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Sustainability Appraisal of the Draft Herefordshire Minerals and Waste Local Plan

Final Report
Prepared by LUC
December 2018

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1 Introduction

Introduction

1.1 This Sustainability Appraisal Report has been prepared by LUC on behalf of Herefordshire Council as part of the integrated Sustainability Appraisal (SA) and Strategic Environmental Assessment (SEA) of the emerging Herefordshire Minerals and Waste Local Plan (HMWLP).

1.2 This SA Report relates to the Draft Herefordshire Minerals and Waste Local Plan (2018) and it should be read in conjunction with that document.

Geographical context for the Herefordshire Minerals and Waste Local Plan

1.3 Herefordshire is a large, predominately rural, landlocked county situated in the south western corner of the West Midlands region, on the border with Wales. Herefordshire shares boundaries with five English local authorities (Worcestershire, Shropshire and Gloucestershire County Councils, and Malvern Hills and Forest of Dean District Councils) and three Welsh local authorities (Monmouthshire County Council, Powys County Council, and the Brecon Beacons National Park Authority).

1.4 The county area covers 217,973 hectares. High hill ranges, including the Malvern Hills and Black Mountains, encircle much of the county at its perimeter. Away from these areas, the landscape is one of gentle rolling hills, dissected by wide river valleys with lower-lying plains in the centre. River crossing points have provided a natural focus for the development of many settlements, with others dispersed across Herefordshire's rich and diverse landscape.

1.5 The meandering river valley landscape which is the county's principal geographical feature is that of the River Wye; which enters Herefordshire near the Welsh town of Hay-on-Wye, flowing east to Hereford before leaving the county at the Wye Gorge, downstream of Ross-on-Wye. Herefordshire contains parts of two protected landscapes of national importance: the Wye Valley and Malvern Hills Areas of Outstanding Natural Beauty (AONB).

1.6 At the county's heart is the city of Hereford which is the main centre for civil and ecclesiastical administration, health, education and leisure facilities, shopping and employment. The five market towns of Bromyard, Kington, Ledbury, Leominster and Ross-on-Wye surround the city. Outside these urban areas, villages and smaller settlements, farms and other isolated properties characterise much of Herefordshire.

1.7 Further baseline information is provided in **Appendix 3**.

Herefordshire Minerals and Waste Local Plan

1.8 Herefordshire Council is currently preparing a new Minerals and Waste Local Plan (Regulation 18 Draft Plan stage). Once adopted, the HMWLP will replace the saved minerals and waste policies contained in the Herefordshire Unitary Development Plan. The HMWLP covers the period up to 31 December 2031 and applies across the administrative area of Herefordshire.

1.9 The HMWLP has been produced taking into account the National Planning Policy for Waste, Planning Practice Guidance on Minerals and Waste, up-to-date evidence base studies (the minerals and waste need assessments were updated in February 2018) and ensuring close co-operation with neighbouring local authorities on cross-boundary issues.

1.10 It provides a clear vision, objectives and spatial strategy for minerals and waste up to 2031, consistent with that set out in the Herefordshire Local Plan Core Strategy 2011-2031 (adopted October 2015) ensuring that it provides sufficient opportunities to meet the identified needs of the area for waste management and a steady and adequate supply of all economically significant minerals in the Plan area. The HMWLP also presents the core principles for minerals and waste development, location-specific policies in relation to where minerals and waste development should be developed, and development management style policies addressing specific issues that each development proposal should address.

Sustainability Appraisal and Strategic Environmental Assessment

1.11 Sustainability Appraisal is a statutory requirement of the Planning and Compulsory Purchase Act 2004. It is designed to ensure that the plan preparation process maximises the contribution that a plan makes to sustainable development and minimises any potential adverse impacts. The SA process involves appraising the likely social, environmental and economic effects of the policies and proposals within a plan from the outset of its development.

1.12 Strategic Environmental Assessment (SEA) is also a statutory assessment process, required under the SEA Directive[1], 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 which set the framework for future consent of projects requiring Environmental Impact Assessment (EIA)[2]. 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'*.

1.13 SEA and SA are separate processes but have similar aims and objectives. Simply put, SEA focuses on the likely environmental effects of a plan whilst SA includes a wider range of considerations, extending to social and economic impacts. The requirements to carry out SA and SEA are distinct, although it is possible to satisfy both using a single appraisal process (as advocated in the National Planning Practice Guidance), whereby users can comply with the requirements of the SEA Directive through a single integrated SA process – this is the process that is being undertaken in Herefordshire. From here on, the term 'SA' should therefore be taken to mean 'SA incorporating the requirements of SEA'.

1.14 The SA process comprises a number of stages as identified in **Table 1.1**.

Table 1.1 Main stages in Sustainability Appraisal

Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope.
Stage B: Developing and refining options and assessing effects.
Stage C: Preparing the Sustainability Appraisal Report.
Stage D: Consulting on the Herefordshire Minerals and Waste Local Plan and the Sustainability Appraisal Report.
Stage E: Monitoring the significant effects of implementing the Herefordshire Minerals and Waste Local Plan.

[1] SEA Directive 2001/42/EC

[2] Under EU Directives 85/337/EEC and 97/11/EC concerning EIA.

Habitats Regulations Assessment

1.15 Under Article 6 (3) and (4) of the European Union Council Directive 92/43/EEC[3] on the conservation of natural habitats and of wild fauna and flora (more commonly known as the Habitats Directive) land-use plans, including Local Plans, are subject to Habitats Regulations Assessment (HRA). The Conservation of Habitats and Species Regulations 2017[4] transposes the Habitats Directive into national law. The purpose of HRA is to assess the impacts of a land-use plan against the conservation objectives of a 'European site'[5] and to ascertain whether it would adversely affect the integrity of that site.

1.16 The HRA for the HMWLP is being undertaken separately to the SA. An HRA Scoping Report was prepared by LUC on behalf of Herefordshire Council in August 2017 and related to the HMWLP Issues and Options Report (April 2017). An HRA Screening Report has been prepared in parallel with this SA of the Draft HMWLP, however, the findings have been taken into account in the SA where relevant (for example to inform judgements about the likely effects of potential development locations proposed in the HMWLP on biodiversity).

1.17 The following European sites were included as part of the HRA Screening Stage, to determine whether the Draft HMWLP will result in 'likely significant effects' either alone, or in-combination with other plans and projects:

- River Wye SAC (physical damage/ loss of habitat, non-physical disturbance, air pollution, water quantity and quality, non-toxic contamination).
- River Clun SAC (air pollution).
- Wye Valley Woodlands SAC (air pollution).
- Wye Valley and Forest of Dean Bat Sites SAC (physical damage/loss of offsite habitat).

1.18 Of the 18 policies in the Draft HMWLP, 14 policies are unlikely to have significant effects on any of the European sites. Similarly, 33 out of the 41 sites proposed for allocation in the Draft HMWLP are unlikely to have significant effects on any of the European sites. Whilst no policies or proposed site allocations are certain to result in a significant effect, for some there is uncertainty and therefore, in line with the precautionary approach being applied in the HRA, until significant effects can be ruled out, for example following detailed consideration of each potential impact type, as detailed below, they are treated as giving rise to 'likely significant effects'.

1.19 The screening assessment identified a lack of certainty as to whether the following policies and proposed site allocations would result in likely significant effects on European sites:

- Policy *M3: The winning and working of sand and gravel*.
- Policy *M5: The winning and working of building stone (sandstone)*.
- Policy *M7: Unconventional hydrocarbons*.
- Policy *W6: Preferred locations for construction, demolition and excavation waste facilities*.
- M05: Land adjacent Wellington Quarry (west) sand and gravel (sites M05a, M05d and M05g).
- M12: Callow Delve Building stone.
- M20: Westonhill Wood Delve Building stone.
- Area of Search C.
- W45: Wellington Quarry (M05) Mineral site - inert waste disposal (sites W45a and W45d only).

1.20 The HRA Screening concluded that the Draft HMWLP could result in the following likely significant effects:

[3] European Union Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora
[4] The Conservation of Habitats and Species Regulations 2017
[5] Special Areas of Conservation and Special Protection Areas

- River Wye SAC (physical damage and loss of habitat, non-physical disturbance, water quality, and non-toxic contamination).
- Wye Valley and Forest of Dean Bat Sites SAC (physical damage and loss of offsite functionally linked habitat).

1.21 In relation to the River Wye SAC, impacts associated with the effect of physical damage and loss were associated with site allocations M05 and W45 due to their location adjacent to the SAC and the presence of offsite functionally linked wetland habitat which may be utilised by otter. **These potential effects could be mitigated through the provision of policy safeguards within the HMWLP which require site level assessment and a commitment to, and implementation of, best practice working measures in line with a site specific mitigation and avoidance plan**. This type of avoidance and mitigation would also serve to prevent and mitigate potential effects associated with non-physical disturbance, non-toxic contamination and water quality as a result of sites M05 and W45 and policies M3, W6 and Area of Search C, and potential water quality impacts associated with sites M12, M20 and policy M5.

1.22 Policy *M7: Unconventional Hydrocarbons* broadly specifies the location of potential unconventional hydrocarbon resources in the south of the county, and associated activities may include hydraulic fracturing for gas. These activities have the potential to degrade the quality of ground water resources and whilst the policy specifies safeguards in relation to protecting European sites, **the wording of policy M7 requires strengthening to recognise that significant impacts can occur from activities occurring outside of the European site boundaries, together with a commitment to undertake site specific HRA for any such proposal as it comes forward for consideration**.

1.23 The potential for likely significant effects on the Wye Valley and Forest of Dean Bat Sites SAC was identified as a result of physical damage and loss of offsite functionally linked woodland habitat present within site allocation M12. This is considered highly precautionary, and **the risk of such an effect could be minimised through the provision of a commitment to site specific assessment where new areas of excavation and associated tree felling is proposed, and if required, the retention of a woodland periphery at the site to prevent habitat severance to horseshoe bat species**.

1.24 At this stage, it is expected that the inclusion of appropriate policy safeguards, together with a commitment to successfully implement them within the Draft HMWLP, would be expected to ensure that adverse effects on integrity will be avoided, either alone or in-combination, but this will require consideration at the Appropriate Assessment stage (alongside the Pre-Submission HMWLP), at which point formal consultation with Natural England as the statutory conservation authority will also be completed.

Meeting the requirements of the SEA Regulations

1.25 **Table 1.2** below signposts how the requirements of the SEA Regulations have been met within this SA Report.

Table 1.2 Meeting the requirements of the SEA Regulations

SEA Regulations' Requirements	Covered in this SA Report
Preparation of an environmental report in which the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and geographical scope of the plan or programme, are identified, described and evaluated. The information to be given is (Art. 5 and Annex I):	
a) An outline of the contents, main objectives of the plan or programme, and relationship with other relevant plans and programmes;	Chapters 1 and 3 and Appendix 1
b) 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
c) The environmental characteristics of areas likely to be significantly affected;	Chapter 3 and Appendix 3

SEA Regulations' Requirements	Covered in this SA Report
d) 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 and 92/43/EEC.;	Chapter 3 and Appendix 3
e) The environmental protection, objectives, established at international, Community or national 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;	Chapter 3 and Appendices 1 and 3
f) The likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors. (Footnote: These effects should include secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects);	Chapters 4-6 and Appendices 6-8
g) 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;	Chapter 7
h) 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;	Chapter 2 and Appendix 4
i) a description of measures envisaged concerning monitoring in accordance with Art. 10;	Chapter 8
j) a non-technical summary of the information provided under the above headings	A non-technical summary document has been prepared to accompany this SA Report.
The report shall include the information that may reasonably be required taking into account current knowledge and methods of assessment, the contents and level of detail in the plan or programme, its stage in the decision-making process and the extent to which certain matters are more appropriately assessed at different levels in that process to avoid duplication of the assessment (Art. 5.2)	Addressed throughout this SA Report.
Consultation: • authorities with environmental responsibility, when deciding on the scope and level of detail of the information which must be included in the environmental report (Art. 5.4)	Consultation on the SA Scoping Report was undertaken between February and March 2017.
• authorities with environmental responsibility and the public, shall be given an early and effective opportunity within appropriate time frames to express their opinion on the draft plan or programme and the accompanying environmental report before the adoption of the plan or programme (Art. 6.1, 6.2)	Consultation on the SA of the HMWLP Issues and Options Report was undertaken for 8 weeks between August 2017 and October 2017. Consultation is being undertaken in relation to the Draft Herefordshire Minerals and Waste Local Plan in early 2019, for a 6 week period. The current consultation document is accompanied by this SA Report.
• other EU Member States, where the implementation of the plan or programme is likely to have significant effects on the environment of that country (Art. 7).	N/A
Provision of information on the decision: When the plan or programme is adopted, the public and any countries consulted under Art.7 must be informed and the following made available to those so informed: • the plan or programme as adopted • a statement summarising how environmental considerations have been integrated into the plan or programme and how the environmental report of Article 5, the opinions expressed pursuant to Article 6 and the results of consultations entered into pursuant to Art. 7 have been taken into account in accordance with Art. 8, and the reasons for choosing the plan or programme as adopted, in the light of the other reasonable alternatives dealt	To be addressed after the HMWLP is adopted.

SEA Regulations' Requirements	Covered in this SA Report
with; and • the measures decided concerning monitoring (Art. 9)	
Monitoring of the significant environmental effects of the plan's or programme's implementation (Art. 10)	To be addressed after the HMWLP is adopted.

Structure of the SA Report

1.26 This chapter has described the background to the production of the HMWLP, and the requirement to undertake SA and other assessment processes. The remainder of this report is structured into the following sections:

- **Chapter 2: Methodology –** describes the approach that is being taken to the SA of the draft HMWLP.
- **Chapter 3: Sustainability Context for Minerals and Waste Development in Herefordshire -** describes the relationship between the HMWLP and other relevant plans, programmes and environmental protection objectives; summarises the social, economic and environmental characteristics of the county and identifies the key sustainability issues.
- **Chapter 4: Sustainability Appraisal Findings of the Mineral and Waste Site Options –** describes the SA findings of the mineral and waste site reasonable alternative options that have been considered for allocation in the Draft HMWLP.
- **Chapter 5: Sustainability Appraisal Findings of the Draft Herefordshire Minerals and Waste Local Plan Policies –** describes the SA findings of the Vision, strategic objectives and policies proposed in the Draft HMWLP.
- **Chapter 6: Sustainability Appraisal Findings of the Draft Herefordshire Minerals and Waste Local Plan** – describes the total effects of the HMWLP Vision; 12 strategic objectives; seven mineral-related policies; seven waste-related policies; 28 mineral and waste site allocations; four Areas of Search; and, nine strategic employment areas. This chapter also describes the duration of effects and secondary, cumulative and synergistic effects of the Plan.
- **Chapter 7: Mitigation and Recommendations** – describes mitigation measures that prevent, reduce and offset significant adverse effects from implementing the plan. Recommendations for improving the plan are also identified in this chapter.
- **Chapter 8: Monitoring** – describes the approach that should be taken to monitoring the likely significant effects of the HMWLP and proposes monitoring indicators.
- **Chapter 9: Conclusion** summarises the key findings from the SA of the Draft HMWLP and describes the next steps to be undertaken in the plan-making process.

1.27 The main body of the report is supported by a number of appendices as follows:

- **Appendix 1** presents the review of **relevant plans, programmes and environmental protection objectives** of relevance to the Plan.
- **Appendix 2** presents the **maps** depicting the baseline information.
- **Appendix 3** presents the updated **baseline information** for Herefordshire.
- **Appendix 4** presents the **audit trail** of the site options that have been considered for the Draft HMWLP and gives the Council's reasons for selecting or discounting the different site options.
- **Appendix 5** presents the **assumptions** that were applied during the appraisal of mineral and waste site options.
- **Appendix 6** presents the detailed SA matrices for the **mineral site options** that are being considered for inclusion in the Draft HMWLP.
- **Appendix 7** presents the detailed SA matrices for the **waste site options** that are being considered for inclusion in the Draft HMWLP.

- **Appendix 8** presents the detailed SA matrices for the **policy options** that are being considered for inclusion in the Draft HMWLP.
- **Appendix 9** presents the **consultation comments** received in relation to the SA Scoping Report and explains how each one has been addressed during the preparation of this SA Report. No specific comments were received on the SA of the HMWLP Issues and Options Report.

2 Methodology

Introduction

2.1 This chapter of the SA Report describes the method and approach to undertaking the SA, and documents the approach to the main stages of the SA (see **Table 1.1**). In addition to complying with legal requirements, the approach being taken to the SA of the HMWLP 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.

SA Stage A: Scoping

2.2 The SA process began in February 2017 with the production of a Scoping Report for the HMWLP.

2.3 The scoping stage of the SA involves understanding the social, economic and environmental baseline for the plan area as well as the sustainability policy context and key sustainability issues. The Scoping Report presented the outputs of the following tasks:

- Plans, programmes and environmental protection objectives of relevance to the HMWLP 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.
- Baseline information was collected on environmental, social and economic issues. This baseline information provides the basis for predicting and monitoring the likely effects of the HMWLP and helps to identify alternative ways of dealing with any adverse effects identified.
- Key sustainability issues for the county were identified.
- A Sustainability Appraisal Framework was presented, comprising the SA objectives against which options and, subsequently, sites and policies would be appraised. The SA objectives were primarily based on those already developed for the Herefordshire Local Plan – Core Strategy, however, a number of new objectives specific to minerals and waste were introduced and those objectives which are irrelevant to the HMWLP were removed. The objectives were also reorganised and amalgamated to reduce duplicity (previously 23 objectives for the Herefordshire Local Plan – Core Strategy). As in the Core Strategy, the 17 SA objectives are grouped into six themes to enable related sustainability issues to be considered together during the appraisal. The six themes are as follows:
    1. Education and employment.
    2. Healthy and prosperous communities.
    3. Transport and access.
    4. Built environment.
    5. Resource consumption and climate change.
    6. Natural environment.

2.4 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 HMWLP was published in February 2017 for a five week consultation period with the statutory consultees (Natural England, the Environment Agency and English Heritage [now Historic England]). The SA of the HMWLP Issues and Options Report was published in August 2017 for eight weeks. No comments were received during the consultation period on

the SA Report. Therefore, **Appendix 9** lists the comments that were received during the scoping consultation and describes how these were assessed in the SA report.

2.5 The SA Framework for the HMWLP is presented in **Table 2.1** and outlines the 17 main SA objectives along with their associated appraisal questions, and demonstrates how all of the SEA topics have been covered by the SA objectives. The wording of some of the objectives has been revised since the Scoping Report to take into account the suggestions of the statutory consultees. Furthermore, as the SA Framework for the HMWLP is broadly similar to that used in the SA of the Hereford Area Plan DPD, the recommendations made by Historic England to separate the SA objective relating to the historic and built environment into two distinct SA objectives has been incorporated in this SA Framework (now SA objective 6: Historic Environment and SA objective 7: Built Environment). In addition, reference to historic landscapes has been removed from SA objective 13: Landscape and is now considered in SA objective 6: Historic Environment.

Table 2.1 SA Framework for the Herefordshire Minerals and Waste Local Plan

SA Objective	Appraisal Question	SEA Topic covered by objective
Employment		
1. Support, maintain or enhance the provision of employment opportunities in the minerals and waste sectors.	1.1 Support the development and growth of the minerals and waste economy in Herefordshire and generate employment opportunities for local people.	Material assets[6], population
2. Maintain or enhance conditions that enable a sustainable economy and continued investment.	2.1 Encourage long-term investment in Herefordshire's minerals and waste sectors. 2.2 Ensure a steady and adequate supply of minerals to meet the needs of society in accordance with national policy.	Material assets, population
Healthy and Prosperous Communities		
3. Protect and improve the health of the people of Herefordshire, and reduce disparities in health geographically and demographically.	3.1 Avoid or minimise adverse effects on human health and safety to acceptable levels from mineral and waste operations. 3.2 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 sites. 3.3 Avoid or minimise adverse effects on the quality and extent of existing recreational assets.	Population, human health
4. Reduce poverty and social inclusion by closing the gap between the most deprived areas in the county and the rest of the county.	4.1 Provide opportunities for local people to access employment and skills in the minerals and waste sectors.	Population, human health
Transport and Access		
5. Reduce road traffic, congestion and pollution, and promote sustainable modes of transport and efficient movement patterns in the county.	5.1 Reduce the vehicle kilometres travelled for the transportation of minerals and waste. 5.2 Promote the use of sustainable modes of transport. 5.3 Encourage the use of low emission vehicles for the transportation of waste and minerals.	Material assets
Built & Historic Environment		

[6] 'Material assets' is listed as one of the topics to be considered in the SEA, but there is no clear definition of what this topic should cover in the SEA Directive or Regulations, and it has been variously defined in different SEA reports as relating to natural resources, e.g. minerals, or built infrastructure, e.g. transport infrastructure. For the purposes of this SEA, the material assets topic is assumed to include resources such as water, minerals and waste, as well as built infrastructure, including transport and waste infrastructure, but also economic and employment infrastructure and interests.

SA Objective	Appraisal Question	SEA Topic covered by objective
6. Value, protect and enhance the county's historic environment and cultural heritage.	6.1 Conserve, protect and enhance designated and undesignated heritage assets in a manner appropriate to their significance, including the Hereford Area of Archaeological Importance, Conservation Areas, Scheduled Monuments, Registered Historic Parks and Gardens Listed Buildings, archaeological remains, and areas of historical heritage and cultural value e.g. locally listed buildings.	Cultural heritage, including architectural and archaeological heritage
7. Value, protect and enhance the character and built quality of settlements and neighbourhoods.	7.1 Prevent development which is inappropriate in scale, form or design to its setting or to its function or local area.	Material assets, soil
Resource Consumption and Climate Change		
8. Move treatment of waste up the waste hierarchy.	7.1 Minimise disposal of waste to landfill from households, businesses etc. including hazardous waste. 7.2 Promote re-use, recovery and recycling of waste. 7.3 Deal with waste locally and/or through the best Practical Environmental Option. 7.4 Promote sustainable waste management principles.	Material assets
9. Promote sustainable use of mineral resources.	8.1 Safeguard mineral resources from loss by permanent sterilisation. 8.2 Promote the most efficient use of mineral resources.	Material assets
10. Reduce Herefordshire's vulnerability to the impacts of climate change as well as its contribution to the problem.	9.1 Reduce the county's contribution to climate change by reducing greenhouse gas emissions from waste and mineral transportation and management activities. 9.2 Promote energy efficiency by encouraging the use of energy efficient buildings and plant, and the use of appropriate renewable or lower carbon energy sources on site.	Climatic factors
11. Promote effective restoration and appropriate after use of sites.	10.1 Provide for the restoration of land to an appropriate after-use including the creation of accessible greenspace at former waste and mineral sites.	Water, air, soil
Environmental		
12. Value, maintain, restore and expand county biodiversity and geodiversity.	11.1 Protect and enhance habitats of international, national, regional or local importance. 11.2 Protect international, national, regional or locally important terrestrial or aquatic species. 11.3 Maintain wildlife corridors and minimise fragmentation of ecological areas and green spaces. 11.4 Provide opportunities for enhancing biodiversity and achieve net gains in biodiversity, where possible as part of the development and restoration of a site. 11.5 Maintain and improve geodiversity, avoid irreversible losses, and create, extend or enhance Local Geological Sites.	Biodiversity, fauna, flora
13. Value, protect, enhance and restore the landscape quality of Herefordshire, including its rural areas and open spaces.	12.1 Value, enhance and protect natural environmental assets including AONB's, open spaces, parks and gardens and their settings. 12.2 Minimise the landscape and visual intrusion of waste and mineral facilities on sensitive and/or distinct landscapes.	Landscape, fauna, flora
14. Value, protect and enhance the quality of watercourses and maximise the efficient	13.1 Protect and enhance the quality of watercourses. 13.2 Maximise the efficient use of water and protect the quality and quantity of ground and surface water from over abstraction.	Water

SA Objective	Appraisal Question	SEA Topic covered by objective
use of water.		
15. Reduce the risk of flooding and the resulting detriment to public well-being, the economy and the environment.	14.1 Ensure minerals and waste development are not at risk of flooding both presently and taking into account climate change and do not increase the risk of flooding elsewhere. 14.2 Ensure flood risk reduction / improvements to the flood regime.	Water
16. Minimise noise, light, and air pollution.	15.1 Minimise air, noise and light pollution from activities associated with mineral and waste developments and the potential for such pollution. 15.2 Help achieve the objectives of Air Quality Management Plans.	Air
17. Value, protect and enhance soil quality and resources.	16.1 Provide opportunities to improve soil quality and minimise contamination of soils. 16.2 Avoid the loss of the best and most versatile agricultural land by prioritising the location of waste and mineral developments to previously developed sites in preference to greenfield locations.	Soil

Stage B: Developing and refining options and assessing effects

2.6 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"

2.7 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 of unreasonable alternatives could include policy options that do not meet the objectives of the plan or national policy (e.g. the National Planning Policy Framework) or site options that are unavailable or undeliverable.

2.8 It also needs to be recognised that the SEA and SA findings are not the only factors taken into account when determining which options to take forward in a plan. Indeed, 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 an option. Factors such as public opinion, deliverability and conformity with national policy will also be taken into account by plan-makers when selecting options for their plan.

Identification and appraisal of the options for the Herefordshire Minerals and Waste Local Plan

HMWLP Issues and Options Report

2.9 The HMWLP Issues and Options Report included consultation questions relating to a number of minerals and waste issues to be addressed by the HMWLP. Not all of the consultation questions identified specific options for each issue (i.e. alternative ways that the HMWLP could address the issue). Many of the consultation questions were just opinion-seeking questions and therefore were not subject to SA. The HMWLP Issues and Options Report identified options (or reasonable alternatives as they are referred to in the SEA Regulations) for the Vision, strategic objectives and the approach for addressing minerals and waste development in Herefordshire. In total, 34 options (one option for the Vision, one option for the strategic objectives, 18 mineral-related options and 14 waste-related options) were presented in the HMWLP Issues and Options Report, as shown in **Table 2.2**.

Table 2.2 HMWLP Options that were subject to SA in the August 2017 SA Report

HMWLP Issue	Question in the HMWLP	Options assessed in the SA
The proposed Vision for the HMWLP	**Question 10.** Do you support the vision for the MWLP set out in paragraph 3.2.12 or should it be amended in some way?	*"Over the period to 2031, Herefordshire will move towards a sustainable provision of minerals and waste management, balancing development needs whilst seeking to support the county's communities, protect and enhance environmental, historic and cultural assets and strengthen the local economy. Sustainable provision within Herefordshire will be achieved through: efficient use of mineral resources; support for the circular economy; and optimising self-sufficiency and resilience".*
The draft objectives for the HMWLP	**Question 12.** Do you agree with the list of objectives for the MWLP set out in Table 3.2?	1. To safeguard mineral and waste resources within Herefordshire and the associated transport infrastructure for the future 2. To prioritise the long-term conservation of primary minerals through enabling provision of sustainable alternatives, effective use of mineral reserves, promoting efficient use of minerals in new development 3. To enable the management of waste in accordance with the waste hierarchy and to promote a circular economy within Herefordshire 4. To enable minerals and waste development to make an appropriate contribution to improve the health, well-being and quality of life of residents, through best practice operations, open space provision, educational and cultural information and green infrastructure 5. To plan for the steady and adequate supply of minerals present within Herefordshire to contribute to the county's economic growth, development, local distinctiveness and energy requirements 6. To make adequate provision for the waste management infrastructure appropriate within Herefordshire 7. To identify suitable locations for minerals and waste development 8. To reduce the need to travel and lessen the harmful impacts from traffic growth, promote the use of alternatives to road transport and ensure that new development is served by suitable transport networks 9. To achieve sustainable communities and protect the environment by delivering well-designed minerals and waste development that use land efficiently, reinforce local distinctiveness, and are supported by the necessary infrastructure including green infrastructure 10. To address the causes and impacts of climate change relating to minerals and waste development activity, including using opportunities arising from minerals and waste operations and reclamation activity to mitigate and adapt to climate change and to leave a positive legacy 11. To conserve, promote, utilise and enjoy our natural, built, heritage and cultural assets for the fullest benefits to the whole community by safeguarding the county's current stock of valued heritage and significant environmental assets from loss and damage, reversing negative trends, ensuring best condition and encouraging expansion, as well as appropriately managing future assets.
Sand and gravel	**Question 22.** Are options M1 to M4 appropriate options to consider for addressing the future balance	**Option M1:** Make no provision for additional permitted reserves of sand and gravel, on the assumption that demand will remain fairly low and sufficient landbank will remain at 2031 (scenario 2). **Option M2:** Make provision for some additional reserves of sand and gravel to be permitted, on the basis that demand will rise in line with the middle forecast and the landbank will fall below the minimum required by the NPPF before the end of the timeframe of the Core

HMWLP Issue	Question in the HMWLP	Options assessed in the SA
	of supply and demand for sand and gravel?	Strategy (scenario 1). **Option M3:** Make provision for significant additional reserves of sand and gravel to be permitted, on the basis that demand will rise in line with the Core Strategy housing trajectory and permitted reserves will be exhausted before the end of the MWLP timeframe (scenario 3). **Option M4:** Make no provision for additional permitted reserves of sand and gravel and adopt policy to meet any shortfall in demand through greater use of recycled aggregates and/or imports of sand and gravel.
Crushed rock	**Question 25.** Are options M5 to M7 appropriate options to consider for addressing the future balance of supply and demand for crushed rock?	**Option M5:** Make no provision for additional permitted reserves of crushed rock, on the assumption that reserves in the remaining operational quarry will continue to provide a sufficient landbank to meet demand over the period of the Minerals and Waste Local Plan. **Option M6:** Make provision for some additional reserves of crushed rock to be permitted, on the assumption that reserves in the remaining operational quarry will not provide a sufficient landbank to meet demand over the period of the Minerals and Waste Local Plan. **Option M7:** Make no provision for additional permitted reserves of crushed rock and adopt policy to meet any shortfall in demand through greater use of recycled aggregates and/or imports of crushed rock.
Building stone	**Question 27.** Do options M8 to M10 present appropriate options for ensuring a sufficient supply of building stone to meet future demand?	**Option M8:** Make no provision for additional permitted reserves of building stone, on the assumption that the quarries remaining operational over the lifetime of the MWLP will provide sufficient stone to meet demand. **Option M9:** Extend some or all of the permissions for existing building stone quarries/delves so that extraction can continue beyond the current required closure date in order to meet future demand. **Option M10:** Make provision for additional permitted reserves of building stone in order to be able to continue to meet demand over the lifetime of the Minerals and Waste Local Plan.
Hydrocarbons	**Question 29.** Do options M11 and M12 constitute appropriate options for the MWLP for dealing with the uncertainty over potential future hydrocarbon activity in Herefordshire?	**Option M11:** Adopt specific policies to provide a basis for determining proposals for hydrocarbon exploration, appraisal and extraction on the basis that this could become a possibility within the lifetime of the Minerals and Waste Local Plan. **Option M12:** Do not adopt specific policies for hydrocarbon exploration, appraisal and extraction on the basis that this is unlikely to occur within the lifetime of the Minerals and Waste Local Plan, relying instead on development management policies to determine future applications. This option recognises that associated policies may be added in a periodic review of the MWLP prior to 2031.
Future mineral site identification	**Question 34.** Do options M13 to M16 constitute appropriate options for different approaches to mineral site identification?	**Option M13:** Allocate suitable sites from those put forward by landowners and operators in the call for sites which comply with the policies in the Minerals and Waste Local Plan. **Option M14:** Do not allocate sites but identify areas of search within which applications for development will be looked upon favourably as long as they comply with the policies in the Minerals and Waste Local Plan. **Option M15:** Do not allocate sites and do not identify areas of search, but assess any applications regardless of location on the basis of compliance with policies in the Minerals and Waste Local Plan. **Option M16:** Allocate suitable sites from those put forward in the call for sites and identify areas of search within which applications for development will be looked upon favourably, but also allow for proposals for development to come forward regardless of location.
Mineral site	**Question 36**. Do options M17	**Option M17:** Safeguard existing minerals sites and associated facilities, including transport facilities, from other development that

HMWLP Issue	Question in the HMWLP	Options assessed in the SA
safeguarding	and M18 constitute appropriate options for different approaches to safeguarding mineral sites?	may have the potential to constrain or prevent mineral operations at those sites, do not include a buffer around the site. **Option M18:** Safeguard existing minerals sites and associated facilities, including transport facilities, from other development that may have the potential to constrain or prevent mineral operations at those sites, including a buffer around the site.
LACW	**Question 49.** Is option W1 an appropriate approach for the WMLP to take in respect of future provision of new capacity for managing LACW?	**Option W1:** Do not identify sites to manage LACW over the lifetime of the MWLP. Monitor quantities of LACW generated and keep forecasts of future generation under review. Include policy within the MWLP to allow proposals to come forward for new capacity to manage LACW in the event that this is required in the future.
C&I waste	**Question 53.** Do options W2 and W3 constitute appropriate alternative approaches for the WMLP to take in respect of future provision of new capacity for managing C&I waste?	**Option W2:** Identify and allocate sites suitable for accommodating l C&I waste recycling/recovery/disposal capacity. **Option W3:** Do not allocate sites to provide new capacity to manage C&I waste over the lifetime of the MWLP. Monitor quantities of C&I waste generated and keep forecasts of future generation under review. Include policy within the MWLP to allow proposals to come forward for new residual C&I waste treatment/disposal capacity in the event that this is required in the future.
CD&E waste	**Question 57.** Do options W4 and W5 constitute appropriate alternative approaches for the WMLP to take in respect of future provision of new capacity for managing CD&E waste?	**Option W4:** Identify sites for allocation in the MWLP to provide new capacity for the management of non-hazardous CD&E waste. **Option W5:** Do not identify specific sites for allocation, but look favourably on proposals for new facilities to recover CD&E waste at the following types of site: extensions to existing waste management facilities; mineral voids.
Agricultural waste	**Question 60.** Is option W6 an appropriate approach for the WMLP to take in relation to agricultural waste?	**Option W6:** Do not allocate any sites for the location of new facilities to meet agricultural waste, but allow proposals for anaerobic digestion or other types of biomass facilities on farms to be considered on their merits as they arise.
	Question 61. Is option W7 an appropriate approach for the MWLP to take in relation to the management of agricultural waste?	**Option W7:** Include policy to require adequate provision for the management and disposal of waste materials, liquids and litter from agricultural activities.
Hazardous waste	**Question 64.** Is option W8 an appropriate	**Option W8:** Do not allocate any sites for the location of new hazardous waste facilities, but allow proposals on industrial sites to be considered on their merits as they arise.

HMWLP Issue	Question in the HMWLP	Options assessed in the SA
	approach for the WMLP to take in relation to new capacity for hazardous waste?	
Future waste site identification	**Question 68.** Do options W9 to W12 constitute appropriate options for different approaches to waste site identification?	**Option W9:** Allocate suitable sites from those put forward by landowners and operators in the call for sites which comply with the policies in the Minerals and Waste Local Plan. **Option W10:** Do not allocate sites but identify types of sites or types of location within which applications for development will be looked upon favourably as long as they comply with the policies in the Minerals and Waste Local Plan. **Option W11:** Do not allocate sites and do not identify types of sites or types of location, but assess any applications regardless of location on the basis of compliance with policies in the Minerals and Waste Local Plan. **Option W12:** Allocate suitable sites from those put forward in the call for sites and identify types of sites or types of location within which applications for development will be looked upon favourably, but also allow for proposals for development to come forward regardless of location.
Waste site safeguarding	**Question 70.** Do options W13 and W14 constitute appropriate approaches for the WMLP to take in relation to safeguarding existing waste sites from other development?	**Option W13:** Safeguard existing waste sites and associated facilities, including transport facilities, from other development that may have the potential to constrain or prevent waste operations at those sites, do not include a buffer around the site. **Option W14:** Safeguard existing waste sites and associated facilities, including transport facilities, from other development that may have the potential to constrain or prevent waste operations at those sites, including a buffer around the site.

2.10 The options proposed in the HMWLP Issues and Options Report were subject to a detailed appraisal in the Sustainability Appraisal Report (August 2017) against the SA objectives which were developed at the scoping stage of the SA process, and a summary of the findings is provided below.

SA findings for the Vision and Strategic Objectives presented in the HMWLP Issues and Options Report

2.11 Significant positive effects were identified for SA objectives **7: Waste Hierarchy** and **8: Mineral Resources** as the Vision promotes the sustainable provision of minerals and waste management through the efficient use of mineral resources and by supporting the circular economy. Minor positive effects were identified for the remaining objectives with the exception of SA objectives **5: Sustainable Transport** and **10: Restoration** which were expected to have minor negative effects as the Vision did not promote the sustainable transportation of minerals and waste or the restoration of sites to an appropriate after-use.

2.12 Positive effects were identified for the majority of strategic objectives in relation to SA objectives **1: Employment**, **2: Sustainable Economy** and **4: Poverty and Equality** as they support the development and growth of the minerals and waste economy, and the generation of employment opportunities in Herefordshire. Significant positive effects were identified for SA objective 2: **Sustainable Economy** as strategic objectives 5 (Supply of minerals) and 6 (Waste management) seek to ensure there is a steady supply of minerals and the adequate provision of waste management infrastructure which will encourage investment in the minerals and waste industry.

2.13 A significant positive effect was identified for strategic objective 4 (Health) in relation to SA objective **3: Health** as it directly supports minerals and waste development that make an appropriate contribution to improving health, well-being and quality of life of residents. A

significant positive effect was identified for strategic objective 8 (Sustainable transport) for SA objective **5: Sustainable Transport** as it seeks to reduce the need to travel and lessen the harmful impacts from traffic growth, promote the use of alternatives to road transport and ensure that new development is served by sustainable transport networks.

2.14 Significant positive effects were identified for SA objectives **6: Built & Historic Environment**, **11: Biodiversity**, **12: Landscape**, **13: Water**, **14: Flooding** and **16: Soil** for strategic objective 11 (Environment) as it supports the protection, conservation and enhancement of historic assets and the natural environment. For strategic objective 1 (Safeguarding), a mixed effect (significant positive/uncertain minor negative) was identified for **11: Biodiversity** as geological formations may be preserved and in some instances created which should contribute to maintaining and enhancing geodiversity. Furthermore, through the sympathetic restoration of sites, there are opportunities to enhance habitats for wildlife, improve biodiversity and deliver biodiversity gains to degraded habitats. The uncertain minor negative effect was identified as there may be adverse effects on biodiversity depending on the location, scale and design of the development.

2.15 Significant positive effects were identified for strategic objectives 3 (Waste hierarchy) and 6 (Waste management) in respect to SA objective **7: Waste Hierarchy** as they promote a circular economy and the adequate provision of waste management infrastructure in Herefordshire. Significant positive effects were identified for strategic objectives 1 (Safeguarding), 2 (Efficient use of minerals) and 3 (Waste hierarchy) for SA objective **8: Mineral Resources** as they seek to safeguard mineral resources and promote resource efficiency which directly support the SA objective.

2.16 Significant positive effects were identified for strategic objectives 3 (Waste hierarchy) and 10 (Climate change) for SA objectives **9: Climate Change** and **15: Pollution** as they promote a circular economy and seek to address the causes and impacts of climate change relating to minerals and waste development activity thereby reducing air pollution from greenhouse gas emissions.

2.17 No significant negative effects were identified for any of the strategic objectives.

SA findings for the Mineral-related options presented in the HMWLP Issues and Options Report

2.18 Minor positive effects were generally expected for SA objectives **1: Employment**, **2: Sustainable Economy** and **4: Poverty and Equality**, however significant positive effects were identified for Options M3 and M16 as these options support the provision of significant additional reserves of sand and gravel to be permitted and the allocation of suitable sites for the extraction of minerals which will support economic growth in the minerals industry and the provision of new employment opportunities. Mixed effects (minor positive/significant negative) were identified for Options M1 and M4 for SA objective **2: Sustainable Economy**, as these options ensure that there is an adequate supply of minerals to meet the needs of society over the plan period and support the greater use of recycled aggregates which would encourage investment in the minerals industry, however, they do not support the provision of additional reserves to meet demand from 2027 onwards which will have a negative effect on long-term investment in Herefordshire's minerals industry.

