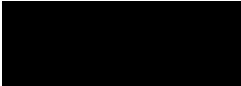



Derbyshire Minerals Local Plan

Sustainability Appraisal

3rd Interim SA Report
August 2020

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Appendix A: Appraisal of the Proposed Approach (Spring 2018)

1 INTRODUCTION

1.1 Background

- 1.1.1 AECOM is commissioned to undertake sustainability appraisal of the emerging Derbyshire and Derby Minerals Local Plan. The Plan is being jointly prepared by Derbyshire County Council and Derby City Council. It covers that part of Derbyshire lying outside of the Peak District National Park. The Plan period is to 2036.
- 1.1.2 An important feature of sustainability appraisal is the influence the process has on the development of the plan through appraisal of draft policies, emerging approaches and different options.
- 1.1.3 Such issues have been identified and consulted upon as part of a 'rolling consultation', which consisted of a series of documents setting out the background, key evidence, issues and options and the emerging strategy for different minerals. An appraisal of these emerging approaches (and alternatives to these) was undertaken to ensure that the plan is influenced by sustainability throughout its development.
- 1.1.4 The findings of these appraisals have been presented in two interim SA Reports (July 2013 and December 2017). For ease of access in consultation, a summary of the findings was also provided as part of the Plan consultation documents themselves.
- 1.1.5 The last significant stage in the preparation of the Plan was the Spring 2018 Consultation: Proposed Approach. This set out a proposed Vision and Objectives, and Strategic Sustainability Principles. It also included a proposed strategy for all important minerals together with supporting policies. SA work was undertaken in support of this stage of work, with the findings incorporated into this third Interim SA Report.
- 1.1.6 Though the plan is yet to be finalised, it is helpful to appraise the proposed strategy and policy approaches to ensure that the sustainability implications are understood. This also allows for mitigation and enhancement measures to be identified.
- 1.1.7 The third interim SA Report set out the findings of the appraisal of the proposed approach at the last key milestone. In 2019 a revision to the NPPF stipulated that local plans should cover a 15 year period from the time of adoption. The Councils have therefore extended the plan period to 2036. Consequently the situation regarding the supply of sand and gravel has had to be re-examined to determine whether further resources will have to be identified in the Plan. Consequently, several additional site options have been considered to be reasonable alternatives for the purposes of SA. Therefore, the third Interim SA Report has been prepared (through August 2020), and the findings are presented alongside the initial SA outputs from May 2020. This current document is therefore an update to the third Interim SA Report. The updates focus on the matter of site options for sand and gravel, with all other elements of the report remaining the same.
- 1.1.8 It should be noted that this interim SA report is not a statutory output of the Strategic Environmental Assessment Regulations. Rather, it is a voluntary report to document the steps taken as part of the SA process as the Plan develops. This ensures early and effective engagement as well as providing a decision aiding tool to the Councils in shaping the Minerals Plan.
- 1.1.9 Following consultation on the Proposed Approach (and SA) the Councils will continue to work towards the preparation of a pre-submission Plan before the Plan is finalised and published for Submission. A final SA report which draws together the information presented in all of the interim SA Reports will be prepared at the Pre-Submission stage.

1.2 The SA process so far

1.2.1 The SA process runs in parallel to the plan-making process and a variety of tasks have already been undertaken as follows:

- An SA scoping report has been produced which sets out the key issues to be addressed in the SA, as well as methodologies for appraisal. The scope of the SA evolves continually, so needs to be updated periodically to ensure that the SA (and the Plan) is focused on the correct issues. The Scope of the SA has been updated in December 2017 to review the key issues and focus of the SA process.
- An interim SA Report was prepared and consulted upon in July 2013 which appraised a series of options and emerging approaches as set out in the Minerals Plan Issues and Options Paper (2010).
- A second interim SA Report dated December 2017 was prepared and consulted upon as part of the Spring 2018 Consultation. This set out further assessment of a range of policy / site options and emerging policies as set out in numerous documents forming part of the 'rolling consultation'.
- This third Interim SA Report appraises the proposed approaches to policies and sites set out in the Spring 2018 Consultation and the promoted sites that formed part of the Sand and Gravel sites Consultation in Autumn 2020.

