural land in preference to that of a higher quality	--	The majority of potential development areas in this option consist of Grade 3 agricultural land, which would lead to minor negative effects if minerals were to be extracted at these sites. However, the option is likely to have significant negative effects on this objective, as sites MLPCS006 and MLP009 and Preferred Area: 010 Briggens Estate – Olives Farm are large sites that consist mostly of Grade 2 agricultural land, which would be lost to minerals extraction.
Social		
9.1 To protect the health and amenity of local residents and communities from the impacts of minerals workings and associated transport	-?	This option would lead to development within close proximity (100m) of residential properties and some sites are located close to existing settlements and/or other sensitive receptors, such as schools. Furthermore, site MLPCS006 is in close proximity to the existing Cemex Hatfield Quarry processing plant on Oaklands Lane. This plant will remain in operation if one or a combination of sites MLPCS008 and MLPCS009 are allocated for extraction. As such, development under this option is considered to have minor negative effects on health due to the potential for dust (PM10) and loss of amenity to have a negative effect on the health of local residents, communities and visitors to the County. This is dependent on local circumstances (such as the topography, the nature of the landscape, the respective location of the site and the nearest residential property or other sensitive uses in relation to the prevailing wind direction and visibility), and the type of mineral site, the scale of the operations and the type of activities undertaken within the site and potential mitigation measures proposed, which would be assessed at the planning application stage. Therefore these effects are minor negative uncertain.
9.2 To protect against the loss of Public Rights of Way, access, recreation areas and open space	--?	This option is expected to have significant negative effects with regards to this objective, as a number of constituent sites (MLPCS006, MLPCS009 and Preferred Area: 010 Briggens Estate – Olives Farm) scored 'red' in in the 'recreation' criterion of the MLP Site Assessment Study, as they would lead to loss of recreational space and/or PRoW. Development at these sites could have significant negative effects on the amenity of users of PRoW and other users of the countryside in the County, as development of the sites would mean either removing part of a facility/open space, or removing or temporarily closing land which has potential for recreation/access to the countryside. However, it is not possible to determine whether diversion is required for PRoW until the planning application stage, therefore there is some uncertainty involved. One other constituent site (MLPCS008) scored 'amber' as it is within 100m of PRoW.

SA Objective Sub Questions	SA Score	Justification
9.3 To provide opportunities to improve health and amenity through delivery of green infrastructure, enhanced public rights of way and improved access to recreation as part of the development and restoration of a site	+?	All potential minerals sites have potential for enhancements to existing Public Rights of Way, open spaces or recreational facilities, which could have positive effects on the amenity of users of PRow and other users of the countryside in the County. However, the significance of this positive effect is unknown. While significant positive effects are equally as likely as more minor positive effects, an uncertain minor positive effect has been recorded until such time that it is possible to identify opportunities for enhancement and/or additional recreation routes.
9.4 To ensure that mineral sites do not compromise the operation and safety of commercial/civil or military aerodromes	-?	The majority of sites within this option are not within an Airport Safeguarding Zone. However, sites MLPCS008, MLPCS006 and MLPCS009 are within the Luton Airport Safeguarding Zone. This could have minor negative effects on the safe operation of the airport if restored to a water-based use that is likely to attract large numbers of birds and increase the risk of bird strike. However, this effect is uncertain as it is dependent on the type of restoration proposed and eventually developed on site, which will not be known until a later stage in the Minerals Local Plan preparation or even at the planning application stage.