2.19 Mixed effects (uncertain minor positive/uncertain minor negative) were identified for the majority of the 18 mineral-related options, particularly in relation to SA objectives **3: Health**, **6: Built & Historic Environment**, **11: Biodiversity**, **12: Landscape**, **13: Water**, **14: Flooding** and **16: Soil**. The mixed effects generally related to potential continued negative impacts associated with the operation or extension of mineral sites on nearby local communities (e.g. from dust, noise, vibration and traffic levels), heritage assets and their settings, habitats, species, landscapes, water resources, and the soil environment. The majority of these options seek to maintain supplies from operational reserves or extensions to these reserves which would limit adverse impacts on previously unaffected communities, and heritage and environmental assets, however, the negative effects were recorded as significant for Option M3 as it supports the provision of significant additional reserves (for SA objectives 6, 11, 12, 13 and 16). For SA objective **11: Biodiversity** the negative effects were identified as significant for Options M5 and M7 as the extraction of minerals from Perton Quarry and Leinthall Quarry may result in continued impacts on nearby biodiversity and geodiversity, particularly on Perton Roadside Section and Quarry SSSI

which is a designated geodiversity site. Positive effects were generally identified as benefits may be realised through the sites' eventual restoration which may improve landscapes, the setting of heritage assets, the soil environment, flood regulation (from wet restorations) while providing valuable, high-quality areas for recreation and biodiversity.

2.20 Generally mixed effects (uncertain minor positive/uncertain minor negative) were also identified for SA objectives **5: Sustainable Transport**, **9: Climate Change** and **15: Pollution** as the provision of additional mineral reserves reduces the need for importing aggregate minerals and their associated transport emissions, however, it is unknown whether the transport of minerals would utilise either sustainable transport modes (e.g. rail) or the road network. The negative effects are significant for Options M1 and M4 for SA objective **5: Sustainable Transport** as these options support the continued extraction of minerals from the existing sand and gravel quarry at Wellington Quarry only and, as planning permission for this quarry expires in 2026, it is likely that minerals would need to be imported which would increase traffic, congestion and pollution. Conversely the positive effects are significant for Option M3 for SA objectives **9: Climate Change** and **15: Pollution** as this option supports the provision of significant reserves of minerals which will meet demand from 2027 onwards thereby reducing greenhouse gas emissions associated with importing large quantities of aggregate minerals.

2.21 Only options M4 and M7 were expected to have minor positive effects on SA objective **7: Waste Hierarchy** as they support the greater use of recycled aggregates which diverts waste minerals from landfills. The effects on SA objective **8: Mineral Resources** were generally either negligible or minor negative, however for Option M3 the effects are significant negative as this option supports the significant provision of additional sand and gravel reserves which will considerably increase the rate of extraction of mineral resources. Mixed effects (significant positive/uncertain minor negative) were identified for Options M17 and M18 as they seek to safeguard existing mineral sites and their associated facilities from other development that may have the potential to constrain or prevent mineral operations, however, these options support the application of a standard buffer which may sterilise mineral resources as different mineral developments require different buffers to safeguard their resources.

2.22 Uncertain minor positive effects were identified for SA objective **10: Restoration** for most options as the provision of additional mineral reserves provides opportunities for the restoration of land at mineral sites once extraction has ceased.

2.23 Uncertain minor negative effects were identified for most SA objectives in relation to Option M15 as it would not allocate sites in Herefordshire but would assess any applications for mineral extraction in relation to compliance with the policies of the HMWLP. Although this approach may be more responsive in terms of meeting any change in requirement for minerals in the county as well as allowing for proposals at sites which may only become economically viable in the future, it would be less plan-led, more reactive, and would fail to promote the allocation of mineral extraction sites at less sensitive locations in terms of the built, historic and natural environment. This option would also provide less certainty that a steady and adequate supply of minerals would be provided over the plan period.

2.24 Uncertain minor positive effects were identified for the majority of SA objectives with regards to Option M11 as it ensures that there are policies in place over the lifetime of the HMWLP to determine proposals for hydrocarbon exploration, appraisal and extraction should the Government issue further rounds of licencing and identify blocks in Herefordshire. This plan-led approach would ensure that any future proposals for hydrocarbon schemes are assessed for their compliance against specific policies relating to hydrocarbon exploration, appraisal and extraction which may limit potential negative impacts on communities from seismic activity (from energy extraction and fluid injection processes), noise, dust, air pollution and transport movements (SA objectives **3: Health**, **5: Sustainable Transport, 9: Climate Change** and **15: Pollution**); on biodiversity from habitat fragmentation and disturbance (**11: Biodiversity**); on the landscape and the historic environment (**12 : Landscape** and **6: Historic Environment**); on the water environment from disruption and pollution (e.g. from fracturing chemicals) of surface water and groundwater systems and flows and, abstraction of water (**13: Water** and **14: Flooding**); and on the soil environment from the loss of best and most versatile agricultural land, physical disturbance, and contamination (**16: Soil**).

2.25 Uncertain minor positive effects were also identified for the majority of SA objectives for Option M14 as it seeks to identify suitable sites located in geographically extensive areas of search which would provide a greater choice of location options for potential mineral developments thereby allowing for the avoidance of heritage assets and their settings, best and most versatile agricultural land, flood zones, vulnerable surface and ground water resources, and areas of importance in terms of landscape character (e.g. Wye Valley AONB and Malvern Hills AONB), biodiversity, and geodiversity.

SA findings for Waste-related options presented in the HMWLP Issues and Options Report

2.26 A mix of minor positive, minor negative and mixed effects (minor positive/minor negative) were identified for the majority of waste-related options for SA objectives **1: Employment**, **2: Sustainable Economy** and **4: Poverty and Equality**. The positive effects generally related to identifying and allocating suitable waste sites which would support investment and growth of the waste economy in Herefordshire and generate employment opportunities for local people. Significant positive effects were identified for Option W12 in relation to these objectives as it would allocate suitable sites from those put forward in the call for sites, identify types of sites or types of locations within which applications would be looked upon favourably, and allow proposals for development to come forward regardless of location which would provide a degree of certainty in relation to the development of new waste management facilities thereby supporting the economic growth of this sector and the provision of new employment opportunities. The negative effects primarily related to options not supporting the identification and allocation of sites for waste management instead relying on policy to allow new proposals to come forward which would provide less certainty on when and where development of new waste management facilities may take place. This approach may therefore have adverse impacts on the economic growth of the waste management sector and any potential contribution these facilities could have in terms of employment opportunities.

2.27 A mix of minor positive, minor negative and mixed effects (minor positive/minor negative) were also identified for the majority of options for SA objectives **3: Health**, **5: Sustainable Transport**, **6: Built & Historic Environment**, **9: Climate Change**, **11: Biodiversity**, **12: Landscape**, **13: Water**, **14: Flooding, 15: Pollution** and **16: Soil**. The positive effects generally related to the options which support the identification and allocation of sites as these are likely to promote development at less sensitive locations in terms of the built, historic and natural environment, as well as reducing the requirement for cross boundary vehicular traffic associated with waste treatment and disposal which will reduce road traffic, congestion and the release of greenhouse gas emissions (significant positive effects [as part of mixed effects] were identified for Option W2 for SA objectives **9: Climate Change** and **15: Pollution**). The negative effects generally were in relation to options supporting the safeguarding of existing waste sites, the extension of existing waste sites or options that did not support the allocation of new waste management facilities which would result in a less plan-led approach to development and may result in new schemes coming forward in areas that are sensitive locations for heritage and environmental assets or may result in continued negative impacts on nearby communities, heritage assets and their settings, habitats, species, landscapes, water resources, and the soil environment. This approach would also result in Herefordshire having to export large quantities of waste by road for treatment which will contribute to road traffic, congestion and the release of greenhouse gas emissions (significant negative effects [as part of mixed effects] were identified for options W1 and W3 for SA objectives **9: Climate Change** and **15: Pollution**).

2.28 Significant effects, both positive and negative, were identified for the majority of options with regards to SA objective **7: Waste Hierarchy**. Significant positive effects were identified for options W2, W4, W7, W8, W12, W13, W14 and W6 (as part of mixed effects) as these options support the allocation of waste management facilities that provide facilities for recycling, energy recovery and appropriate waste disposal which supports the movement of waste up the waste hierarchy. Significant negative effects (as part of mixed effects) were identified for options W1 and W3 as the approach proposed by these options would not identify sites for the management of LACW or C&I waste resulting in appropriate facilities to allow for the treatment of waste higher up the waste hierarchy not being delivered through a plan-led approach. However, these options would allow proposals to come forward for new LACW and C&I waste management facilities in the event that this is required in the future which may provide an opportunity for waste facilities to be developed that meet any change in waste generation over the plan period.

2.29 Negligible effects were identified for all options for SA objectives **8: Mineral Resources** and **10: Restoration**.

2.30 Uncertain minor positive effects were identified for the majority of SA objectives for Options W4, W7 and W10 as these options either identify sites or types of location within which applications for development will be looked upon favourably as long as they comply with the policies in the HMWLP which will allow for the avoidance of impacts on the built, historic and natural environments. Uncertain minor negative effects were identified for most of the SA objectives for Options W1, W3 and W11 as these options do not propose to identify sites or suitable locations for new developments which is a more reactive approach and less likely to promote development at less sensitive locations in terms of the built, historic and natural environments.

Summary of how the SA recommendations on the HMWLP Issues and Options Report were addressed by the Draft HMWLP

2.31 The SA of the HMWLP Issues and Options recommended that the Vision include reference to the restoration of sites to a high standard and the use of sustainable transport modes for minerals and waste which would reduce road traffic, congestion and pollution. The Vision has been subsequently amended in the Draft HMWLP to seek a strategic approach to reclamation. The Vision now supports high quality reclamation and betterment of mineral and waste sites, including the establishment of green infrastructure and public open space. The Vision in the Draft HMWLP has not been revised to promote the sustainable transportation of minerals and waste. Although the transport of minerals and waste is likely to continue to be predominantly by road, there is potential for minerals to be transported by rail (currently the Moreton-on-Lugg railhead is used to transport minerals from Wellington Quarry to the south east of England) and one of the strategic objectives (8) promotes the use of alternatives to road transport. In addition, policy *MT2: Transport within sites* encourages the use of electric vehicles to transport minerals or waste within sites and requires development proposals to design internal transport routes to provide cycle links or footpaths upon reclamation of the site (and earlier where practicable). Therefore, the Vision could be updated to refer to the use of sustainable transport modes for minerals and waste which would reduce road traffic, congestion and pollution.

2.32 The SA Report also recommended that the approach advocated in the *Planning Practice Guidance: Guidance on the planning for mineral extraction in plan making and the application process* is applied where separation distances/buffer zones are established on a site-specific basis rather than applying a standard buffer. Any proposed separation distances should be effective, justified and reasonable. This approach is advocated in the Draft HMWLP which states that management strategies associated with minerals or waste developments may include a buffer within the development site to protect vulnerable features and the size and shape of the buffer will be defined on a site-by-site basis.

Draft HMWLP

2.33 The content of the Draft HMWLP has been informed by updated mineral and waste need assessments prepared in February 2018, the Spatial Context and Sites Report, the findings of the SA of the HMWLP Issues and Options Report and the consultation responses received as part of the Regulation 18 consultation.

Draft HMWLP policies

2.34 The Draft HMWLP includes a Vision, 12 strategic objectives and 18 policies (four general policies; seven mineral-related policies; and, seven waste-related policies), which have developed from the policy approach options considered in the Issues and Options Report.

2.35 Table 2.3 lists the policies and site allocations currently included in the Draft HMWLP, and which have been assessed as part of this SA.

Draft HMWLP reasonable alternatives

2.36 Specific site options were not identified in the Issues and Options Report and its accompanying SA, but have been considered during the preparation of the Draft HMWLP and in this SA Report. **Appendix 4** presents an audit trail of the 54 reasonable alternatives including the 41 site options

(24 mineral-related sites and 17 waste-related sites) that are included in the Draft HMWLP, giving the Council's reasons for selecting or discounting different site options.

2.37 In general, the mineral site options that were not considered reasonable alternatives are those that are closed and restored, are currently being restored, or have been put to some other use. For the waste site options, a number of existing waste facilities are located on strategic employment sites or industrial estates. These sites were not appraised separately as reasonable alternatives because, although they are already in waste use, the facility is located on a plot within an industrial estate/strategic employment site that experience a reasonably high level of plot turnover which makes it inappropriate to allocate discrete plots/sites within the estates within the HMWLP. However, a number of the strategic employment locations (sites W58-W66) are identified in Herefordshire Core Strategy policy E1, and have been appraised in their entirety as reasonable alternatives (i.e. not just individual plots within the wider strategic employment location) as they have good potential for co-location and could accommodate strategic waste facilities. Finally, some of the waste site options considered in the Spatial Context and Sites Report were not reasonable alternatives for SA as they are not located within the spatial strategy preferred area (waste development will be focused at Hereford, Leominster and the market towns in line with the overarching spatial strategy of the Core Strategy), while others were proposed mineral sites which are either closed or mothballed, or being restored, so not appropriate for waste uses.

Draft HMWLP site allocations

2.38 Recognising the advantages of working an area efficiently, sites for future sand and gravel and crushed rock extraction are proposed for allocation adjacent or near to existing permitted sites. Sand and gravel reserves at Upper Lyde (M03); Shobdon (M04); and Wellington (M05) are all proposed to be allocated in the Draft MWLP. Crushed rock reserves at Leinthall (M07) and Perton (M10) quarries are both proposed to be allocated in the HMWLP. The sand and gravel reserves at sites M03 and M05 and the crushed rock reserves at M07 and M10 are subdivided into individual parcels of land which identify the active part of the site as well as the proposed extensions (M03a-M03d, M05a-M05g, M07a, M07b, M10a and M10b). The SA appraises each parcel of land within these sites separately as not all of the parcels are proposed for allocation in the Draft HMWLP, i.e. M03c and M05f, and therefore constitute reasonable alternatives to the preferred sites proposed for allocation in the Draft HMWLP.

2.39 In addition, preferred areas of search are identified in the Draft HMWLP for working sand and gravel and crushed rock (limestone) reserves in Herefordshire.

2.40 There are six building stone delves currently permitted and active in Herefordshire, all of which would be suitable in principle to gain an extension of time to enable extraction to be completed: Callow Delve (M12); Black Hill Delve (M13); Llandraw Delve (M16); Pennsylvani Delves (M17); Sunnybank Delve (M18); and, Westonhill Wood Delve (M20). Three of these sites would also be suitable, in principle, for a lateral extension or deepening of workings: Black Hill Delve (M13); Llandraw Delve (M16); and, Westonhill Wood Delve (M20).

2.41 The Draft HMWLP supports the delivery of waste treatment facilities at industrial estates or strategic employment areas. An appraisal of the potential of co-location and the development of strategic facilities at strategic employment sites was undertaken as part of this SA. However, the potential development of waste treatment facilities at each industrial area in Herefordshire was not subject to SA as the Draft HMWLP states that it would be inappropriate to allocate discrete sites within these estates as this type of location experiences a reasonably high level of plot turnover.

2.42 The Draft HMWLP proposes the allocation of the following waste treatment sites: Leominster Household Waste Site (HWS) and Household Waste Recovery Centre (HWRC) (W05); Ledbury HWRC (W07); Kington HWRC (W10); and, the Former City Spares site, Watery Lane, Hereford (W13). The sustainable treatment of construction, demolition and excavation (CD&E) waste at active mineral workings and the disposal of inert waste at Upper Lyde Quarry, extension and adjacent sites (W43); Shobdon Quarry and extension (W44); and, Wellington Quarry, extension and adjacent sites (W45), are also proposed in the Draft HMWLP.

Table 2.3 Draft HMWLP Policies and Site Allocations

Draft HMWLP Policy / Site Allocation
Strategic policies
MT2: Transport within sites
SS8: Resource Management
OS4: Access to open space and recreation from minerals and waste development
SD5: Site Reclamation
Mineral-related policies
M1: Mineral Strategy
M2: Safeguarding of mineral resources from sterilisation
M3: The winning and working of sand and gravel
M4: The winning and working of crushed rock (limestone)
M5: The winning and working of building stone (sandstone)
M6: Borrow Pits
M7: Unconventional hydrocarbons
Waste-related policies
W1: Waste Strategy
W2: Solid waste management requirements
W3: Agricultural waste management
W4: Waste water management
W5: Preferred locations for solid waste treatment facilities
W6: Preferred locations for construction, demolition and excavation waste facilities
W7: Waste management operational expectations
Site Allocations
M03a Upper Lyde Quarry (Sand and gravel)
M03b Land adjacent Upper Lyde Quarry (east) (Sand and gravel)
M03d Land north east of Upper Lyde Quarry (Sand and gravel)
M04 Shobdon Quarry (Sand and gravel)
M05a Wellington Quarry (Sand and gravel)
M05b Land adjacent Wellington Quarry (west) (Sand and gravel)
M05c Land adjacent Wellington Quarry (north west) (Sand and gravel)
M05d Land adjacent Wellington Quarry (Dinmore Manor Estate) (Sand and gravel)
M05e Land adjacent Wellington Quarry (east of A49) (Sand and gravel)
M05g Land east of Wellington Quarry (Sand and gravel)
M07a Leinthall Quarry (Crushed rock)
M07b Land west of Leinthall Quarry (Crushed rock)
M10a Perton Quarry (Crushed rock)
M10b Land north west of Perton Quarry (Crushed rock)
M12 Callow Delve (Building stone)
M13 Black Hill Delve (Building stone)
M16 Llandraw Delve (Building stone)

Draft HMWLP Policy / Site Allocation
M17 Pennsylvani Delves (Building stone)
M18 Sunnybank Delve (Building stone)
M20 Westonhill Wood Delve (Building stone)
Area of Search A
Area of Search B
Area of Search C
Area of Search D
W05 Leominster HWS and HWRC (Municipal non-hazardous WTS and HWRC)
W07 Ledbury HWRC
W10 Kington HWRC
W13 Former Lugg Bridge Quarry (Physical Treatment)
W19 City Spares MRS (Car Breaker)
W43 Upper Lyde Quarry (M03)
W44 Shobdon Quarry (M04) (Mineral site - inert waste disposal)
W45 Wellington Quarry (M05) (Mineral site - inert waste disposal)
W58 Rotherwas Industrial Estate (Strategic Employment Site)
W59 Westfields Trading Estate (Strategic Employment Site)
W60 Three Elms Trading Estate (Strategic Employment Site)
W61 Holmer Road, Hereford (Strategic Employment Site)
W62 Leominster Enterprise Park (Strategic Employment Site)
W63 Southern Avenue, Leominster (Strategic Employment Site)
W64 Land between Little Marcle Road and Ross Road, Ledbury (Strategic Employment Site)
W65 Model Farm, Ross-on-Wye (Strategic Employment Site)
W66 Moreton Business Park, Moreton-on- Lugg (Strategic Employment Site)

Stage C: Preparing the Sustainability Appraisal Report

2.43 This SA Report describes the process that has been undertaken to date in carrying out the SA of the HMWLP. It sets out the SA findings of the Vision, strategic objectives, policies and site allocations included in the Draft HMWLP as well as the reasonable alternative site options considered, 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 improvements and clarifications that may help to mitigate negative effects and maximise the benefits of the plan as it is drafted in full.

Stage D: Consultation on the Herefordshire Minerals and Waste Local Plan and this SA Report

2.44 The SA Scoping Report for the HMWLP was published in February 2017 for a five week consultation period with the statutory consultees. The SA of the HMWLP Issues and Options Report was published in August 2017 for eight weeks.

2.45 Herefordshire Council is inviting comments on the Draft HMWLP and this SA Report. This SA Report is being published for consultation in early 2019, for a 6 week period. Consultation comments on both the Draft HMWLP and the SA Report will be taken into account in the next iteration of these documents.

Stage E: Monitoring the implementation of the Plan

2.46 Monitoring is focused on the significant sustainability effects that may give rise to irreversible damage and the significant effects where there is uncertainty in the SA and where monitoring would enable preventative or mitigation measures to be taken.

2.47 A monitoring framework is proposed in Chapter 10 of the Draft HMWLP which identifies how each draft policy would be monitored over the plan period.

2.48 Recommendations for monitoring the social, environmental and economic effects of implementing the HMWLP are presented in **Chapter 8**, drawing on the indicators proposed in the Draft HMWLP.

Appraisal methodology

2.49 The policy and site options considered in preparing the Draft HMWLP as well as the preferred Vision, strategic objectives, policies and site allocations have been appraised against the 17 SA objectives in the SA Framework (see **Table 2.1**), with scores being attributed to each option or element of the plan to indicate its likely sustainability effects on each objective.

++	The option or policy is likely to have a **significant positive** effect on the SA objective(s).
++/-	The option or policy is likely to have a mixed effect (**significant positive** and **minor negative**) on the SA objective(s).
+	The option or policy is likely to have a **positive** effect on the SA objective(s).
0	The option or policy is likely to have a **negligible** or no effect on the SA objective(s).
-	The option or policy is likely to have a **minor negative** effect on the SA objective(s).
--/+	The option or policy is likely to have a mixed effect (**significant negative** and **minor positive**) on the SA objective(s).
--	The option or policy is likely to have a **significant negative** effect on the SA objective(s).
?	It is **uncertain** what effect the option or policy will have on the SA objective(s), due to a lack of data.
+/- or ++/--	The option or policy is likely to have a **mixture of positive and negative** effects on the SA objective(s).

Figure 2.1 Key to symbols and colour coding used in the SA of the Herefordshire Minerals and Waste Local Plan

2.50 Where a potential positive or negative effect is uncertain, a question mark has been added to the relevant score (e.g. +? or -?) and the score is colour coded as per the potential positive, negligible or negative effect (e.g. green, yellow, orange, etc.).

2.51 The likely effects of policies and site allocations need to be determined and their significance assessed, which inevitably requires a series of judgments to be made. This appraisal has attempted to differentiate between the most significant effects and other more minor effects through the use of the symbols shown above. The dividing line in making a decision about the significance of an effect is often quite small. Where either (++) or (--) has been used to distinguish significant effects from more minor effects (+ or -) this is because the effect of policy or site allocation on the SA objective in question 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 objective. However, scores are relative to the scale of proposals under consideration.

Assumptions applied during the SA

2.52 SA inevitably relies on an element of subjective judgement. However, in order to ensure consistency and transparency in the appraisal of the policies and sites, assumptions to help guide the approach to scoring were developed and used in the appraisal. The assumptions were tailored to inform the policy assessment and the different types of minerals and waste site allocations, and are presented in **Appendix 5**. The assumptions used for the appraisal of site options relied primarily on the use of Geographical Information Systems (GIS) data.

Difficulties encountered and data limitations

2.53 It is a requirement of the SEA Regulations that consideration is given to any data limitations or other difficulties that are encountered during the SA process and these are outlined below.

2.54 This SA represents a strategic appraisal of the likely significant effects of the Draft HMWLP. It considers proposed mineral and waste policies and sites for Herefordshire. The assessment has been carried out at a high level, using a combination of pre-existing information, such as the Spatial Context and Sites Report (Hendeca, 2018), the Minerals Need Assessment Update (Hendeca, 2018) and the Waste Need Assessment Update (Hendeca, 2018), spatial information in GIS, as well as from other specially commissioned assessments such as the HRA Screening Report (LUC, 2018). However, the SA is not an Environmental Impact Assessment and so detailed information about sites' constraints has not been available during the site assessment process or to extrapolate from to inform the assessment of policies. Therefore, the effects identified in the SA are presented on the basis of best available desk-based information which is not the same as the assessment of effects through detailed empirical surveys such as ecological surveys, groundwater risk assessments, etc. Furthermore, the effects identified are often qualified with uncertainty. For example, uncertain effects may be identified where there is no information on the design or scale of the operation or the type of activities undertaken within a site.

2.55 A number of potential challenges have arisen from the scope of this SA, including in particular the different types 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. Different assumptions were prepared for new mineral and waste sites; active mineral or operational waste sites; active mineral sites requiring a time extension; active mineral sites requiring a size extension; the disposal of inert waste at mineral sites; the areas of search; and the strategic employment areas.

2.56 The HRA Screening Report was undertaken in parallel with the SA and it was necessary to revise the assessment of policies and sites to incorporate the findings of the HRA.

2.57 The Strategic Flood Risk Assessment (SFRA) is also being undertaken in parallel with the SA, however, the timing of the reports means that it has not been possible to incorporate the findings from this assessment.

2.58 The Environment Agency Flood Map for Planning (rivers and sea) does not include climate change allowances and primarily shows potential flooding from main rivers (catchments smaller than 3km^2 are not represented) which may result in smaller catchments with an associated flood risk not being identified.

2.59 No other specific data limitations or difficulties were encountered during the SA process.

3 Sustainability Context for Minerals and Waste Development in Herefordshire

Review of relevant plans, programmes and environmental protection objectives

3.1 The HMWLP 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"

3.3 It is necessary to review and develop an understanding of the environmental, social and economic objectives contained within international, national and local plans and programmes that are of relevance to the HMWLP so that any potential links can be built upon and any inconsistencies and constraints addressed.

3.4 A review of the plans, programmes and environmental protection objectives presented in the SA of the HMWLP Issues and Options Report has been undertaken to take into account recently published plans, most notably the revised National Planning Policy Framework. The updated review can be seen in full in **Appendix 1** and the key findings are summarised below.

Key international plans, programmes and environmental protection objectives

3.5 At the international level, Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (the 'SEA Directive') and Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive') are particularly significant as they require Strategic Environmental Assessment (SEA) and Habitats Regulations Assessment (HRA) to be undertaken in relation to the emerging HMWLP. These processes should be undertaken iteratively and integrated into the production of the plan in order to ensure that any potential negative environmental effects (including on European-level nature conservation designations) are identified and can be mitigated.

3.6 Directive 2008/98/EC (Waste Framework Directive) is also of particular relevance which aims to protect the environment and human health by preventing or reducing the adverse impacts of the generation and management of waste and by reducing overall impacts of resource use and improving the efficiency of such use.

3.7 There are a wide range of other EU Directives relating to issues such as water and air quality, most of which have been transposed into UK law through national-level policy; however the international directives have been included in **Appendix 1** for completeness.

3.8 **Table 3.1** lists the international plans and programmes which are of relevance to the HMWLP.

Table 3.1 Key international plans and programmes reviewed for the SA of the Herefordshire Minerals and Waste Local Plan

INTERNATIONAL
IPCC's Fifth Assessment Report on Climate Change (IPCC, 2014)
Johannesburg Declaration on Sustainable Development (2002)
Aarhus Convention (1998)
Bern Convention (1979)
Bonn Convention (1979)
Ramsar Convention – Convention on Wetlands of International Importance (1971)
UNESCO World Heritage Convention (1972)
Paris Agreement (2015)
EU DIRECTIVES
SEA Directive 2001
The Waste Framework Directive 2008
The Landfill Directive 1999
EU Management of Waste from Extractive Industries (2006/21/EC)
The Industrial Emissions Directive 2010
The Packaging and Packaging Waste Directive 1994
The Birds Directive 2009
The Habitats Directive 1992
The Water Framework Directive 2000
The Floods Directive 2007
The Drinking Water Directive 1998
The Bathing Water Quality Directive 2006
The Air Quality Directive 2008
The Noise Directive 2000/14/EC
EUROPEAN
EU Seventh Environmental Action Plan to 2020
EU Biodiversity Strategy to 2020
European Spatial Development Perspective (1999)
European Landscape Convention (Florence, 2002)
European Convention on the Protection of the Archaeological Heritage (Valletta, 1992)
The Convention for the Protection of the Architectural Heritage of Europe (Granada, 1985)

Key national plans, programmes and environmental protection objectives

3.9 One of the most significant developments in terms of the policy context for the HMWLP has been the publication of the revised National Planning Policy Framework (NPPF) in July 2018. The NPPF does not contain specific waste policies (contained in National Planning Policy for Waste) however it does contain policies on the sustainable use of minerals. The NPPF states that planning policies should:

a) *"provide for the extraction of mineral resources of local and national importance, but should not identify new sites or extensions to existing sites for peat extraction;*

b) *so far as practicable, take account of the contribution that substitute or secondary and recycled materials and minerals waste would make to the supply of materials, before considering extraction of primary materials, whilst aiming to source minerals supplies indigenously;*

c) *safeguard mineral resources by defining Mineral Safeguarding Areas; and adopt appropriate policies so that known locations of specific minerals resources of local and national importance are not sterilised by non-mineral development where this should be avoided (whilst not creating a presumption that the resources defined will be worked);*

d) *set out policies to encourage the prior extraction of minerals, where practicable and environmentally feasible, if it is necessary for non-mineral development to take place;*

e) *safeguard existing, planned and potential sites for: the 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;*

f) *set out criteria or requirements to ensure that permitted and proposed operations do not have unacceptable adverse impacts on the natural and historic environment or human health, taking into account the cumulative effects of multiple impacts from individual sites and/or a number of sites in a locality;*

g) *when developing noise limits, recognise that some noisy short-term activities, which may otherwise be regarded as unacceptable, are unavoidable to facilitate minerals extraction; and*

h) *ensure that worked land is reclaimed at the earliest opportunity, taking account of aviation safety, and that high quality restoration and aftercare of mineral sites takes place".*

3.10 The NPPF is supported by Planning Practice Guidance which includes guidance on Minerals (DCLG, 2014) and Waste (DCLG, 2015). The Local Plan must be consistent with the requirements of the NPPF.

3.11 As stated above, the detailed waste planning policies are contained in National Planning Policy for Waste (DCLG, 2014). The policies state that when preparing Local Plans, waste planning authorities should take account of a number of criteria including:

- Driving waste management up the waste hierarchy.
- Identifying the need for waste management facilities.
- Working jointly and collaboratively with other planning authorities to provide a network of facilities to deliver sustainable waste management.
- Identifying suitable sites and areas for waste management facilities in line with the proximity principle, giving priority to the re-use of previously developed land.

3.12 Also of particular relevance to the HMWLP is the National Waste Management Plan for England (DEFRA, 2013), prepared to fulfil the requirement of the Waste Framework Directive, which provides analysis of the current waste management situation in England and evaluates how it will support implementation of the objectives and provisions of the Waste Framework Directive.

3.13 **Table 3.2** lists the national plans and programmes which are of relevance to the HMWLP.

Table 3.2 Key national plans and programmes reviewed for the SA of the Herefordshire Minerals and Waste Local Plan

NATIONAL
Ministry of Housing, Communities and Local Government (2018) National Planning Policy Framework
Planning Practice Guidance:
DCLG (2014) Planning Practice Guidance on air quality
DCLG (2014) Planning Practice Guidance on climate change
DCLG (2014) Planning Practice Guidance on conserving and enhancing the historic environment
DCLG (2014) Planning Practice Guidance on ensuring the vitality of town centres
DCLG (2014) Planning Practice Guidance on flood risk and coastal change
DCLG (2017) Planning Practice Guidance on health and wellbeing

DCLG (2018) Planning Practice Guidance on local plans DCLG (2016) Planning Practice Guidance on the natural environment DCLG (2014) Planning Practice Guidance on noise DCLG (2014) Planning Practice Guidance on light pollution DCLG (2014) Planning Practice Guidance on open space, sports and recreation facilities, public rights of way and local green space DCLG (2016) Planning Practice Guidance on rural housing DCLG (2015) Planning Practice Guidance on renewable and low carbon energy
DCLG (2014) National Planning Policy for Waste
DEFRA (2013) National Waste Management Plan for England
DCLG (2014) Planning Practice Guidance on Minerals
DCLG (2015) Planning Practice Guidance on Waste
DCLG (2015) Planning Practice Guidance on water supply, wastewater and water quality
DEFRA (2012) National Policy Statement for Waste Water
DEFRA (2013) National Policy Statement for Hazardous Waste
HM Government (2013) Waste prevention programme for England: Prevention is better than cure – The role of waste prevention in moving to a more resource efficient economy
Collation of the Results of the 2009 Aggregate Mineral Survey for England and Wales
English Heritage (2008) Minerals Extraction and the Historic Environment
English Heritage (2008) Mineral Extraction and Archaeology: A Practice Guide
HM Government (2009) The UK Low Carbon Transition Plan
HM Government (2011) The Carbon Plan: Delivering our low carbon future
HM Government (2017) The Clean Growth Strategy
HM Government (2018) A Green Future: Our 25 Year Plan to Improve the Environment
DECC (2009) The UK Renewable Energy Strategy
DEFRA (2013) The National Adaptation Programme – Making the Country Resilient to a Changing Climate
DEFRA (GP3) Underground, Under threat – Groundwater Protection: Policy and Practice
DCLG (2014) Planning Practice Guidance - Flood risk and coastal change
Environment Agency (2011) The National Flood and Coastal Erosion Risk Management Strategy for England
DEFRA (2008) Future Water: The Government's Water Strategy for England
Environment Agency (2009) Water for People and the Environment: Water Resources Strategy for England and Wales
DEFRA (2009) Safeguarding our Soils: A Strategy for England
DEFRA (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland
DEFRA (2011) Biodiversity 2020: A strategy for England's wildlife and ecosystem services
DEFRA (2011) Securing the Future: Delivering UK Sustainable Development Strategy
DEFRA (2017) UK plan for tackling roadside nitrogen dioxide concentrations
DEFRA (2018) Draft Clean Air Strategy
DEFRA and DfT (2017) Improving air quality in the UK: tackling nitrogen dioxide in our towns and cities: Draft UK Air Quality Plan for tackling nitrogen oxide
DECC (2014) Community Energy Strategy
DoH (2010) Healthy Lives, Healthy People: our Strategy for Public health in England
WHITE AND GREEN PAPERS
DEFRA (2011) Natural Environment White Paper – The Natural Choice: securing the value of nature
DEFRA (2011) Electricity Market Reform White Paper – Planning our Electric Future: A White Paper for Secure,

Affordable and Low-Carbon Electricity
DEFRA (2011) Water White Paper – Water for Life
DfT (2004) The Future of Transport White Paper 2004: A network for 2030
NATIONAL LEGISLATION
Localism Act 2011
Flood and Water Management Act 2010
Climate Change Act 2008
The Countryside and Rights of Way Act 2000
The Natural Environment and Rural Communities Act 2006 – Section 41: list of habitats and species of principal importance in England 2008
REGULATIONS
The Conservation of Habitats and Species Regulations (2010) (as amended)

Key local plans, programmes and environmental protection objectives

3.14 While not a requirement of the SEA Regulations, at the sub-regional and local levels there are also a wide range of plans and programmes that are specific to Herefordshire which provide further context for the HMWLP. These plans and programmes relate to issues such as the economy, transport, climate change and green infrastructure. The following paragraphs present a high level summary of some notable plans that are of relevance to the HMWLP.

Herefordshire Local Plan - Core Strategy

3.15 The Minerals and Waste Local Plan, the Hereford Area Plan DPD, the Travellers' Sites DPD, the Rural Area Site Allocations DPD, and Neighbourhood Development Plans (NDPs) will sit alongside the adopted Herefordshire Local Plan - Core Strategy (adopted 2015) as part of the statutory Development Plan for Herefordshire. The Core Strategy provides the strategic planning framework for the county's future development needs up to 2031. The Core Strategy requires a minimum of 16,500 homes between 2011 and 2031, with at least 6,500 new homes in Hereford and 5,300 homes in rural areas. NDPs will allocate land for the relevant housing need in their area and those areas without NDPs will have land allocated through the Rural Area Site Allocations DPD. The Core Strategy sets a target of 148ha of new employment land over the plan period.

Waste Management Strategy for Herefordshire and Worcestershire 2004-2034

3.16 The aim of the joint Waste Management Strategy for Herefordshire and Worcestershire 2004-2034 (2011) is to decrease waste production and increase the recovery of value from waste, by treating it as a resource. The strategy relates to local authority collected waste only and is guided by a number of principles, including commitment to the waste hierarchy and waste prevention, minimising the use of landfill and consideration of social, environmental and economic impacts.

Herefordshire Local Transport Plan 4 (LTP4) 2016-2031

3.17 The Herefordshire Local Transport Plan 4 was adopted in May 2016 and covers the period 2016-2031. It sets out the Council's strategy for supporting economic growth, improving health and wellbeing and reducing environmental impacts of transport. Objectives of the plan include ensuring transport infrastructure enables economic growth.

Herefordshire Local Flood Risk Management Strategy

3.18 The Herefordshire Local Flood Risk Management Strategy (2017) sets out the framework for how the Council will work with other local flood risk management authorities and the general public to better understand and manage existing and future flood risks from all potential sources of flooding.

Herefordshire Strategic Flood Risk Assessment

3.19 During the preparation of the Herefordshire Local Plan Core Strategy, a Strategic Flood Risk Assessment (SFRA) was prepared in 2009. An update to the SFRA was prepared in 2015 to specifically assess risks to strategic development sites. The Council are now in the process of producing a more thorough update to the SFRA which will inform the Minerals and Waste Local

Plan, the Hereford Area Plan DPD, the Travellers' Sites DPD, and the Rural Area Site Allocations DPD. It is anticipated that the updated SFRA will be published for consultation in 2018.

Invest Herefordshire – Herefordshire's Economic Vision

3.20 Invest Herefordshire – Herefordshire's Economic Vision identifies a series of private sector investment opportunities that will contribute to the growth of the county. It also sets out what the public sector will provide in terms of creating the conditions to encourage economic growth. The economic vision has four key roles: (1) to support the growth of the Herefordshire economy by identifying priority projects; (2) to attract investment to Herefordshire and guide it within the county; (3) to raise the profile of Herefordshire and the investment opportunities; and (4) to provide Herefordshire with clear priorities for negotiations.

Wye Valley AONB Management Plan 2015-2020

3.21 The Wye Valley AONB Management Plan 2015-2020 (2016) is intended to provide guidance and strategic objectives to support and steer positive landscape change. Aims include conservation and enhancement of landscape, biodiversity and heritage assets as well as guiding sustainable land management and development.

Malvern Hills AONB Management Plan 2014-2019

3.22 The purpose of the Malvern Hills AONB Management Plan 2014-2019 (2014) is to help all those involved in managing the AONB to conserve its special qualities, manage pressures on these qualities and improve the AONB for current and future generations of people who live in and visit the area. Aims include conservation, enhancement and wise use of biodiversity, geodiversity, landscape and resources within the AONB. Aims also include supporting tourism and reducing the impact of car traffic in the AONB.

Brecon Beacons National Park Management Plan 2015-2020

3.23 The Brecon Beacons National Park Management Plan 2015-2020 (2016) establishes six management themes to: (1) manage park landscapes to maximise conservation and public benefits; (2) conserve and enhance biodiversity; (3) provide opportunities for outdoor access and recreation; (4) raise awareness and understanding of the Park; (5) build and maintain sustainable communities, towns and villages; and (6) support sustainable economic development.

River Wye SAC Nutrient Management Plan (2014)

3.24 The 2010 HRA for the Herefordshire Local Plan - Core Strategy identified likely significant effects on water quality as a result of the plan at that stage. In light of this result, Herefordshire Council established a Water Steering Group comprising officers from the Council, Natural England, the Environment Agency and Dwr Cymru Welsh Water.

3.25 The key outcome of the Water Steering Group discussions was extensive joint working on the production of a River Wye SAC Nutrient Management Plan (NMP). The NMP sets out measures which could be implemented in order to ensure the favourable conservation status of the SAC in respect of phosphate levels as soon as possible and at the latest by 2027 taking into account the existing river phosphate levels and existing water discharge permits. The NMP also seeks to identify actions that would enable additional development (beyond existing consents) to proceed during the period 2013 to 2031 of the type and amount, and in the locations specified in or pursuant to the Herefordshire Core Strategy and other relevant development plans.

3.26 The NMP comprises three parts: Evidence Base, Options Appraisal and Action Plan. The Environment Agency commissioned consultants to carry out the first two parts. The Evidence Base was produced using source apportionment modelling software to identify the phosphate contributions from the different sources within the catchment. The evidence base also contains the predicted impact of growth in Powys and Herefordshire on the SAC. The Options Appraisal section explores some of the measures available to reduce the phosphate loads. The Action Plan was published in November 2014 and aims to be a 'living document' in that it will undergo regular review and be adapted through time to take account of new evidence. Actions include reviewing the discharge permitting process and community engagement. The first review of the Action Plan is anticipated to be completed later in 2017. An NMP Board has been established comprising a range of partner organisations with the aim of identifying and delivering the actions that achieve the phosphorous conservation target of the River Wye SAC.