2 SCOPING SUMMARY

2.1 Background

- 2.1.1 The Scoping stage of the SA process is used to establish the key issues that should be the focus of the appraisal, as well as the assessment methodologies.
- 2.1.2 It was considered appropriate and proportionate to undertake a joint Scoping process for the Minerals and Waste Plans, as both would be implemented in the same geographical area and could have similar issues.
- 2.1.3 A Scoping Report was first prepared and published for consultation in July 2013. Following consideration of the comments received, the scope of the SA was determined and provided the baseline position against which appraisals have been undertaken.
- 2.1.4 It should be noted that the scope of the SA is fluid and should be updated throughout the plan making process in light of new evidence. The scope of the SA has been updated on several occasions to ensure that the key issues and methodologies remain relevant. A full update will be presented in the final SA Report.
- 2.1.5 The identification of key sustainability issues facing Derbyshire and Derby regarding waste and minerals planning provides an opportunity to develop sustainable plan objectives and approaches to resolve them. The identification of sustainability issues will also provide useful information to inform the SA / SEA process.
- 2.1.6 The requirement to identify sustainability problems arises from the SEA Directive:
- 2.1.7 The 'Environmental Report' required under the SEA Directive should include:
- "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 'the Birds Directive' and 92/43/EEC the 'Habitats Directive'" (Annex 1(d))*
- 2.1.8 Key sustainability issues identified for the Derbyshire and Derby Minerals and Waste Plans are outlined below. These have been identified from the context review and the review of baseline data.
- 2.1.9 It is also important to identify issues which cut across themes where there is tension within the sustainability issues i.e. between economic and/or social and environmental issues, these are also identified below.

2.2 Key Sustainability Issues

Biodiversity

- Derbyshire and Derby has a rich natural environment with a high proportion of land designated for nature and landscape conservation. Minerals and waste planning will need to ensure designated sites and the features they seek to conserve are protected and that development does not adversely affect those sites, any European Protected Species (including bats) or any priority habitats and species identified in the Lowlands Derbyshire Biodiversity Action Plan 2011-2020 and identified heritage of a more local value is given suitable levels of protection in proportion to their relative importance.
- There is a need to achieve appropriate reclamation on former minerals sites as they can contribute towards biodiversity-led restoration and habitat enhancement. Alternatively, the option of non-intervention to allow natural colonisation to occur should be considered in certain situations, where significant nature conservation interest has developed over time.

Water

- The ecological and biological status of river and lake water bodies in the Lower Trent and Erewash catchment is below the average for the Wider Humber River Basin District.
- A combination of low annual rainfall, low water storage capability and high water abstraction has caused pressure on water supplies in the East Midlands, with particular issues relating to over-abstraction and insufficient water resources towards the north and west of Derbyshire. By 2050 climate change could reduce river flow by 10 to 15 per cent on an annual average basis, and could reduce summer river flows by 50 to 80 per cent. There is a need to manage and reduce water consumption.
- The water resources of Derbyshire and Derby, including that in the aquifers, are under stress and need appropriate protection from pollution and over abstraction.

Soil

- Loss of the best and most versatile agricultural land and greenfield sites should be avoided, and locational decisions should seek to protect the extent, openness and quality of the Green Belt, recognising that waste or minerals development would not always be inappropriate development. Waste facilities should be provided on previously developed land where practicable.

Waste

- The amount of residual household waste generated per household in Derbyshire and Derby is higher than the East Midlands average. Furthermore, the amount of residual household waste sent for reuse, recycling or composting is lower than the East Midlands average. Therefore, there is a need to divert waste from landfill to achieve more sustainable waste management.
- Waste arisings in Derbyshire and Derby are expected to continue to rise. While there is slowly increasing capacity for waste management locally this is not enough to drive waste up the waste hierarchy.
- Waste management facilities and infrastructure is required throughout Derbyshire and Derby that will facilitate waste management in accordance with the proximity principle and in the most appropriate locations.
- Locational decisions should be taken to ensure that any potential negative impacts associated with waste management facilities are avoided.

- Communities in some remoter western areas of Derbyshire have comparatively limited access to waste processing facilities and services due to the relatively low population density and associated infrastructure.