Water for Life: The Severn River Basin District Management Plan

3.27 The purpose of the Water for Life: The Severn River Basin District Management Plan is to meet the requirements of the Water Framework Directive by:

- Preventing deterioration in the status of aquatic ecosystems, protecting them and improving the ecological condition of waters;
- Aiming to achieve good status for all waterbodies by 2021 or 2027;
- Meeting the requirements of Water Framework Directive protected areas;
- Promoting sustainable use of water as a natural resource;
- Conserving habitats and species that depend directly on water;
- Progressively reducing or phasing out the release of individual pollutants or groups of pollutants that present a significant threat to the aquatic environment;
- Progressively reducing the pollution of groundwater and prevent or limit the entry of pollutants;
- Contributing to mitigating the effects of floods and droughts.

3.28 **Table 3.3** lists the local plans and programmes which are of relevance to the HMWLP.

Table 3.3 Key local plans and programmes reviewed for the SA of the Herefordshire Minerals and Waste Local Plan

LOCAL
Herefordshire Council (2015) Herefordshire Core Strategy 2011 – 2031
Herefordshire Council (2011) Waste Strategy for Herefordshire and Worcestershire 2004-2034
Herefordshire Council (2016) Herefordshire Local Transport Plan 4 2016-2031
Herefordshire Council (2005) Biodiversity Action Plan
Herefordshire Council (2017) Invest Herefordshire – Herefordshire's Economic Vision
Malvern Hills AONB Partnership (2014) Malvern Hills AONB Management Plan 2014-2019
Wye Valley AONB Partnership (2015) Wye Valley AONB Management Plan, 2015-2020
A Management Plan for the Brecon Beacons National Park 2015-2020
Environment Agency & Natural England (2014) River Wye SAC Nutrient Management Plan (NMP)
Environment Agency (2015) Water for life and livelihoods: The Severn River Basin District Management Plan
Herefordshire Council (2017) Local Flood Risk Management Strategy
Herefordshire Council (2009) Strategic Flood Risk Assessment for Herefordshire Herefordshire Council (2015) Strategic Flood Risk Assessment - Update
Environment Agency Wales (2010) The Wye and Usk Catchment Flood Management Plan and The Severn Catchment Flood Management Plan
Environment Agency Wales (2016) River Wye Abstraction Licencing Strategy
Herefordshire Council (2010) Green Infrastructure Strategy Herefordshire
Worcestershire County Council (2016) Emerging Minerals Local Plan
Powys County Council (2011) Powys Local Development Plan 2011 - 2026
Shropshire Council (2011) Local Development Framework 2006-2026 Adopted Core Strategy
Monmouthshire County Council (2014) Adopted Local Development Plan 2011 - 2021
Worcester City Council Malvern Hills District Council and Wychavon District Council (2016) South Worcestershire Development Plan
Gloucestershire County Council (2012) Gloucestershire Waste Core Strategy

Baseline Information

3.29 Schedule 2 of the SEA Regulations requires information to be provided on:

(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.

3.30 The term 'baseline information' refers to the existing environmental, economic and social characteristics of the area likely to be affected by the Plan, and their likely evolution without implementation of the Plan. Baseline information provides the basis for predicting and monitoring the likely effects of a plan and helps to identify existing problems in the plan area.

3.31 The full baseline information is presented in **Appendix 3.** The SEA Regulations only requires 'environmental characteristics' to be identified, therefore to satisfy the requirements of SA, this has been extended to identify both social and economic baseline characteristics. Similarly, rather than only identifying 'existing environmental problems', to satisfy the requirements of SA, social and economic problems are also identified and are subsequently referred to as 'key sustainability issues' (see **Table 3.4**). In order to satisfy the requirements of Schedule 2, the following information is presented for each baseline topic:

- Quantified information on the current state and characteristics of the topic within Herefordshire;
- Comparators and trends; and,
- Key sustainability issues.

3.32 Baseline information presented in the SA of the HMWLP Issues and Options Report has been revised and updated to make use of recently available information sources, most notably the Mineral and Waste Need Assessments Updates completed by Hendeca in March 2018.

3.33 A brief overview of the minerals and waste context plus environmental, social and economic characteristics of Herefordshire is outlined in the following paragraphs.

Minerals and waste context

3.34 Mineral resources in Herefordshire are relatively limited in range, primarily consisting of aggregates for use in construction but also a small amount of building stone. The commercially exploitable minerals available for extraction from within Herefordshire include sand, gravel, crushed rock, and sandstone. Coal was formerly worked at two locations – Wyre Forest Coalfield and Forest of Dean Coalfield. There are nine active quarries in Herefordshire. There may be a need for additional reserves of sand and gravel working, crushed rock and building stone during the lifetime of the Minerals and Waste Local Plan to continue to meet demand. There are currently no industrial processes in Herefordshire which are known to produce secondary aggregates[7]. Recycled aggregates are currently being produced within Herefordshire, principally at the CD&E waste recovery facility at Former Lugg Bridge Quarry.

3.35 The amount and type of waste produced, and the ways in which it is managed, partly reflects the environmental, social and economic characteristics of the area. Concentrated populations and commercial/industrial activities, as are found in Hereford and the main county towns are the largest producers of waste, and this is generally reflected in the pattern of waste management facilities within Herefordshire. Anaerobic digestion and biological treatment facilities are dispersed around the county, reflecting its agricultural sector. According to the WNA Update 2018[8], permitted facilities located in Herefordshire managed 416,000 tonnes of waste in 2016, compared to nearly 407,500 in 2015. The single largest tonnage is municipal waste (principally wastes from

[7] Hendeca, 2018. Minerals Need Assessment Update 2018
[8] Hendeca, 2018. Waste Need Assessment Update 2018

households); representing 47% of the wastes managed at permitted facilities in Herefordshire. The second largest tonnage is formed by agriculture and processing wastes (22%) fairly closely followed by construction and demolition wastes (19%). All the other wastes added together still only comprise about 11% of all wastes managed at the permitted facilities in Herefordshire. The majority (85%) of waste received at permitted facilities in Herefordshire originated in Herefordshire. There are 39 waste management facilities operating in Herefordshire.

Environmental characteristics

3.36 Herefordshire is a largely rural county and as such has a rich biodiversity offering. There are four sites of international importance for nature conservation within Herefordshire, which are designated pursuant to Directive 92/43/EEC[9]: the River Wye Special Area of Conservation (SAC); the Wye Valley Woodlands SAC; the Downton Gorge SAC; and, the River Clun SAC. There are three National Nature Reserves, seven Local Nature Reserves, 77 Sites of Special Scientific Interest, and 685 Local Wildlife Sites.

3.37 There are two designated AQMAs in Herefordshire – the Hereford AQMA and the Bargates Leominster AQMA.

3.38 There are a number of groundwater Source Protection Zones within Herefordshire to ensure that rivers and aquifers are protected from pollution and are principally located at the River Lugg and River Wye. Fluvial flooding (from rivers) is the largest single source of flooding in Herefordshire, accounting for 25% of flooding. Land drainage accounts for 11% of flooding and the source of flooding is unknown for 43% of reported flooding. It is thought that the unknown sources of flooding are likely to be largely fluvial or land drainage.

3.39 Herefordshire possesses a rich historic environment which is reflected in the number of designated heritage assets – the Hereford Area of Archaeological Importance; 64 Conservation Areas, two are listed on the Heritage at Risk Register; 5,897 Listed Buildings in Herefordshire, 33 of which are on the Heritage at Risk Register; 265 Scheduled Monuments, 30 of which are on the Heritage at Risk Register; and, 25 Registered Parks and Gardens, of which only Shobdon is considered to be at risk.

3.40 The county has significant areas of landscape importance including the Wye Valley AONB and the Malvern Hills AONB, and areas of high landscape sensitivity around Hereford. The Shropshire Hills AONB lies almost adjacent to the north-western part of Herefordshire, near Leintwardine.

3.41 The majority of Herefordshire consists of grade 2 and grade 3 agricultural land.

Social characteristics

3.42 The latest population estimate for Herefordshire, the predicted mid-2016 population estimate was 189,500, of which 93,900 were male and 95,600 were female[10]. Almost a third of the county's resident's (60,800) live in Hereford city with one-fifth of the population living in the three largest market towns – including Ross (11,200 people) Leominster (12,000) and Ledbury (10,000). Just over half of the residents (99,900) live in areas classified as rural, with around two in five (79,800) living in the most rural 'village and dispersed'[11]. The population projections for Herefordshire predict that the population will increase to 209,000 by 2039[12]. Herefordshire is predicted to experience a demographic change with an increasing elderly population.

3.43 In 2011, Herefordshire contained 81,528 dwellings, of which 24,236 (29.7%) were located in Hereford City and Holmer and Shelwick parishes. Approximately 67.7% of dwellings in Herefordshire are owner occupied, which is slightly higher than the West Midlands (64.9%) and England (63.3%) averages. Housing in Herefordshire is less affordable than the England average, with a median house price to median earnings ratio of 8.91:1, compared to 7.25:1 across England[13]. Herefordshire has the worst housing affordability ratio in the West Midlands[14].

[9] European Union Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora

[10] ONS (2018) Mid-2016 population estimates (by single year of age and sex) for Herefordshire Council.

[11] Herefordshire Council (2018) Facts and Figures about Herefordshire [online]. Available at: https://factsandfigures.herefordshire.gov.uk/about-a-topic/population-and-demographics/population-around-the-county.aspx

[12] ONS (2016) Subnational Population Projections for Local Authorities in England – 2014-based projections.

[13] DCLG (2016) Tables 576 to 578: ratio of house price to earnings (by lower quartile and median by local authority, from 1997)

3.44 Overall levels of deprivation are low in the county however, according to the English Indices of Deprivation 2015[15], Herefordshire contains one Lower-layer Super Output Area (LSOA) in the 10% most deprived in the country (Herefordshire 017D within the Belmont ward). Eight LSOAs are within the 20% most deprived in the country (one within the Leominster North ward, two within the St Martins and Hinton ward, two within the Belmont ward, two within the Leominster South ward, and two within the Ross-on-Wye West ward).

3.45 Life expectancies for both men and women are higher than the national average, at 83.6 years for women and 80.1 years for men[16]. Health inequalities exist, as the average life expectancy for men in the least deprived areas is 3.9 years more than those in the most deprived areas. Women in the least deprived areas can expect to live 2.6 years longer than those in the most deprived areas[17].

3.46 There are over 100 publicly funded primary, secondary and special schools in Herefordshire. In 2020, it is hoped that a new university will open in Hereford: the New Model in Technology and Engineering (NMiTE).

3.47 Herefordshire has a range of cultural and leisure opportunities, including Eastnor Castle and Hampton Court Castle, a number of houses and gardens to visit, as well as its characteristic market towns. There is a network of public rights of way (PROW) across the countryside including promoted routes such as the Wye Valley Walk and the Three Rivers Ride. The Offa's Dyke Path, a National Trail, passes through the county near Kington. National Cycle Network (NCN) routes 44, 46, 426 and 423 are present within the county. The county also contains Queenswood Country Park near Bodenham.

Economic characteristics

3.48 The latest labour market statistics[18] from January 2017 to December 2017 show that 94,500 people in Herefordshire were employed, accounting for 78.7% of the population, which is above the national average of 78%. The three main occupations in Herefordshire in the same period were professional occupations (16.6%), skilled trades and occupations (14.9%), and elementary occupations (12%). The county's largest employment industries are wholesale and retail trade (repair of motor vehicles and motorcycles) (19.2%), and human health and social work activities (16.4%). The proportion of people who are unemployed is 3.1% of the population which is the lower than the regional average (5.2%) and the national average (4.4%).

3.49 In 2015, 6.86 million people visited Herefordshire, 2.65m overnight visitors and 4.21m day visitors who between them contributed £442.81 m to the local economy. This supports about 6,688 full time equivalent jobs in the tourism industry. The main retail and cultural centre of Herefordshire is Hereford city, although market towns also play a key role.

3.50 The primary road network in Herefordshire generally radiates out from Hereford and Leominster. Hereford is a hotspot for congestion in the county, particularly around the main river crossing of the A49 and the bridge at St Martin's Street, which is controlled by traffic lights[19]. As part of the Hereford Transport Package, the City Link Road was opened in December 2017 in Hereford which links Commercial Road and Edgar Street. There are no commercial airports within Herefordshire, with the nearest airports being at Birmingham and Cardiff. There are four train stations within Herefordshire at Hereford, Leominster, Colwall and Ledbury.

[14] Herefordshire Council (2015) Herefordshire Local Plan Core Strategy
[15] The English Indices of Deprivation (2015), DCLG
[16] *Ibid*
[17] Herefordshire Council (2018) Facts and Figures about Herefordshire, available at: https://factsandfigures.herefordshire.gov.uk/media/60400/jsna-2018-summary-report-v12.pdf, accessed 27/07/18
[18] Nomis (2018) Labour Market Profile – Herefordshire. Available at: https://www.nomisweb.co.uk/reports/lmp/la/1946157169/report.aspx
[19] Herefordshire Council (2016) Herefordshire Council Transport Plan 2016 - 2031

Key sustainability issues and likely evolution without the plan

3.51 A set of key sustainability issues for Herefordshire were identified and presented in the SA of the HMWLP Issues and Options Report. It is also a requirement of the SEA Regulations that consideration is given to the likely evolution of the environment if the HMWLP is not implemented. This analysis is presented in **Table 3.4** in relation to each of the key sustainability issues.

Table 3.4 Key sustainability issues and likely evolution without the Herefordshire Minerals and Waste Local Plan

Key sustainability issue	Likely evolution of the issue without implementation of the Herefordshire Minerals and Waste Local Plan
Mineral Resources	
There may be a need for additional reserves of sand and gravel working, crushed rock and building stone during the lifetime of the Minerals and Waste Local Plan to continue to meet demand. However, there is a wide range of future demand for new reserves, reflecting the extent of uncertainties in minerals data. Recycled aggregates could have an increasingly important role to play in reducing reliance on imports of aggregates and supporting the delivery of the Circular Economy, particularly sand and gravel. The exploration, appraisal or extraction of hydrocarbons within the county is not reasonably expected to take place in the short to medium term and unlikely within the plan period.	In the absence of the HMWLP, which will allocate appropriate sites for mineral extraction, it is likely that there will be an insufficient supply of minerals in Herefordshire to meet demand, thereby increasing reliance on imports of aggregates. Furthermore, without the Plan, it is also likely that mineral developments will be sited in inappropriate locations resulting in negative social, economic and environmental effects.
Waste	
Over the last four years there has been a notable increase in the capacity and waste inputs to permitted facilities in Herefordshire. While there is a range of waste management collection, re-use and recycling capacity permitted in Herefordshire addressing a variety of wastes, there are no residual waste management facilities. As a result, there is a reliance on such facilities outside the county to process the proportion of 'local authority collected waste' that is not recycled, composted or reused. Waste generation is expected to increase if households (and population) are projected to grow. This has different impacts on the various waste streams identified in Herefordshire: There is the risk of potential pressure on the current contracted capacity of the materials recovery facility at Norton to process additional LACW waste, particularly towards the end of the Plan period. Additional commercial and industrial (C&I) waste management capacity may be required, although this could be provided within a single facility or through a small number of facilities operating on an industrial estate. Assuming a 90% recovery target for	In the absence of the HMWLP, which will allocate appropriate sites for sustainable waste management, it is likely that the current waste management facilities will reach full capacity, particularly in relation to LACW. Furthermore, without the Plan, it is also likely that waste and mineral developments will be sited in inappropriate locations resulting in negative social, economic and environmental effects.

Key sustainability issue	Likely evolution of the issue without implementation of the Herefordshire Minerals and Waste Local Plan
non-hazardous Construction & Demolition (C&D) wastes, strategic locations for the future management of non-hazardous construction and demolition (CD&E) waste will need to be considered. Based on the low level of generation, there would not appear to be a strategic need for agricultural wastes, low level radioactive waste and new hazardous waste management capacity within Herefordshire. There are no insurmountable constraints identified in the period up to 2031 in relation to waste water.	
Climate change	
Herefordshire is likely to experience more extreme impacts as a result of climate change – wetter winters with greater incidences of flooding, and warmer, drier summers with greater incidences of low flow rivers (during the summer months). The predicted dry, hot summers will cause problems of low flows for some of the rivers in the area which will increase demand for water potentially affecting availability for minerals operations. Extreme weather events may also increase disruption to supply chains, infrastructure and transport of minerals and waste. However, climate change also presents a number of opportunities - milder winters should reduce the costs of heating homes and other buildings, helping to alleviate fuel poverty and reducing the number of winter deaths from cold. In addition, UK agriculture and forestry may be able to increase production with warmer weather and longer growing seasons.	Despite policies in the National Planning Policy Framework (NPPF), the National Planning Policy for Waste (NPPW) and the adopted Herefordshire Core Strategy, in the absence of the HMWLP it is likely that contributions to climate change from minerals and waste developments in Herefordshire will not be appropriately controlled and mitigated.
Biodiversity and geodiversity	
Herefordshire contains many areas of high ecological value including sites of international and national importance which are under pressure from farming, forestry and new development. Key environmental problems/threats identified in relation to European Sites likely to be affected by the HMWLP include habitat fragmentation, the spread of invasive species and diseases, pressure from public access, poor site and game management, structural deterioration of roost sites, decreasing quality of water, siltation, physical modification, nitrogen deposition, inappropriate scrub control and undergrazing. In light of these pressures, there is a need for biodiversity net gain where any damages to biodiversity are balanced by at least equivalent gains for biodiversity.	Although there is a high level of protection afforded to internationally and nationally designated nature conservation sites within the NPPF, the NPPW and the adopted Core Strategy (Policy LD2), the implementation of the HMWLP can help to conserve biodiversity by directing mineral and waste developments away from sensitive locations. Furthermore, the HMWLP can also help to enhance biodiversity through the restoration of land at former waste and mineral sites to an after-use including accessible greenspace. Without the HMWLP it is more likely that environmental designations in the county could be adversely affected by poorly planned minerals and waste developments or with less stringent mitigation measures applied.

Key sustainability issue	Likely evolution of the issue without implementation of the Herefordshire Minerals and Waste Local Plan
Air quality	
Poor air quality is experienced in certain parts of Herefordshire due to high concentrations of nitrogen oxide, and two AQMAs have been declared in Hereford and Leominster.	In the absence of the HMWLP which will support sustainable transport measures and aim to reduce emissions from transport of waste and minerals, air quality in Herefordshire is more likely to be adversely affected as a result of less stringent mitigation or poorly planned minerals and waste developments.
Water resources and flooding	
Significant improvements to water quality in the country are required to meet the target of 'Good Ecological Status' in all natural water bodies, or 'Good Ecological Potential' in all heavily modified water bodies, as required by the Water Framework Directive. Herefordshire is affected to varying degrees by fluvial and surface water flooding which is primarily associated with the River Wye. The effects of climate change may increase the incidence of flooding within the county. Although there are a number of Source Protection Zones in Herefordshire, groundwater is vulnerable to contamination and pollution from the storage, treatment and processing of waste and mineral exploitation.	Policy SD3 of the adopted Core Strategy states that development proposals should not lead to the deterioration of EU Water Framework Directive water body status. Policy SS7 seeks to minimise the risk of flooding and to make use of sustainable drainage systems. The HMWLP will take water quality and flooding into account in the allocation of sites for mineral and waste developments and so this issue will be less well addressed without the implementation of this document. Furthermore, in the absence of the HMWLP, there is unlikely to be the opportunity to increase flood storage capacity through the restoration of mineral sites to artificial lakes.
Soil	
The majority of Herefordshire consists of best and most versatile agricultural land, which could be lost to development.	Policy SS7 of the adopted Core Strategy seeks to protect the best agricultural land where possible. The HWMLP will prioritise the co-location of similar or related facilities on existing waste and mineral sites or previously developed sites in preference to greenfield locations. Without the implementation of the HWMLP this issue would be less well addressed.
Historic environment	
There are areas of significant historical importance in Herefordshire and aesthetic quality, settings and important views should be preserved and enhanced. These are continuously facing pressures for change. There are 33 Listed Buildings, 30 Scheduled Monuments, one Registered Park and Garden and two Conservation Areas on the Heritage at Risk Register.	Policy LD4 of the adopted Core Strategy seeks to protect, conserve and enhance heritage assets and their settings. The HMWLP offers the opportunity to allocate mineral and waste sites following consideration of their impacts on the historic environment through the SA. Without the implementation of the HMWLP this issue may be less well addressed.
Landscape	
The county has significant areas of landscape importance including the Wye Valley AONB and the Malvern Hills AONB, and areas of high landscape sensitivity around Hereford.	There is a high level of protection afforded to nationally designated landscapes within the NPPF. Policy LD1 of the adopted Core Strategy seeks to conserve and enhance the natural, historic and scenic beauty of important landscapes and features. In the absence of the HMWLP there is potential for new mineral and waste developments to be located in sensitive areas leading to negative impacts on valued landscapes.
Population	
The age structure of the population currently shows a higher than average level of retired people. This will have implications for the economy, service provision, accommodation and health. Large proportion of the population living	It is likely that the age structure and proportion of people living in rural areas will continue with or without the implementation of the HMWLP as these issues are more likely to be addressed through policies in the adopted Core Strategy and other Local Plan documents.

Key sustainability issue	Likely evolution of the issue without implementation of the Herefordshire Minerals and Waste Local Plan
in rural areas.	
Housing	
There need for affordable housing, particularly in Hereford, due to average house prices being higher than the regional and national averages.	The HMWLP can ensure sufficient resources are available to meet housing requirements through extraction from existing and new minerals sites. Without the implementation of the HMWLP this issue may be less well addressed.
Social inclusion and deprivation	
While the overall level of deprivation is low in the county, there are pockets of high deprivation in Hereford City. A higher than average number of households are considered to be fuel poor in the county.	The adopted Core Strategy contains policies for employment development which will help to address deprivation. The HMWLP will allocate waste and mineral development sites which will provide opportunities for employment. Without the implementation of the HMWLP this issue may be less well addressed.
Health	
Health inequalities exist in Herefordshire between the least and most deprived areas of the county. The population of Herefordshire performs generally better than the averages for nationally against the majority of health indicators. However, childhood obesity prevalence in Herefordshire is in line with the regional and national averages, and alcohol specific hospital stays and smoking levels for under 18s is worse than the average for England.	The adopted Core Strategy contains policies relating to the health of the residents of Herefordshire. The HMWLP aims to ensure that mineral and waste developments protect the health, wellbeing, safety and amenity of people and communities in and around Herefordshire. Without the implementation of the HMWLP this issue may be less well addressed.
Culture, leisure and recreation	
Herefordshire has a range of cultural and leisure opportunities, and many visitors to Herefordshire come for its countryside. Improve provision and access to recreational resources (be that to linear routes, open space, or recreational facilities).	Policy OS1 of the adopted Core Strategy seeks to ensure there is a network of accessible, high quality open spaces and recreation facilities in Herefordshire. The HMWLP aims to ensure that mineral and waste developments 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 sites. Without the implementation of the HMWLP this issue may be less well addressed.
Economy and employment	
78.7% of the population of Herefordshire are employed which is just above the national average. Unemployment remains below regional and national averages. Gross weekly earnings remain lower than the regional and national averages. Reliance on traditional employment sectors and service, whereas Herefordshire has aspirations to attract business in technology and knowledge intensive sectors. Retaining skilled members of the population is an issue for the local economy, and there is a need to improve training levels to enhance the quality of the local workforce.	Policy E1 in the adopted Core Strategy supports proposals which enhance employment provision and help diversify the economy of Herefordshire. In the absence of the HMWLP, employment in the minerals and waste sectors within Herefordshire may further decrease.
Transport and accessibility	
There is high reliance on private cars and traffic congestion in Hereford, putting additional strain on existing infrastructure. Severance and poor air	In the absence of the HMWLP which will aim to reduce emissions from transport of waste and minerals, traffic growth and congestion in Herefordshire may continue in certain areas and along particular routes. However, other non-minerals and waste

Key sustainability issue	Likely evolution of the issue without implementation of the Herefordshire Minerals and Waste Local Plan
quality resulting from queueing traffic has adverse impacts on journey times, and journey time reliability.	related road traffic is likely to contribute more to overall traffic growth and congestion in the county.

4 Sustainability Appraisal Findings of the Site Options

Introduction

4.1 It is standard practice for the SA to assist in the comparison of all reasonable alternative site options being considered by the Mineral and Waste Planning Authority in order to help identify the most sustainable options for inclusion in the Minerals and Waste Local Plan. This chapter presents the SA findings for the appraisal of the 23 reasonable alternative mineral site options and four potential Areas of Search, followed by the SA findings for the 17 reasonable alternative waste site options, which were assessed against the SA framework and assumptions presented in **Appendix 5**.

4.2 Desk-based site assessments were undertaken for these reasonable alternatives which were appraised as 'policy-off', i.e. each site has been appraised on its own merits without consideration to the potential mitigation and enhancement measures that might be available through policies in the Plan. The detailed SA matrices for the mineral site options are presented in **Appendix 6** of the SA Report, and the detailed matrices for the waste site options are presented in **Appendix 7**.

4.3 Where a size extension of an active site is proposed (sites M13, M16 and M20) the effects on the SA objectives are uncertain as it will depend on which part of the site will be extended. Effects are uncertain for the four Areas of Search as it will depend on the type and scale of the mineral development within the area, which will not be known until the planning application stage. Active and operational mineral and waste sites are included in the Draft HMWLP and, for consistency, were subject to SA. Detailed assessments of these sites through examination of existing planning conditions was not undertaken and therefore the effects relating to these sites are also uncertain (with the exception of SA objectives 1, 2 and 4 which relate to maintaining employment levels and investment in the minerals and waste industries). Similarly, where a time extension of an active site is proposed (sites M12, M17 and M18), the effects are also uncertain as these may have been addressed through conditions relating to the existing planning permission.

4.4 **Appendix 4** presents an audit trail of the site options that have been assessed as reasonable alternatives and explains the Council's reasons for selecting or rejecting each one for inclusion in the Draft HMWLP. **Chapter 6** considers the effects of the Draft Herefordshire Minerals and Waste Local Plan (2018) as a whole summarising the sustainability effects for the HMWLP Vision, strategic objectives, policies and site allocations as well as the potential cumulative, synergistic and secondary effects of implementing the plan. **Chapter 7** presents an overview of mitigation measures that will prevent, reduce and as fully as possible offset any significant adverse effects identified during the SA.

SA Findings for the Mineral Site Options

4.5 **Table 4.1** provides an overview of the SA scores (as presented in **Appendix 6**) attributed to the reasonable alternative mineral site allocations and Areas of Search considered for the Draft HMWLP.

SA Objective 1 - Support, maintain or enhance the provision of employment opportunities in the minerals and waste sectors

4.6 All mineral site options could have a direct and indirect effect on increasing employment levels during site preparation, operation and restoration, as they are likely to result in job creation for local people. Therefore, minor positive effects rather than significant positive effects are expected for all sites with regard to SA objective **1: Employment** as these beneficial effects are most likely to be experienced in the short and medium term, rather than in the long-term. These effects are

uncertain for the proposed site extensions at M13, M16 and M20 as they will depend on the size of the site extensions, which is unknown at this stage in the assessment. Effects are also uncertain for the Areas of Search as they would be dependent on the type and scale of the mineral development within the areas, which would not be known until the planning application stage.

SA Objective 2 - Maintain or enhance conditions that enable a sustainable economy and continued investment

4.7 Minor positive effects are expected for all mineral site options with regard to SA objective **2: Sustainable Economy**, as the allocation of mineral sites for extraction will ensure a steady and adequate supply of minerals to meet the needs of society and will encourage long-term investment in Herefordshire's minerals sector.

SA Objective 3 - Protect and improve the health of the people of Herefordshire, and reduce disparities in health geographically and demographically

4.8 Mineral sites could have adverse effects on the amenity of local residents and communities as sites would result in some level of noise, vibration and light pollution during site preparation, operation and restoration, and through the transportation of minerals around and from the site. The extent of noise, vibration and light pollution will depend on the type of mineral extracted from the site, the scale of the operation and the type of activities undertaken within the site. The extent of the effect experienced will depend on the proximity of sensitive receptors, including schools, hospitals, faith centres and churches. In addition, where minerals sites contain or intersect areas of open space, public rights of way (PROW) or cycle paths, potential opportunities for recreation/access to the countryside (which have benefits for health) could be lost.

4.9 Of the 23 potential minerals sites, 10 sites are expected to have uncertain significant negative effects in relation to SA objective **3: Health** as they are within 100m of one or more of the sensitive receptors identified above. Most often, these receptors are nearby residential areas in settlements. Significant negative effects are also identified for the four Areas of Search as they contain numerous sensitive receptors; however these effects are uncertain and would be dependent on the exact location, scale and type of development within the areas, which would not be known until the planning application stage.

4.10 Uncertain minor negative effects are identified for minerals sites M10a, M20 and M22 as they intersect with an area of open space, PROW or cycle path which would either mean removing part of a recreational asset, or removing or temporarily closing land which has potential for recreation/access to the countryside.

4.11 Negligible effects are expected for the remaining 10 sites as they are not within 100m of a sensitive receptor and do not intersect with an area of open space or public path, and therefore are not considered likely to have adverse effects on health and amenity by means of their operation.

SA Objective 4 - Reduce poverty and social inclusion by closing the gap between the most deprived areas in the county and the rest of the county

4.12 Uncertain minor positive effects are expected for all mineral site options with regard to SA objective **4: Poverty & Equality**, as the allocation of mineral sites for extraction is expected to result in a small number of jobs during site preparation, operation and restoration which may help to reduce employment deprivation.

SA Objective 5 - Reduce road traffic, congestion and pollution, and promote sustainable modes of transport and efficient movement patterns in the county

4.13 Due to the limited opportunities for rail transport of materials in Herefordshire, there will be a reliance on road transport to transfer minerals from sites to market. Therefore, it is assumed that all mineral sites have the potential to generate traffic in Herefordshire, however, without detailed information about how the sites will be worked (which would be available at the planning application stage), the extent of the negative impact has been assessed using the size of the site as an indication as it was assumed that larger sites are likely to generate more movements of heavy goods vehicles. The further vehicles transporting minerals have to travel along local roads

(i.e. not on the primary road network) the higher the potential for traffic and localised pollution as vehicles are likely to travel more slowly on local roads thereby increasing the potential for traffic, and slower moving traffic may result in more pollutant deposition along those routes than vehicles moving at a consistent speed. Moreover, the proximity of sites to public transport links will affect the extent to which employees are able to make use of non-car based modes of transport to commute to and from mineral sites.

4.14 Based on the assumptions outlined above, of the 23 potential minerals sites assessed, seven sites are expected to have significant negative effects in respect to SA objective **5: Sustainable Transport** (M07a, M07b, M12, M13, M17, M18 and M22) while 12 sites are expected to have significant negative effects as part of overall mixed effects as these sites are either large (over 20ha) and are expected to generate high volumes of heavy goods vehicle traffic; are not within 250m of a main road thereby encouraging the use of local roads which may result in vehicles travelling slowly increasing the potential for traffic and pollutant deposition along those routes; or, are not within 800m of any sustainable transport links which will encourage private car use among employees. Uncertainty is attached to the effects identified for sites M05a, M07a, M10a, M12, M13, M16, M17, M18 and M20. Sites M05a, M07a, M10a, M12, M17 and M18 are either active operational sites or are being proposed as time extensions in order to complete mineral extraction operations within the plan period. There is uncertainty attached to these effects as it is likely that the negative effects relating to traffic have been addressed through conditions relating to the existing planning permission for the site. Sites M13, M16 and M20 are proposed size extensions and therefore effects will be dependent on which part of the sites will be extended, which is not known at this stage. For sites M03c, M05b, M05e and M05f minor negative effects (as part of mixed effects) have been identified as these sites are less than 20ha in size and are assumed to generate less traffic than larger sites (>20ha).

4.15 Sixteen potential mineral sites are expected to have mixed effects comprising minor positive effects and significant negative effects (M03a, M03b, M03d, M04, M5a, M05c, M05d, M05g, M10a, M10b, M16 and M20) or mixed effects comprising minor positive effects and minor negative effects. An explanation of potential negative effects has been described in the preceding paragraph. The minor positive scores identified for 12 sites recognises the proximity to one or two sustainable transport links which will encourage employees of the mineral sites to use sustainable transport. Uncertain minor positive effects are identified for sites M05a-M05d as these sites are within 1km of the Moreton-on-Lugg railhead which may be used to transport minerals using a more sustainable mode of transport than road-based travel.

4.16 It is recognised that within all Areas of Search, there are areas which could be within 800m of numerous sustainable transport links thereby enabling sustainable travel by employees of minerals sites, leading to minor positive effects, however, there are also areas which could be more than 250m from a main road or more than 800m from a sustainable transport link, resulting in significant negative effects. As the exact location of potential future sites within the Areas of Search is unknown, all effects are uncertain.

SA Objective 6 - Value, protect and enhance the county's historic environment and cultural heritage

4.17 Uncertain minor negative effects are identified for all sites in relation to SA objective **6: Historic Environment** as adverse effects on buried archaeology in limestone, sandstone or sand and gravel deposits may be possible but are unlikely.

4.18 A significant negative effect is identified for site M22 as it contains several Grade II Listed Buildings which may be adversely affected by mineral extraction within the site. Several sites (M05a, M05b, M05c, M05e, M05f, M05g and M07a) are adjacent to designated heritage features that may be adversely affected by nearby mineral extraction. All effects are uncertain dependent on the design, scale and layout of the development and are also uncertain for active sites as effects on heritage assets are likely to have already been addressed through conditions relating to the existing planning permission.

4.19 Effects are expected to be significant for the Areas of Search as these areas contain designated heritage assets that could be adversely affected by mineral extraction if development were to take place at sites either containing or adjacent to these assets or at sites that contribute to the setting of heritage assets. Therefore, effects are uncertain for the Areas of Search as it would be

dependent on the exact location of development within the areas, which would not be known until the planning application stage.

SA Objective 7 - Value, protect and enhance the character and built quality of settlements and neighbourhoods

4.20 Significant negative effects are expected with regard to SA objective **7: Built Environment** for six mineral sites (M05a, M05b, M05c, M05f, M05g, and M07a) as they are within close proximity (100m) of a settlement, and, as such, may have an adverse effect on the character of the area. However, these effects are uncertain depending on the exact nature and the proposed design of the mineral site, which would not be known until the planning application stage. For sites M05a and M07a the effects are uncertain as any adverse effect from the continued operation of the sites is likely to have been addressed through conditions relating to the existing planning permission.

4.21 Uncertain significant negative effects have been identified in relation to all Areas of Search (A, B, C, and D), as each of these contains multiple settlements. It is uncertain where mineral extraction proposals will come forward, however, should they be within 100m of settlements, there is the potential for adverse effects on the character of the area.

4.22 Negligible effects have been identified in relation to the remaining sites, as they are not within close proximity of a settlement.

SA Objective 8 - Move treatment of waste up the waste hierarchy

4.23 Minor negative effects have been identified for the mineral site options at Upper Lyde Quarry (M03a-M03d), Shobdon Quarry (M04) and Wellington Quarry (M05a-M05g) as these sites are identified in the Draft HMWLP as appropriate locations for the disposal of inert waste following extraction, which is judged to have negative effects in terms of moving the treatment of waste up the waste hierarchy. The remaining sites and Areas of Search are expected to have uncertain minor negative effects as they may dispose of inert or landfill waste following extraction, however this is dependent on the type of restoration proposed, which is unknown at this stage.

SA Objective 9 - Promote sustainable use of mineral resources

4.24 Mineral sites are not classed as inappropriate development with respect to sterilisation of mineral resources – the inappropriate development relates to other development types such as housing or employment, which could 'sterilise' the mineral resource form being extracted if developed on top of it or nearby. Minor positive effects are expected for all mineral site options and Areas of Search assessed with regard to SA objective **9: Mineral Resources** as the allocation of sites would provide a degree of protection to mineral resources from inappropriate non-mineral development, and would contribute to the supply of aggregates to meet the needs of society.

SA Objective 10 - Reduce Herefordshire's vulnerability to the impacts of climate change as well as its contribution to the problem

4.25 Due to the limited opportunities for rail transport of materials in Herefordshire, there will be a reliance on road transport to transfer minerals from sites to market. Therefore, it is assumed that all mineral sites have the potential to generate traffic and greenhouse gas emissions in Herefordshire, however, without detailed information about how the sites will be worked (which would be available at the planning application stage), the extent of the negative impact has been assessed using the size of the site as an indication as it was assumed that larger sites are likely to generate more movements of heavy goods vehicles resulting in the production of high levels of carbon dioxide and other greenhouse gas emissions. The further vehicles transporting minerals have to travel along local roads (i.e. not on the primary road network) the higher the potential for traffic and localised pollution as vehicles are likely to travel more slowly on local roads thereby increasing the potential for traffic, and slower moving traffic may result in more pollutant deposition along those routes than vehicles moving at a consistent speed. Moreover, the proximity of sites to public transport links will affect the extent to which employees are able to make use of non-car based modes of transport to commute to and from mineral sites.

4.26 Based on the above assumptions, of the 23 potential minerals sites assessed, seven sites are expected to have significant negative effects in respect to this SA objective (M07a, M07b, M12, M13, M17, M18 and M22) while 12 sites are expected to have significant negative effects as part

of overall mixed effects as these sites are either large (over 20ha) and are expected to generate high volumes of heavy goods vehicle traffic resulting in the production of high levels of carbon dioxide and other greenhouse gas emissions; are not within 250m of a main road thereby encouraging the use of local roads which may result in vehicles travelling slowly increasing the potential for traffic and pollutant deposition along those routes; or, are not within 800m of any sustainable transport links which will encourage private car use among employees and emissions generation. Uncertainty is attached to the effects identified for sites M05a, M07a, M10a, M12, M13, M16, M17, M18 and M20. Sites M05a, M07a, M10a, M12, M17 and M18 are either active operational sites or are being proposed as time extensions in order to complete mineral extraction operations within the plan period. There is uncertainty attached to these effects as it is likely that the negative effects relating to traffic have been addressed through conditions relating to the existing planning permission for the site. Sites M13, M16 and M20 are proposed size extensions and therefore effects will be dependent on which part of the sites will be extended, which is not known at this stage. For sites M03c, M05b, M05e and M05f minor negative effects (as part of mixed effects) have been identified as these sites are less than 20ha in size and are assumed to generate less traffic and transport-related emissions than larger sites (>20ha).

4.27 Sixteen potential mineral sites are expected to have mixed effects comprising minor positive effects and significant negative effects (M03a, M03b, M03d, M04, M5a, M05c, M05d, M05g, M10a, M10b, M16 and M20) or mixed effects comprising minor positive effects and minor negative effects. An explanation of potential negative effects has been described in the preceding paragraph. The minor positive scores identified for 12 sites recognises the proximity to one or two sustainable transport links which will encourage employees of the mineral sites to use sustainable transport thereby reducing transport-related emissions. Uncertain minor positive effects are identified for sites M05a-M05d as these sites are within 1km of the Moreton-on-Lugg railhead which may be used to transport minerals using a more sustainable mode of transport than road-based travel.

4.28 It is recognised that within all Areas of Search, there are areas which could be within 800m of numerous sustainable transport links thereby enabling sustainable travel by employees of minerals sites, leading to minor positive effects, however, there are also areas which could be more than 250m from a main road or more than 800m from a sustainable transport link, resulting in significant negative effects. As the exact location of potential future sites within the Areas of Search is unknown, all effects are uncertain.

SA Objective 11 - Promote effective restoration and appropriate after use of sites

4.29 Significant positive effects are expected for the majority of mineral site options with regard to SA objective **11: Restoration**, as the NPPF (2018) states that mineral sites should be restored at the earliest convenience, taking account of aviation safety, to a high environmental standard and that restoration should result in land of equal value being returned following the working of a site. These effects are uncertain dependent on the type of restoration proposed and eventually developed on sites, which will not be known until the planning application stage.

4.30 The restoration of mineral sites also offers the potential to deliver biodiversity gains in the long term, however, many sites are restored to wetland and grassland habitats which can attract large numbers of species that may in certain circumstances pose a hazard to aircraft. Therefore, minor negative effects are identified for M04 and M22 as these sites are located within the Shobdon Aerodrome Safeguarding Zone and Gloucestershire Safeguarding Zone respectively, and therefore have potential for adverse impacts on aircraft safety from bird-strike. These effects are uncertain dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage. Area of Search B and Area of Search D are partially located within the Shobdon Aerodrome Safeguarding Zone and the Gloucestershire Aerodrome Safeguarding Zone respectively. As such, dependent on where development takes place, minor negative effects could also be likely. Therefore, mixed effects (uncertain significant positive and uncertain minor negative) are identified for these Areas of Search.

SA Objective 12 - Value, maintain, restore and expand county biodiversity and geodiversity

4.31 The potential impact on biodiversity and geodiversity present on each site, or adjacent to the potential mineral sites, cannot be determined with certainty at this strategic level of assessment.

This would be determined once more specific proposals are developed and submitted as part of a planning application. Therefore, as an indication of the likelihood of significant negative effects, proximity of designated biodiversity and geodiversity conservation sites to potential mineral sites has been used. Uncertainty is attached to all effects as it will depend on the design, operation and restoration of extraction sites.

4.32 Sites M05a, M05c, M05d, M05g and M20 have all been identified as having uncertain significant negative effects with regard to SA objective **12: Biodiversity & Geodiversity** as they are located within 250m of either the River Wye SAC or River Lugg SSSI. The HRA Screening Report (LUC, 2018) also identifies for sites M05a, M05d, M05g, M12 and M20 and Area of Search C potential for significant effects on the River Wye SAC and potential for significant effects on the Wye Valley and Forest Dean Bat Sites SAC (for site M12 only) as a result of physical loss or damage/non-physical disturbance/water quality/non-toxic contamination which cannot be excluded at this stage, and will therefore require further consideration at the Appropriate Assessment stage to determine whether, in light of potential mitigation safeguards, they will result in adverse effects on the integrity of the SACs, either alone or in-combination with other plans and projects.

4.33 The SA assessment also identifies uncertain significant negative effects for site M13 as it is within 250m of the Black Mountains SSSI. Mixed effects (uncertain minor positive/uncertain significant negative) are identified for sites M10a and M10b as they either contain (as is the case for M10a) or are adjacent (as is the case for M10b) to the Perton Roadside Section Quarry SSSI. The negative effects are identified as these sites have the potential to affect biodiversity and geodiversity through habitat/geology damage/loss, fragmentation, and disturbance to species from noise, light, vibration and human presence. The uncertain minor positive effects are expected as extraction at M10a and M10b may expose more geological features at the SSSI making them visible and available for learning opportunities.

4.34 Due to the extent of the Areas of Search, they all contain internationally, nationally or locally designated conservation sites and are therefore expected to have uncertain significant negative effects on this SA objective.

4.35 Uncertain minor negative effects have been identified for the remaining 15 mineral site options as the extraction of minerals would create voids and permanently alter the geodiversity of the sites and/or the sites contain a locally designated site (M07a), an area of ancient woodland (M12) or an area listed on the Priority Habitat Inventory (M04, M12 and M22).

SA Objective 13 - Value, protect, enhance and restore the landscape quality of Herefordshire, including its rural areas and open spaces

4.36 The potential impact on landscape quality of Herefordshire cannot be determined with certainty at this strategic level of assessment. This would be determined once more specific proposals are developed and submitted as part of a planning application. Therefore, as an indication of the likelihood of significant negative effects, proximity of landscape designations and areas classed as being of 'high sensitivity' in The Urban Fringe Sensitivity Analysis to potential mineral sites have been used. Uncertainty is attached to all effects as it will depend on the design, operation and restoration of extraction sites.

4.37 Site M22 will have an uncertain significant negative effect with respect to SA objective **13: Landscape** as it is within the Malvern Hills AONB which could have significant adverse effects on the character and special qualities of the AONB.

4.38 Area of Search C contains areas identified as being of high sensitivity according to The Urban Fringe Sensitivity Analysis, as well as areas of open space. An area of high sensitivity indicates an increased vulnerability of key landscape characteristics to change and has therefore been identified as having an uncertain significant negative effect in relation to this SA objective. Area of Search D has also been identified as having an uncertain significant negative effect as it contains part of the Wye Valley AONB, as well as areas of open space. Uncertain minor negative effects have been identified for Areas of Search A and B. Both of these broader search areas contain areas of open space or Registered Parks/Gardens, the loss of which would adversely impact on local landscape character.

4.39 All of the mineral site options assessed, other than M22 and the four Areas of Search, have been identified as having negligible effects in relation to landscape quality. This is because none of the sites contain areas of open space, parks or gardens; are in close proximity (<250m) to an AONB; are within an area classified as highly sensitive in The Urban Fringe Sensitivity Analysis; or are within a Green Infrastructure Corridor or a Green Infrastructure Enhancement Zone.

SA Objective 14 - Value, protect and enhance the quality of watercourses and maximise the efficient use of water

4.40 Effects are uncertain for this SA objective as the extent to which minerals sites will affect ground and surface water depends on the type of mineral worked, site design and characteristics, and geological conditions. Mineral extraction can also pose a risk to the water environment by decreasing (for example as a result of extraction) or increasing water quantity (for example due to impeded water flow or restoration) ground or surface water levels. Minerals sites also pose a risk to current vulnerable waterbodies where there is a hydrological link, as well as to SSSI or SAC waterbodies, as they could result in effects on water quality.

4.41 Sites M05d and M05g are expected to have uncertain significant negative effects with regard to SA objective **14: Water** as they are within 250m of the River Lugg which is designated as a SSSI waterbody. Further uncertain significant negative effects are identified for site M20 as it is within 250m of the River Wye SSSI waterbody.

4.42 The HRA Screening Report (LUC, 2018) identifies that sites M05a, M05d and M05g are located at Wellington Quarry, adjacent to the River Wye SAC and share direct hydrological connectivity with the River Wye SAC, either through sharing boundaries or via field drains. However, as these allocations relate to the extraction of sand and gravel which is non-reactive both chemically and biologically, the potential for activities at these sites to result in changes in water quality which would be considered significant is low. Nevertheless, in the absence of appropriate safeguards and mitigation measures, the potential for operations at these sites to harm the qualifying features of the SAC, cannot be excluded.

4.43 The HRA Screening Report also identifies that site M20 is located 300m upslope from the River Wye SAC and the western edge of the site is situated immediately adjacent to a brook at Merbach which flows directly into the River Wye SAC while the western edge of site M12 is situated immediately adjacent to Mally Brook which discharges into River Wye SAC approximately 3.7km downstream. As a result, run-off of chemicals, pollutants, sediment or contaminated water has the potential to result in likely significant effects on the SAC. However, it is likely that this could be avoided with relative ease through a commitment to, and implementation of, appropriate mitigation safeguards including best practice working methods.

4.44 Uncertain minor negative effects are identified for nine mineral site options (M04, M05a, M05b, M05c, M05e, M05f, M13, M16 and M22) as these sites are either within 250m of rivers which have 'poor' or 'moderate' ecological or chemical status, or are between 250m and 1km of a SSSI waterbody. Negligible effects are identified for 11 sites as they are not within a Source Protection Zone; within 250m of a vulnerable waterbody; or within 1km of a SSSI or SAC waterbody, and therefore are not likely to affect water quality.

4.45 Within Area of Search C there is a Source Protection Zone (SPZ1) which provides protection for the head works around abstraction boreholes. Moreton Brook, also within the Area of Search, has a 'bad' ecological status which could be potentially affected further should it have connectivity with a future minerals site. There is, therefore, potential for future sites to fall within or close to these areas, leading to a significant negative effect. The HRA Screening Report also concludes that potential for likely significant effects associated with potential activities will depend on the location and nature of the proposals in Area of Search C and, in the absence of appropriate safeguards and mitigation measures, the potential for operations at in this area to harm the qualifying features of the SAC, cannot be excluded.

4.46 Uncertain minor negative effects are expected for Areas of Search A, B and D as they are either within 250m of rivers which have 'poor' or 'moderate' ecological or chemical status, or are between 250m and 1km of a SSSI waterbody. The effects for developing in the Areas of Search are also uncertain as the exact location of sites is unknown at present.

SA Objective 15 - Reduce the risk of flooding and the resulting detriment to public well-being, the economy and the environment

4.47 Minerals working and processing (except for sand and gravel working) are classed as 'less vulnerable' and are therefore considered suitable in Flood Zones 1, 2 and 3a but unsuitable in Flood Zone 3b (the functional flood plain) according to the National Planning Practice Guidance. Sand and gravel working is considered a 'water compatible' use and is therefore suitable in all flood zones. NPPG also states that mineral workings should not increase flood risk elsewhere and need to be designed, worked and restored accordingly.

4.48 None of the 23 potential mineral sites are within a Flood Zone 3 area and therefore negligible effects are identified for SA objective **15: Flooding**.

4.49 There are Flood Zone 3 areas within Areas of Search A, B and C. The acceptability of any minerals extraction from these areas would need to be assessed against the minerals and other relevant policies of the HMWLP. Whilst at this stage uncertain significant negative effects are identified for Area of Search A, B and C based on the constraints identified, effects are uncertain as the location of future minerals sites in these areas is not known. A negligible effect is identified for Area of Search D.

SA Objective 16 - Minimise noise, light, and air pollution

4.50 There are two AQMAs in Herefordshire – the Hereford AQMA and the Bargates Leominster AQMA. All new development in AQMAs (regardless of the use specified) has the potential to aggravate local air quality in terms of a resultant increased number of journeys during the construction, extraction and operational phases thereby compounding existing air quality problems. Sensitive receptors include residential areas, schools, hospitals and faith centres (e.g. churches, mosques, temples). Mineral sites would result in some level of noise, vibration and light pollution during site preparation, operation and restoration and associated with the transport of minerals around and from the site.

4.51 Sites M05a, M05b and M05c are expected to result in significant negative effects in relation to SA objective **16: Pollution** as, whilst they are not within an AQMA, they are within 100m of the settlements of Moreton-on-Lugg and Wellington which could lead to adverse effects on residential receptors. However, effects are uncertain as the extent of noise, vibration and light pollution will depend on the scale of the operation and the type of activities undertaken within the site. Moreover, the uncertain effect for existing site M05a is also due to the fact that effects are considered likely to have been addressed through conditions on the existing planning permission for the site.

4.52 All four Areas of Search are considered to have potential to result in significant negative effects given that there are sensitive receptors including schools, settlements and churches within them. There is, therefore, potential for future sites to fall within or close to these areas, leading to a significant negative effect, however, given that the acceptability of any minerals extraction from these areas would need to be assessed against the minerals and other relevant policies of the HMWLP, and also that the location of sites within the Areas of Search are unknown at present, the effects are uncertain.

SA Objective 17 - Value, protect and enhance soil quality and resources

4.53 The majority of Herefordshire consists of Grade 2 and Grade 3 agricultural land. There are scattered areas of Grade 1 land and some areas of lower quality, Grades 4 and 5, particularly in the west of the country. Therefore, the majority of site options are expected to have uncertain significant negative effects in relation to SA objective **17: Soil** as development on mainly (>50%) high quality best most versatile agricultural land (Grade 1, 2 and 3a) or where sites require large areas of greenfield (>20ha) will result in that land being lost to other uses (sites M03a, M03b, M03c, M03d, M04, M05c, M05d, M05e, M05f and M05g). Where sites are located on Grade 3 or 3b agricultural land, comprise (<50%) best most versatile agricultural land or are smaller (<20ha), uncertain minor negative effects have been identified (sites M05a, M05b, M07a, M07b, M12, M20 and M22). Effects are uncertain as Section 5 of The Town and Country Planning Act 1990 (as amended) requires mineral planning authorities to ensure that restoration meets the required standard (normally to the same physical characteristics as before). Sites M10a, M010b, M13,

M16, M17 and M18 have been identified as having negligible effects as these sites are not on Grade 1, 2 or 3 agricultural land.

4.54 Uncertain significant negative effects are identified for Areas of Search A, B and C as these areas comprise Grade 2 and Grade 3 Best and Most Versatile Agricultural Land while an uncertain minor negative effect is expected for Area of Search D as it comprises Grade 3, Grade 4 and Non-Agricultural Land. Effects are uncertain as the broad Areas of Search provide opportunities for mineral working at sites that will not have adverse effects on Best and Most Versatile Agricultural Land.

Table 4.1 Summary of SA scores for the mineral site options and Areas of Search

SA Objective	1: Employment	2: Sustainable Economy	3: Health	4: Poverty and Equality	5: Sustainable Transport	6: Historic Environment	7: Built Environment	8: Waste Hierarchy	9: Mineral Resources	10: Climate Change	11: Restoration	12: Biodiversity & Geodiversity	13: Landscape	14: Water	15: Flooding	16. Pollution	17: Soil
M03a	+	+	0	+?	+/--	-?	0	-	+	+/--	++?	-?	0	0	0	0	--?
M03b	+	+	0	+?	+/--	-?	0	-	+	+/--	++?	-?	0	0	0	0	--?
M03c	+	+	0	+?	+/-	-?	0	-	+	+/-	++?	-?	0	0	0	0	--?
M03d	+	+	0	+?	+/--	-?	0	-	+	+/--	++?	-?	0	0	0	0	--?
M04	+	+	0	+?	+/--	-?	0	-	+	+/--	++?/-?	-?	0	-?	0	0	--?
M05a	+	+	--?	+?	+?/--?	-?	--?	-	+	+?/--?	++?	--?	0	-?	0	--?	-?
M05b	+	+	--?	+?	+?/-	-?	--?	-	+	+?/-	++?	-?	0	-?	0	--?	-?
M05c	+	+	--?	+?	+?/--	-?	--?	-	+	+?/--	++?	--?	0	-?	0	--?	--?
M05d	+	+	--?	+?	+?/--	-?	0	-	+	+?/--	++?	--?	0	--?	0	0	--?
M05e	+	+	--?	+?	+/-	-?	0	-	+	+/-	++?	-?	0	-?	0	0	--?
M05f	+	+	--?	+?	+/-	-?	--?	-	+	+/-	++?	-?	0	-?	0	0	--?
M05g	+	+	--?	+?	+/--	-?	--?	-	+	+/--	++?	--?	0	--?	0	0	--?
M07a	+	+	--?	+?	--?	-?	--?	-?	+	--?	++?	-?	0	0	0	0	-?
M07b	+	+	--?	+?	--	-?	0	-?	+	--	++?	-?	0	0	0	0	-?
M10a	+	+	-?	+?	+/--?	-?	0	-?	+	+/--?	++?	+?/--?	0	0	0	0	0
M10b	+	+	--?	+?	+/--	-?	0	-?	+	+/--	++?	+?/--?	0	0	0	0	0
M12	+	+	0	+?	--?	-?	0	-?	+	--?	++?	-?	0	0	0	0	-?
M13	+?	+	0	+?	--?	-?	0	-?	+	--?	++?	--?	0	-?	0	0	0
M16	+?	+	0	+?	+/--?	-?	0	-?	+	+/--?	++?	-?	0	-?	0	0	0
M17	+	+	0	+?	--?	-?	0	-?	+	--?	++?	-?	0	0	0	0	0
M18	+	+	0	+?	--?	-?	0	-?	+	--?	++?	-?	0	0	0	0	0
M20	+?	+	-?	+?	+/--?	-?	0	-?	+	+/--?	++?	--?	0	--?	0	0	-?
M22	+	+	-?	+?	--	--?	0	-?	+	--	++?/-?	-?	--?	-?	0	0	-?
Area of Search A	+?	+	--?	+?	+?/--?	--?	--?	-?	+	+?/--?	++?	--?	-?	-?	--?	--?	--?
Area of Search B	+?	+	--?	+?	+?/--?	--?	--?	-?	+	+?/--?	++?/-?	--?	-?	-?	--?	--?	--?
Area of Search C	+?	+	--?	+?	+?/--?	--?	--?	-?	+	+?/--?	++?	--?	--?	--?	--?	--?	--?
Area of Search D	+?	+	--?	+?	+?/--?	--?	--?	-?	+	+?/--?	++?/-?	--?	--?	-?	0	--?	-?

SA Findings for the Waste Site Options

4.55 **Table 4.2** provides an overview of the SA scores (as presented in **Appendix 7**) attributed to each reasonable waste site option in the Draft HMWLP.

SA Objective 1 - Support, maintain or enhance the provision of employment opportunities in the minerals and waste sectors

4.56 All waste site options could have a direct and indirect effect on maintaining or increasing employment levels during the development and operation of waste management facilities. Sites W05, W07, W10, W13 and W19 are all expected to maintain and generate employment opportunities in the waste industry and will have minor positive effects with regard to SA objective **1: Employment**. Sites W43, W44 and W45 are mineral sites considered for waste uses, principally the disposal of inert waste in order to recover the land for beneficial purposes. Similarly, minor rather than significant positive effects are expected as the restoration of sites is unlikely to generate significant numbers of jobs.

4.57 The Spatial Context and Sites Report states that strategic employment areas are appropriate for larger scale/strategic waste management facilities. Therefore, uncertain significant positive effects are identified for sites greater than 20ha, i.e. sites W58, W59, W63 and W66, while uncertain minor positive effects are identified for the remaining strategic employment sites as these are likely to generate fewer employment opportunities in the waste industry. Effects are also uncertain for the strategic employment sites as these locations have a reasonably high level of plot turnover and will also depend upon the type and scale of the waste infrastructure development at the strategic employment sites, which would not be known until the planning application stage.

SA Objective 2 - Maintain or enhance conditions that enable a sustainable economy and continued investment

4.58 Sites W05, W07, W10, W13 and W19 are all expected to maintain and enhance conditions that enable a circular economy and therefore will have minor positive effects with regard to SA objective **2: Sustainable Economy**. Minor positive effects are also expected for sites W43, W44 and W45 as the restoration of quarries by inert waste disposal will contribute towards investment in the waste sector.

4.59 As for SA objective 1, uncertain significant positive effects are identified for sites W58, W59, W63 and W66 as these sites, due to their size (>20ha), may significantly enhance investment in the waste industry if large scale/strategic waste management facilities were developed at these locations. Uncertain minor positive effects are identified for the remaining strategic employment sites as these sites. Effects are uncertain for the strategic employment sites as these locations have a reasonably high level of plot turnover and will also depend upon the type and scale of the waste infrastructure development at the strategic employment sites, which would not be known until the planning application stage.

SA Objective 3 - Protect and improve the health of the people of Herefordshire, reduce disparities in health geographically and demographically

4.60 New waste management facilities could have adverse effects on the amenity of local residents and communities as they would result in some level of noise, vibration and light pollution during site preparation, operation and restoration, and through the transportation of waste around and from the site. The extent of noise, vibration and light pollution will depend on the type of waste managed at the site, the scale of the operation and the type of activities undertaken within the site. The extent of the effect experienced will depend on the proximity of sensitive receptors, including schools, residential areas, hospitals, faith centres and churches. In addition, where waste sites contain or intersect areas of open space, Public Rights of Way (PROW) or cycle paths, potential opportunities for recreation/access to the countryside (which has benefits for health) could be lost.

4.61 Site W07 is expected to have an uncertain significant negative effect in relation to SA objective **3: Health** as it is within 100m of the settlement of Leominster and a waste water treatment works facility which could have a cumulative adverse effect on the amenity of the community. The effect is uncertain as this has potentially been addressed through conditions relating to the existing planning permission for the site.

4.62 A mixed effect (uncertain minor positive/uncertain minor negative) is identified for site W45 as it is within 100m of residential areas in the settlements of Wellington and Moreton on Lugg where the disposal of inert waste during the restoration of the site may have adverse effects on the amenity of the nearby communities, however, this effect is judged to be minor rather than significant and likely to be experienced in the short-term. Furthermore, although two PROWs intersect the site, Section 5 of the Town and Country Planning Act 1990 (as amended) requires mineral planning authorities to ensure that restoration meets the required standard (normally to the same physical characteristics as before), and therefore it is likely that the PROWs will be reinstated as part of the restoration, although this effect is uncertain and dependent on the type of restoration proposed and eventually developed on the site, which will not be known until the planning application stage.

4.63 An uncertain minor negative effect has been identified for site W05 as it intersects a PROW. However, the effect is uncertain as this has potentially been considered and addressed through conditions relating to the existing planning permission for the operational Leominster site.

4.64 Sites W10, W13, W19, W43 and W44 will have negligible effects as they are not within 100m of a sensitive receptor and do not intersect with an area of open space, PROW or cycle path. All of the strategic employment sites will have uncertain negligible effects for this objective as it is assumed that the development of new waste facilities at strategic employment sites will not adversely impact on the health and amenity of nearby communities beyond the effects already experienced at operational industrial or employment sites.

SA Objective 4 - Reduce poverty and social inclusion by closing the gap between the most deprived areas in the county and the rest of the county

4.65 Uncertain minor positive effects are expected for all but four waste site options with regard to SA objective **4: Poverty and Equality**, as the allocation of waste sites is expected to result in a small number of jobs during site preparation, operation and restoration which may help to reduce employment deprivation in Herefordshire.

4.66 As for SA objectives 1 and 2, uncertain significant positive effects are identified for sites W58, W59, W63 and W66 as these may be appropriate locations for large scale/strategic waste management facilities which may create employment opportunities thereby reducing employment deprivation. Furthermore, site W63 would provide employment opportunities in one of the most deprived areas of Herefordshire. Minor positive effects are identified for the remaining strategic employment sites (W60, W61, W62, W64 and W65) as these would generate a small number of jobs which may help to reduce employment deprivation. The effects are uncertain and will depend upon the type and scale of the waste infrastructure development at the strategic employment site, which would not be known until the planning application stage.

SA Objective 5 - Reduce road traffic, congestion and pollution, and promote sustainable modes of transport and efficient movement patterns in the county

4.67 Due to the limited opportunities for rail transport of materials in Herefordshire, there will be a reliance on road transport to transfer waste to and from sites. Therefore, it is assumed that all waste sites have the potential to generate traffic in Herefordshire, however, without detailed information about how the sites will operate (which would be available at the planning application stage), the extent of the negative impact has been assessed using the size of the site as an indication as it was assumed that larger sites are likely to generate more movements of heavy goods vehicles. The further vehicles transporting waste have to travel along local roads (i.e. not on the primary road network) the higher the potential for traffic and localised pollution as vehicles are likely to travel more slowly on local roads thereby increasing the potential for traffic, and slower moving traffic may result in more pollutant deposition along those routes than vehicles moving at a consistent speed. Moreover, the proximity of sites to public transport links will affect

the extent to which employees are able to make use of non-car based modes of transport to commute to and from waste sites.

4.68 Mixed effects (minor positive/minor negative) are identified for sites W05, W07, W10, W13 and W19. The minor positive effects recognise the proximity to one or two sustainable transport links which will encourage employee use of sustainable transport. The minor negative effects are identified as the operation of these sites is likely to generate traffic. The adverse effects are uncertain for sites W05, W07, W10 and W13 as these have potentially been addressed through existing planning conditions relating to the operational sites.

4.69 Mixed effects (minor positive/minor negative) have been identified for sites W43, W44 and W45 as the machinery and lorries used during the restoration of sites are likely to generate traffic, however, the sites are within close proximity to sustainable transport links which would enable people employed to dispose of inert waste at the former quarries to easily access the sites using sustainable modes of transport. Minor rather than significant negative effects are identified for sites W44 and W45 as, although there is potential for these sites to generate traffic on local roads during restoration as they are more than 250m from a main road or are large in size (>20ha), the restoration is not expected to result in high numbers of lorry movements and the effects are likely to be experienced in the short-term.

4.70 Uncertain minor positive effects may be experienced for all of the strategic employment sites (sites W58-W66) as these may provide opportunities for symbiotic relationships between waste management, engineering, manufacturing and research industries which will help to reduce transport distances of waste.

SA Objective 6 - Value, protect and enhance the county's historic environment and cultural heritage

4.71 The majority of site options are expected to have negligible effects with regard to SA **objective 6: Historic Environment**. Sites W05, W07, W10 and W13 are expected to have negligible effects as these sites are not adjacent to and do not contain designated heritage features and the continued operation of these active waste sites is not expected to have an effect on the historic environment.

4.72 Negligible effects are identified for sites W43 and W44 as the disposal of inert waste at the quarries is not expected to have an effect on the historic environment as these sites are also not adjacent to and do not contain any designated heritage features. A minor positive effect is expected for site W45, as the restoration of the former quarry through the disposal of inert waste, may restore the local environment which contributes to the setting of nearby heritage assets, although this effect is uncertain.

4.73 An uncertain negligible effect is identified for site W19, as although the site is not adjacent to and does not contain any designated heritage features, there may be potential for effects on the historic environment depending on the design, scale and layout of the development, which is unknown at this stage.

4.74 Uncertain negligible effects are expected for all of the strategic employment sites as the development of new waste facilities at these locations is not expected to adversely impact on the historic environment beyond the effects already experienced at operational strategic employment sites.

SA Objective 7 - Value, protect and enhance the character and built quality of settlements and neighbourhoods

4.75 Significant negative effects are expected with regard to SA objective **7: Built Environment** for sites W05, W07, W10 and W19 as they are within close proximity (100m) of a settlement, and, as such, may have adverse effects on the character of the area. However, for sites W05, W07 and W10, the effects are uncertain as these have potentially been addressed through existing planning conditions relating to the operational sites. The effect for site W19 is also uncertain as it is dependent on the design of the development and the contribution the land makes to the local distinctiveness and setting of an area.

4.76 An uncertain minor positive effect is expected for site W45, as the restoration of the former quarry through the disposal of inert waste, could positively contribute to the character of nearby

settlements Wellington and Moreton on Lugg. The effect is 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.

4.77 Negligible effects have been identified in relation to sites W13, W43 and W44 as these are not within close proximity of a settlement and are therefore unlikely to have an effect on the character of settlements.

4.78 The development of new waste facilities at strategic employment sites (sites W58-W66) is not expected to adversely impact on the character and built quality of settlements and neighbourhoods beyond the effects already experienced at the employment sites. Therefore, uncertain negligible effects are expected for all strategic employment sites.

SA Objective 8 - Move treatment of waste up the waste hierarchy

4.79 Uncertain significant positive effects are identified for waste site options W05, W07 and W10 in relation to SA objective **8: Waste Hierarchy** as they are operational household waste recycling centres which process waste that would otherwise be landfilled. Site W13 is operational and recovers construction, demolition and excavation waste which, if expanded, would have a significant positive effect on the recovery of waste. Effects are uncertain as these sites may be used for different wastes or different technologies than are currently present.

4.80 Mixed effects (uncertain significant positive/uncertain minor negative) are expected for W19 as the site may provide energy recovery facilities, either biological (such as anaerobic digestion) which would have a significant positive effect or combustion with energy recovery (such as incineration or gasification) which would have a minor negative effect on driving waste up the waste hierarchy.

4.81 Minor negative effects have been identified for sites W43, W44 and W45 as these are identified in the HMWLP as appropriate locations for the disposal of inert waste, which is judged to have negative effects in terms of moving the treatment of waste up the waste hierarchy.

4.82 Uncertain minor positive effects may be experienced for strategic employment sites (sites W58-W66) as there may be opportunities for symbiotic relationships between waste management, engineering, manufacturing and research industries which would encourage reuse and recycling of waste and contribute to the circular economy.

SA Objective 9 - Promote sustainable use of mineral resources

4.83 Minor positive effects are identified for sites W13, W43, W44 and W45 in respect to SA objective **9: Mineral Resources** as these sites are either former quarries (W13) or involve inert waste disposal to restore quarries (W43, W44 and W45) which means that mineral resources at these sites would already have been extracted and could not be sterilised. Negligible effects are identified for sites W05, W07, W10 and W19.

4.84 The development of new waste facilities at strategic employment sites (sites W58-W66) is not expected to adversely impact mineral resources because these sites have already been developed. Therefore, uncertain negligible effects are expected for the strategic employment sites.

SA Objective 10 - Reduce Herefordshire's vulnerability to the impacts of climate change as well as its contribution to the problem

4.85 As explained under SA objective 5, there are limited opportunities for transport of materials using sustainable modes and therefore there will be a reliance on road transport which will increase the emission of greenhouse gases. Therefore, it is assumed that all waste sites have the potential to generate traffic in Herefordshire, however, without detailed information about how the sites will operate (which would be available at the planning application stage), the extent of the negative impact has been assessed using the size of the site as an indication as it was assumed that larger sites are likely to generate more movements of heavy goods vehicles resulting in the production of higher levels of carbon dioxide and other greenhouse gas emissions. The further vehicles transporting waste have to travel along local roads (i.e. not on the primary road network) the higher the potential for traffic and localised pollution as vehicles are likely to travel more slowly on local roads thereby increasing the potential for traffic, and slower moving traffic may result in

more pollutant deposition along those routes than vehicles moving at a consistent speed. Moreover, the proximity of sites to public transport links will affect the extent to which employees are able to make use of non-car based modes of transport to commute to and from waste sites.

4.86 Mixed effects (minor positive/minor negative) are identified for sites W05, W07, W10, W13 and W19 in relation to SA objective **10: Climate Change**. The minor positive effects recognise the proximity to one or two sustainable transport links which will encourage employee use of sustainable transport, thereby reducing local traffic emissions. The minor negative effects are identified as the operation of these sites is likely to generate local traffic and consequently the release of greenhouse gases. The adverse effects are uncertain for sites W05, W07, W10 and W13 as the impact from traffic generation and therefore transport emissions have potentially been considered and addressed through existing planning conditions relating to the operational sites.

4.87 Mixed effects (minor positive/minor negative) have been identified for sites W43, W44 and W45 as the machinery and lorries used during the restoration of sites are likely to generate traffic and emissions, however, the sites are within close proximity to sustainable transport links which would enable people employed to dispose of inert waste at the former quarries to easily access the sites using sustainable modes of transport thereby reducing CO_2 emissions. Minor rather than significant negative effects are identified for sites W44 and W45 as, although there is potential for these sites to generate traffic on local roads and localised air pollution during restoration as they are more than 250m from a main road or are large in size (>20ha), the restoration is not expected to result in high numbers of lorry movements and the effects are likely to be experienced in the short-term.

4.88 Uncertain minor positive effects may be experienced for all of the strategic employment sites (sites W58-W66) as these may provide opportunities for symbiotic relationships between waste management, engineering, manufacturing and research industries which will help to reduce transport distances of waste and transport-related emissions.

SA Objective 11 - Promote effective restoration and appropriate after use of sites

4.89 Minor positive effects are expected for the majority of waste site options with regard to SA objective **11: Restoration** as the NPPG on Waste requires landfill sites to be restored to beneficial after-uses at the earliest opportunity and to high environmental standards. The restoration of other types of waste management sites when they are no longer required may also be undertaken however, this is not promoted in the NPPG on Waste and would be dependent on when the waste facility ceased to operate which could be any number of years.

4.90 The NPPF (2018) states that mineral sites should be restored at the earliest convenience, taking account of aviation safety, to a high environmental standard. Therefore, significant positive effects are identified for sites W43, W44 and W45 as the NPPF requires restoration to result in land of equal value being returned following the working of a site. The significant positive effect identified for site W44 is combined with a minor negative effect as the site is located within the Shobdon Aerodrome Safeguarding Zone and therefore has potential for adverse impacts on aircraft safety from bird-strike.

4.91 Effects are uncertain for all waste site options as these are dependent on the type of restoration proposed and eventually developed on site, which will not be known until planning application stage.

SA Objective 12 - Value, maintain, restore and expand county biodiversity and geodiversity

4.92 Sites that contain or are close to an internationally, nationally or locally designated conservation site have the potential to affect the biodiversity or geodiversity of those sites, e.g. through habitat/geology damage/loss, fragmentation, disturbance to species as well as air and noise pollution. Depending on the type of waste facility, there is potential for vermin, gulls and corvids (crow family) to be attracted to the site which may prey upon species, particularly the eggs and young of nesting birds. The potential impact on biodiversity and geodiversity present on each site, or adjacent to the potential waste sites, cannot be determined with certainty at this strategic level of assessment. This would be determined once more specific proposals are developed and submitted as part of a planning application. Therefore, as an indication of the likelihood of significant negative effects, proximity of designated biodiversity and geodiversity conservation

sites to potential waste sites has been used. Uncertainty is attached to all effects as it will depend on the design, operation and restoration of waste sites.

4.93 Uncertain significant negative effects are expected for sites W05 and W13 for SA objective **12: Biodiversity & Geodiversity** as they are located within 250m of the River Lugg SSSI and/or the River Wye SAC. An uncertain significant negative effect (as part of a mixed effect) is also identified for site W45 at Wellington Quarry as it is adjacent to the River Wye SAC and the River Lugg SSSI. The HRA Screening Report (LUC, 2018) identifies that inert waste disposal at this site and the presence of potentially functionally linked habitat that may be used by otter may result in likely significant effects both as a result of direct (onsite) and indirect (offsite) physical loss and damage, non-physical disturbance (noise, vibration and light pollution), and non-toxic contamination. The HRA Screening Report concludes that it is likely that such potential effects could be avoided and mitigated through the provision of policy safeguards which require site level assessment and a commitment to, and implementation of, best practice working measures in line with a site specific mitigation and avoidance plan.

4.94 Uncertain minor negative effects are expected for sites W10 and W19 as these sites are both located within Green Infrastructure Enhancement Zones. Furthermore, site W19 is also located between 250m and 1km of the River Wye SAC. There is the potential for adverse effects on biodiversity as waste sites within a GI area may fragment ecological areas and green spaces thereby impacting on species movement.

4.95 Uncertain minor positive effects are identified for sites W43, W44 and W45 (as part of a mixed effect) as these sites are proposed for inert waste disposal following extraction which offers the potential to deliver biodiversity gains in the long term as restoration often involves the creation of species rich wetland or grassland habitats. An uncertain minor negative effect is identified for site W44 (as part of a mixed effect) as the site within the Shobdon Aerodrome Safeguarding Zone where there is potential for bird-strike from aircrafts should the site be restored to wetland or grassland habitats which can attract large numbers of species that may in certain circumstances pose a hazard to aircraft.

4.96 Site W07 is identified as having negligible effects as it does not contain, or is unlikely to have, an adverse impact on any internationally, nationally or locally designated biodiversity or geodiversity sites and is not located within either a Green Infrastructure Corridor or Enhancement Zone or contain any areas listed on the Priority Habitats Inventory.

4.97 The development of new waste facilities at strategic employment sites (sites W58-W66) is not expected to have an adverse impact on biodiversity or geodiversity beyond the effects already experienced at operational industrial or employment sites. Therefore, uncertain negligible effects are expected for the strategic employment sites.

SA Objective 13 - Value, protect, enhance and restore the landscape quality of Herefordshire, including its rural areas and open spaces

4.98 The potential impact on landscape quality of Herefordshire cannot be determined with certainty at this strategic level of assessment. This would be determined once more specific proposals are developed and submitted as part of a planning application. Therefore, as an indication of the likelihood of significant negative effects, proximity of landscape designations to potential waste sites has been used. Uncertainty is attached to all effects as it will depend on the design, operation and restoration of waste sites.

4.99 Uncertain minor negative effects are identified in relation to SA objective **13: Landscape** for sites W05, W10 and W19 as these sites are located within Green Infrastructure Corridors and/or Enhancement Zones. Site options within GI areas could contribute to fragmentation of these assets thereby reducing their positive contribution to character and local distinctiveness. Effects are uncertain for operational sites as adverse impacts have potentially been addressed through conditions relating to the existing planning permission (sites W05 and W10) or in the case of site W19 will depend on the design and scale of the waste facility which is unknown at this stage.

4.100 Uncertain minor positive effects are expected for sites W43, W44 and W45 as the disposal of inert waste will restore the quality of the landscape at the former mineral sites. However, the effects are uncertain, and dependent on the type of restoration proposed and eventually developed on a site, which will not be known until the planning application stage.

4.101 Sites W07 and W13 have been identified as having negligible effects in relation to landscape quality. This is because these sites do not contain areas of open space, parks or gardens; are not in close proximity (<250m) to an AONB; are not within an area classified as highly sensitive in The Urban Fringe Sensitivity Analysis; or are not within a Green Infrastructure Corridor or a Green Infrastructure Enhancement Zone.

4.102 The development of new waste facilities at strategic employment sites (sites W58-W66) is not expected to adversely impact the landscape beyond the effects already experienced at operational industrial or employment sites. Therefore, uncertain negligible effects are expected for the strategic employment sites.

SA Objective 14 - Value, protect and enhance the quality of watercourses and maximise the efficient use of water

4.103 Waste sites can potentially pose a pollution risk to water resources from residual liquids or leachate. Waste sites also pose a risk to current vulnerable waterbodies where there is a hydrological link, as well as to SSSI or SAC waterbodies as they could result in effects on water quality.

4.104 Uncertain significant negative effects are identified for sites W05 and W13 for SA objective **14: Water** as these are either within a Source Protection Zone and/or are within 250m of a waterbody classified as being in 'bad' ecological/chemical status. The effects are uncertain as they have potentially been considered and addressed through existing planning conditions relating to the operational sites.

4.105 An uncertain significant negative effect is also identified for site W45 at Wellington Quarry as it intersects with Wellington Brook which has a poor ecological status. The site is also directly adjacent to the River Wye SAC and the River Lugg SSSI which has a moderate ecological status. The HRA Screening Report (LUC, 2018) identifies that site W45 shares direct hydrological connectivity with the River Wye SAC, either through sharing boundaries or via field drains. However, as this allocation relates to the disposal of inert waste which is non-reactive both chemically and biologically, the potential for activities at this site to result in changes in water quality which would be considered significant is low. Nevertheless, in the absence of appropriate safeguards and mitigation measures, the potential for operations at this site to harm the qualifying features of the SAC, cannot be excluded.

4.106 Uncertain minor negative effects are identified for three waste site options (W07, W19 and W44) as these sites are either within 250m of rivers which have 'poor' or 'moderate' ecological or chemical status, or are between 250m and 1km of a SSSI waterbody. Negligible effects are identified for sites W10 and W43 as they are not within a Source Protection Zone; within 250m of a vulnerable waterbody; or within 1km of a SSSI or SAC waterbody, and therefore are not likely to affect water quality.

4.107 The development of new waste facilities at strategic employment sites is not expected to have adverse impacts on the water environment beyond the effects already experienced at operational industrial or employment sites. Therefore, uncertain negligible effects are expected for all of these sites.

SA Objective 15 - Reduce the risk of flooding and the resulting detriment to public well-being, the economy and the environment

4.108 National Planning Practice Guidance identifies landfills and sites used for waste management facilities for hazardous waste as a 'more vulnerable use', which is suitable in areas of Flood Zone 1 and 2 but would require an exception test in Flood Zone 3a (high probability of flooding), and is unsuitable in Flood Zone 3b (the functional flood plain). Waste treatment (except landfill and hazardous waste facilities) is classed as 'less vulnerable' and therefore considered suitable in Flood Zones 1, 2 and 3a but unsuitable in Flood Zone 3b (the functional flood plain).

4.109 Site W45 is partly within Flood Zone 3, however, minor positive effects are identified for this site and sites W43 and W44 for SA objective **15: Flooding** as the restoration of sites through the disposal of inert waste will help to increase permeable land cover in the county which will contribute towards flood attenuation. Furthermore, the restoration of sites could create new wetland habitat that provides flood storage.

4.110 Negligible effects are identified for sites W05, W07, W10, W13 and W19 as these are either not within a flood zone or are within Flood Zone 2. The development of new waste facilities at strategic employment sites is also not expected to adversely impact on flood risk beyond the effects already experienced at operational industrial or employment sites. Therefore, uncertain negligible effects are expected for the strategic employment sites.

SA Objective 16 - Minimise noise, light, and air pollution

4.111 There are two AQMAs in Herefordshire – the Hereford AQMA and the Bargates Leominster AQMA. All new development in AQMAs (regardless of the use specified) has the potential to aggravate local air quality in terms of a resultant increased number of journeys during the construction, extraction and operational phases thereby compounding existing air quality problems. Sensitive receptors include residential areas, schools, hospitals, faith centres (e.g. churches, mosques, temples). Waste sites would result in some level of noise, vibration and light pollution during site preparation, operation and restoration and associated with the transport of waste around and from the site.