Minerals

- The Minerals Local Plan is required to provide for a steady and adequate supply of minerals to meet anticipated needs over the Plan period to 2036
- The negative effects of minerals operations should be minimised through careful location and the positive effects should be maximised. The proximity of mineral operations to internationally and nationally designated areas of landscape value and nature conservation, sensitive receptors and pathways should be considered and the benefits of restoration of mineral sites should be maximised.
- The prudent, efficient and sustainable use of minerals should be ensured, as far as practicable. This will ensure that the requirement for new primary extraction is minimised. The production of recycled and secondary aggregates should be particularly supported in order to promote resource efficiency in the construction sector.
- It is important that mineral resources within Derbyshire and Derby are safeguarded as far as possible in the future in order to prevent their sterilization from non-mineral development. The production of mineral waste should be prevented or minimized.
- There is a need to protect and enhance the overall quality of the environment once extraction has ceased, through the highest standards of restoration and aftercare. This includes safeguarding the long-term potential of land for a wide range of after-uses and addressing potential adverse effects on communities' quality of life, including impacts arising from land stability and other public safety risks. Alternatively, non-intervention may be appropriate where significant nature conservation interest has developed over time.

Transportation and air quality

- There are significant cross-regional movements of waste especially around the large conurbations and adjacent to the borders of Derbyshire and Derby which create negative environmental and social impacts.
- Derbyshire and Derby experience significant traffic congestion, within urban areas, on the strategic road network (especially the A38) and associated with access to the strategic road network. The impacts of transportation in relation to the mining and quarrying industry in particular; is a significant problem.
- Certain areas of Derbyshire and Derby already suffer from unacceptable levels of air pollution; especially those covered by AQMAs related to high traffic flows and associated congestion. In preparing the Minerals and Waste Plans the need to improve these areas is a factor to be taken into account. There is also a need to take into account the nearby sensitive receptors, existing congestion and pollution hotspots in towns such as Spondon and close to the M1 north and south.
- The need to mitigate potential negative impacts on air pollution from new and redeveloped minerals and waste facilities through the Minerals and Waste Local Plans and at the planning application stage.
- There is a need to increase the number of minerals and waste transport movements in Derbyshire and Derby made by rail and provide sensitive routing for waste transfer vehicles.

- The continuing need to reduce CO2 emissions from transport, despite the level of growth planned in Derbyshire and Derby, increased car ownership and rising public transport costs.
- The need to ensure that local waste facilities have sustainable transport links and are therefore accessible to those who do not have access to a car across Derbyshire and Derby.

Climatic factors, flooding and energy

- Greenhouse gas emissions, associated with minerals and waste activities, including transport and methane produced from landfill sites, contribute to global warming.
- Some Local Authorities in Derbyshire and Derby (particularly High Peak and Bolsover) are not performing well in terms of CO2 emissions from industrial and commercial activity. There is the potential to promote energy from waste options, and also other technologies that increase the energy efficiency of minerals and waste operations (for example, wastewater treatment is an energy intensive process).
- A number of areas towards the south of Derbyshire and Derby are at significant risk of flooding, and this situation is likely to worsen with climate change. Patterns of fluvial flood risk are likely to change as a result of sea level rise, changing rainfall patterns and also development and changing land use. Mineral reclamation (e.g. gravel extraction) may offer positive benefits by reducing flood risk in certain locations.
- The majority of energy usage in Derbyshire and Derby is sourced from fossil fuels. This is generated outside of Derbyshire and Derby.

Heritage

- Development that would affect designated heritage assets (including development affecting the setting) located in Derbyshire and Derby should be avoided or the conflict minimised. This is especially important where the asset is of national or international significance, such as the World Heritage Site.
- There are a number of heritage assets located in Derbyshire and Derby that are on the 'Heritage at Risk' Register. It is important that these assets are protected and where possible, enhanced in the future. Any new development should be sensitive to the setting of heritage assets.
- Minerals sites play a role in the upkeep of heritage assets through continued supply of local building materials such as sandstone, 5-6000 tonnes of sandstone is quarried in the county each year for use as building stone. Along with other various sources of stone, the NPPF offers protection for mineral extraction such as this¹.

Landscape

- The integrity of the sensitive areas of landscape located in Derbyshire and Derby should be protected in the future. This includes that of the Peak National Park which is defined for its landscape importance.
- Minerals and waste operations (including associated transport infrastructure) can have a negative impact on the landscape and visual amenity in the immediate and surrounding area. Sensitive location and design however can avoid or minimise effects of this.