4.112 There are no sites within either the Hereford AQMA or the Bargates Leominster AQMA. Uncertain significant negative effects have been identified for sites W05, W07 and W10 for SA objective **16: Pollution** as they are within 100m of residential areas in at least one settlement. The effects are uncertain as impacts from air, light and noise pollution have potentially been considered in the planning applications and addressed through existing planning conditions relating to the operational sites.

4.113 An uncertain minor negative effect is expected for site W45 as it is within 100m of residential areas in the settlements of Wellington and Moreton on Lugg. The disposal of inert waste during the restoration of the site may result in noise pollution however this effect is judged to be a minor rather than a significant negative and will be experienced in the short-term.

4.114 Negligible effects are identified for sites W13, W19, W43 and W44 as they are not within an AQMA or within 100m of a sensitive receptor.

4.115 The development of new waste facilities at the nine strategic employment sites is not expected to have an adverse impact on air, light or noise pollution beyond the effects already experienced at operational industrial or employment sites. Therefore, uncertain negligible effects are expected for the strategic employment sites.

SA Objective 17 - Value, protect and enhance soil quality and resources

4.116 The majority of Herefordshire consists of Grade 2 and Grade 3 agricultural land. There are scattered areas of Grade 1 land and some areas of lower quality, Grades 4 and 5, particularly in the west of the country.

4.117 An uncertain significant negative effect is identified for site W10 as this site comprises entirely Grade 2 agricultural land. Development on high quality agricultural land (Grade 1, 2 and 3a) would result in that land being lost to other uses. The effect is uncertain as the loss of 'Best and Most Versatile Agricultural Land' is presumed to have been considered in the planning application for the operational site.

4.118 Uncertain minor negative effects are identified for sites W05, W13 and W19 as these are located on Grade 3 agricultural land. Effects are uncertain as the loss of Grade 3 agricultural land at operational sites are likely to have already been addressed through conditions relating to the existing planning permission. Site W07 is assessed as having a negligible effect as it is located within an urban setting and therefore no agricultural soils will be adversely impacted.

4.119 Uncertain significant positive effects are identified for sites W43 and W44 while an uncertain minor positive effect is identified for site W45 as these sites comprise mainly Grade 2 or 3a agricultural land or Grade 3 agricultural land, respectively. These sites are proposed as appropriate locations for the disposal of inert waste as part of the restoration of former mineral sites. Section 5 of The Town and Country Planning Act 1990 (as amended) requires mineral planning authorities to ensure that restoration meets the required standard (normally to the same physical characteristics as before). Therefore, positive effects are identified as restoration may safeguard the long-term potential of Best and Most Versatile Agricultural Land and other soil resources, however, the effects are uncertain, and dependent on the type of restoration proposed

and eventually developed on the sites, which will not be known until the planning application stage.

4.120 The development of new waste facilities at strategic employment sites (sites W58-W66) is not expected to adversely impact on the soil environment beyond the effects already experienced at operational industrial or employment sites. Therefore, uncertain negligible effects are expected for the strategic employment sites.

Table 4.2 Summary of SA scores for the waste site options

SA Objective	1: Employment	2: Sustainable Economy	3: Health	4: Poverty and Equality	5: Sustainable Transport	6: Historic Environment	7: Built Environment	8: Waste Hierarchy	9: Mineral Resources	10: Climate Change	11: Restoration	12: Biodiversity & Geodiversity	13: Landscape	14: Water	15: Flooding	16. Pollution	17: Soil
W05	+	+	-?	+?	+/-?	0	--?	++?	0	+/-?	+?	--?	-?	--?	0	--?	-?
W07	+	+	--?	+?	+/-?	0	--?	++?	0	+/-?	+?	0?	0	-?	0	--?	0
W10	+	+	0	+?	+/-?	0	--?	++?	0	+/-?	+?	-?	-?	0	0	--?	--?
W13	+	+	0	+?	+/-?	0	0	++?	+	+/-?	+?	--?	0	--?	0	0	-?
W19	+	+	0	+?	+/-	0?	--?	++?/-?	0	+/-	+?	-?	-?	-?	0	0	-?
W43	+	+	0	+?	+/-	0	0	-	+	+/-	++?	+?	+?	0	+	0	++?
W44	+	+	0	+?	+/-	0	0	-	+	+/-	++?/-?	+?/-?	+?	-?	+	0	++?
W45	+	+	+?/-?	+?	+/-	+?	+?	-	+	+/-	++?	+?/--?	+?	--?	+	-?	+?
W58 SES	++?	++?	0?	++?	+?	0?	0?	+?	0?	+?	+?	0?	0?	0?	0?	0?	0?
W59 SES	++?	++?	0?	++?	+?	0?	0?	+?	0?	+?	+?	0?	0?	0?	0?	0?	0?
W60 SES	+?	+?	0?	+?	+?	0?	0?	+?	0?	+?	+?	0?	0?	0?	0?	0?	0?
W61 SES	+?	+?	0?	+?	+?	0?	0?	+?	0?	+?	+?	0?	0?	0?	0?	0?	0?
W62 SES	+?	+?	0?	+?	+?	0?	0?	+?	0?	+?	+?	0?	0?	0?	0?	0?	0?
W63 SES	++?	++?	0?	++?	+?	0?	0?	+?	0?	+?	+?	0?	0?	0?	0?	0?	0?
W64 SES	+?	+?	0?	+?	+?	0?	0?	+?	0?	+?	+?	0?	0?	0?	0?	0?	0?
W65 SES	+?	+?	0?	+?	+?	0?	0?	+?	0?	+?	+?	0?	0?	0?	0?	0?	0?
W66 SES	++?	++?	0?	++?	+?	0?	0?	+?	0?	+?	+?	0?	0?	0?	0?	0?	0?

5 Sustainability Appraisal Findings of the Draft Herefordshire Minerals and Waste Local Plan Policies

Introduction

5.1 This chapter describes the SA findings of the Vision, the 12 strategic objectives and the 18 policies proposed in the Draft Herefordshire Minerals and Waste Local Plan (contained in chapters 7-9 inclusive). The findings are summarised below, grouped in line with the chapters of the Draft HMWLP.

5.2 The Draft HMWLP also contains Core Strategy policies that are directly relevant to minerals and waste development (sustainable development policy - SS1; movement and transportation policies – SS4 and MT1; environmental quality and local distinctiveness policies – SS6, LD1, LD2, LD3 and LD4; climate change policy – SS7; open space policies OS1 and OS3; sustainable design and energy efficiency policy - SD1; renewable and low carbon energy generation policy - SD2; and, sustainable water management and water resources policy - SD3). These policies have previously been subject to SA in 2015 and were found 'sound' at the Examination. Therefore, the Core Strategy policies are not reassessed in this SA Report.

5.3 The SA matrices prepared for the policies are presented in **Appendix 8**. Where policies have a spatial element i.e. they refer to specific mineral or waste sites, these have been appraised with reference to GIS data and the findings of the relevant site appraisals in **Appendices 6** and **7**, where appropriate (relates to policies M3, M4, M5, W5 and W6).

Chapter 6 – Vision, Objectives and Spatial Strategy

5.4 This section relates to the Vision and strategic objectives that are presented in **Chapter 6** of the Draft HMWLP.

Vision

The Vision for the Herefordshire Minerals and Waste Local Plan sets out a positive vision for the sustainable provision of minerals supply and waste management to be achieved by the end of the plan period in 2031. The table below summarises the SA scores for the Vision.

Table 5.1 Summary of SA scores for the Vision

SA Objective	1: Employment	2: Sustainable Economy	3: Health	4: Poverty and Equality	5: Sustainable Transport	6: Historic Environment	7: Built Environment	8: Waste Hierarchy	9: Mineral Resources	10: Climate Change	11: Restoration	12: Biodiversity & Geodiversity	13: Landscape	14: Water	15: Flooding	16. Pollution	17: Soil
Vision	+	+	+	+	+/-	+	+	++	++	+	+	+	+	+	+	+	+

5.1 Significant positive effects have been identified for SA objectives **8: Waste Hierarchy** and **9: Mineral Resources** as the Vision promotes the sustainable provision of minerals and waste management through the efficient use of mineral resources and by supporting the circular economy.

5.2 Minor positive effects are expected for SA objectives **1: Employment**, **2: Sustainable Economy** and **4: Poverty and Equality** as the Vision seeks to strengthen the local economy which will

generate employment opportunities in the minerals and waste industries in Herefordshire. Positive effects are identified for SA objectives **12: Biodiversity & Geodiversity**, **13: Landscape**, **14: Water**, **15: Flooding**, and **17: Soil** as the Vision supports the sustainable provision of minerals and waste management that protect and enhance environmental assets which is assumed to include biodiversity, geodiversity, landscapes and habitats, ground and surface waters, and Best and Most Versatile Agricultural Land.

5.3 The previous SA recommended that the Vision include reference to the restoration of sites to a high standard. The Vision has been subsequently amended to seek a strategic approach to reclamation. The Vision now supports high quality reclamation and betterment of mineral and waste sites, including the establishment of green infrastructure and public open space which will have a direct positive effect on SA objective **11: Restoration** and secondary beneficial effects for biodiversity, landscape, public health, and the water and soil environments.

5.4 Minor positive effects are expected for SA objectives **3: Health**, **6: Historic Environment** and **7: Built Environment** as the Vision seeks to support the county's communities, and protect and enhance historic and cultural assets whilst achieving sustainable provision of minerals and waste management.

5.5 Minor positive effects are identified for SA objectives **10: Climate Change** and **16: Pollution** as the Vision supports the waste hierarchy and a circular economy which will reduce energy use and greenhouse gas emissions by diverting waste from landfills, support the use of materials and products more efficiently and reduce the consumption of primary resources. Waste management sites also provide opportunities for renewable energy generation and improved food and agricultural waste management measures that provide the opportunity to sequester carbon.

5.6 Mixed effects (minor positive/minor negative) are identified for SA objective **5: Sustainable Transport** as the Vision does not promote the sustainable transportation of minerals and waste. Although the transport of minerals and waste is likely to continue to be predominantly by road, there is potential for minerals to be transported by rail (currently the Moreton-on-Lugg railhead is used to transport minerals from Wellington Quarry to the south east of England) and one of the strategic objectives (8) promotes the use of alternatives to road transport. **Therefore, the Vision could be updated to refer to the use of sustainable transport modes for minerals and waste which would reduce road traffic, congestion and pollution.** The minor positive effect is identified as the Vision does support a circular economy and the waste hierarchy which will reduce the transportation of waste being sent to landfill for disposal.

Strategic objectives

5.7 **Table 5.2** provides a summary of the SA scores for the strategic objectives of the Draft HMWLP. Strategic objectives 1-4 relate to social progress, objectives 5-8 to economic prosperity, and objectives 9-12 to environmental quality.

Table 5.2 Summary of SA scores for the strategic objectives

SA Objective	1: Employment	2: Sustainable Economy	3: Health	4: Poverty and Equality	5: Sustainable Transport	6: Historic Environment	7: Built Environment	8: Waste Hierarchy	9: Mineral Resources	10: Climate Change	11: Restoration	12: Biodiversity & Geodiversity	13: Landscape	14: Water	15: Flooding	16. Pollution	17: Soil
SO 1: Health	0	0	++	0	+?	+	+	0	0	+?	+	+	+	+?	+?	+?	+
SO 2: Efficent Use of Minerals	+	+	+	+	+	+	+	+	++	+	0	+	+	+	+	+	+
SO 3: Safeguarding	+	+	+?/-?	+	+/-	+/-?	+/-?	0	++	+/-	0	+	+/-?	-?	+/-?	-?	+?/-?
SO 4: Waste Hierarchy	+	+	+	+	+	+	+	++	++	+	0	+	+	+	0	+	+
SO 5: Economy	+	++	+/-?	+	+/-?	+/-?	+/-?	++	+/-	+/-?	+?	+?/-?	+/-?	+/-?	+/-?	+/-?	+?/-?
SO 6: Supply of Minerals	+	++	+?/-?	+	+/-?	+?/-?	+?/-?	0	+	+/-?	+?	+?/-?	+?/-?	-?	+?/-?	+/-?	+?/-?
SO 7: Waste Management	+	++	+?/-?	+	+/-?	+?	+?	++	+	+/-?	0	+?/-?	+?/-?	+?/-?	+?/-?	+/-?	+?/-?
SO 8: Sustainable Transport	0	+	+?	0	++	+?	+?	0	0	+	0	+?	+?	0	0	+	0
SO 9: Suitable Locations	+	+	+?/-?	+	+?/-?	+/-?	+/-?	+	-	+?/-?	0	+/-?	+/-?	+/-?	+/-?	+?/-?	+/-?
SO 10: Design	0	0	+	0	0	+	+	0	0	0	+?	+	+	+	+	0	+
SO 11: Climate Change	0	0	+	0	+?	+	+	+	+	++	+?	+	+	+	+	++	+
SO 12: Environment	0	0	+	0	0	++	++	0	0	0	+?	++	++	++	++	0	++

5.8 Positive effects are identified for the majority of strategic objectives in relation to SA objectives **1: Employment**, **2: Sustainable Economy** and **4: Poverty and Equality** as they support the development and growth of the minerals and waste economy, and the generation of employment opportunities in Herefordshire. Significant positive effects are identified for SA objective **2: Sustainable Economy** as strategic objectives 5 (Economy), 6 (Supply of Minerals) and 7 (Waste Management) seek to ensure there is a steady supply of minerals and the adequate provision of waste management infrastructure which will encourage investment in the minerals and waste industry.

5.9 Six of the 12 strategic objectives will have a minor positive effect on SA objective **3: Health** as these objectives support: the long-term conservation and efficient use of minerals which may reduce adverse impacts on health and amenity incurred from the development of new mineral sites; the management of waste in accordance with the waste hierarchy and the use of alternatives to road transport which will reduce negative effects such as air and noise pollution; the delivery of green infrastructure as part of developments; and, the protection, conservation and enhancement of the county's natural, built, heritage and cultural assets which may improve health, wellbeing and quality of life. Strategic objective 1 (Health) will have a significant positive effect as it directly supports minerals and waste development that make an appropriate contribution to improving health, well-being and quality of life of residents. Mixed effects (uncertain minor positive/uncertain minor negative) are expected for strategic objectives 3 (Safeguarding), 5 (Economy), 6 (Supply of Minerals), 7 (Waste Management) and 9 (Suitable Locations) as it is possible that by identifying and safeguarding mineral and waste sites and their infrastructure, the effects associated with the operation of these developments (e.g. dust, noise, odour, vibration and traffic levels) may have a negative impact on health and amenity, however, it is also possible that such developments may improve health and amenity through the delivery of green infrastructure, enhanced public rights of way, or improved access to recreation as part of the development and restoration of sites.

5.10 A significant positive effect is identified for strategic objective 8 (Sustainable Transport) for SA objective **5: Sustainable Transport** as it seeks to reduce the need to travel and lessen the harmful impacts from traffic growth, promote the use of alternatives to road transport and ensure that new development is served by sustainable transport networks. Minor positive effects are identified for four strategic objectives as they support practices that reduce the transportation of waste and minerals and the use of alternatives to road transport. Mixed effects (either minor positive/minor negative or minor positive/uncertain minor negative or uncertain minor positive/uncertain minor negative) are identified for strategic objectives 3 (Safeguarding), 5 (Economy), 6 (Supply of Minerals), 7 (Waste Management) and 9 (Suitable Locations) as identifying and safeguarding mineral and waste sites may reduce the need for importing minerals and transporting waste further afield for processing, however, there may also be increased traffic levels from the operation of these developments.

5.11 Significant positive effects are expected for strategic objective 12 (Environment) in relation to SA objectives **6: Historic Environment** and **7: Built Environment** as it supports the protection, conservation and enhancement of historic assets, and the use of local building stone to help maintain and improve the quality of the built environment and local distinctiveness. Minor positive effects are identified for seven strategic objectives as they support the delivery of green infrastructure as part of developments or the restoration of sites which can contribute to the setting of heritage assets; and, the use of sustainable transport modes which can reduce adverse effects on the setting, fabric and structure of the built environment/heritage assets from emissions and vibration. Mixed effects (either uncertain minor positive/uncertain minor negative or minor positive/uncertain minor negative) are identified for strategic objectives 3 (Safeguarding), 5 (economy), 6 (Supply of Minerals) and 9 (Suitable Locations) as safeguarding and identifying sites for mineral and waste developments may lead to more mineral extraction activities that could have adverse impacts on the historic and built environments if the resource lies in close proximity to any heritage assets. However, uncertain minor positive effects may be experienced as it is possible to locate waste developments away from heritage assets or sensitive built environments.

5.12 Strategic objectives 4 (Waste Hierarchy), 5 (Economy) and 7 (Waste Management) will have significant positive effects on SA objective **8: Waste Hierarchy** as they promote the

management of waste in accordance with the circular economy and the adequate provision of waste management infrastructure in Herefordshire.

5.13 Significant positive effects are identified for strategic objectives 2 (Efficient Use of Minerals), 3 (Safeguarding) and 4 (Waste Hierarchy) in relation to SA objective **9: Mineral Resources** as they seek to safeguard mineral resources and promote resource efficiency which directly support the SA objective. Minor positive effects are expected for strategic objectives 6 (Supply of Minerals) and 7 (Waste Management) as they support a steady and sustainable supply of minerals which will ensure that resources are worked carefully and minerals are used in accordance with the Waste Hierarchy (i.e. through the use of recycled and secondary aggregates). A minor positive effect is also identified for objective 11 (Climate Change) as it supports mineral and waste developments that help adapt to and mitigate the impacts of climate change including the more sustainable use of resources such as recycled and secondary aggregates, and the generation of renewable energy through energy from waste facilities which would reduce extraction of non-renewable resources. Mixed effects (minor positive/minor negative) are identified for SA objective 5 (Economy) as it seeks to optimise the contribution that mineral working makes to Herefordshire's economy which will require additional mineral extraction, however, it also seeks to ensure that benefits to the economy are balanced with the effective protection of places from adverse effects. A minor negative effect is identified for strategic objective 7 (Suitable Locations) as it seeks to identify suitable locations for mineral developments which will also encourage extraction of primary resources.

5.14 Strategic objective 11 (Climate Change) will have a significant positive effect on SA objectives **10: Climate Change** and **16: Pollution** as it seeks to address the causes and impacts of climate change relating to minerals and waste development activity thereby reducing air pollution from greenhouse gas emissions. Mixed effects (uncertain minor positive/uncertain minor negative or minor positive/uncertain minor negative or minor negative/minor positive) are expected for these SA objectives for strategic objectives 3 (Safeguarding), 5 (Economy), 6 (Supply of Minerals), 7 (Waste Management) and 9 (Suitable Locations) as identifying and safeguarding mineral and waste sites and their infrastructure will reduce the need to import minerals and reduce the transport distances of waste, thereby limiting greenhouse gas emissions. However, it is also possible that the operation of these developments may increase the proportion of waste and minerals transported by road resulting in increased emissions from lorries particularly HGVs. An uncertain minor negative effect is expected for strategic objective 3 (Safeguarding) in relation to SA objective **16: Pollution** as there may be negative effects associated with the operation of mineral and waste developments such as noise, light, odour and air pollution. Minor positive effects are identified in relation to SA objectives 10 and 16 for strategic objectives 1 (Health), 2 (Efficient Use of Resources), 4 (Waste Hierarchy) and 8 (Sustainable Transport) as the sustainable transport of minerals and waste will reduce greenhouse gas emissions, and the efficient use of use of minerals including using recycled and secondary aggregates will reduce road haulage activities if the recovered materials are sourced locally thereby reducing transport emissions.

5.15 Minor positive and uncertain minor positive effects are identified for SA objective **11: Restoration** for six strategic objectives: 1 (Health), 5 (Economy), 6 (Supply of Minerals), 10 (Design), 11 (Climate Change) and 12 (Environment) as they promote the safeguarding and delivery of mineral and waste developments that are supported by open space and green infrastructure which may be delivered as part of the restoration of sites.

5.16 Significant positive effects are expected for the environmental SA objectives **12: Biodiversity & Geodiversity**, **13: Landscape**, **14: Water**, **15: Flooding** and **17: Soil** for strategic objective 12 (Environment) as it seeks to conserve and promote the natural environment by safeguarding the county's current stock of significant environmental assets from loss and damage whilst also reversing negative trends and encouraging expansion where possible. Mixed effects (either uncertain minor positive/uncertain minor negative or minor positive/uncertain minor negative) are expected in relation to these SA objectives for strategic objectives 3 (Safeguarding), 5 (Economy), 6 (Supply of Minerals), 7 (Waste Management) and 9 (Suitable Locations) with the exception of SA objectives **14: Water** and **16: Pollution** which will have uncertain minor negative effects due to strategic objective 9 (Suitable Locations) and SA objective **12: Biodiversity & Geodiversity** which will have a minor positive effect due to strategic objective 3 (Safeguarding). Safeguarding and identifying suitable locations for waste/mineral developments and ensuring an adequate supply of minerals and waste management infrastructure may have

negative effects on the environment from the operation, scale, design and location of the developments. However, through safeguarding, geological formations may be preserved and in some instances created and it is also possible that the design of the developments or the restoration of sites may enhance the environment, for example, through the provision of green infrastructure which would benefit biodiversity, the landscape, and the water and soil environments.

5.17 Uncertain minor negative effects are identified for SA objective **14: Water** for strategic objectives 3 (Safeguarding) and 5 (Supply of Minerals) as depending on the location, scale and design of the developments, there may be negative effects on the quality and quantity of water resources including groundwater aquifers from contamination, release of sediment, diversion of watercourses, or leachate break-out.

5.18 Minor positive effects in relation to SA objective 14 are identified for strategic objectives 1 (Health), 2 (Efficient Use of Minerals), 4 (Waste Hierarchy), 10 (Design) and 11 (Climate Change) as they support:

- the long-term conservation of primary minerals which will reduce the need for mineral extraction and thereby any associated impacts on the environment;
- the circular economy which will divert waste from landfills reducing adverse impacts on the quality of the landscape, and the soil/water environments;
- best practice operations which may include water pollution control measures, measures to minimise water usage, the provision of SuDS onsite, and the delivery of green infrastructure which can support biodiversity and, improve the landscape and quality/stability of soils;
- locating waste development on brownfield land (unlike mineral sites which must be worked where the resource lies);
- well-designed mineral and waste developments that use land efficiently and are supported by green infrastructure that will minimise landscape and visual intrusion of the developments, provide opportunities for enhancing biodiversity, and increase the area of permeable surfaces thereby reducing flood risk; and,
- developments that help to adapt to and mitigate the impacts of climate change which can include restoring former mineral and landfill sites thereby benefitting the landscape quality of Herefordshire and providing opportunities for water storage in flood zones.

5.19 Many effects are uncertain as it will depend on the scale, location and design of the developments which will not be known until planning application stage.

5.20 Negligible effects are expected for the remaining strategic objectives.

Chapter 7 – Strategic Policy and General Principles

5.21 **Table 5.3** summarises the SA scores for the four policies in Chapter 7: Strategic Policy and General Principles.

Table 5.3 Summary of SA scores for the policies in Chapter 7

SA Objective	1: Employment	2: Sustainable Economy	3: Health	4: Poverty and Equality	5: Sustainable Transport	6: Historic Environment	7: Built Environment	8: Waste Hierarchy	9: Mineral Resources	10: Climate Change	11: Restoration	12: Biodiversity & Geodiversity	13: Landscape	14: Water	15: Flooding	16. Pollution	17: Soil
SS8 : Resource Management	+	+	+	+	+	+	+	++	++	++	0	+	+	+	0	+	+
OS4: Access to open space and recreation from minerals and waste development	0	0	++	0	+	+	+	0	0	0	++	+	++	0	+	+	+
MT2: Transport within sites	0	0	+	0	++	+	+	0	0	+	+	+	+	+	+	+	+?
SD5: Site Reclamation	0	0	+?	0	+?	+	+	0	0	0	++	+	+	+	+	0	+?

5.22 Significant positive effects are identified for policy *SS8: Resource Management* in relation to SA objectives **8: Waste Hierarchy**, **9: Mineral Resources** and **10: Climate Change** as the policy directs minerals and waste resources to contribute positively to addressing climate change through promoting a circular economy which improves resource efficiency and the reuse of waste. Minor positive effects are identified for SA objectives **1: Employment**, **2: Sustainable Economy** and **4: Poverty and Equality** as promoting a circular economy will generate investment and employment opportunities in the waste recycling industry. Further minor positive effects are identified for SA objectives **5: Sustainable Transport** and **16: Pollution** as promoting a circular economy and managing waste in accordance with the Waste Hierarchy will reduce energy use and the need to transport residual waste within and outside the county resulting in less transport-related emissions. Minor positive effects are also expected for the remaining SA objectives (with the exception of SA objectives **11: Restoration** and **15: Flooding**) as the efficient use of mineral reserves and the transitioning to a more circular economy will reduce the rate of extraction of natural resources and any associated impacts on biodiversity, geodiversity, the landscape, the built and historic environments and, the soil and water environments.

5.23 Significant positive effects are expected for SA objective **11: Restoration** for policies *OS4: Access to open space and recreation from minerals and waste development* and *SD5: Site Reclamation* as they support the restoration of sites to a beneficial after-use and to a high standard which incorporate open spaces and green infrastructure. Minor positive effects are likely for SA objective **5: Sustainable Transport** as both policies provide opportunities to link to the existing rights of way network. Positive effects are also identified for SA objectives **3: Health** (significant positive for policy OS4), **6: Historic Environment**, **7: Built Environment**, **12: Biodiversity & Geodiversity**, **13: Landscape** (significant positive for policy OS4), **15: Flooding** and **17: Soil** as they support high quality restoration and the incorporation of green infrastructure in developments which will have beneficial effects for the natural, historic and built environments as well as the health and amenity of communities. Policy SD5 will have a minor positive effect on SA objective **14: Water** as site reclamation can create areas of open water and watercourses which can aid site drainage. The provision of open spaces integrating green infrastructure as part of mineral workings and waste sites, will assist in improving local air quality and may act as buffers for noise pollution from the activities undertaken at the sites. Therefore, a minor positive effect is identified for policy OS4 for SA objective **16: Pollution**.

5.24 Policy *MT2: Transport within sites* encourages the use of electric vehicles to transport minerals or waste within sites which will have a significant positive effect on SA objective **5: Sustainable Transport**. Additional minor positive effects are identified for policy MT2 in relation to 11 SA objectives as it requires the transportation of materials or wastes within sites to minimise the potential for adverse effects on the natural, built and historic environments which will also help to reduce air pollution and, noise and dust emissions (SA objectives **3: Health**, **6: Historic Environment**, **7: Built Environment**, **10: Restoration**, **11: Climate Change**, **12:**

Biodiversity & Geodiversity, **13: Landscape**, **14: Water**, **15, Flooding**, **16: Pollution** and **17: Soil**).

5.25 Negligible effects are expected for the remaining policies in this chapter.

Chapter 8 – Minerals

5.26 **Table 5.4** summarises the SA scores for the seven policies in Chapter 8: Minerals.

5.27 Minor positive effects are identified for the majority of minerals policies in relation to SA objectives **1: Employment**, **2: Sustainable Economy** and **4: Poverty and Equality** as they support the development and growth of the minerals economy, and the generation of employment opportunities in Herefordshire. Significant positive effects are identified for SA objective **2: Sustainable Economy** for policies *M3: Sand & Gravel*, *M4: Crushed Rock* and *M5: Sandstone*, as these policies will ensure a steady and adequate supply of minerals to meet the needs of society and will encourage long-term investment in Herefordshire's minerals sector. Additionally, the uncertain minor positive effects for SA objective **4: Poverty & Equality** for policies M5 and *M7: Unconventional Hydrocarbons* are mixed with uncertain minor negative effects. The job creation at sites supported by policy M5 is dependent on access to sustainable transport links and people (particularly those without cars) may not be able to easily access sites for employment. Additionally, adverse effects could occur if new developments supported by policy M7 are sited near deprived areas due to potential direct impacts on local amenity.

5.28 Uncertain minor negative effects are identified for the majority of mineral policies for SA objective **3: Health** (with the exception of policy *M6: Borrow Pits*) as minerals development may have an adverse effect on the amenity of local residents and communities depending on their proximity to extraction sites, due to impacts such as greenhouse gas emissions, noise, vibration and light pollution during site preparation, operation and restoration, and associated with the transport of minerals around and from the site. These minor negative effects are mixed with minor positive effects for policy *M1: Mineral Strategy* and uncertain positive effects for policies *M3: Sand & Gravel*, *M4: Crushed Rock*, *M5: Sandstone* and *M7: Unconventional Hydrocarbons*. Policy M1 requires minerals to be worked sustainably and for development to make efficient use of secondary or recycled materials, which would reduce the need for new extraction sites. Policies M3, M4 and M5 could result in the design and restoration of sites, providing green infrastructure, public rights of way and improved recreational access. Policy M7 requires environmental effects to be avoided and mitigated. Uncertain positive effects alone are identified for policy M6 as it aims to ensure that proposals for the development of borrow pits create significant environmental benefits and result in a high quality of development. Uncertainty surrounding effects is dependent on the location, scale, design and restoration of mineral sites.

5.29 Uncertain negative effects are identified for the majority of mineral policies for SA objectives **5: Sustainable Transport** and **10: Climate Change** (with the exception of policy *M6: Borrow Pits*) as minerals development could contribute to road transportation and associated transport related emissions, and may not be located in proximity to sustainable transport links. These effects are significant for policies *M3: Sand & Gravel*, *M4: Crushed Rock* and *M5: Sandstone* as these policies are likely to result in high levels of Heavy Goods Vehicles on local roads that have the potential to contribute to traffic and congestion. These negative effects are mixed with minor positive effects for policy *M1: Mineral Strategy* and with uncertain minor positive effects for policies M3, M4 and M5. Policy M1 requires minerals to be worked sustainably and for development to make efficient use of secondary or recycled materials, which would reduce the frequency of the transportation of raw materials to market, and (with regard to SA objective 10: Climate Change) the policy places restrictions on the extraction and use of coal for energy. Policies M3, M4 and M5 could result in development that utilises sustainable transport links such as rail. Uncertain minor positive effects are identified for policy M6 as it only permits the development of borrow pits on or adjacent to proposed construction projects, which will reduce the distance required to transport the materials. Further potential negative effects for policies M1, M3, M4, M5 and M6 are attributable to the release of carbon due to mineral extraction activities as soils and geological formations can store carbon in fairly inert forms.

5.30 Mixed effects (uncertain minor positive/uncertain minor negative) are identified for policy *M7: Unconventional Hydrocarbons* for SA objective **5: Sustainable Transport**, as development could contribute to road transportation, and may or may not be located in proximity to sustainable transport links. An uncertain significant negative effect is identified for this policy in relation to SA objective **10: Climate Change** as it supports unconventional hydrocarbons which are a non-renewable indigenous fuel. Unconventional hydrocarbon development has the potential to exacerbate the impacts of climate change through increased greenhouse gas emissions primarily from the processing (direct release of produced gas to the atmosphere from controlled venting or uncontrolled fugitive emissions/leakages) and use of unconventional hydrocarbons. Depending on the location of the development, indirect greenhouse gas emissions may also arise as a consequence of development on high carbon soils. Effects are uncertain depending on the scale and location of development, particularly in relation to indirect greenhouse gas emissions.

5.31 Uncertain minor negative effects are expected for all minerals policies for SA objectives **6: Historic Environment**, **7: Built Environment**, **12: Biodiversity & Geodiversity**, **13: Landscape** and **14: Water** as mineral extraction could have an adverse impact on the historic environment, the character and built quality of settlements and neighbourhoods, the county's biodiversity and geodiversity, the character and quality of the landscape, and on watercourses. These effects are dependent on the location, scale and design of developments. These negative effects are mixed with minor positive effects for policy *M1: Mineral Strategy*, as the policy requires minerals to be worked sustainably and for development to make efficient use of secondary or recycled materials, which would reduce the need for new extraction sites. These negative effects are also mixed with uncertain minor positive effects for policies *M3: Sand & Gravel*, *M4: Crushed Rock*, *M5: Sandstone*, *M6: Borrow Pits* and *M7: Unconventional Hydrocarbons*, as site restoration, beneficial after uses, site location and the avoidance of adverse environmental impacts also have the potential to provide benefits to the natural, built and historic environments.

5.32 Furthermore, the HRA Screening Report identified a lack of certainty as to whether the following policies would result in likely significant effects on European sites:

- Policy *M3: The winning and working of sand and gravel* (physical damage and loss of habitat, non-physical disturbance and non-toxic contamination).
- Policy *M5: The winning and working of building stone (sandstone)* (water quality).
- Policy *M7: Unconventional hydrocarbons* (water quality).

5.33 Minor positive effects are expected for the majority of minerals policies for SA objective **8: Waste Hierarchy** as policies could move the treatment of waste up the waste hierarchy. Policy *M6: Borrow Pits* promotes the infill of borrow pits with unusable materials from civil engineering construction projects and policy *M7: Unconventional Hydrocarbons* promotes on-site management of waste. All mineral workings have the potential to treat CD&E waste and in many cases the same processing equipment may be shared. As such, uncertain minor positive effects are identified for policies *M3: Sand & Gravel*, *M4: Crushed Rock* and *M5: Sandstone*. Minor positive effects are identified for policy *M1: Mineral Strategy* as the policy advocates that minerals should be worked sustainably through identifying sources of alternatives to primary reserves, and ensuring that new-build and refurbishment developments make efficient use of secondary or recycled materials, which should help to treat waste more as a valuable resource. However, this is mixed with a minor negative effect as the allocation of minerals sites encourages the extraction of new raw materials which would have an adverse effect on reducing waste. Policy *M2: Safeguarding Minerals* will not have a direct effect on this SA objective and a negligible effect is identified.

5.34 The majority of minerals policies are expected to have significant positive effects for SA objective **9: Mineral Resources** as policy *M1: Mineral Strategy* requires minerals to be worked sustainably; policies *M2: Safeguarding Minerals*, *M3: Sand & Gravel*, *M4: Crushed Rock* and *M5: Sandstone* provide protection to mineral resources from inappropriate non-mineral development, and policy *M6: Borrow Pits* promotes the efficient use of mineral resources by supporting the infill of borrow pits with unusable materials from civil engineering construction projects. These effects are uncertain for policy M2 as the policy states that minerals located on land which is needed for strategic development may be lost where the need for non-minerals development is greater that the need for the mineral resource. Additionally, the positive effect identified for policy M1 is also

mixed with a minor negative effect as the policy promotes the working of new mineral sites. National Planning Practice Guidance for onshore oil and gas states that there is normally no need to create mineral safeguarding areas to avoid sterilisation from extraction of hydrocarbons given the depth of the resource, the ability to utilise directional drilling and the small surface area requirements of the well pads. However, an uncertain minor negative effect is expected for **policy *M7: Unconventional Hydrocarbons* as it could be updated to require developers to be as efficient as possible, for example to avoid flaring and venting wherever possible, as these can be harmful to the environment and to avoid wastage of the valuable gas resource thereby encouraging the efficient use of mineral resources.**

5.35 The majority of minerals policies are expected to have positive effects in relation to SA objective **11: Restoration** as they promote the effective restoration and appropriate after-use of sites. Significant positive effects are expected for policies *M3: Sand & Gravel*, *M4: Crushed Rock* and *M5: Sandstone*, as the NPPF (2018) states that mineral sites should be restored at the earliest convenience, taking account of aviation safety, to a high environmental standard; and, for policy *M6: Borrow Pits* as it directly supports the effective restoration and appropriate after-use of borrow pits. Effects are uncertain for policies M3, M4, M5 and M7 as they are dependent on the type of restoration proposed and eventually developed on sites, and the scale, nature and location of the development proposed. Policies *M1: Mineral Strategy* and *M2: Safeguarding Minerals* will not have a direct effect on this SA objective and therefore negligible effects are identified.

5.36 Minor negative effects are expected for policies *M1: Mineral Strategy* and *M2: Safeguarding Minerals* for SA objective **15: Flooding**, as the working of mineral resources could have an adverse impact on flooding. These effects are uncertain, dependent on the location, scale and design of the development. Additionally, the minor negative effect identified for policy M1 is mixed with a minor positive effect, as the efficient use of land by working quarries in close proximity could reduce more widespread effects of flooding. Negligible effects are expected for policies *M3: Sand & Gravel*, *M4: Crushed Rock* and *M5: Sandstone* as sand and gravel working is considered a 'water compatible' use and crushed rock and building rock working are considered 'less vulnerable' uses. Mixed effects (uncertain minor positive / uncertain minor negative) are identified for policies *M6: Borrow Pits* and *M7: Unconventional Hydrocarbons*, as borrow pits could be located off-site away from flood risk and policy M7 aims to avoid any adverse environmental impacts. However, these mineral sources may naturally occur in areas of flooding and unconventional hydrocarbon development could increase the area of impermeable surface, resulting in an increased flood risk. These mixed effects are uncertain, dependent on the scale and location of development.

5.37 Uncertain minor negative effects are identified for the majority of the mineral policies for SA objective **16: Pollution** (with the exception of policy *M6: Borrow Pits*), as minerals developments could contribute to road transportation and associated transport related emissions, may not be located in proximity to sustainable transport links, and on-site preparation, operation and restoration would result in some level of noise, vibration and light pollution. The minor negative effect is mixed with an uncertain minor positive effect for policy *M1: Mineral Strategy*, as the policy requires minerals to be worked sustainably and for development to make efficient use of secondary or recycled materials, which would reduce the frequency of transportation of raw materials to market. The negative effect is also mixed with an uncertain minor positive effect for policy *M7: Unconventional Hydrocarbons*, as the policy aims to avoid any adverse environmental impacts, which is assumed to include noise, light and air pollution. Uncertain minor positive effects alone are identified for policy *M6: Borrow Pits*, as it only permits the development of borrow pits on or adjacent to proposed construction projects, which will reduce the distance required to transport the materials and associated transport-related emissions. Uncertainty attached to these effects is dependent upon development location, scale and design.

5.38 Uncertain minor negative effects are identified for all minerals policies in relation to SA objective **17: Soil** as mineral extraction activities can impact on soils through the removal of soil, contamination from leaching of chemical and oil spillages and leachate break-out. The minor negative effect is mixed with a minor positive effect for policy *M1: Mineral Strategy*, as this policy requires minerals to be worked sustainably and for development to make efficient use of secondary or recycled materials, which would reduce the need for raw material extraction and associated effects on soil quality. These negative effects are also mixed with uncertain minor positive effects for policies *M3: Sand & Gravel*, *M4: Crushed Rock*, *M5: Sandstone* and *M7:*

Unconventional Hydrocarbons, as site reclamation schemes have the potential to return sites to agricultural use, and policy M7 aims to avoid any adverse environmental impacts. Uncertainty attached to these effects is dependent upon development location, scale and design.

Table 5.4 Summary of SA scores for the policies in Chapter 8

SA Objective	1: Employment	2: Sustainable Economy	3: Health	4: Poverty and Equality	5: Sustainable Transport	6: Historic Environment	7: Built Environment	8: Waste Hierarchy	9: Mineral Resources	10: Climate Change	11: Restoration	12: Biodiversity & Geodiversity	13: Landscape	14: Water	15: Flooding	16. Pollution	17: Soil
M1: Mineral Strategy	+	+	+/-?	+	+/-?	+/-?	+/-?	+/-	++/-	+/-?	0	+/-?	+/-?	+/-?	+/-?	+/-?	+/-?
M2: Safeguarding Minerals	+	+	-?	+	-?	-?	-?	0	++?	-?	0	-?	-?	-?	-?	-?	-?
M3: Sand & Gravel	+	++	+?/-?	+	+?/--?	+?/-?	+?/-?	+?	++	+?/--?	++?	+?/-?	+?/-?	+?/-?	0	-?	+?/-?
M4: Crushed Rock	+	++	+?/-?	+	+?/--?	+?/-?	+?/-?	+?	++	+?/--?	++?	+?/-?	+?/-?	+?/-?	0	-?	+?/-?
M5: Sandstone	+	++?	+?/-?	+?/-?	+?/--?	+?/-?	+?/-?	+?	++	+?/--?	++?	+?/-?	+?/-?	+?/-?	0	-?	+?/-?
M6: Borrow Pits	+	+	+?	+	+?	+?/-?	+?/-?	+	++	+?/-?	++	+?/-?	+?/-?	+?/-?	+?/-?	+?	-?
M7: Unconventional Hydrocarbons	+?	+?	+?/-?	+?/-?	+?/-?	+?/-?	+?/-?	+	-?	--?	+?	+?/-?	+?/-?	+?/-?	+?/-?	+?/-?	+?/-?