¹ National Planning Policy Framework (2012) Facilitating the sustainable use of minerals, p.33.

Landscape restoration proposals provide an opportunity to enhance and improve landscape quality.

- There is a need to achieve sensitive and appropriate restoration of former minerals sites as they can contribute towards improving landscape quality.

Communities and health

- It will be important to continue to respond to the greater demands placed on resources and minerals and waste infrastructure from an increasing population in Derbyshire and Derby over the next two decades.
- There is a need to improve the overall skills levels of Derbyshire and Derby's workforce in order to enhance economic performance and raise the income level of residents in Derbyshire.
- In terms of barriers to community services the most deprived areas are in the predominantly urban east of the county.
- The need to ensure the sustainable location of new waste and minerals facilities and appropriate mitigation at the planning application stage for new, extended and redeveloped minerals facilities in relation to impacts on community amenity; including noise, air, odour, litter, dust and visual impacts. An ageing population in Derbyshire and Derby may be more vulnerable to such amenity impacts.
- It is important that leisure and recreational sites are protected from new minerals and waste developments where appropriate across Derbyshire and Derby. Minerals and waste sites have the potential to affect the recreational value of such areas through, for example severance of sites.
- The reclamation of mineral sites has the potential to increase recreational facilities. Uses could for example involve lakes for fishing or sailing, new footpaths or bridleways and land for camping and caravan sites.
- The need to ensure that all potential health impacts and quality of life issues are fully considered in allocating and designing new waste and minerals facilities and opportunities are taken to enhance health and well-being particularly in the after use of mineral sites.
- Opportunities should be taken to enhance health and well-being through proposals for the sensitive restoration and after use of mineral sites, including addressing potential land stability and other public safety risks arising from former minerals winning activities, including the risk of aircraft bird strike, taking into account the limited availability of inert fill for restoration.

Economy and housing

- Ensuring Derbyshire and Derby provides sufficient mineral resources to meet demand - through aggregates, other minerals and protecting mineral resources.
- There is a need to ensure that minerals and waste development does not act as a constraint to residential development.
- The Minerals and Waste Plans should seek to have a direct positive impact on local economic activity and employment opportunities through the creation of jobs to meet the skills and aspirations of local people.

- The Minerals and Waste Plans must support and not hinder wider efforts to diversify economic activity. The plan must be 'positively prepared' in adherence with the NPPF.
- There is a need to improve the overall skills levels of Derbyshire's and Derby's workforce in order to enhance economic performance and raise the income level of residents in Derbyshire.
- There is a need to ensure the infrastructure is in place in Derbyshire and Derby to continue to attract and retain investment and business.
- The decline of coal mining and traditional manufacturing in the north-east of Derbyshire has led to a concentration of areas where there are higher levels of unemployment and deprivation.
- The industrial structure of both Derbyshire's and Derby's economies remain heavily dependent upon the manufacturing sector. Waste facilities need to provide industries and other businesses with access to cost-effective waste management solutions that also meet environmental regulations, improving the commercial attractiveness of the area to new and existing businesses.

2.3 The SA Framework

- 2.1.10 Drawing upon the key issues identified through scoping, an SA Framework has been established (see table 2.1). This consists of a range of SA Objectives which seek to address key issues. The appraisal of the Plan is undertaken with these objectives in mind, looking to predict the effects on the baseline position associated with each sustainability objective. In practice, this means exploring the implications of the Plan compared to what would happen should the Plan not be in place. If there would be noticeable and important changes to the predicted baseline position, then significant effects would be determined.
- 2.1.11 The SA Objectives have been grouped into 8 sustainability topics. In some instances, the topics only contain one objective, but for others there are two objectives. The appraisal has been structured and presented in this way to streamline the appraisal and reduce duplication (where SA Objectives cover similar themes). This should help to ensure that the appraisal is proportionate and easier to engage with.
- 2.1.12 For each SA Objective, a series of supporting questions have been developed to help guide the assessment process. Each and every one of these questions does not need to be answered and recorded methodologically, but they will help to prompt thinking about the potential effects.