Chapter 9 – Waste

5.39 **Table 5.5** summarises the SA scores for the seven policies in Chapter 9: Waste.

Table 5.5 Summary of SA scores for the policies in Chapter 9

SA Objective	1: Employment	2: Sustainable Economy	3: Health	4: Poverty and Equality	5: Sustainable Transport	6: Historic Environment	7: Built Environment	8: Waste Hierarchy	9: Mineral Resources	10: Climate Change	11: Restoration	12: Biodiversity & Geodiversity	13: Landscape	14: Water	15: Flooding	16. Pollution	17: Soil
W1: Waste Strategy	+	+	+?	+	+	+?	+?	++	++	+	+?	+?	+?	+	+?	+?	+
W2: Solid Waste	+	+	+?/-?	+	+?/-?	+?	+?	++	++	+?/-?	+?	+?	+?	0	+?	+?/-?	+
W3: Agricultural Waste	0	0	+	0	+	0	0	+	0	+	0	+	+	+	0	+	+
W4: Waste water	+	+	+	+	0	0	0	+	0	+	0	+	0	++	0	+	0
W5: Preferred Locations Solid Waste	+	+	-?	+	+/-?	-?	-?	++?	-?	+?/-?	+?	-?	-?	-?	-?	-?	-?
W6: Preferred Locations Construction, Demolition and Excavation	+	+	-?	+	+/-?	-?	-?	++?	-?	+?/-?	++?	-?	-?	-?	-?	-?	-?
W7: Waste Management Operations	+	+?	+?	+	+	+?	+?	++?	+	+	+	+?	+?	+	+?	+	+?

5.40 Positive effects are identified for the majority of the waste policies in relation to SA objectives **1: Employment**, **2: Sustainable Economy** and **4: Poverty and Equality** as they support the development and growth of the waste economy, and the generation of employment opportunities in Herefordshire. These effects are uncertain for policy *W7: Waste Management Operations* for SA objective 2: Sustainable Economy, as although the promotion of the development of waste management facilities through this policy will create investor confidence and thus encourage investors to develop new infrastructure, the strict requirements on the capabilities of new facilities could discourage investment where these have implications on development costs. Policy *W3: Agricultural Waste* will not have a direct effect on this SA objective and a negligible effect has been identified.

5.41 Minor positive effects are identified for the majority of the waste policies in relation to SA objectives **3: Health** and **16: Pollution**. Policies *W1: Waste Strategy* and *W2: Solid Waste* promote a circular economy and the recovery of materials from construction and demolition waste, which reduces raw mineral extraction and associated transport and transport-related emissions. Additionally, the positive effect is mixed with a minor negative effect for policy *W2: Solid Waste*, as new waste facilities could result in additional transportation and transport-related emissions. Effects for both of these policies are uncertain, dependent on the size, design, type and location of new waste management infrastructure. Minor positive effects are also identified for policies *W3: Agricultural Waste* and *W4: Waste water*, as these policies encourage the safe management of fertilisers and manures, support new infrastructure to supply potable water, and support the use of anaerobic digestion and biogas, which reduce fossil fuel use and associated emissions. A minor positive effects is also identified for policy *W7: Waste Management Operations*, as it provides opportunities for the introduction of green infrastructure as part of site restoration and supports the development of waste management facilities for energy recovery. Effects for this policy are however uncertain, dependent on the type of restoration proposed and eventually developed. Conversely, negative effects are expected for policies *W5: Preferred Locations Solid Waste* and *W6: Preferred Locations Construction, Demolition and Excavation*, as the preparation, operation and restoration of waste facilities have the potential to adversely affect the amenity of local residents and communities in terms of noise, vibration and light and air pollution. These effects are also uncertain, dependent on the scale, design and restoration of sites.

5.42 Minor positive effects are identified for the majority of waste policies for SA objective **5: Sustainable Transport** and for all policies for SA objective **10: Climate Change**. Policies *W1: Waste Strategy* and *W7: Waste Management Operations* promote a circular economy, which reduces raw mineral extraction and associated transport and transport-related emissions, and promote energy recovery, which reduces fossil fuel emissions. Policy *W3: Agricultural Waste* promotes the use of on-site anaerobic digestion for waste management and energy production, which reduces waste transportation and transport-related emissions, and reduces fossil fuel usage. Minor positive effects are also expected for policies *W2: Solid Waste*, *W5: Preferred Locations Solid Waste* and *W6: Preferred Locations Construction, Demolition and Excavation*, however these are mixed with minor negative effects. Mixed effects (uncertain minor positive and uncertain minor negative) are expected for policy W2, as although this policy supports the recovery of materials from construction and demolition waste, which reduces raw mineral extraction and associated transport and transport-related emissions, and supports the recovery of energy, which offsets emissions, the development of waste facilities could increase waste transportation and transport-related emissions. Similarly, mixed effects (minor positive and uncertain negative) are expected for policies W5 and W6 as the development of waste facilities may increase waste transportation. However, there may be opportunities for symbiotic relationships between waste management, engineering, manufacturing and research industries, and in the case of policy W6 there is also potential to treat CD&E waste and inert waste onsite, which will help to reduce the transport distances of waste. Although policy *W4: Waste water* will not have a direct effect on SA objective 5: Sustainable Transport, and as such a negligible effect is identified, a minor positive effect is identified for this policy for SA objective 10: Climate Change, as it supports new infrastructure to manage water resources effectively, ensuring the impacts of climate change on water supply are carefully managed.

5.43 Policies *W1: Waste Strategy* and *W2: Solid Waste* are expected to have minor positive effects for SA objectives **6: Historic Environment**, **7: Built Environment**, **12: Biodiversity & Geodiversity**, **13: Landscape**, **15: Flooding** and **17: Soil**, as these policies promote a circular economy and the recovery of materials from construction and demolition waste, which reduces raw mineral extraction and associated effects on the historic environment; the character and built quality of settlements and neighbourhoods; the county's biodiversity and geodiversity; the character and quality of the landscape; and, the water and soil environments. These effects are uncertain for SA objective 6, 7, 12, 13 and 15, dependent on the size, design and location of developments. Minor positive effects are also expected for policy *W7: Waste Management Operations* for these SA objectives, as the policy provides the opportunity for site restoration by means of landfill and supports waste developments that result in a local benefit and avoidance of adverse impacts. This could have positive effects on the natural, built and historic environments. These effects are uncertain, dependent on the type of restoration delivered and the benefits provided. Policies *W5: Preferred Locations Solid Waste* and *W6: Preferred Locations Construction, Demolition and Excavation* are expected to have minor negative effects for these SA objectives, as the operation and development of waste facilities may adversely impact the natural, built and historic environments. Effects for these two policies are uncertain, dependent on the location, scale and design of development and whether effects have already been addressed through conditions relating to the existing planning permission on operational sites. Policy *W3: Agricultural Waste* will not have a direct impact on SA objectives 6, 7 and 15, and as such negligible effects have been identified. This policy is expected to have minor positive effects for SA objectives 12, 13 and 17, as it promotes the safe management of fertilisers and manures, promotes the use of anaerobic digestions, which reduces landfill use and provides natural mineral fertiliser, resulting in positive effects on the county's biodiversity and geodiversity, the character and quality of the landscape, and on soil quality. Policy *W4: Waste water* will not have a direct impact on the majority of these SA objectives and as such negligible effects have been identified. Positive effects have been identified for this policy for SA objective 12, as the policy supports the provision of new infrastructure to support waste water services, which has benefits for aquatic environments.

5.44 Furthermore, the HRA Screening Report (LUC, 2018) identified a lack of certainty as to whether policy *W6: Preferred Locations Construction, Demolition and Excavation* would result in likely significant effects on the River Wye SAC as a result of physical loss of or damage to habitat, non-physical disturbance, non-toxic contamination and adverse effects on water quality.

5.45 Positive effects are expected for all the waste policies in relation to SA objective **8: Waste Hierarchy**, as policies could move the treatment of waste up the waste hierarchy. Policies *W3:*

Agricultural Waste and *W4: Waste water* supports the efficient management of agricultural waste and water. Significant positive effects are expected for policies *W1: Waste Strategy*, *W2: Solid Waste* and *W7: Waste Management Operations* as these policies promote a circular economy, the recovery of materials from construction and demolition waste and the development of waste management facilities for reuse, recycling, recovery and also site reclamation. The effects for policy W7 are however uncertain, as the policy also supports waste developments which do not necessarily meet all the requirements of the policy, and so effects are dependent on the developments that come forward and their ability to contribute to the waste circular economy. Significant positive effects are also identified for policies *W5: Preferred Locations Solid Waste* and *W6: Preferred Locations Construction, Demolition and Excavation* as these support the operation and development of waste facilities that could promote improved waste management processes and move waste management up the waste hierarchy.

5.46 Positive effects are expected for policies *W1: Waste Strategy* and *W7: Waste Management Operations* for SA objective **9: Mineral Resources** as these policies support the use of inert waste in the restoration of mineral workings, which could have a positive effect on managing and using waste mineral by-products. Additionally, significant positive effects are expected for policies *W1: Waste Strategy* and *W2: Solid Waste* as these policies promote the increased reuse of mineral resources, creating a market for recycled and secondary aggregate use. Minor negative effects are expected for policies *W5: Preferred Locations Solid Waste* and *W6: Preferred Locations Construction, Demolition and Excavation*, as waste facilities may sterilise mineral resources and restrict the availability of resources in the county if located within a Preferred Area of Search or a Mineral Safeguarding Area. These effects are uncertain dependent on the location of development and whether effects have already been addressed through conditions relating to the existing planning permission on operational sites. Additionally, the development of new waste facilities at strategic employment sites under policy W5 is not expected to adversely impact on mineral resources beyond the effects already experienced at operational industrial or employment sites. Policies *W3: Agricultural Waste* and *W4: Waste water* will not have a direct effect on this SA objective and as such negligible effects have been identified.

5.47 Positive effects are identified for the majority of waste policies in respect to SA objective **11: Restoration**. Policies *W1: Waste Strategy* and *W2: Solid Waste* are expected to have minor positive effects as they support the disposal of inert waste and use of inert waste in the restoration of mineral workings. Policy *W7: Waste Management Operations* provides the opportunity for site restoration by means of landfill, and the waste developments identified in policy *W5: Preferred Locations Solid Waste* could have positive effects through restoration, but this is uncertain and dependent on the type of restoration developed. Significant positive effects are expected for policy *W6: Preferred Locations Construction, Demolition and Excavation* which allows for sustainable disposal of inert wastes at three of the operational quarries in Herefordshire, as the NPPF (2018) states that mineral sites should be restored at the earliest convenience, taking account of aviation safety, to a high environmental standard. This effect is also uncertain, dependent on the type of restoration developed. Policies *W3: Agricultural Waste* and *W4: Waste water* will not have a direct effect on this SA objective and as such negligible effects have been identified.

5.48 Policies *W1: Waste Strategy*, *W3: Agricultural Waste* and *W7: Waste Management Operations* are expected to have minor positive effects in relation to SA objective **14: Water**, as these policies promote the circular economy that will increase efficient water use, promote the safe management of fertilisers and manures that could otherwise be released in to water environments, and support waste developments that avoid adverse impacts, such as upon water courses. A significant positive effect is expected for policy *W4: Waste water* as this promotes waste water management, enabling the treatment and reuse of water. Conversely, policies *W5: Preferred Locations Solid Waste* and *W6: Preferred Locations Construction, Demolition and Excavation* are expected to have minor negative effects, as waste facilities may adversely impact on water quality if located in proximity to designated or vulnerable waterbodies, or within Source Protection Zones, and waste facilities require water resource use that may adversely affect water supply. These effects are uncertain, dependent on the hydrological connectivity of sites with waterbodies and whether these are likely to have already been addressed through conditions relating to the existing planning permission of operational sites. Additionally, the development of new waste facilities at strategic employment sites under policy *W5: Preferred Locations Solid Waste* is not expected to adversely impact on water beyond the effects already experienced at

operational industrial or employment sites. Policy *W2: Solid Waste* will not have a direct effect on this SA objective and as such a negligible effect has been identified.

6 Sustainability Appraisal Findings of the Draft Herefordshire Minerals and Waste Local Plan

Introduction

6.1 This chapter considers the potential total sustainability effects of the Draft Herefordshire Minerals and Waste Local Plan (2018). By looking at **Table 6.1** and **Table 6.2** which summarises all of the sustainability effects for the HMWLP Vision; 12 strategic objectives; seven mineral-related policies; seven waste-related policies; 28 mineral and waste site allocations; four Areas of Search; and, nine strategic employment areas, a judgement can be made regarding the potential effects of the Draft HMWLP on each SA objective.

6.2 In accordance with SEA Regulations, this chapter also presents an assessment of secondary, cumulative, synergistic, short, medium and long-term, permanent and temporary effects.

SA Objective 1 - Support, maintain or enhance the provision of employment opportunities in the minerals and waste sectors

6.3 Positive effects were identified for all site options in relation to SA objective **1: Employment** as their allocation could have a direct effect on maintaining or increasing employment levels during site preparation, operation and restoration of mineral or waste sites. Minor positive effects are identified for 37 out of 41 site options as the majority of site proposals are unlikely to create a significant amount of new employment opportunities through their operation individually or cumulatively in the local area. Uncertain significant positive effects are expected for strategic employment sites that are greater than 20ha in size (sites W58, W59, W63 and W66) as they are appropriate locations for larger scale/strategic waste management facilities which could generate numerous employment opportunities in Herefordshire.

6.4 The Vision, seven strategic objectives, and 15 mineral and waste policies will also have minor positive effects for this SA objective as they support the generation of employment opportunities in the mineral and waste industries in Herefordshire. No significant positive effects were identified for any of the policies with regard to this SA objective.

6.5 No negative effects (minor or significant) were identified during the appraisal of sites and policies.

6.6 Overall, the Draft Herefordshire Minerals and Waste Local Plan is therefore considered to have a **minor positive effect** on supporting, maintaining or enhancing the provision of employment opportunities in the minerals and waste sectors.

SA Objective 2 - Maintain or enhance conditions that enable a sustainable economy and continued investment

6.7 Minor positive effects are also expected for SA objective **2: Employment** for 37 sites as the development of waste treatment facilities will maintain/enhance conditions that enable a circular economy and long-term investment in the waste sector while the allocation of mineral sites for extraction will ensure a steady and adequate supply of minerals to meet the needs of society and will encourage long-term investment in Herefordshire's minerals sector. As for SA objective 1, uncertain significant positive effects are identified for sites W58, W59, W63 and W66 as these sites, due to their size (>20ha), may significantly enhance investment in the waste industry if large scale/strategic waste management facilities were developed at these locations.

6.8 The majority of policies are expected to have minor positive effects on supporting a sustainable economy and continued investment in the minerals and waste industries. However, strategic objectives 5 (Economy), 6 (Supply of Minerals) and 7 (Waste Management) will have significant positive effects as they seek to ensure there is a steady supply of minerals and the adequate provision of waste management infrastructure which will encourage investment in the minerals

and waste industries. Further significant positive effects are expected for policies *M3: Sand and Gravel*, *M4: Crushed Rock* and *M5: Sandstone* as these policies seek to ensure a supply of various minerals throughout the plan period which will significantly support economic growth in the minerals sector.

6.9 No negative effects (minor or significant) were identified during the appraisal of sites and policies.

6.10 Overall, the Draft Herefordshire Minerals and Waste Local Plan is therefore considered to have a **minor positive effect** on maintaining or enhancing conditions that enable a sustainable economy and continued investment.

SA Objective 3 - Protect and improve the health of the people of Herefordshire, reduce disparities in health geographically and demographically

6.11 Of the 20 proposed minerals sites in the Draft HMWLP, nine sites are expected to have uncertain significant negative effects in relation to SA objective **3: Health** as they are within 100m of one or more sensitive receptors. Most often, these receptors are nearby residential areas in settlements. Uncertain significant negative effects are also identified for the four Areas of Search as they contain numerous sensitive receptors. Site W07 is expected to have an uncertain significant negative effect in relation to this SA objective as it is within 100m of the settlement of Leominster and a waste water treatment works facility which could have a cumulative adverse effect on the amenity of the community. The effect is uncertain as this has potentially been addressed through conditions relating to the existing planning permission for the site. No significant positive effects were identified during the appraisal of the sites. The majority of the remaining sites including the strategic employment areas are expected to have negligible effects.

6.12 Strategic objective 1 (Health) will have a significant positive effect on this SA objective as it directly supports minerals and waste development that make an appropriate contribution to improving health, well-being and quality of life of residents. Significant positive effects are also identified for policy *OS4: Access to open space and recreation from minerals and waste development* as it supports minerals and waste developments that optimise opportunities to improve public access to open spaces integrating green infrastructure as appropriate, which will benefit the health and amenity of local communities. The majority of policies are expected to have minor positive effects as they support the long-term conservation and efficient use of minerals which may reduce adverse impacts on health and amenity incurred from the development of new mineral sites; the management of waste in accordance with the waste hierarchy and the use of alternatives to road transport which will reduce negative effects such as air and noise pollution; the delivery of green infrastructure as part of developments; and, the protection, conservation and enhancement of the county's natural, built, heritage and cultural assets which may improve health, wellbeing and quality of life. However, minor negative effects are expected in relation to five strategic objectives, six minerals policies and three waste policies (generally as part of mixed effects). These policies generally support mineral and waste developments which could have adverse effects on the amenity of local residents and communities depending on their proximity to extraction and waste sites, due to impacts such as greenhouse gas emissions, noise, vibration and light pollution during site preparation, operation and restoration. No significant negative effects were identified during the appraisal of policies.

6.13 Overall, the Draft Herefordshire Minerals and Waste Local Plan is therefore considered to have a **mixed effect (minor positive/minor negative)** on protecting and improving the health of the people of Herefordshire, reducing disparities in health geographically and demographically.

SA Objective 4 - Reduce poverty and social inclusion by closing the gap between the most deprived areas in the county and the rest of the county

6.14 Encouraging investment in the minerals and waste industries has the potential to have a secondary impact on rates of deprivation through economic growth and job creation. All site options and the majority of policies are expected to have minor positive effects in relation to SA objective **4: Poverty and Equality**. Sites W58, W59, W63 and W66 are expected to have uncertain significant positive effects as they would provide employment opportunities at larger scale/strategic waste management facilities thereby reducing employment deprivation. Furthermore, site W63 would provide employment opportunities in one of the most deprived areas of Herefordshire. No significant positive effects were identified for any of the policies with regard

to this SA objective. No significant negative effects were identified during the appraisal of sites and policies.

6.15 Overall, the Draft Herefordshire Minerals and Waste Local Plan is therefore considered to have a **minor positive effect** on reducing poverty and social inclusion by closing the gap between the most deprived areas in the county and the rest of the county

SA Objective 5 - Reduce road traffic, congestion and pollution, and promote sustainable modes of transport and efficient movement patterns in the county

6.16 Of the 20 proposed minerals sites in the Draft HMWLP, six sites are expected to have significant negative effects in respect to SA objective **5: Sustainable Transport** (M07a, M07b, M12, M13, M17 and M18) while 12 sites are expected to have significant negative effects as part of overall mixed effects as these sites are either large (over 20ha) and are expected to generate high volumes of heavy goods vehicle traffic; are not within 250m of a main road thereby encouraging the use of local roads which may result in vehicles travelling slowly increasing the potential for traffic and pollutant deposition along those routes; or, are not within 800m of any sustainable transport links which will encourage private car use among employees. The minor positive scores identified for 12 sites recognises the proximity to one or two sustainable transport links which will encourage employees of the mineral sites to use sustainable transport; or the sites are within 1km of the Moreton-on-Lugg railhead which may be used to transport minerals using a more sustainable mode of transport than road-based travel. It is recognised that within all Areas of Search, there are areas which could be within 800m of numerous sustainable transport links thereby enabling sustainable travel by employees of minerals sites, leading to minor positive effects, however, there are also areas which could be more than 250m from a main road or more than 800m from a sustainable transport link, resulting in significant negative effects. Mixed effects (minor positive/minor negative) are identified for all waste site options. Uncertain minor positive effects are identified for all of the strategic employment sites (sites W58-W66) as these may provide opportunities for symbiotic relationships between waste management, engineering, manufacturing and research industries which will help to reduce transport distances of waste.

6.17 A significant positive effect is identified for strategic objective 8 (Sustainable Transport) for this SA objective as it seeks to reduce the need to travel and lessen the harmful impacts from traffic growth, promote the use of alternatives to road transport and ensure that new development is served by sustainable transport networks. A significant positive effect is expected for policy *MT2: Transport within sites* as it encourages the use of electric vehicles to transport minerals or waste within sites and requires development proposals to design internal transport routes to provide cycle links or footpaths upon reclamation of the site (and earlier where practicable). Minor positive effects are expected for 11 policies and for 14 policies as part of mixed effects as they:

- support the development of waste management facilities for reuse, recycling, recovery and the overall transition to a more circular economy, which has benefits for reducing traffic associated with new raw material extraction;
- encourage symbiotic relationships between waste management, engineering, manufacturing and research industries which will help to reduce the transport distances of waste;
- promote the long-term conservation of primary minerals, and the efficient use of minerals in new development including using recycled and secondary aggregates which will reduce road haulage activities if the recovered materials are sourced locally, thereby reducing road congestion in the county; and,
- support safeguarding of transport infrastructure such as railheads which can facilitate the sustainable transport of minerals.

6.18 Significant negative effects (as part of mixed effects) are identified for policies *M3: Sand & Gravel*, *M4: Crushed Rock* and *M5: Sandstone* while minor negative effects are identified (mostly as part of mixed effects) for 12 policies. The negative effects generally relate to minerals and waste continuing to be predominately transported by heavy goods vehicles which will result in increases in traffic generation and transport-related emissions.

6.19 Overall, the Draft Herefordshire Minerals and Waste Local Plan is therefore considered to have a **mixed effect (significant negative / minor positive)** on reducing road traffic, congestion and

pollution, and promoting sustainable modes of transport and efficient movement patterns in the county.

SA Objective 6 - Value, protect and enhance the county's historic environment and cultural heritage

6.20 Uncertain significant negative effects are identified for the Areas of Search in relation to SA objective **6: Historic Environment** as these areas contain designated heritage assets that could be adversely affected by mineral extraction if development were to take place at sites either containing or adjacent to these assets or at sites that contribute to the setting of heritage assets. Uncertain minor negative effects are identified for all the mineral sites as adverse effects on buried archaeology in limestone, sandstone or sand and gravel deposits may be possible but are unlikely. No significant positive effects were identified during the appraisal of sites. Negligible effects are identified for the majority of waste sites and strategic employment areas.

6.21 Mostly minor positive or mixed effects (minor positive/minor negative) are identified for the policies, with the exception of strategic objective 12 (Environment) which will have a significant positive effect as it supports the protection, conservation and enhancement of historic assets. No significant negative effects were identified during the appraisal of policies.

6.22 Overall, the Draft Herefordshire Minerals and Waste Local Plan is therefore considered to have a **mixed effect (minor positive/minor negative)** on valuing, protecting and enhancing the county's historic environment and cultural heritage.

SA Objective 7 - Value, protect and enhance the character and built quality of settlements and neighbourhoods

6.23 Uncertain significant negative effects are expected with regard to SA objective **7: Built Environment** for six mineral sites (M05a, M05b, M05c, M05f, M05g, and M07a) and four waste sites (W05, W07, W10 and W19) as they are within close proximity (100m) of a settlement, and, as such, may have an adverse effect on the character of the area. Uncertain significant negative effects have also been identified in relation to all Areas of Search (A, B, C, and D), as each of these contains multiple settlements. It is uncertain where mineral extraction proposals will come forward, however, should they be within 100m of settlements, there is the potential for adverse effects on the character of the area. An uncertain minor positive effect is expected for site W45, as the restoration of the former quarry through the disposal of inert waste, could positively contribute to the character of nearby settlements Wellington and Moreton on Lugg. Negligible effects have been identified in relation to the 18 remaining sites and the nine strategic employment sites. No significant positive effects were identified during the appraisal of sites.

6.24 Strategic objective 12 (Environment) is expected to have a significant positive effect on this SA objective as it seeks to conserve and promote the built environment by safeguarding the county's current stock of valued heritage and significant environmental assets from loss and damage, reversing negative trends, ensuring best condition and site betterment, as well as appropriately managing future assets. Minor positive or mixed effects (minor positive/minor negative) are identified for the majority of the policies. The positive effects primarily relate to promoting a circular economy which will reduce the need for extraction of raw minerals from sites within the county, which otherwise may adversely affect the character of settlements and neighbourhoods; the restoration of sites to open space and the incorporation of green infrastructure at developments which will contribute to the character of settlements; and, the use of building stone extracted from mineral sites in the county which will conserve and restore the built environment, thereby helping to maintain heritage assets (e.g. Listed Buildings) and a distinctive sense of place. Some uncertain minor negative effects (as part of mixed effects) are identified as mineral resources need to be worked where they occur which could have an adverse impact on the character of settlements. Similarly, there may be potential adverse impacts on the character of settlements from the development of new waste management facilities at industrial or strategic employment sites.

6.25 Overall, the Draft Herefordshire Minerals and Waste Local Plan is therefore considered to have a **mixed effect (minor positive/minor negative)** on valuing, protecting and enhancing the character and built quality of settlements and neighbourhoods.

SA Objective 8 - Move treatment of waste up the waste hierarchy

6.26 Uncertain significant positive effects are identified for waste site options W05, W07 and W10 in relation to SA objective **8: Waste Hierarchy** as they are operational household waste recycling centres which process waste that would otherwise be landfilled. Site W13 is operational and recovers construction, demolition and excavation waste which, if expanded, would have a significant positive effect on the recovery of waste. Mixed effects (uncertain significant positive/uncertain minor negative) are expected for W19 as the site may provide energy recovery facilities, either biological (such as anaerobic digestion) which would have a significant positive effect or combustion with energy recovery (such as incineration or gasification) which would have a minor negative effect on driving waste up the waste hierarchy.

6.27 Minor negative effects have been identified for the mineral site options and waste sites W43, W44 and W45 as these are either identified in the Draft HMWLP as appropriate locations for the disposal of inert waste following extraction or have the potential to dispose of inert or landfill waste, which is judged to have negative effects in terms of moving the treatment of waste up the waste hierarchy. Uncertain minor positive effects may be experienced for strategic employment sites (sites W58-W66) as there may be opportunities for symbiotic relationships between waste management, engineering, manufacturing and research industries which would encourage reuse and recycling of waste and contribute to the circular economy.

6.28 Significant positive effects are identified for the Vision, strategic objectives 4 (Waste Hierarchy), 5 (Economy) and 7 (Waste Management) as they promote the management of waste in accordance with the circular economy and the adequate provision of waste management infrastructure in Herefordshire.

6.29 A significant positive effect is identified for policy *SS8: Resource Management* as it promotes a circular economy which improves resource efficiency and the reuse of waste. Significant positive effects are expected for policies *W1: Waste Strategy*, *W2: Solid Waste*, and *W7: Waste Management Operations* as these policies promote a circular economy, the recovery of materials from construction and demolition waste and the development of waste management facilities for reuse, recycling, recovery and also site reclamation. Significant positive effects are also identified for policies *W5: Preferred Locations Solid Waste* and *W6: Preferred Locations Construction, Demolition and Excavation* as they support the operation and development of waste facilities that could promote improved waste management processes and move waste management up the waste hierarchy. The remaining policies are generally expected to have minor positive effects on this SA objective. No significant negative effects were identified during the appraisal of policies or sites.

6.30 Overall, the Draft Herefordshire Minerals and Waste Local Plan is therefore considered to have a **mixed effect (significant positive/minor negative)** on moving treatment of waste up the waste hierarchy.

SA Objective 9 - Promote sustainable use of mineral resources

6.31 Minor positive effects are expected for all mineral site options and Areas of Search assessed with regard to SA objective **9: Mineral Resources** as the allocation of sites would provide a degree of protection to mineral resources from inappropriate non-mineral development, and would contribute to the supply of aggregates to meet the needs of society. Minor positive effects are also identified for sites W13, W43, W44 and W45 as these sites are either former quarries (W13) or involve inert waste disposal to restore quarries (W43, W44 and W45) which means that mineral resources at these sites would already have been extracted and could not be sterilised. Negligible effects are identified for sites W05, W07, W10 and W19 and for the strategic employment areas.

6.32 The most significant positive effects are identified during the policy appraisals for this SA objective. Twelve significant positive effects are identified for the Vision and strategic objectives 2 (Efficient Use of Minerals), 3 (Safeguarding) and 4 (Waste Hierarchy) as they seek to safeguard mineral resources and promote resource efficiency which directly support the SA objective. A significant positive effect is identified for policy *SS8: Resource Management* as it promotes a circular economy which improves resource efficiency.

6.33 The majority of minerals policies are expected to have significant positive effects for this SA objective as policy *M1: Mineral Strategy* requires minerals to be worked sustainably; policies *M2:*

Safeguarding Minerals, *M3: Sand & Gravel*, *M4: Crushed Rock* and *M5: Sandstone* provide protection to mineral resources from inappropriate non-mineral development; and policy *M6: Borrow Pits* promotes the efficient use of mineral resources by supporting the infill of borrow pits with unusable materials from civil engineering construction projects. These effects are uncertain for policy *M2: Safeguarding Minerals* as the policy states that minerals located on land which is needed for strategic development may be lost where the need for non-minerals development is greater that the need for the mineral resource. Additionally, the positive effect identified for policy *M1: Mineral Strategy* is also mixed with a minor negative effect as the policy promotes the working of new mineral sites. A significant positive effect is expected for policy *W1: Waste Strategy* as it supports the use of inert waste in the restoration of mineral workings, which could have a positive effect on managing and using waste mineral by-products. Additionally, significant positive effects are expected for policies *W1: Waste Strategy* and *W2: Solid Waste* as these policies promote the increased reuse of mineral resources, creating a market for recycled and secondary aggregate use.

6.34 The majority of remaining policies are expected to have either minor negative or negligible effects on this SA objective.

6.35 Overall, the Draft Herefordshire Minerals and Waste Local Plan is therefore considered to have a **significant positive effect** on promoting the sustainable use of mineral resources.

SA Objective 10 - Reduce Herefordshire's vulnerability to the impacts of climate change as well as its contribution to the problem

6.36 Of the 20 proposed minerals sites in the Draft HMWLP, six sites are expected to have significant negative effects in respect to SA objective **10: Climate Change** (M07a, M07b, M12, M13, M17 and M18) while 12 sites are expected to have significant negative effects as part of overall mixed effects. These sites are either large (over 20ha) and are expected to generate high volumes of heavy goods vehicle traffic resulting in the production of high levels of CO_2 or other greenhouse gas emissions; are not within 250m of a main road thereby encouraging the use of local roads which may result in vehicles travelling slowly increasing the potential for traffic and pollutant deposition along those routes; or, are not within 800m of any sustainable transport links which will encourage private car use among employees and increased transport emissions. The minor positive scores identified for 12 sites recognises the proximity to one or two sustainable transport links which will encourage employees of the mineral sites to use sustainable transport thereby reducing transport emissions; or the sites are within 1km of the Moreton-on-Lugg railhead which may be used to transport minerals using a more sustainable mode of transport than road-based travel. It is recognised that within all Areas of Search, there are areas which could be within 800m of numerous sustainable transport links thereby enabling sustainable travel by employees of minerals sites, leading to minor positive effects, however, there are also areas which could be more than 250m from a main road or more than 800m from a sustainable transport link, resulting in significant negative effects. Mixed effects (minor positive/minor negative) are identified for all waste site options. Uncertain minor positive effects are identified for all of the strategic employment sites (sites W58-W66) as these may provide opportunities for symbiotic relationships between waste management, engineering, manufacturing and research industries which will help to reduce transport distances of waste and associated emissions.

6.37 A significant positive effect is identified for strategic objective 11 (Climate Change) for this SA objective as it seeks to address the causes and impacts of climate change relating to minerals and waste development activity thereby reducing air pollution from greenhouse gas emissions. Policy *SS8: Resource Management* will also have a significant positive effect as it directs minerals and waste resources to contribute positively to addressing climate change through promoting a circular economy and managing waste in accordance with the Waste Hierarchy will reduce energy use and greenhouse gas emissions associated with its transportation.

6.38 Minor positive effects are expected for 11 policies and for nine policies as part of mixed effects as they:

- support the development of waste management facilities for reuse, recycling, recovery and the overall transition to a more circular economy, which will reduce energy use and greenhouse gas emissions associated with the transportation of waste;

- encourage symbiotic relationships between waste management, engineering, manufacturing and research industries which will help to reduce the transport distances of waste;
- promote the long-term conservation of primary minerals, and the efficient use of minerals in new development including using recycled and secondary aggregates which will reduce the frequency of the transportation of raw materials to market, thereby reducing transport emissions;
- support safeguarding of transport infrastructure such as railheads which can facilitate the sustainable transport of minerals;
- support open space and green infrastructure provision which could also attenuate flooding thereby providing resilience to climate change;
- support the recovery of energy which enables the resultant heat and power to be used, thereby reducing emissions from fossil fuel electricity generation; and,
- restrict the extraction and use of coal for energy whereby the benefits will outweigh the impacts, including greenhouse gas emissions.

6.39 An uncertain significant negative effect is expected for policy *M7: Unconventional Hydrocarbons* as it supports unconventional hydrocarbons which are a non-renewable indigenous fuel. Unconventional hydrocarbon development has the potential to exacerbate the impacts of climate change through increased greenhouse gas emissions primarily from the processing (direct release of produced gas to the atmosphere from controlled venting or uncontrolled fugitive emissions/leakages) and use of unconventional hydrocarbons. Depending on the location of the development, indirect greenhouse gas emissions may also arise as a consequence of development on high carbon soils.

6.40 Significant negative effects (as part of mixed effects) are identified for policies *M3: Sand & Gravel*, *M4: Crushed Rock* and *M5: Sandstone* while minor negative effects are identified (mostly as part of mixed effects) for nine policies. The negative effects generally relate to minerals and waste continuing to be predominately transported by heavy goods vehicles which will result in increases in transport-related emissions or from the release of carbon due to mineral extraction activities as soils and geological formations can store carbon in fairly inert forms.

6.41 Overall, the Draft Herefordshire Minerals and Waste Local Plan is therefore considered to have a **mixed effect (significant negative / minor positive)** on reducing Herefordshire's vulnerability to the impacts of climate change as well as its contribution to the problem.

SA Objective 11 - Promote effective restoration and appropriate after use of sites

6.42 Significant positive effects are expected for the majority of mineral site options and waste sites options W43, W44 and W45 with regard to SA objective **11: Restoration**, as the NPPF (2018) states that mineral sites should be restored at the earliest convenience, taking account of aviation safety, to a high environmental standard and that restoration should result in land of equal value being returned following the working of a site. These effects are uncertain dependent on the type of restoration proposed and eventually developed on sites, which will not be known until the planning application stage. The positive effects identified for sites M04, W44, Area of Search B and Area of Search D are combined with an uncertain minor negative effect as these sites are located within either the Shobdon Aerodrome Safeguarding Zone or Gloucestershire Safeguarding Zone and therefore have potential for adverse impacts on aircraft safety from bird-strike. The remaining waste sites and the strategic employment areas are expected to have uncertain minor positive effects on this SA objective as there may be potential for restoration of these sites when the waste facilities cease to operate. No significant negative effects were identified during the appraisal of sites.

6.43 Significant positive effects are expected for policies *OS4: Access to open space and recreation from minerals and waste development* and *SD5: Site Reclamation* as they support the restoration of sites to a beneficial after-use and to a high standard which incorporate open spaces and green infrastructure. Significant positive effects are also expected for mineral policies *M3: Sand & Gravel*, *M4: Crushed Rock* and *M5: Sandstone*, as the sites proposed for allocation in these policies will be restored to a high environmental standard, and for policy *M6: Borrow Pits* as it directly supports the effective restoration and appropriate after-use of borrow pits. Significant

positive effects are expected for policy *W6: Preferred Locations Construction, Demolition and Excavation* as it supports restoration through the sustainable disposal of inert wastes at three of the operational quarries in Herefordshire. The majority of remaining policies will have minor positive effects on this SA objective. No negative effects (significant or minor) were identified during the appraisal of policies.

6.44 Overall, the Draft Herefordshire Minerals and Waste Local Plan is therefore considered to have a **significant positive effect** on promoting effective restoration and appropriate after use of sites.

SA Objective 12 - Value, maintain, restore and expand county biodiversity and geodiversity

6.45 Sites M05a, M05d, M05g, M20, W05 and W13 have all been identified as having uncertain significant negative effects with regard to SA objective **12: Biodiversity & Geodiversity** as they are located within 250m of either the River Wye SAC and/or the River Lugg SSSI. An uncertain significant negative effect (as part of a mixed effect) is also identified for site W45 at Wellington Quarry as it is adjacent to the River Wye SAC and the River Lugg SSSI. The SA assessment also identifies uncertain significant negative effects for site M13 as it is within 250m of the Black Mountains SSSI. Mixed effects (uncertain minor positive/uncertain significant negative) are identified for sites M10a and M10b as they either contain (as is the case for M10a) or are adjacent (as is the case for M10b) to the Perton Roadside Section Quarry SSSI. The negative effects are identified as these sites have the potential to affect biodiversity and geodiversity through habitat/geology damage/loss, fragmentation, and disturbance to species from noise, light, vibration and human presence. The uncertain minor positive effects are expected as extraction at M10a and M10b may expose more geological features at the SSSI making them visible and available for learning opportunities. Due to the extent of the Areas of Search, they all contain internationally, nationally or locally designated conservation sites and are therefore expected to have uncertain significant negative effects on this SA objective. The remaining sites are generally either expected to have uncertain minor negative or negligible effects on this SA objective.

6.46 The HRA Screening Report (LUC, 2018) also identifies for sites M05a, M05d, M05g, M12, M20, W45 and Area of Search C potential for significant effects on the River Wye SAC and potential for significant effects on the Wye Valley and Forest Dean Bat Sites SAC (for site M12 only) as a result of physical loss or damage/non-physical disturbance/water quality/non-toxic contamination which cannot be excluded at this stage, and will therefore require further consideration at the Appropriate Assessment stage to determine whether, in light of potential mitigation safeguards, they will result in adverse effects on the integrity of the SACs, either alone or in-combination with other plans and projects.

6.47 The only significant positive effect identified in the policy appraisal is for strategic objective 12 (Environment) as it seeks to conserve and promote the natural environment by safeguarding the county's current stock of significant environmental assets from loss and damage, reversing negative trends, as well as appropriately managing future assets. Minor positive effects are expected for the majority of policies as they support site restoration, beneficial after uses, the incorporation of green infrastructure, and the avoidance of adverse environmental impacts. However, some minor negative effects are also identified as the extraction of minerals and the development of waste facilities could have adverse impacts through habitat/geology damage/loss, fragmentation, and disturbance to species.

6.48 Furthermore, the HRA Screening Report identified a lack of certainty as to whether the following policies would result in likely significant effects on European sites:

- *M3: The winning and working of sand and gravel* (physical damage and loss of habitat, non-physical disturbance and non-toxic contamination).
- *W6: Preferred locations for construction, demolition and excavation waste facilities* (physical damage and loss of habitat, non-physical disturbance and non-toxic contamination).

6.49 Overall, the Draft Herefordshire Minerals and Waste Local Plan is therefore considered to have a mixed effect **(significant negative/minor positive)** on valuing, maintaining, restoring and expanding county biodiversity and geodiversity.

SA Objective 13 - Value, protect, enhance and restore the landscape quality of Herefordshire, including its rural areas and open spaces

6.50 Uncertain significant negative effects are identified for Areas of Search C and D in relation to SA objective **13: Landscape** as they either contain part of the Wye Valley AONB, areas of open space, or areas identified as being of high sensitivity according to The Urban Fringe Sensitivity Analysis. The acceptability of any minerals extraction from these areas would need to be assessed against the minerals and other relevant policies of the HMWLP. Uncertain minor negative effects are identified for sites W05, W10 and W19 as these sites are located within Green Infrastructure Corridors and/or Enhancement Zones. Uncertain minor positive effects are expected for sites W43, W44 and W45 as the disposal of inert waste will restore the quality of the landscape at the former mineral sites. The remaining sites including the strategic employment sites are expected to have negligible effects.

6.51 Strategic objective 12 (Environment) is expected to have a significant positive effect on this SA objective as it seeks to conserve and promote the natural environment, which is assumed to include the landscape, by safeguarding the county's current stock of environmental assets from loss and damage, reversing negative trends, ensuring best condition and site betterment, as well as appropriately managing future assets. A significant positive effect is also expected for policy *OS4: Access to open space and recreation from minerals and waste development* as it supports the protection and enhancement of green infrastructure and open space as part of mineral and waste developments. The majority of policies are expected to have minor positive effects in relation to this SA objective as they support the restoration of former quarries thereby restoring landscape character and quality; promote the delivery of well-designed minerals and waste developments that reinforce local distinctiveness and are supported by green infrastructure, which will minimise the landscape and visual intrusion of waste and mineral facilities; and, encourage the efficient use of mineral reserves and the transitioning to a more circular economy which will reduce the rate of extraction of natural resources, and any associated impacts on the landscape. Some uncertain minor negative effects are expected and generally relate to potential impacts on landscape character and quality from mining and quarrying as these sites need to be worked where the resource lies which may be within a protected or sensitive landscape. No significant negative effects were identified during the appraisal of policies.

6.52 Overall, the Draft Herefordshire Minerals and Waste Local Plan is therefore considered to have a **mixed effect (minor positive/minor negative)** on valuing, protecting, enhancing and restoring the landscape quality of Herefordshire, including its rural areas and open spaces.

SA Objective 14 - Value, protect and enhance the quality of watercourses and maximise the efficient use of water

6.53 Sites M05d, M05g and W45 are expected to have uncertain significant negative effects with regard to SA objective **14: Water** as they are within 250m of the River Lugg which is designated as a SSSI waterbody. Further uncertain significant negative effects are identified for site M20 as it is within 250m of the River Wye SSSI waterbody. The HRA Screening Report (LUC, 2018) identifies that sites M05a, M05d, M05g and W45 are located at Wellington Quarry, adjacent to the River Wye SAC and share direct hydrological connectivity with the River Wye SAC, either through sharing boundaries or via field drains. However, as these allocations relate to the extraction of sand and gravel and the disposal of inert waste (W45 only) which is non-reactive both chemically and biologically, the potential for activities at these sites to result in changes in water quality which would be considered significant is low. Nevertheless, in the absence of appropriate safeguards and mitigation measures, the potential for these sites to harm the qualifying features of the SAC, cannot be excluded.

6.54 An uncertain significant negative effect is also identified for site M20 as it is located 300m upslope from the River Wye SAC/SSSI and the western edge of the site is situated immediately adjacent to a brook at Merbach which flows directly into the River Wye SAC/SSSI while the western edge of site M12 is situated immediately adjacent to Mally Brook which discharges into River Wye SAC approximately 3.7km downstream. As a result, run-off of chemicals, pollutants, sediment or contaminated water has the potential to result in likely significant effects on the SAC. However, as stated in the HRA Screening Report, it is likely that this could be avoided with relative ease through a commitment to, and implementation of, appropriate mitigation safeguards including best practice working methods.

6.55 Uncertain significant negative effects are identified for sites W05 and W13 as these are either within a Source Protection Zone and/or are within 250m of a waterbody classified as being in 'bad' ecological/chemical status. The effects are uncertain as they have potentially been considered and addressed through existing planning conditions relating to the operational sites.

6.56 Within Area of Search C there is a Source Protection Zone (SPZ1) which provides protection for the head works around abstraction boreholes. Moreton Brook, also within the Area of Search, has a 'bad' ecological status which could be potentially affected further should it have connectivity with a future minerals site. There is, therefore, potential for future sites to fall within or close to these areas, leading to a significant negative effect. The HRA Screening Report also concludes that potential for likely significant effects associated with potential activities will depend on the location and nature of the proposals in Area of Search C and, in the absence of appropriate safeguards and mitigation measures, the potential for operations at in this area to harm the qualifying features of the SAC, cannot be excluded.

6.57 Uncertain minor negative effects are identified for seven mineral site options (M04, M05a, M05b, M05c, M05e, M13, and M16), three waste site options (W07, W19 and W44), and Areas of Search A, B and D as they are either within 250m of rivers which have 'poor' or 'moderate' ecological or chemical status, or are between 250m and 1km of a SSSI waterbody. Negligible effects are identified for the remaining 12 sites and the nine strategic employment sites. No significant positive effects were identified during the appraisal of sites.

6.58 A significant positive effect was identified for strategic objective 12 (Environment) as it seeks to conserve and promote the natural environment by safeguarding the county's current stock of significant environmental assets from loss and damage, reversing negative trends, ensuring best condition and site betterment, as well as appropriately managing future assets. Further significant positive effects were identified for policy *W4: Waste water* as this promotes waste water management, enabling the treatment and reuse of water. The majority of policies are expected to have minor positive effects in relation to this SA objective as they promote the circular economy that will increase efficient water use, promote the safe management of fertilisers and manures that could otherwise be released in to water environments, and support waste and mineral developments that avoid adverse impacts, such as upon watercourses. Some uncertain minor negative effects are expected and generally relate to potential impacts on water quality if waste and mineral sites have hydrological connectivity with designated or vulnerable waterbodies, or within Source Protection Zones, or require water resource use that may adversely affect water supply.

6.59 Furthermore, the HRA Screening Report identified a lack of certainty as to whether the following policies would result in likely significant effects on water quality of European sites:

- Policy *M3: The winning and working of sand and gravel*.
- Policy *M5*: *The winning and working of building stone (sandstone)*.
- Policy *M7*: *Unconventional hydrocarbons*.
- Policy *W6*: *Preferred locations for construction, demolition and excavation waste facilities*.

6.60 Overall, the Draft Herefordshire Minerals and Waste Local Plan is therefore considered to have a **mixed effect (significant negative/minor positive)** on valuing, protecting and enhancing the quality of watercourses and maximise the efficient use of water.

SA Objective 15 - Reduce the risk of flooding and the resulting detriment to public well-being, the economy and the environment

6.61 None of the 20 proposed mineral sites in the Draft HMWLP are within a Flood Zone 3 area and therefore negligible effects are identified for SA objective **15: Flooding**. There are Flood Zone 3 areas within Areas of Search A, B and C. The acceptability of any minerals extraction from these areas would need to be assessed against the minerals and other relevant policies of the HMWLP. Whilst at this stage uncertain significant negative effects are identified for Areas of Search A, B and C based on the constraints identified, effects are uncertain as the location of future minerals sites in these areas is not known. A negligible effect is identified for Area of Search D. Site W45 is partly within Flood Zone 3, however, minor positive effects are identified for this site and sites W43 and W44 for this SA objective as the restoration of sites through the disposal of inert waste

will help to increase permeable land cover in the county which will contribute towards flood attenuation. Furthermore, the restoration of sites could create new wetland habitat that provides flood storage. Negligible effects are identified for the remaining sites. No significant positive effects were identified during the appraisal of sites.

6.62 The only significant positive effect is identified for strategic objective 12 (Environment) as it seeks to conserve and promote the natural environment by safeguarding the county's current stock of significant environmental assets from loss and damage, reversing negative trends, ensuring best condition and site betterment, as well as appropriately managing future assets. Minor positive effects are generally recorded as restoring former mineral sites provides opportunities for water storage which can alleviate risks elsewhere and the protection/enhancement of green infrastructure can help to reduce adverse effects associated with flooding by providing increasing permeable land cover. Some uncertain minor negative effects (as part of mixed effects) are likely as mineral sources may naturally occur in areas of flooding, or new waste facilities at industrial or strategic employment sites may be located within a Flood Zone 3 area. No significant negative effects were identified during the appraisal of policies.

6.63 Overall, the Draft Herefordshire Minerals and Waste Local Plan is therefore considered to have a **minor positive effect** on reducing the risk of flooding and the resulting detriment to public well-being, the economy and the environment.

SA Objective 16 - Minimise noise, light, and air pollution

6.64 Sites M05a, M05b, M05c, W05, W07 and W10 are expected to result in uncertain significant negative effects in relation to SA objective **16: Pollution** as, whilst they are not within an AQMA, they are within 100m of settlements which could result in adverse effects on sensitive receptors. All four Areas of Search are considered to have potential to result in significant negative effects given that there are sensitive receptors including schools, settlements and churches within these areas. There is, therefore, potential for future sites to fall within or close to these areas, leading to a significant negative effect, however, given that the acceptability of any minerals extraction from these areas would need to be assessed against the minerals and other relevant policies of the HMWLP, and also that the location of sites within the Areas of Search are unknown at present, the effects are uncertain. The majority of the remaining sites will have a negligible effect on this SA objective. No significant positive effects were identified during the appraisal of sites.

6.65 Strategic objective 11 (Climate Change) will have a significant positive effect on this SA objective as it supports mineral and waste developments that help adapt to and mitigate the impacts of climate change which will reduce air pollution from greenhouse gas emissions. Generally the policies will have minor positive effects (20 policies, seven as part of mixed effects) as they seek to conserve primary minerals and promote the efficient use of mineral reserves which will reduce the rate of extraction of natural resources and any associated impacts such as dust, noise, light and air pollution, as well as reduced transport emissions; promote a circular economy and manage waste in accordance with the Waste Hierarchy which will reduce greenhouse gas emissions (for example from the transportation of waste and raw materials) thereby benefitting air quality; support the provision of open spaces integrating green infrastructure as part of mineral and waste sites, including trees and hedgerows, which will assist in improving local air quality and may act as buffers for noise pollution from the activities undertaken at sites; and, support waste management facilities for energy recovery which enable the resultant heat and power to be utilised, thereby reducing the need for fossil fuel usage and resultant emissions. Uncertain minor negative effects are also identified (usually as part of mixed effects) for 14 policies as these support the development of new waste facilities and the extraction of minerals which may result in some level of dust, noise, odour and air pollution. No significant negative effects were identified during the appraisal of policies.

6.66 Overall, the Draft Herefordshire Minerals and Waste Local Plan is therefore considered to have a **mixed effect (minor positive/minor negative)** on minimising noise, light, and air pollution.

SA Objective 17 - Value, protect and enhance soil quality and resources

6.67 Eight mineral sites proposed in the Draft HMWLP are expected to have uncertain significant negative effects in relation to SA objective **17: Soil** as development on mainly (>50%) high quality Best & Most Versatile Agricultural Land (Grade 1, 2 and 3a) or on large areas of greenfield

(>20ha) will result in that land being lost to other uses (M03a, M03b, M03d, M04, M05c, M05d, M05e and M05g). Uncertain significant negative effects are also identified for Areas of Search A, B and C as these areas comprise Grade 2 and Grade 3 Best and Most Versatile Agricultural Land. An uncertain significant negative effect is identified for site W10 as this site comprises entirely Grade 2 agricultural land.

6.68 Uncertain significant positive effects are identified for sites W43 and W44 as these sites comprise mainly Grade 2 or 3a agricultural land. These sites are proposed as appropriate locations for the disposal of inert waste as part of the restoration of former mineral sites. Section 5 of The Town and Country Planning Act 1990 (as amended) requires mineral planning authorities to ensure that restoration meets the required standard (normally to the same physical characteristics as before). Therefore, positive effects are identified as restoration may safeguard the long-term potential of Best and Most Versatile Agricultural Land and other soil resources, however, the effects are uncertain, and dependent on the type of restoration proposed and eventually developed on the sites, which will not be known until the planning application stage. The remaining sites are either expected to have minor negative or negligible effects on this SA objective.

6.69 A significant positive effect is expected for strategic objective 12 (Environment) as it seeks to conserve and promote the natural environment by safeguarding the county's current stock of significant environmental assets from loss and damage whilst also reversing negative trends and encouraging expansion where possible. Policy *SD5: Site Reclamation* is also expected to have an uncertain significant positive effect as site reclamation schemes have the potential to return sites to agricultural use, thereby safeguarding the long-term potential of Best and Most Versatile Agricultural Land and conserving soil resources. No significant negative effects were identified during the appraisal of policies. The remaining policies are generally expected to have minor positive effects or mixed effects (minor positive/minor negative) on this SA objective.

6.70 As the majority of significant negative effects are in relation to mineral sites which will be mitigated through policy *SD5: Site Reclamation*, overall the Draft Herefordshire Minerals and Waste Local Plan is therefore considered to have a **mixed effect (minor positive/minor negative)** on valuing, protecting and enhancing soil quality and resources.

Table 6.1 Summary of SA scores for the Draft HMWLP Vision, strategic objectives and policies

SA Objective	1: Employment	2: Sustainable Economy	3: Health	4: Poverty and Equality	5: Sustainable Transport	6: Historic Environment	7: Built Environment	8: Waste Hierarchy	9: Mineral Resources	10: Climate Change	11: Restoration	12: Biodiversity & Geodiversity	13: Landscape	14: Water	15: Flooding	16. Pollution	17: Soil
Vision	+	+	+	+	+/-	+	+	++	++	+	+	+	+	+	+	+	+
SO 1: Health	0	0	++	0	+?	+	+	0	0	+?	+	+	+	+?	+?	+?	+
SO 2: Efficent Use of Minerals	+	+	+	+	+	+	+	+	++	+	0	+	+	+	+	+	+
SO 3: Safeguarding	+	+	+?/-?	+	+/-	+/-?	+/-?	0	++	+/-	0	+	+/-?	-?	+/-?	-?	+?/-?
SO 4: Waste Hierarchy	+	+	+	+	+	+	+	++	++	+	0	+	+	+	0	+	+
SO 5: Economy	+	++	+/-?	+	+/-?	+/-?	+/-?	++	+/-	+/-?	+?	+?/-?	+/-?	+/-?	+/-?	+/-?	+?/-?
SO 6: Supply of Minerals	+	++	+?/-?	+	+/-?	+?/-?	+?/-?	0	+	+/-?	+?	+?/-?	+?/-?	-?	+?/-?	+/-?	+?/-?
SO 7: Waste Management	+	++	+?/-?	+	+/-?	+?	+?	++	+	+/-?	0	+?/-?	+?/-?	+?/-?	+?/-?	+/-?	+?/-?
SO 8: Sustainable Transport	0	+	+?	0	++	+?	+?	0	0	+	0	+?	+?	0	0	+	0
SO 9: Suitable Locations	+	+	+?/-?	+	+?/-?	+/-?	+/-?	+	-	+?/-?	0	+/-?	+/-?	+/-?	+/-?	+?/-?	+/-?
SO 10: Design	0	0	+	0	0	+	+	0	0	0	+?	+	+	+	+	0	+
SO 11: Climate Change	0	0	+	0	+?	+	+	+	+	++	+?	+	+	+	+	++	+
SO 12: Environment	0	0	+	0	0	++	++	0	0	0	+?	++	++	++	++	0	++
SS8 : Resource Management	+	+	+	+	+	+	+	++	++	++	0	+	+	+	0	+	+
OS4: Access to open space and recreation from minerals and waste development	0	0	++	0	+	+	+	0	0	0	++	+	++	0	+	+	+
MT2: Transport within sites	0	0	+	0	++	+	+	0	0	+	+	+	+	+	+	+	+?
SD5: Site Reclamation	0	0	+?	0	+?	+	+	0	0	0	++	+	+	+	+	0	++?
M1: Mineral Strategy	+	+	+/-?	+	+/-?	+/-?	+/-?	+/-	++/-	+/-?	0	+/-?	+/-?	+/-?	+/-?	+/-?	+/-?
M2: Safeguarding Minerals	+	+	-?	+	-?	-?	-?	0	++?	-?	0	-?	-?	-?	-?	-?	-?
M3: Sand & Gravel	+	++	+?/-?	+	+?/--?	+?/-?	+?/-?	+?	++	+?/--?	++?	+?/-?	+?/-?	+?/-?	0	-?	+?/-?
M4: Crushed Rock	+	++	+?/-?	+	+?/--?	+?/-?	+?/-?	+?	++	+?/--?	++?	+?/-?	+?/-?	+?/-?	0	-?	+?/-?
M5: Sandstone	+	++?	+?/-?	+?/-?	+?/--?	+?/-?	+?/-?	+?	++	+?/--?	++?	+?/-?	+?/-?	+?/-?	0	-?	+?/-?
M6: Borrow Pits	+	+	+?	+	+?	+?/-?	+?/-?	+	++	+?/-?	++	+?/-?	+?/-?	+?/-?	+?/-?	+?	-?
M7: Unconventional Hydrocarbons	+?	+?	+?/-?	+?/-?	+?/-?	+?/-?	+?/-?	+	-?	--?	+?	+?/-?	+?/-?	+?/-?	+?/-?	+?/-?	+?/-?
W1: Waste Strategy	+	+	+?	+	+	+?	+?	++	++	+	+?	+?	+?	+	+?	+?	+
W2: Solid Waste	+	+	+?/-?	+	+?/-?	+?	+?	++	++	+?/-?	+?	+?	+?	0	+?	+?/-?	+
W3: Agricultural Waste	0	0	+	0	+	0	0	+	0	+	0	+	+	+	0	+	+
W4: Waste water	+	+	+	+	0	0	0	+	0	+	0	+	0	++	0	+	0
W5: Preferred Locations Solid Waste	+	+	-?	+	+/-?	-?	+?/-?	++?	-?	+?/-?	+?	-?	-?	-?	-?	-?	-?
W6: Preferred Locations Construction, Demolition and Excavation	+	+	-?	+	+/-?	-?	+?/-?	++?	-?	+?/-?	++?	-?	-?	-?	-?	-?	-?
W7: Waste Management Operations	+	+?	+?	+	+	+?	+?	++?	+	+	+	+?	+?	+	+?	+	+?

Table 6.2 Summary of SA scores for the Draft HMWLP proposed site allocations

SA Objective	1: Employment	2: Sustainable Economy	3: Health	4: Poverty and Equality	5: Sustainable Transport	6: Historic Environment	7: Built Environment	8: Waste Hierarchy	9: Mineral Resources	10: Climate Change	11: Restoration	12: Biodiversity & Geodiversity	13: Landscape	14: Water	15: Flooding	16. Pollution	17: Soil
M03a	+	+	0	+?	+/--	-?	0	-	+	+/--	++?	-?	0	0	0	0	--?
M03b	+	+	0	+?	+/--	-?	0	-	+	+/--	++?	-?	0	0	0	0	--?
M03d	+	+	0	+?	+/--	-?	0	-	+	+/--	++?	-?	0	0	0	0	--?
M04	+	+	0	+?	+/--	-?	0	-	+	+/--	++?/-?	-?	0	-?	0	0	--?
M05a	+	+	--?	+?	+?/--?	-?	--?	-	+	+?/--?	++?	--?	0	-?	0	--?	-?
M05b	+	+	--?	+?	+?/-	-?	--?	-	+	+?/-	++?	-?	0	-?	0	--?	-?
M05c	+	+	--?	+?	+?/--	-?	--?	-	+	+?/--	++?	--?	0	-?	0	--?	--?
M05d	+	+	--?	+?	+?/--	-?	0	-	+	+?/--	++?	--?	0	--?	0	0	--?
M05e	+	+	--?	+?	+/-	-?	0	-	+	+/-	++?	-?	0	-?	0	0	--?
M05g	+	+	--?	+?	+/--	-?	--?	-	+	+/--	++?	--?	0	--?	0	0	--?
M07a	+	+	--?	+?	--?	-?	--?	-?	+	--?	++?	-?	0	0	0	0	-?
M07b	+	+	--?	+?	--	-?	0	-?	+	--	++?	-?	0	0	0	0	-?
M10a	+	+	-?	+?	+/--?	-?	0	-?	+	+/--?	++?	+?/--?	0	0	0	0	0
M10b	+	+	--?	+?	+/--	-?	0	-?	+	+/--	++?	+?/--?	0	0	0	0	0
M12	+	+	0	+?	--?	-?	0	-?	+	--?	++?	-?	0	0	0	0	-?
M13	+?	+	0	+?	--?	-?	0	-?	+	--?	++?	--?	0	-?	0	0	0
M16	+?	+	0	+?	+/--?	-?	0	-?	+	+/--?	++?	-?	0	-?	0	0	0
M17	+	+	0	+?	--?	-?	0	-?	+	--?	++?	-?	0	0	0	0	0
M18	+	+	0	+?	--?	-?	0	-?	+	--?	++?	-?	0	0	0	0	0
M20	+?	+	-?	+?	+/--?	-?	0	-?	+	+/--?	++?	--?	0	--?	0	0	-?
Area of Search A	+?	+	--?	+?	+?/--?	--?	--?	-?	+	+?/--?	++?	--?	-?	-?	--?	--?	--?
Area of Search B	+?	+	--?	+?	+?/--?	--?	--?	-?	+	+?/--?	++?/-?	--?	-?	-?	--?	--?	--?
Area of Search C	+?	+	--?	+?	+?/--?	--?	--?	-?	+	+?/--?	++?	--?	--?	--?	--?	--?	--?
Area of Search D	+?	+	--?	+?	+?/--?	--?	--?	-?	+	+?/--?	++?/-?	--?	--?	-?	0	--?	-?
W05	+	+	-?	+?	+/-?	0	--?	++?	0	+/-?	+?	--?	-?	--?	0	--?	-?
W07	+	+	--?	+?	+/-?	0	--?	++?	0	+/-?	+?	0?	0	-?	0	--?	0
W10	+	+	0	+?	+/-?	0	--?	++?	0	+/-?	+?	-?	-?	0	0	--?	--?
W13	+	+	0	+?	+/-?	0	0	++?	+	+/-?	+?	--?	0	--?	0	0	-?
W19	+	+	0	+?	+/-	0?	--?	++?/-?	0	+/-	+?	-?	-?	-?	0	0	-?
W43	+	+	0	+?	+/-	0	0	-	+	+/-	++?	+?	+?	0	+	0	++?
W44	+	+	0	+?	+/-	0	0	-	+	+/-	++?/-?	+?/-?	+?	-?	+	0	++?
W45	+	+	+?/-?	+?	+/-	+?	+?	-	+	+/-	++?	+?/--?	+?	--?	+	-?	+?
W58 SES	++?	++?	0?	++?	+?	0?	0?	+?	0?	+?	+?	0?	0?	0?	0?	0?	0?
W59 SES	++?	++?	0?	++?	+?	0?	0?	+?	0?	+?	+?	0?	0?	0?	0?	0?	0?
W60 SES	+?	+?	0?	+?	+?	0?	0?	+?	0?	+?	+?	0?	0?	0?	0?	0?	0?
W61 SES	+?	+?	0?	+?	+?	0?	0?	+?	0?	+?	+?	0?	0?	0?	0?	0?	0?
W62 SES	+?	+?	0?	+?	+?	0?	0?	+?	0?	+?	+?	0?	0?	0?	0?	0?	0?
W63 SES	++?	++?	0?	++?	+?	0?	0?	+?	0?	+?	+?	0?	0?	0?	0?	0?	0?
W64 SES	+?	+?	0?	+?	+?	0?	0?	+?	0?	+?	+?	0?	0?	0?	0?	0?	0?
W65 SES	+?	+?	0?	+?	+?	0?	0?	+?	0?	+?	+?	0?	0?	0?	0?	0?	0?
W66 SES	++?	++?	0?	++?	+?	0?	0?	+?	0?	+?	+?	0?	0?	0?	0?	0?	0?

Duration of Effects

6.71 The Draft HMWLP sets out how the future mineral and waste industries in Herefordshire should develop and operate covering the period up to 2031. 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 Draft HMWLP, 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 Draft HMWLP aims to provide minerals and waste treatment 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 Draft HMWLP, both positive and negative, are likely to increase over time, as the policies in the plan are implemented, and more mineral and waste developments are delivered in Herefordshire, although some operations may be completed as new sites are developed so some effects may balance out.

Short-term effects of the Draft HMWLP

6.72 The impacts of the Draft HMWLP in the short-term are mostly related to the initial impacts of commencing minerals extraction and the development of waste facilities. 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 Draft HMWLP or reversed through restoration measures in the medium to long-term.

Medium-term effects of the Draft HMWLP

6.73 Medium-term positive impacts relate to the employment and economic benefits of the waste and minerals sites. Negative impacts in the medium-term include the implications of operational minerals extraction sites and waste management facilities 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 and waste operators, and adherence to the policies in the Draft HMWLP when planning proposals are assessed and determined by Herefordshire Council.

Long-term effects of the Draft HMWLP

6.74 Long-term, permanent benefits that would result from the Draft HMWLP include the provision of sufficient mineral and waste developments to meet Herefordshire'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 Draft HMWLP 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 co-locating waste facilities and reduced volumes of landfilled waste through recovery and recycling of waste.

Secondary, Cumulative and Synergistic Effects

6.75 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.

6.76 The secondary, cumulative and synergistic effects of the policies and site allocations in the Draft Herefordshire Minerals and Waste Local Plan are summarised in the following paragraphs.

6.77 Encouraging investment in the minerals and waste industries 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 (Upper Lyde Quarry, Shobdon Quarry, Wellington Quarry, Leinthall Quarry, Perton Quarry, Callow Delve, Black Hill Delve, Llandraw Delve, Pennsylvani Delve, Sunnybank Delve and Westonhill Wood Delve) as required by NPPF (2018) would have secondary positive impacts on investment in the county and consequently employment opportunities in Herefordshire.

6.78 There is potential for cumulative, long-term adverse effects on the amenity of local communities where mineral workings, which tend to be clustered as adjacent permissions to be worked sequentially, are located (e.g. Upper Lyde Quarry, Wellington Quarry, Leinthall Quarry or Perton Quarry). Furthermore, sites which are within close proximity of a sensitive receptor and another mineral or waste site could also have a cumulative adverse effect on the amenity of the community, for example, site W07 is within 100m of residential areas and a waste water treatment works facility. Indirectly there may also be positive impacts on human health, wellbeing and amenity resulting from the creation of high quality habitats and landscapes that contribute to a high quality of life for present and future generations where after-use schemes are publicly accessible. There could be potential for cumulative negative effects on local air quality when waste management facilities are combined with other facilities within existing industrial estates or strategic employment sites. There could also be potential negative cumulative effects from noise at mineral sites that are in close proximity, for example, the currently operational site at Wellington Quarry (M05) and the proposed site to be re-opened in 2018 at Upper Lyde Quarry (M03) are within 1.7km of each other. Effects may be particularly experienced at the settlement of Moreton on Lugg.

6.79 Minerals extraction and waste treatment requires the transport of minerals and materials which will commonly be road based. Where waste road transport passes through urban areas it is likely to have a cumulative adverse effect on exacerbating congestion and air quality problems, particularly where new waste facilities may be located at strategic employment sites W59, W60, W61, W62 and W63, as these are within close proximity to an AQMA. As the mineral sites are located in rural areas where traffic volumes are commonly low, the cumulative effects on the road network may be disproportionately large where sites are in close proximity due to the low capacity of rural roads. 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 waste facilities due to reduced waste transport distances and from the clustering of mineral sites as adjacent permissions to be worked sequentially which presents an opportunity to use the same equipment for processing of aggregate. The processes associated with the extraction of minerals and the treatment of waste may also have cumulative adverse effects on air quality and GHG emissions.

6.80 Policy *M7: Unconventional Hydrocarbons* would lead to the recovery of an energy mineral that may have otherwise remained unused which would have secondary benefits of diversifying the energy mix of the country and increasing energy security. Safeguarding minerals from inappropriate development through policies *M2: Safeguarding Minerals*, *M3: Sand & Gravel*, *M4:*

Crushed Rock and *M5: Sandstone* would reduce the need to import minerals from outside the county, which would have positive secondary impacts on achieving self-sufficiency as well as on congestion and greenhouse gas emissions. Although there is little or no secondary aggregate production in Herefordshire, the use of recycled aggregates will also have positive secondary benefits as it reduces demand for the extraction of primary minerals. Similarly, the allocation of new waste management infrastructure and the promotion of the reuse, recovery and recycling of waste through policies *W1: Waste Strategy*, *W2: Solid Waste*, *W5: Preferred Locations Solid Waste*, *W6: Preferred Locations Construction, Demolition and Excavation* and *W7: Waste Management Operations* will also have positive secondary impacts on achieving self-reliance, reducing the need to identify sites for landfill (either within or outside of the county), and reducing greenhouse gas emissions from the transport of waste further afield for processing. Policies *W1: Waste Strategy*, *W3: Agricultural waste management* and *W7: Waste management operations* support proposals for anaerobic digestion and incineration with energy recovery which results in landfill avoidance and enables the resultant heat and power to be used, thereby resulting in secondary positive effects on air quality through energy production that offsets/replaces consumption of fossil fuels but also secondary negative effects on air quality from the release of emissions from incineration.

6.81 Positive synergistic effects may be experienced in relation to the strategic employment sites as there may be opportunities for symbiotic relationships between waste management, engineering, manufacturing and research industries which will contribute to the circular economy at a materials level.

6.82 Secondary positive effects may be experienced in the built and historic environments as the Draft HMWLP provides a mechanism to ensure that there is a steady and adequate supply of natural stone for the conservation and restoration of buildings, including designated historic buildings, which will help to maintain heritage assets and a distinctive sense of place.

6.83 Secondary positive effects may be experienced at mineral sites as extraction may expose more geological features making them visible and available for learning opportunities. Positive secondary impacts may be experienced as the restoration of mineral sites offers the potential to deliver biodiversity gains in the long term, however, many sites are restored to wetland and grassland habitats which can attract large numbers of species that may in certain circumstances pose a hazard to aircraft. There may be negative secondary impacts from the development of mineral sites within an Aerodrome Safeguarding Zone (i.e. M04, W44, Area of Search B and Area of Search D) as there is potential for adverse impacts on aircraft safety from bird-strike. The positive and negative secondary impacts will depend on the type of restoration proposed and eventually developed on the sites. There is also potential negative cumulative impacts from quarries that are clustered at the same location as these may have adverse effects on biodiversity through habitat fragmentation or species disturbance. Conversely, there may be potential for positive cumulative impacts resulting from habitat restoration schemes at these sites which may collectively improve habitat connectivity. Finally, although policies *OS4: Access to open space and recreation from minerals and waste development* and *SD5: Site Reclamation* seek to enhance and restore the landscape, they can also benefit biodiversity and the water and soil environments, even though this is not the primary purpose of these policies.

6.84 Mineral extraction is proposed at several sites in the same localities, for example at Upper Lyde Quarry, Wellington Quarry, Leinthall Quarry and Perton Quarry. Phasing of sites should be considered to reduce cumulative adverse effects on the landscape, biodiversity and geodiversity, the water and soil environments, the historic environment, the road network, and the amenity of local communities. Works and restoration of existing sites should be completed prior to development starting on new sites to ensure no negative cumulative impacts are experienced.

6.85 There may be potential negative cumulative effects on flood risk and water resources through changing surface water drainage patterns and the loss of permeable surfaces to minerals extraction and waste developments, particularly where sites are located in proximity to each other. Following restoration, particularly at mineral sites clustered at the same location, there is potential for positive cumulative effects in relation to flood alleviation through the provision of additional flood storage.

6.86 The loss of agricultural land at site W10 and the potential temporary loss of Best & Most Agricultural Land at eight mineral sites, in addition to sites in three Areas of Search, would

cumulatively add to the loss of agricultural land in the UK. However, the loss is considered to be small in relation to the overall agricultural land lost in the UK per annum to development.

7 Mitigation and Recommendations

Mitigation and Recommendations

7.1 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"*.

7.2 The following paragraphs identify the HMWLP and Local Plan-Core Strategy policies that are expected to provide mitigation for the potential significant negative effects identified for the site allocations and other HMWLP policies (in Chapters 4 and 5). Note that only those SA objectives for which potential significant negative effects were identified are addressed, therefore six of the SA objectives (SA objectives **1: Employment**, **2: Sustainable Economy**, **4: Poverty and Equality**, **8: Waste Hierarchy, 9: Mineral Resources** and **11: Restoration**,) are not included in the table as they are unlikely to be significantly negatively affected by the policies or site allocations in the Herefordshire Minerals and Waste Local Plan.

7.3 It is also noteworthy that some SA objectives, namely **6: Historic Environment**, **13: Landscape** and **15: Flooding**, are recording precautionary significant negative effects due to the constraints identified in the broad Areas of Search. These effects are uncertain as the location of future minerals sites in these areas is not known.

7.4 Furthermore, beyond the mitigation provided in the HMWLP and Herefordshire Core Strategy, minerals and waste developments will be subject to The Town and County Planning (Environmental Impact Assessment) Regulations 2017 which will identify likely significant effects (both alone and cumulatively) on the environment at a site-level. Mineral working and waste management will also require an Environmental Permit, the applications for which will include consideration of potential impacts from the operations of such developments. Water discharge activities, groundwater discharge activities and emissions of greenhouse gases, are permitted through the Environmental Permitting Regime. Dust and noise are subject to control under several statutes, including the Environment Protection Act 1990 and the Environment Act 1995.

7.5 The mitigation measures for waste and mineral sites are more appropriately dealt with at the planning application stage when further detail regarding the location, type and scale of waste facility and mineral extraction will be known. Mitigation may include planning conditions requiring: noise and dust impact assessments; air quality assessments; ecological assessments; hydrological/hydrogeological assessments; flood risk assessments; landscape and visual impact assessments; separation distances/buffer zones between the development and sensitive receptors; phasing of sites to minimise adverse effects on the environment and local communities; routeing agreements and/or travel plans to control and alleviate the effects of traffic movements; archaeological evaluation and watching briefs; or the incorporation of green infrastructure and high quality restoration of sites.

7.6 The recommendations generally relate to Chapter *7: Strategic Policy and General Principles.* This chapter of the Draft HMWLP describes existing Core Strategy policies that are directly relevant to minerals and waste development, as well as proposing additional policies of a strategic nature applicable to minerals and waste development. Within this chapter the Draft HMWLP provides an explanation of how mineral and waste developments should seek to mitigate impacts on the natural, built and historic environments, as well as on the health and amenity of communities. Currently, the Draft HMWLP summarises these mitigation measures under the relevant Core Strategy policies, however, as the existing Core Strategy policies have not been subject to appraisal in this SA Report, it is recommended that, in order to strengthen the positive effects of implementing the plan, these mitigation measures and development criteria are presented as new policies.

SA Objective 3 - Protect and improve the health of the people of Herefordshire, reduce disparities in health geographically and demographically

7.7 Uncertain significant negative effects are identified for nine mineral site options (M05a, M05b, M05c, M05d, M05e, M05g, M07a, M07b and M10b) and four Areas of Search as these are either within 100m of sensitive receptors or, in the case of the Areas of Search, contain sensitive receptors which could be adversely affected by noise, vibration, dust or light pollution. There is also potential for cumulative adverse effects from sites that are clustered at the same location (e.g. Upper Lyde Quarry, Wellington Quarry, Leinthall Quarry or Perton Quarry) or from sites that are near a sensitive receptor and another mineral or waste site (e.g. site W07).

7.8 Policy *SD1: Sustainable design and energy efficiency* of the Core Strategy applies to minerals and waste developments and requires planning proposals to safeguard residential amenity for existing and proposed residents; and to ensure that new development does not contribute to, or suffer from, adverse impacts arising from noise, light or air contamination, land instability or cause ground water pollution. Core Strategy policy *SS6: Environmental quality and local distinctiveness* requires proposals to consider their impact on local amenity, including light pollution, air quality and tranquillity.

7.9 Policy *OS4: Access to open space and recreation from minerals and waste development* in the Draft HMWLP supports the provision of outdoor facilities, such as Public Rights of Way, and the incorporation of green infrastructure which will contribute to the amenity and health of local communities.

7.10 Chapter *7: Strategic Policy and General Principles* of the Draft HMWLP describes existing Core Strategy policies that are directly relevant to minerals and waste development, as well as proposing additional policies of a strategic nature applicable to minerals and waste development. For the description of Core Strategy policy *SS6: Environmental quality and local distinctiveness*, the Draft HMWLP provides an explanation of how mineral and waste developments should seek to mitigate impacts on local amenity, air quality and tranquillity. It is recommended that this text is included as an additional policy. The Draft HMWLP states that all applications will be expected to incorporate robust measures to ensure that proposed developments do not cause unacceptable adverse impacts on either the environment or local communities, many of which can be overcome by implementing standard measures such as:

- limiting working hours;
- locating plant, machinery and haulage routes away from sensitive receptors;
- advanced tree planting;
- phasing so the development moves away from sensitive receptors;
- acoustic screening measures;
- enclosing plant and machinery;
- plant being fitted with silencers and white noise alarms;
- sheeting of lorries;
- cleaning of lorry wheels before they exit the site;
- good maintenance of bunds and stockpiles;
- avoiding or minimising the use of blasting explosives; and,
- careful design of external lighting to confine its influence to the point of use.

Recommendations:

The HMWLP should include an additional policy outlining criteria which development proposals must demonstrate have been considered to ensure that proposed developments do not cause unacceptable adverse impacts on either the environment or local communities.

The HMWLP should include a policy on cumulative impacts and phasing of workings to provide details that proposed mineral and waste sites much comply with to ensure that

cumulative impacts on the amenity of local communities (from noise, dust, odour, vibration), air quality, landscape, biodiversity and geodiversity, the water and soil environments, the historic environment, and the road network, can be adequately mitigated to enable a proposal to be acceptable.

7.11 Through the implementation of the above policies and recommendations, there will be **no residual significant negative effect** in relation to SA objective **3: Health**.

SA Objective 5 - Reduce road traffic, congestion and pollution, and promote sustainable modes of transport and efficient movement patterns in the county

7.12 Of the 20 proposed minerals sites in the Draft HMWLP, six sites are expected to have significant negative effects in respect to SA objective **5: Sustainable Transport** (M07a, M07b, M12, M13, M17 and M18) while 12 sites and the four Areas of Search are expected to have significant negative effects as part of overall mixed effects as these sites are either large (over 20ha) and are expected to generate high volumes of heavy goods vehicle traffic; are not within 250m of a main road thereby encouraging the use of local roads which may result in vehicles travelling slowly increasing the potential for traffic and pollutant deposition along those routes; or, are not within 800m of any sustainable transport links which will encourage private car use among employees. Significant negative effects (as part of mixed effects) are identified for policies *M3: Sand & Gravel*, *M4: Crushed Rock* and *M5: Sandstone*. The negative effects generally relate to minerals and waste continuing to be predominately transported by heavy goods vehicles which will result in increases in traffic generation and transport-related emissions. There may also be cumulative adverse effects on exacerbating congestion problems where waste road transport passes through urban areas, particularly where new waste facilities may be located at strategic employment sites W59, W60, W61, W62 and W63, as these are within close proximity to an AQMA. As the mineral sites are located in rural areas where traffic volumes are commonly low, the cumulative effects may be disproportionately large where sites are in close proximity due to the low capacity of rural roads. 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.

7.13 Core Strategy policy *SS4: Movement and transportation* requires new developments to be designed and located to minimise the impacts on the transport network; ensuring that journey times and the efficient and safe operation of the network are not detrimentally impacted. Furthermore, where practicable, development proposals should be accessible by and facilitate a genuine choice of modes of travel, including walking, cycling and public transport.

7.14 Policy *MT1: Traffic management, highway safety and promoting active travel* of the Core Strategy requires development proposals to demonstrate that the strategic and local highway network can absorb the traffic impacts of the development without adversely affecting the safe and efficient flow of traffic on the network or that traffic impacts can be managed to acceptable levels to reduce and mitigate any adverse impacts from the development. It also encourages active travel; the protection of existing local and long distance footways, cycleways and bridleways; and, well-designed, safe layouts. Where traffic management measures are introduced, they should be designed to respect the character of the surrounding area including its landscape character.