Table 2.1: The SA Framework

SA Topics	SA Objectives	Guiding questions
Biodiversity, flora and fauna	To protect, maintain and enhance biodiversity and geodiversity in Derby and Derbyshire, ensuring no net loss of important sites, habitats or species.	To what extent will the measure: <ul style="list-style-type: none"> • Safeguard, and avoid detrimental impacts to sites and features of wildlife or geological/geomorphological importance? • Provide opportunities for the creation or enhancement of wildlife habitats, corridors or linking routes in Derby and Derbyshire? • Protect and conserve geological areas of significant scientific, historical, educational or heritage value? • Assist to restore the full range of characteristic habitats and species in the BAP to viable levels?

SA Topics	SA Objectives	Guiding questions
Land and water resources	To protect, conserve and enhance air, water and soil quality, minimise light and noise pollution and land instability.	<p>To what extent will the measure:</p> <ul style="list-style-type: none"> • Avoid or minimise all forms of air, noise, soil and light pollution (including dust, odour, emissions to air and vibration) particularly in areas already below established quality standards? • Protect, conserve and enhance ground and surface water, including from pollution, over-extraction and disruption to hydrological systems? • Minimise the loss of the most valuable soils and improve soil quality? • Reduce any issues of land instability, contamination, or any other impacts on land arising from the legacy of winning of minerals? • Affect an Air Quality Management Area?
Waste and minerals	To achieve a more efficient use of natural resources and infrastructure, minimise the production of waste and increase reuse, recycling and recovery of waste in Derby and Derbyshire.	<p>To what extent will the measure:</p> <ul style="list-style-type: none"> • Assist or facilitate movement up the waste hierarchy, in all parts of the plan area? (i.e. reduce waste first, then reuse, recycle, recover and landfill as a last resort) (including the development of appropriate energy from waste facilities) • Assist in maximising the use of recycled and secondary materials (including aggregates)? • Reduce extraction of virgin materials? • Safeguard resources of significant exploitable minerals from sterilisation by other forms of development? • Require prior extraction if development that would sterilise mineral resources is to go ahead? • Minimise the loss of best and most versatile agricultural land and green field sites? • Bring forward and optimise the use of previously developed, vacant and derelict land and buildings? • Utilise, optimise and enhance existing infrastructure? • Ensure optimal, appropriate and beneficial restoration and maintenance of mineral sites after use? • Encourage the minerals sector to take responsibility for the waste associated with their operations? • Contribute to self-sufficiency in the management of waste arisings in Derby and Derbyshire? • Reduce the over supply of permissions for crushed rock in the plan area?
Heritage and landscape	To protect, conserve and enhance the quality, local distinctiveness and enjoyment of Derby and Derbyshire's diverse landscapes, green infrastructure, townscape character and cultural heritage.	<p>To what extent will the measure:</p> <ul style="list-style-type: none"> • Protect and conserve Derby and Derbyshire's diverse landscape character and distinctiveness, minimise adverse effects on these and ensure quality designs? • Conserve and enhance Derby and Derbyshire's cultural assets, (including archaeological heritage) locally distinctive built environment, historic architecture and heritage sites and townscape features including their setting? • Facilitate the supply and use/reuse of local building material to protect and enhance locally distinctive landscape and townscape character? • Impact on maintaining the extent, openness and quality of the Green Belt?