7.15 Chapter *7: Strategic Policy and General Principles* of the Draft HMWLP describes existing Core Strategy policies that are directly relevant to minerals and waste development, as well as proposing additional policies of a strategic nature applicable to minerals and waste development. For the description of the Core Strategy policies identified above, the Draft HMWLP states that development proposals should consider the whole life of the site at the application stage which will enable a sustainable transport strategy to be put in place at the earliest opportunity. It supports the incorporation of green infrastructure into developments to offset carbon emissions caused by minerals and waste related traffic and the incorporation of cycle links or footpaths upon reclamation of the site. It also states that it may not always be possible to gain access directly to the strategic highway network from a site, but the proposed route should avoid local roads and settlements where feasible. It is recommended that this text is included as an additional policy on transport. The policy should also state that, where necessary, routeing agreements and/or travel plans may be sought to control and alleviate the effects of traffic movements, for example in order to avoid environmentally sensitive places or local conditions of congestion on the highway

network. The policy should also refer to the bulk movement of minerals by rail from Wellington Quarry which can help to reduce environmental impacts, fuel consumption, and adverse effects on the amenity of settlements along possible routes.

Recommendation:

The HMWLP should include an additional policy outlining criteria which development proposals must demonstrate have been considered to ensure that proposed developments do not cause unacceptable adverse impacts on the transport network.

7.16 The recommendations outlined for SA objective 3: Health to include new policies on cumulative impacts and protecting the amenity of communities (e.g. by limiting working hours; requiring wheel cleaning facilities and sheeting of lorries) should also limit cumulative impacts on the road network and potential damage to and contamination of public highways from mud and other deleterious materials. Through the implementation of the above policies and recommendations, in addition to the recommendations under SA objective 3, there will be **no residual significant negative effect** in relation to SA objective **5: Sustainable Transport**.

SA Objective 6 - Value, protect and enhance the county's historic environment and cultural heritage

7.17 Uncertain significant negative effects are identified for the Areas of Search in relation to SA objective **6: Historic Environment** as these areas contain designated heritage assets that could be adversely affected by mineral extraction if development were to take place at sites either containing or adjacent to these assets or at sites that contribute to the setting of heritage assets.

7.18 Planning applications for mineral extraction in the Areas of Search will be assessed against Core Strategy policy *LD4: Historic Environment and heritage assets* which requires development proposals to protect, conserve, and where possible enhance heritage assets and their settings; to record and advance the understanding of the significance of any heritage assets to be lost; and, where appropriate to improve the understanding of and public access to the heritage asset.

7.19 Chapter *7: Strategic Policy and General Principles* of the Draft HMWLP describes existing Core Strategy policies that are directly relevant to minerals and waste development, as well as proposing additional policies of a strategic nature applicable to minerals and waste development. For the description of Core Strategy policy *LD4: Historic Environment and heritage assets*, the Draft HMWLP provides an explanation of how mineral and waste developments should seek to protect and enhance the historic environment. It is recommended that this text is included as an additional policy. The Draft HMWLP states that mineral and waste development proposals should include a clear strategy for enhancing the historic environment. Site reclamation and after-use may enable improved access to historic sites, enhance the setting of historic features (such as water meadows), reinstate historic features such as hedgerows, or provide on-site interpretation of the site and its history in association with publicly accessible areas. It also states that wet working of mineral sites may not be a viable option where there are potential archaeological assets as this can significantly restrict the delivery of appropriate mitigation measures.

Recommendation:

The HMWLP should include an additional policy outlining criteria which development proposals must demonstrate have been considered to ensure that proposed developments do not cause unacceptable adverse impacts on the historic environment.

7.20 Through the implementation of the above policies and recommendations, there will be **no residual significant negative effect** in relation to SA objective **6: Historic Environment**.

SA Objective 7 - Value, protect and enhance the character and built quality of settlements and neighbourhoods

7.21 Uncertain significant negative effects are expected with regard to SA objective **7: Built Environment** for six mineral sites (M05a, M05b, M05c, M05f, M05g, and M07a), four waste sites (W05, W07, W10 and W19) and all Areas of Search (A, B, C, and D) as they are within close

proximity (100m) of a settlement, and, as such, may have an adverse effect on the character of an area.

7.22 Core Strategy policy *SD1: Sustainable design and energy efficiency* requires new developments to be designed to maintain local distinctiveness and to respect the scale, height, proportions and massing of surrounding development, whilst making a positive contribution to the character of an area.

7.23 Through the implementation of the above policy, there will be **no residual significant negative effect** in relation to SA objective **7: Built Environment**.

SA Objective 10 - Reduce Herefordshire's vulnerability to the impacts of climate change as well as its contribution to the problem

7.24 Of the 20 proposed minerals sites in the Draft HMWLP, six sites are expected to have significant negative effects in respect to SA objective **10: Climate Change** (M07a, M07b, M12, M13, M17 and M18) while 12 sites and the four Areas of Search are expected to have significant negative effects as part of overall mixed effects as these sites are either large (over 20ha) and are expected to generate high volumes of heavy goods vehicle traffic resulting in the production of high levels of CO_2 or other greenhouse gas emissions; are not within 250m of a main road thereby encouraging the use of local roads which may result in vehicles travelling slowly increasing the potential for traffic and pollutant deposition along those routes; or, are not within 800m of any sustainable transport links which will encourage private car use among employees and increased transport emissions. An uncertain significant negative effect is expected for policy *M7: Unconventional Hydrocarbons* as it supports unconventional hydrocarbons which are a non-renewable indigenous fuel. Unconventional hydrocarbon development has the potential to exacerbate the impacts of climate change through increased greenhouse gas emissions primarily from the processing (direct release of produced gas to the atmosphere from controlled venting or uncontrolled fugitive emissions/leakages) and use of unconventional hydrocarbons. Depending on the location of the development, indirect greenhouse gas emissions may also arise as a consequence of development on high carbon soils. Significant negative effects (as part of mixed effects) are identified for policies *M3: Sand & Gravel*, *M4: Crushed Rock* and *M5: Sandstone.* The negative effects generally relate to minerals and waste continuing to be predominately transported by heavy goods vehicles which will result in increases in transport-related emissions.

7.25 Policy *SS8: Resource Management* directs minerals and waste resources to contribute positively to addressing climate change through promoting a circular economy and managing waste in accordance with the Waste Hierarchy will reduce energy use and greenhouse gas emissions associated with its transportation.

7.26 Core Strategy policy *SS7: Addressing climate change* requires development proposals to include measures which will mitigate their impact on climate change. At a strategic level, this will include designing developments to reduce carbon emissions and use resources more efficiently; focusing development to the most sustainable locations; promoting the use of decentralised and renewable or low carbon energy, where appropriate; and, protecting the best agricultural land, where possible. For the description of policy SS7, the Draft HMWLP states that reduced energy and water usage can be achieved through different ways, including good site design to reduce transport movements and circulating water within operations to reduce overall demand. Buildings and plant should be designed to reduce resource requirements and consequent carbon emissions, for example through the use of ultra-low emission vehicles (including non-fossil fuels and electric vehicles) and renewable energy supply (including solar panels, open-loop ground source or surface water source heating and cooling systems). Site reclamation also provides opportunities to address climate change by enabling the movement of wildlife and flood storage to alleviate risks elsewhere. It is recommended that this text is included as an additional policy. This policy should also support the avoidance of carbon sinks (e.g. peats) in order to minimise loss of carbon sequestration.

Recommendation:

The HMWLP should include an additional policy outlining criteria which development proposals must demonstrate have been considered to ensure that proposed

developments prevent, mitigate or offset the effects of climate change.

7.27 The significant negative effect identified for policy *M7: Unconventional Hydrocarbons* could arise from: emissions associated with pad preparation and drilling (e.g. the direct and indirect combustion of fossil fuels from construction traffic and plant and the embodied carbon within construction materials); emissions of CO_2 and methane associated with disturbance to soils; the potential loss of soil carbon sequestration; and in particular the volume of emissions arising from hydraulic fracturing and well completion. The policy currently protects designated landscape, historic and biodiversity/geodiversity sites; however, it should also support the protection of important soil types, particularly carbon sinks and Best & Most Versatile Agricultural Land. The policy should also state that developments should incorporate the use of best practice in construction and plant specification to minimise releases to air through fugitive emissions; phasing water demand to avoid periods of low flow or water stress; ensuring waste management plans include the transport and treatment of the flowback and produced water generated; and ensuring transport plans include measures to address the effects on local communities including vehicle frequency, scheduling, speed restrictions and routeing. The policy should also refer to carbon capture and storage (CCS) at the stage of production and use of unconventional hydrocarbons to reduce carbon emissions/increase sustainability.

Recommendation:

Policy *M7: Unconventional Hydrocarbons* should be updated to support the protection of important soil types, particularly carbon sinks and Best & Most Versatile Agricultural Land. The policy should also state that developments should incorporate the use of best practice in construction, operation and plant specification to minimise releases to air through fugitive emissions; phasing water demand to avoid periods of low flow or water stress; ensuring waste management plans include the transport and treatment of the flowback and produced water generated; and ensuring transport plans include measures to address the effects on local communities including vehicle frequency, scheduling, speed restrictions and routeing. The policy should also support carbon capture and storage to reduce carbon emissions/increase sustainability.

7.28 Furthermore, existing regulatory requirements, provided they are followed, will ensure that effects at the project level will be identified, assessed and mitigated to an acceptable level. These will include:

- gaining planning permission from Herefordshire Council which will include addressing the effects of siting, landtake, community disturbance, flood risk, contamination of land, and traffic. Effects on European designated conservation sites will be assessed as part of the Habitat Regulations Assessment process and will also be considered by Natural England;
- gaining permits, licences, consents and/or authorisations under environmental regulations implemented by the Environment Agency. These processes will, inter-alia, ensure that any new or incremental demand on water resources will remain within sustainable limits;
- implementing the health and safety legislation of the Health and Safety Executive, including assurance of well integrity; and
- implementing DECC controls on flaring, venting and mitigation of seismic risks.

7.29 Permits and consents will require operators to provide information on chemicals used, gas produced, emissions, discharges, and the results of any well integrity testing during exploration and operation. It is considered likely that, through the use of construction and operation best practice, environmental effects resulting from onshore exploration and production activities could be minimised and managed to acceptable levels.

7.30 The recommendation outlined for SA objective 3: Health to include a new policy on cumulative impacts should address the potential negative cumulative impacts on air quality while the recommendation outlined for SA objective 5: Sustainable Transport should address potential impacts arising from the transportation of minerals and waste. However, due to the nature of unconventional hydrocarbon development, there will be a **residual significant negative effect** in relation to SA objective **10: Climate Change**.

SA Objective 12 - Value, maintain, restore and expand county biodiversity and geodiversity

7.31 Sites M05a, M05d, M05g, M20, W05 and W13 have all been identified as having uncertain significant negative effects with regard to SA objective **12: Biodiversity & Geodiversity** as they are located within 250m of either the River Wye SAC and/or the River Lugg SSSI. An uncertain significant negative effect (as part of a mixed effect) is also identified for site W45 at Wellington Quarry as it is adjacent to the River Wye SAC and the River Lugg SSSI. The SA assessment also identifies uncertain significant negative effects for site M13 as it is within 250m of the Black Mountains SSSI. Mixed effects (uncertain minor positive/uncertain significant negative) are identified for sites M10a and M10b as they either contain (as is the case for M10a) or are adjacent (as is the case for M10b) to the Perton Roadside Section Quarry SSSI. The HRA Screening Report (LUC, 2018) also identifies for sites M05a, M05d, M05g, M12, M20, W45 and Area of Search C potential for significant effects on the River Wye SAC and potential for significant effects on the Wye Valley and Forest Dean Bat Sites SAC (for site M12 only).

7.32 Furthermore, the HRA Screening Report identified a lack of certainty as to whether the following policies would result in likely significant effects on European sites:

- *M3: The winning and working of sand and gravel* (physical damage and loss of habitat, non-physical disturbance and non-toxic contamination).
- *W6: Preferred locations for construction, demolition and excavation waste facilities* (physical damage and loss of habitat, non-physical disturbance and non-toxic contamination).

7.33 There may also be negative secondary impacts from the development of mineral sites within an Aerodrome Safeguarding Zone (i.e. M04, W44, Area of Search B and Area of Search D) as there is potential for adverse impacts on aircraft safety from bird-strike and potential negative cumulative impacts from quarries that are clustered at the same location as these may have adverse effects on biodiversity through habitat fragmentation or species disturbance.

7.34 Policy *SD5: Site Reclamation* supports site reclamation schemes that take account of any development relevant to the area. While it is stated under the explanation of Core Strategy policy *SD1: Sustainable design and energy efficiency* that proposals for site working, restoration and after-use will be required to consider aviation safety in demonstrating the appropriateness of water management and site reclamation schemes, it is recommended that the policy text of SD5 is updated to include this statement.

Recommendation:

Policy *SD5: Site Reclamation* should be updated to require proposals for restoration to take account of aviation safety.

7.35 Policy *LD2: Biodiversity and geodiversity* of the Core Strategy requires development proposals to conserve, restore and enhance biodiversity and geodiversity assets, through the:

- retention and protection of nature conservation sites and habitats, and important species in accordance with their status as follows:
    - development that is likely to harm sites and species of European Importance will not be permitted;
    - development that would be liable to harm Sites of Special Scientific Interest or nationally protected species will only be permitted if the conservation status of their habitat or important physical features can be protected by conditions or other material considerations are sufficient to outweigh nature conservation considerations;
    - development that would be liable to harm the nature conservation value of a site or species of local nature conservation interest will only be permitted if the importance of the development outweighs the local value of the site, habitat or physical feature that supports important species;
    - development that will potentially reduce the coherence and effectiveness of the ecological network of sites will only be permitted where adequate compensatory measures are brought forward.

- restoration and enhancement of existing biodiversity and geodiversity features on site and connectivity to wider ecological networks; and,
- creation of new biodiversity features and wildlife habitats.

7.36 It also states that, where appropriate, the Council will work with developers to agree a management strategy to ensure the protection of, and prevention of adverse impacts on, biodiversity and geodiversity features.

7.37 For the description of Core Strategy policy *LD2: Biodiversity and geodiversity*, the Draft HMWLP states that the minerals and waste industries present significant opportunities to provide a net gain in biodiversity and to improve the coherence and resilience of habitats and ecological networks, enabling wildlife to respond to a range of environmental pressures. Site reclamation will be expected to contribute at a landscape scale towards Biodiversity Action Plan targets, promoting the priorities of Herefordshire's Biodiversity Action Plans, taking account of the attributes of the site and of nearby areas, to support coherent and resilient networks of habitats that link the site with relevant ecological features in the wider landscape. Management strategies associated with a minerals or waste development may include a buffer within the development site to protect vulnerable features. Minerals and waste development proposals will also be expected to avoid unacceptable impacts on geodiversity value. Planning applications should demonstrate how the proposed development will deliver objectives of UK and Herefordshire Geodiversity Action Plans, such that geodiversity features are successfully incorporated with green infrastructure into reclamation and after-use, through measures such as:

- providing safe public access to geological features, whilst avoiding damage to them;
- involving geologists, geodiversity groups and museums in advising on, recording and sampling geodiversity;
- incorporating geodiversity considerations into site management plans to protect and maintain exposures;
- providing information to support understanding, interpretation and enjoyment of the features;
- creating links beyond the site boundary into the wider landscape.

7.38 It is recommended that the above text is included as part of an additional policy on biodiversity and geodiversity.

Recommendation:

The HMWLP should include an additional policy outlining criteria which development proposals must demonstrate have been considered to ensure that proposed developments do not cause unacceptable adverse impacts on biodiversity and geodiversity.

7.39 In relation to the River Wye SAC, impacts associated with the effect of physical damage and loss were associated with site allocations M05a, M05d, M05g and W45 due to their location adjacent to the SAC and the presence of offsite functionally linked wetland habitat which may be utilised by otter. As recommended in the HRA, these potential effects could be mitigated through the provision of policy safeguards within the HMWLP which require site level assessment and a commitment to, and implementation of, best practice working measures in line with a site specific mitigation and avoidance plan. This type of avoidance and mitigation would also serve to prevent and mitigate potential effects associated with non-physical disturbance, non-toxic contamination and water quality as a result of sites M05a, M05d, M05g and W45, Area of Search C and policies M3 and W6, and potential water quality impacts associated with sites M12, M20 and policy M5.

Recommendation:

In relation to sites that are likely to have a significant effect on the River Wye SAC, the HMWLP should require site level assessment and a commitment to, and implementation of, best practice working measures in line with a site specific mitigation and avoidance plan.

7.40 The potential for likely significant effects on the Wye Valley and Forest of Dean Bat Sites SAC was identified as a result of physical damage and loss of offsite functionally linked woodland habitat present within site allocation M12. This is considered highly precautionary, and as recommended in the HRA, the risk of such an effect could be minimised through the provision of a commitment to site specific assessment where new areas of excavation and associated tree felling is proposed, and if required, the retention of a woodland periphery at the site to prevent habitat severance to horseshoe bat species.

Recommendation:

In relation to site M12, the HMWLP should require site specific assessment where new areas of excavation and associated tree felling is proposed, and if required, the retention of a woodland periphery at the site to prevent habitat severance to horseshoe bat species.

7.41 An uncertain significant negative effect was identified in the SA for site W13 due to its proximity to the River Wye SAC and the River Lugg SSSI. However, the HRA Screening Report concluded that the site is unlikely to have a significant effect on the SAC. The SA identified uncertain significant effects for site W05 as it is within close proximity to the River Lugg SSSI and for site M13 as it is within close proximity to the Black Mountains SSSI. Mixed effects (uncertain minor positive/uncertain significant negative) are identified for sites M10a and M10b as they either contain (as is the case for M10a) or are adjacent (as is the case for M10b) to the Perton Roadside Section Quarry SSSI. These potential adverse effects on SSSIs can be mitigated through the implementation of policy *LD2: Biodiversity and Geodiversity* and the additional policy proposed for inclusion in the HMWLP.

7.42 The sites and policies identified in the HRA Screening Report as having likely significant effects will also be subject to Appropriate Assessment (alongside the Pre-Submission HMWLP), at which point formal consultation with Natural England as the statutory conservation authority will be completed. The recommendation outlined for SA objective 3: Health to include a new policy on cumulative impacts should also address the potential negative cumulative impacts on biodiversity and geodiversity. Through the implementation of the above policies and recommendations, in addition to the recommendation under SA objective 3, there will be **no residual significant negative effect** in relation to SA objective **12: Biodiversity & Geodiversity**.

SA Objective 13 - Value, protect, enhance and restore the landscape quality of Herefordshire, including its rural areas and open spaces

7.43 Uncertain significant negative effects are identified for Areas of Search C and D in relation to SA objective **13: Landscape** as they either contain part of the Wye Valley AONB, areas of open space, or areas identified as being of high sensitivity according to The Urban Fringe Sensitivity Analysis. There are also potential cumulative adverse effects on landscape character and quality where several sites are proposed in the same locality.

7.44 Planning applications for mineral extraction in the Areas of Search will be assessed against Core Strategy policy *LD1: Landscape and townscape* which requires development proposals to conserve and enhance the natural, historic and scenic beauty of important landscapes and features, including Areas of Outstanding Natural Beauty, nationally and locally designated parks and gardens, and conservation areas. The policy also requires proposals to demonstrate that character of the landscape has positively influenced the design and scale of the development. Proposals should also incorporate new landscape schemes to ensure development integrates appropriately into its surroundings. For the description of policy LD1, the Draft HMWLP outlines a number of mitigation measures that could minimise impacts on the landscape from mineral and waste developments including:

- protecting, enhancing or creating views;
- interpretation boards at publicly accessible areas to enable greater understanding of the landscape, historic landscape character and influence of the underlying geology;
- designing waterbodies to be of a type, shape and scale that fits with the local landscape character and optimises biodiversity gains;

- protecting or re-instating historic landscape features such as hedgerows or woodland; and,
- ensuring any planting is appropriate to the landscape character, using locally present species to optimise biodiversity gains.

7.45 It is recommended that this text is included as part of an additional policy on landscape.

7.46 For the description of Core Strategy policy *SD1: Sustainable design and energy efficiency*, the Draft HMWLP states that the Council will expect proposals to incorporate best practice measures to minimise the effects of visual intrusion and care should be taken to ensure that screening measures are appropriate and are not, in themselves, a source of visual intrusion. It is recommended that this text is included as part of an additional policy on landscape.

7.47 Other policies which planning applications will be assessed against include:

- Policy *LD3: Green Infrastructure* of the Core Strategy which requires development proposals to protect, manage and plan for the preservation of existing and delivery of new green infrastructure.
- Policy *SD5: Site Reclamation* which supports site reclamation schemes that deliver landscape scale benefits and/or integrated green infrastructure appropriate to its location.
- Policy *OS4: Access to open space and recreation from minerals and waste development* which supports the protection and enhancement of green infrastructure and open space as part of mineral and waste developments.

Recommendation:

The HMWLP should include an additional policy outlining criteria which development proposals must demonstrate have been considered to ensure that proposed developments do not cause unacceptable adverse impacts on the landscape including from visual intrusion and should include mitigation measures such as screening.

7.48 The recommendation outlined for SA objective 3: Health to include a new policy on cumulative impacts should also address the potential negative cumulative impacts the landscape. Through the implementation of the above policies and recommendations, in addition to the recommendation under SA objective 3, there will be **no residual significant negative effect** in relation to SA objective **13: Landscape**.

SA Objective 14 - Value, protect and enhance the quality of watercourses and maximise the efficient use of water

7.49 The SA identified uncertain significant negative effects for sites M05d, M05g, W45, M20, W05, W13 and Area of Search C. The HRA Screening Report identified that, due to hydrological connectivity with the River Wye SAC, likely significant effects cannot be ruled out in the absence of appropriate safeguards and mitigation measures for sites M05a, M05d, M05g, W45, M20, M12 and Area of Search C. The HRA Screening Report also identified a lack of certainty as to whether the following policies would result in likely significant effects on water quality of European sites:

- Policy *M3: The winning and working of sand and gravel*.
- Policy *M5*: *The winning and working of building stone (sandstone)*.
- Policy *M7*: *Unconventional hydrocarbons*.
- Policy *W6*: *Preferred locations for construction, demolition and excavation waste facilities*.

7.50 There may also be potential negative cumulative effects on water resources through changing surface water drainage patterns, particularly where sites are located in proximity to each other.

7.51 The HRA recommendation in relation to the River Wye SAC outlined in SA objective **12: Biodiversity and Geodiversity** which states that the HMWLP should require site level assessment and a commitment to, and implementation of, best practice working measures in line with a site specific mitigation and avoidance plan for sites that are likely to have a significant effect on the SAC, serves to prevent and mitigate potential effects associated with water quality as well as physical loss of or damage to habitat, non-physical disturbance and non-toxic

contamination for sites M05a, M05d, M05g, W45, Area of Search C and policies M3 and W6, and potential water quality impacts associated with sites M12, M20 and policy M5.

7.52 Policy *M7: Unconventional Hydrocarbons* broadly specifies the location of potential unconventional hydrocarbon resources in the south of the county, and associated activities may include hydraulic fracturing for gas. These activities have the potential to degrade the quality of ground water resources and whilst the policy specifies safeguards in relation to protecting European sites, the wording of policy M7 requires strengthening to recognise that significant impacts can occur from activities occurring outside of the European site boundaries, together with a commitment to undertake site specific HRA assessment for any such proposal as it comes forward for consideration. It is also recommended that a Water Management Plan and a Waste Management Plan are required which could include, due to the volume of water required for hydraulic fracturing, that demand should be met from recycling and reuse of flowback water (the fractured fluid injected into the shale rock during hydraulic fracturing which returns to the surface through the drilled well). The policy could also state that flowback water, once it is intended for disposal, is not permitted to be re-injected into the geological formation and will require treatment as a waste, to protect water quality. Furthermore, given the relatively high consumption of water during hydraulic fracturing, the timing of water consumption should be considered in light of local conditions so as to reduce the risk of abstractions occurring during low flow periods.

Recommendation:

The wording of policy M7 requires strengthening to recognise that significant impacts can occur from unconventional hydrocarbon activities occurring outside of the European site boundaries, together with a commitment to undertake site specific HRA assessment for any such proposal as it comes forward for consideration. It is also recommended that a Water Management Plan and a Waste Management Plan are required which could include, due to the volume of water required for hydraulic fracturing, that demand should be met from recycling and reuse of flowback water (the fractured fluid injected into the shale rock during hydraulic fracturing which returns to the surface through the drilled well). The policy could also state that flowback water, once it is intended for disposal, is not permitted to be re-injected into the geological formation and will require treatment as a waste. Furthermore, given the relatively high consumption of water during hydraulic fracturing, the timing of water consumption should be considered in light of local conditions so as to reduce the risk of abstractions occurring during low flow periods.

7.53 Policy *SD3: Sustainable water management and water resources* of the Core Strategy requires development proposals to reduce flood risk; to avoid an adverse impact on water quality; to protect and enhance groundwater resources; and, to provide opportunities to enhance biodiversity, health and recreation.

7.54 Chapter *7: Strategic Policy and General Principles* of the Draft HMWLP describes existing Core Strategy policies that are directly relevant to minerals and waste development, as well as proposing additional policies of a strategic nature applicable to minerals and waste development. For the description of Core Strategy policy *SD3: Sustainable water management and water resources*, the Draft HMWLP states that proposals for minerals extraction and waste management should ensure protection of water resources, particularly when river abstraction and/or groundwater sources may be affected. The potential for impact on water quantity, quality and flow should be assessed through hydrological and hydrogeological assessments to establish the base line position and ensure operations are appropriately designed, monitored and managed. The Council will seek to avoid:

- significant change to groundwater or surface water levels, for example, the process of 'dewatering' (when water is pumped out of a pit to allow dry working below the water table) must be carefully monitored, to ensure no adverse impacts on surrounding water availability; and,
- pollution of ground and surface water by chemicals and other contaminants, for example a considerable amount of water can be used when processing wastes or aggregates; drainage

during site operations and any discharge to local watercourses, must be controlled to comply with standards set by the Environment Agency.

7.55 It is recommended that this text is included as part of an additional policy on water. The policy should also refer to the protection of Source Protection Zones and designated waterbodies.

Recommendation:

The HMWLP should include an additional policy outlining criteria which development proposals must demonstrate have been considered to ensure that proposed developments do not cause unacceptable adverse impacts on the water environment. The policy should also refer to the protection of Source Protection Zones and designated waterbodies.

7.56 The recommendation outlined for SA objective 3: Health to include a new policy on cumulative impacts should also address the potential negative cumulative impacts on the water environment. Through the implementation of the above policies and recommendations, in addition to the recommendations made under SA objectives 3 and 12, there will be **no residual significant negative effect** in relation to SA objective **14: Water**.

SA Objective 15 - Reduce the risk of flooding and the resulting detriment to public well-being, the economy and the environment

7.57 Although sand and gravel working is considered a 'water compatible' use, other minerals are classed as 'less vulnerable' and are considered unsuitable in Flood Zone 3b (the functional flood plain) according to the National Planning Practice Guidance. Therefore, three Areas of Search in the Draft HMWLP are expected to have uncertain significant negative effects in relation to SA objective **15: Flooding** as they contain Flood Zone 3 areas. There may be potential negative cumulative effects on flood risk from the loss of permeable surfaces to minerals extraction and waste developments, particularly where sites are located in proximity to each other.

7.58 Policy *SD5: Site Reclamation* supports site reclamation schemes which have the potential to create wetland habitats, thereby providing flood storage.

7.59 Policy *SD3: Sustainable water management and water resources* requires development proposals to reduce flood risk; to avoid an adverse impact on water quality; to protect and enhance groundwater resources; and, to provide opportunities to enhance biodiversity, health and recreation. It also states that developments will be located in accordance with the Sequential Test and Exception Test (where appropriate).

Recommendation:

The HMWLP should include an additional policy which states that mineral workings and waste developments should not increase flood risk elsewhere and need to be designed, worked, and restored accordingly.

7.60 The recommendation outlined for SA objective 3: Health to include a new policy on cumulative impacts should also address the potential negative cumulative impacts on flood risk. Through the implementation of the above policies and recommendations, in addition to the recommendation under SA objective 3, there will be **no residual significant negative effect** in relation to SA objective **15: Flooding**.

SA Objective 16 - Minimise noise, light, and air pollution

7.61 Sites M05a, M05b, M05c, W05, W07 and W10 are expected to result in uncertain significant negative effects in relation to SA objective **16: Pollution** as, whilst they are not within an AQMA, they are within 100m of settlements which could result in adverse effects on sensitive receptors. All four Areas of Search are considered to have potential to result in significant negative effects given that there are sensitive receptors including schools, settlements and churches within these areas. There could be potential for cumulative negative effects on local air quality where waste management facilities are combined with other facilities within existing industrial estates or

strategic employment sites or potential negative cumulative effects from noise at mineral sites that are in close proximity.

7.62 Policy *SD1: Sustainable design and energy efficiency* of the Core Strategy applies to minerals and waste developments and requires planning proposals to ensure that new development does not contribute to, or suffer from, adverse impacts arising from noise, light or air contamination. Core Strategy policy *SS6: Environmental quality and local distinctiveness* requires proposals to consider their impact on residential and local amenity, including light pollution and air quality.

7.63 The recommendation outlined for SA objective 3: Health to include a new policy on cumulative impacts should also address the potential negative cumulative impacts from noise, light and air pollution. Through the implementation of the above policies and the recommendation made under SA objective 3, there will be **no residual significant negative effect** in relation to SA objective **16: Pollution**.

SA Objective 17 - Value, protect and enhance soil quality and resources

7.64 Eight mineral sites proposed in the Draft HMWLP are expected to have uncertain significant negative effects in relation to SA objective **17: Soil** as development on mainly (>50%) high quality Best & Most Versatile Agricultural Land (Grade 1, 2 and 3a) or on large areas of greenfield (>20ha) will result in that land being lost to other uses (M03a, M03b, M03d, M04, M05c, M05d, M05e and M05g). Uncertain significant negative effects are also identified for Areas of Search A, B and C as these areas comprise Grade 2 and Grade 3 Best and Most Versatile Agricultural Land. An uncertain significant negative effect is identified for site W10 as this site comprises entirely Grade 2 agricultural land. There may also be potential negative cumulative effects on the soil environment from the loss of Best & Most Versatile Agricultural Land to minerals extraction and waste developments.

7.65 Policy *SD5: Site Reclamation* supports site reclamation schemes which have the potential to return sites to agricultural use, thereby safeguarding the long-term potential of Best and Most Versatile Agricultural Land and conserving soil resources.

7.66 Policy *SS7: Addressing climate change* of the Core Strategy supports the protection of best agricultural land, where possible. The supporting text states that *"areas of lower quality agricultural land will be utilised in preference to the best and most versatile agricultural land, in accordance with the National Planning Policy Framework (Para 112), where possible"* (p.44).

7.67 Chapter *7: Strategic Policy and General Principles* of the Draft HMWLP describes existing Core Strategy policies that are directly relevant to minerals and waste development, as well as proposing additional policies of a strategic nature applicable to minerals and waste development. For the description of Core Strategy policy *LD2: Biodiversity and geodiversity*, the Draft HMWLP provides an explanation of how mineral and waste developments should protect and conserve soil resources. It is recommended that this text is included as part of an additional policy on the soil environment. According to the Draft HMWLP, planning applications should consider the following in demonstrating that mineral development on the Best and Most Versatile Agricultural Land is necessary:

- whether there is an available alternative;
- whether the need for development outweighs the adverse impact upon agricultural land quality;
- whether proposals will affect the long term agricultural potential of the land or soils; and,
- whether alternative land of lower agricultural value has considerations which outweigh the adverse impact upon agricultural land quality.

7.68 It also states that the protection of the original soils removed prior to mineral extraction should always be a priority. Furthermore, the stripping and storage of soils for reuse and restoration can lead to degradation, although best practice in soil management can minimise the impacts of this damage. Planning applications should demonstrate how best practice measures for soil handling and storage will be achieved on site, throughout the life of the development. Reclamation schemes should incorporate remediation activities and after-use proposals that optimise the storage and use of best and most versatile soils.

7.69 It is also recommended that the text described for Core Strategy policy *SD1: Sustainable design and energy efficiency* should be included as part of an additional policy on the soil environment. The Draft HMWLP states that proposals should demonstrate the measures to be used to ensure that quarry sides and slopes are stable and will not result in landslip, either within the site or on adjoining land, both during and after the lifetime of the development. Waste stockpiles and mineral waste tips should be constructed and accessed so that they are unlikely to give rise to danger through instability, using suitable vegetation which can assist with stability and bring environmental benefit. Where there is any likelihood of instability, a stability report should be provided setting out measures appropriate to ensure the continued stability and integrity of infrastructure adjoining or close to the development site.

Recommendation:

The HMWLP should include an additional policy outlining criteria which development proposals must demonstrate have been considered to ensure that proposed developments do not cause unacceptable adverse impacts on the soil environment.

7.70 Through the implementation of the above policies and recommendations, in addition to the recommendation on cumulative impacts made under SA objective 3 and the recommendation on climate change made under SA objective 10, there will be **no residual significant negative effect** in relation to SA objective **17: Soil**.

8 Monitoring

8.1 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"* and that the environmental report should provide information on *"a description of the measures envisaged concerning monitoring"*. Monitoring proposals should be designed to provide information that can be used to highlight specific issues and significant effects, and which could help decision-making.

8.2 Monitoring should be focused on the significant sustainability effects that may give rise to irreversible damage (with a view to identifying trends before such damage is caused) and the significant effects where there is uncertainty in the SA and where monitoring would enable preventative or mitigation measures to be taken. Therefore, monitoring measures have been proposed in this SA Report in relation to all of the SA objectives in the SA Framework for which likely (or uncertain) significant negative effects have been identified from the HMWLP.

8.3 **Table 8.1** sets out a number of suggested indicators for monitoring the potential significant effects of implementing the Plan. Where possible, the indicators proposed draw from those in the monitoring framework presented in the Draft HMWLP. However, additional indicators have been proposed where no relevant indicators are included in the Draft HMWLP (shown in italics).

8.4 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.

Table 8.1 Proposed Monitoring Framework for the HMWLP

SA Objective	Proposed monitoring indicators (those not in the Draft HMWLP shown in *italics*)
Healthy and Prosperous Communities	
3. Protect and improve the health of the people of Herefordshire, and reduce disparities in health geographically and demographically.	Record of new public access to outdoor spaces and impact on open spaces and rights of way. *The number and % of minerals and waste 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 minerals and waste applications refused where concerns over public health acted as part of the reason for refusal.* *The number and % of minerals and waste approvals that included conditions concerning noise, hours of operations, traffic and lighting.* *The number and % of minerals and waste applications refused on cumulative impact grounds.* *The number and % of minerals and waste applications refused on more general health and amenity grounds.*
Transport and Access	
5. Reduce road traffic, congestion and pollution, and promote sustainable modes of transport and efficient movement patterns in the county.	Record of on-site transport methods and associated green infrastructure. *The number and % of minerals and waste applications refused on transport grounds.*

SA Objective	Proposed monitoring indicators (those not in the Draft HMWLP shown in *italics*)
	The number and % of minerals and waste permissions that included non-road based transport. *The number and % of minerals and waste approvals that included conditions concerning air pollution control.* *The number and % of minerals and waste permissions that included one or more of the following highway conditions: restricted vehicle numbers; restricted tonnages; restricted routings; and highway mitigation measures – the need for wheel washing, lorry sheeting etc.* *Number of minerals and waste planning applications granted contrary to the advice of Highways England.*
Built Environment	
6. Value, protect and enhance the character and built quality of settlements and neighbourhoods and the county's historic environment and cultural heritage.	*Number and % of minerals and waste applications refused on historic grounds.* *Number and % of all permitted minerals and waste applications that included conditions related to archaeology.* *Number and % of Listed Buildings and Scheduled Ancient Monuments on Buildings at Risk Register (Historic England).* *Number of minerals and waste planning applications granted contrary to the advice of Historic England.*
7. Value, protect and enhance the character and built quality of settlements and neighbourhoods.	*Number of minerals and waste applications refused on townscape sensitivity/character grounds per annum.*
Resource Consumption and Climate Change	
10. Reduce Herefordshire's vulnerability to the impacts of climate change as well as its contribution to the problem.	Record of on-site transport methods and associated green infrastructure. *The number and % of minerals and waste permissions that included non-road based transport.* *The number and % of minerals and waste approvals that included conditions concerning air pollution control.* Record of materials and/or energy recovered and indication of final destination. *The number and % of minerals and waste applications permitted that include low carbon energy initiatives/sources.*
Environmental	
12. Value, maintain, restore and expand county biodiversity and geodiversity.	Record of reclamation achieved and associated green infrastructure. *Number and % of minerals and waste applications refused on biodiversity and geodiversity grounds.* *Number of minerals and waste planning applications granted contrary to the advice of Natural England.* *Condition status of River Wye and River Lugg SAC/SSSIs (Natural England).*
13. Value, protect, enhance and restore the landscape quality of Herefordshire, including its rural areas and open spaces.	Record of reclamation achieved and associated green infrastructure. *Number and % of minerals and waste applications refused in AONB.* *Number of minerals and waste applications refused on landscape sensitivity/character grounds per annum.* *Number of minerals and waste planning applications granted contrary to the advice of Natural England.*
14. Value, protect and enhance the quality of watercourses and maximise the efficient use of water.	Record of waste management practice(s) presented and water quality assessments of the River Wye and River Lugg. *The number and % of minerals and waste applications refused*

SA Objective	Proposed monitoring indicators (those not in the Draft HMWLP shown in *italics*)
	on water quality/safeguarding grounds. *The number and % of minerals and waste approvals that included conditions concerning water pollution control.* *Number of minerals and waste planning applications granted contrary to the advice of Natural England and/or Environment Agency.*
15. Reduce the risk of flooding and the resulting detriment to public well-being, the economy and the environment.	*The number and % of minerals and waste applications refused on flooding grounds.* *The number and % of minerals and waste approvals that included conditions to mitigate flood risk.* *The number and % of minerals and waste applications refused/permitted in flood risk zones 2b and 3.* *Number of minerals and waste planning applications granted contrary to the advice of the Environment Agency.*
16. Minimise noise, light, and air pollution.	*The number and % of minerals and waste approvals that included conditions concerning noise, hours of operations, traffic and lighting.* *The number and % of minerals and waste approvals that included conditions concerning air pollution control.*
17. Value, protect and enhance soil quality and resources.	*The number and % of minerals and waste approvals on Grade 1, 2 or 3a agricultural land.*

9 Conclusion

9.1 The policies and site allocations included in the Draft HMWLP have been subject to a detailed appraisal against the SA objectives which were developed at the Scoping stage of the SA process.

9.2 The Draft HMWLP provides well-reasoned proposed policies and a clear guide to minerals and waste development based on sound sustainable development principles. In general, the Draft HMWLP has been found to have a wide range of positive and significant positive effects on the SA objectives, although a notable proportion of negative and significant negative effects have also been identified, mainly in relation to the allocation of particular minerals and waste sites. However, many of these effects are uncertain, as the likelihood of and severity of these effects will depend very much on the exact location, scale and design of minerals and waste developments pursued. There is likely to be a residual significant negative effect in relation to SA objective **10: Climate Change** as the Draft HMWLP supports the development of unconventional hydrocarbons. In addition, many potential positive effects expected will depend on how well policy requirements from the Core Strategy and other policies within the HMWLP are implemented, and the type of restoration achieved at minerals and waste sites.

9.3 The SA has inevitably had to make assumptions in coming to judgements of the effects of the Draft HMWLP. Our assumption with respect to effects, cumulative or otherwise, is on the basis of the intention of the Draft HMWLP (i.e. what it is trying to achieve). Past experience suggests that, when considering development proposals, there will often be tensions when applying different policies, and deciding where weight should apply. Despite the best intentions of the planning authority, it may not always be possible to deliver development that meets all policy criteria and good practice guidance, and difficult choices will often have to be made. This highlights the importance of monitoring the potential significant effects identified once the HMWLP is adopted.

Next steps

9.4 This SA Report will be available for consultation alongside the Draft HMWLP in early 2019, for a 6 week period.

9.5 Following the consultation on the Draft Herefordshire Minerals and Waste Local Plan, the responses received and the findings of the SA will be reviewed and incorporated into the Submission Draft Herefordshire Minerals and Waste Local Plan. An updated SA Report will also be prepared to accompany that version of the HMWLP.

LUC

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