SA Topics	SA Objectives	Guiding questions
Air quality and transport	To protect, conserve and enhance air, water and soil quality, minimise light and noise pollution and land instability.	<p>To what extent will the measure:</p> <ul style="list-style-type: none"> • Avoid or minimise all forms of air, noise, soil and light pollution (including dust, odour, emissions to air and vibration) particularly in areas already below established quality standards? • Protect, conserve and enhance ground and surface water, including from pollution, over-extraction and disruption to hydrological systems? • Minimise the loss of the most valuable soils and improve soil quality? • Reduce any issues of land instability, contamination, or any other impacts on land arising from the legacy of winning of minerals? • Affect an Air Quality Management Area?
	To minimise traffic levels, journey lengths, the number of road traffic related accidents, and to encourage sustainable forms of transport in Derby and Derbyshire.	<p>To what extent will the measure:</p> <ul style="list-style-type: none"> • Minimise the number and length of journeys for the transportation of minerals and waste and minimise other journeys associated with these developments in line with the proximity principle? • Reduce reliance on road movements of minerals and waste and seek to increase the efficient use of conveyors, rail, water and back loading where appropriate? • Protect and where possible improve the quality and scale of appropriate parts of the road network and transport infrastructure, including footpaths, bridleways and cycle paths? • Protect and where possible improve road safety? • Reduce congestion on local transport networks?
Climatic factors and energy	To reduce contributions to climate change, by reducing greenhouse gas emissions, promoting efficient energy use and encouraging the use of renewable energy.	<p>To what extent will the measure:</p> <ul style="list-style-type: none"> • Minimise and where possible reduce greenhouse gas emissions? (<i>for example by using rail or water-based access, reducing distances travelled by road, increasing backloading where appropriate</i>). • Encourage the use of renewable energy sources or contribute to the production of renewable energy including energy from waste? • Minimise energy consumption or increase energy efficiency? • Provide a facility/service that serves local needs or is well located in relation to the strategic road network? • Will the operation be well located in relation to the surrounding markets for minerals and settlements for waste?
	To limit vulnerability to flooding, taking account of climate change	<p>Is the development with an area liable to flooding (e.g. Flood Zones 2 or 3)?</p> <p>To what extent will the measure:</p> <ul style="list-style-type: none"> • Increase the risk of flooding in this or other areas? • Make existing or future development more vulnerable to flood risk as a result of climate change especially key services and facilities? • Assist with flood management, taking account of climate change?

SA Topics	SA Objectives	Guiding questions
Communities and health	To protect, maintain and improve the health and well-being of Derby and Derbyshire's people and communities.	<p>To what extent will the measure:</p> <ul style="list-style-type: none"> • Protect and improve leisure, and recreation opportunities (e.g. through site restoration, improved access to open space or improvements to the PROW system) or access to other services or facilities (such as waste management and recycling facilities)? • Improve the amenity of local communities (recognising the legacy of impacts on some communities from the winning of minerals)? • Address impacts on local amenity including traffic congestion, road safety, noise, dust, vibration, light, vermin and odour? • Disproportionately affect vulnerable groups and deprived communities?
Local employment and housing	To maximise the potential economic benefits of mineral operations and waste management to a sustainable economy in Derby and Derbyshire and other parts of the Country.	<p>To what extent will the measure:</p> <ul style="list-style-type: none"> • Contribute to the adequate and steady supply of minerals or waste management facilities to meet the local area, region's and UK's need without affecting the ability of future generations to do the same? • Drive forward new innovative technologies? • Provide local training and employment opportunities in Derby and Derbyshire, especially for communities suffering high levels of unemployment and other deprivation? • Maximise the benefits of regeneration and inward investment of new business into the area, to broaden the economic base and reduce disparities and seek to minimise any effects of M&W development on regeneration and inward investment initiatives? • Safeguard and create employment in local business and contribute to the local economy? • Be deliverable, having regard to, for example: maturity of technology, market risks, costs?

3 INFLUENCING PLAN DEVELOPMENT

3.1 Introduction

- 3.1.1 An important feature of the sustainability appraisal process is to influence the plan as it is being prepared. The consideration of options to address plan issues is one way of shaping the plan approach. This section discusses the options that have been considered and appraised throughout the development of the Derbyshire and Derby Minerals Local Plan so far.

3.2 Options appraisal

- 3.2.1 The initial stages of the Minerals Plan development involved consultation on a series of issues and options. Where appropriate, the SA appraised the reasonable options and presented the findings in an interim SA Report in July 2013. The appraisals at this stage were relatively high level given that the options did not contain detailed approaches. Nevertheless, the findings were taken into account as the Plan was moved forward into the 'Rolling Consultation' stage.
- 3.2.2 The Rolling Consultation period started in 2015 and represented the next stage in engaging the wider community of Derbyshire and Derby in developing the vision, objectives, strategies and policies of the Minerals Local Plan.
- 3.2.3 This stage involved further development of different elements of the plan supported by a range of evidence papers. The SA was undertaken alongside the development of the different elements of the Plan as and when the relevant information became available. The SA findings helped in the development of the different elements of the Plan, ultimately leading to a proposed approach. The findings relating to the appraisals undertaken throughout the Rolling Consultation were presented for consultation in the second Interim SA Report dated December 2017, which formed part of the Spring 2018 Consultation. These findings are reproduced in this section.

3.3 Methodology

- 3.3.1 The appraisal at this stage was necessarily 'high-level', as most of the policy options and emerging policy approaches did not contain specific details about the location of minerals sites or the precise criteria that certain policies will contain. As such, it was difficult to accurately predict the significance of effects. However, it was possible to discuss the general merits of each approach (and any alternatives) to identify the broad sustainability credentials of emerging approaches and how these could be enhanced as the Plan progresses further.
- 3.3.2 One of the following symbols has been assigned to each policy approach (or option) to highlight the broad effects that are likely to occur for each sustainability topic.

↑ Positive effects likely

↓ Negative effects likely

↔ Neutral effects

? Uncertainty

- 3.3.3 For some plan issues, the Councils have identified options for how the policy approach could proceed. These are predominantly procedural in nature, and whilst these are useful to guide consultation, they are not considered to be 'reasonable alternatives' in the context of SA.

3.3.4 Nevertheless, the broad implications of different approaches have been identified to highlight the merits of each across a range of sustainability factors. These are discussed in **Section 3.5**.

3.4 Appraisal of the vision and objectives

3.4.1 An appraisal of the draft vision and objectives was undertaken at earlier stages of the SA process. The findings were presented in an interim SA Report (July, 2013). Along with these findings and feedback from consultation, the vision and objectives were amended.

3.4.2 This section presents an updated appraisal of the vision and objectives to reflect the changes made as the Plan has progressed. Given the high level nature of vision and objectives, the appraisal focuses on the compatibility with SA objectives and whether the objectives are locally distinctive so as to ensure sustainable development is achieved.

SA commentary on the emerging draft Vision

The emerging draft vision supports a number of sustainability objectives. There is a clear aim to achieve a suitable balance between economic, social and environmental impacts.

In particular, there is a focus on protecting valuable minerals that can be processed and transported sustainably with minimal negative effects and maximum benefit through aftercare. This will help to support the local economy.

Addressing the contribution towards and adaptation to climate change impacts is a positive aspect of the vision. Achieving sustainable modes of transport is also comprehensively discussed.

3.4.3 Logically, the objectives follow on from the vision but provide additional detail. The table below illustrates where the emerging Plan objectives would help to support the SA objectives (↑), where there may be a potential conflict (?) and where there is a negligible relationship between objectives (↔). Where there are no relationships between SA Objectives and the Plan Objectives predicted, this could highlight opportunities for the Minerals Plan to widen the scope of its objectives.

3.4.4 It should be remembered that plan objectives have the potential to conflict with one another as they often reflect different aspects of sustainability (economic / social / environmental). This does not mean that objectives are inappropriate. The aim of plan making and SA is to achieve the most appropriate balance between these different objectives so as to achieve sustainable development.

Obj .	Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Community and Health	Local Economy, Employment and Housing
1	?	?	↑	?	?	?	↑	↑
2	↑	↑	↑	↑	↑	↑	↑	↑
3	↔	↑	↑	↔	↑	↔	↑	↑
4	↔	↔	↑	↔	↑	↔	↔	?
5	↔	↔	?	↑	↑	↔	↑	↔
6	↑	↑	?	↑	↔	↑	↑	↔
7	↑	↑	↑	↑	↔	↔	↔	↔
8	↑	↑	↑	↔	↔	↑	↑	↑

- 3.4.5 Providing a sufficient supply of minerals could well mean that sensitive landscapes and habitats are negatively affected during preparation and operation. Therefore, objective 1 is potentially in conflict with SA objectives that seek to protect the environment. However, impacts could be avoided or mitigated and further stages of SA should deal with such issues. The proposed approach (objective 6) also aims to protect the environment from the impacts of minerals development, whilst objective 7 will reduce impacts in the Peak District National Park and objective 8 will help to address flood risk. In the long term, minerals developments could also have positive effects as restoration schemes often involve habitat creation and landscaping.
- 3.4.6 Objective 2 seeks to achieve an appropriate balance between different elements of sustainability. It is therefore broadly compatible with each of the SA objectives.
- 3.4.7 Objective 3 is positive with regards to minerals planning, transport and local communities, as it promotes a spatial strategy that reduces the distance materials need to be transported. It also seeks to ensure mineral sites are viable, which is positive for the local economy. The effects upon the environment, local communities, and landscape depend upon site locations. Minerals extraction is limited to where resources are available though.
- 3.4.8 Objective 4 supports minerals and waste objectives, as well as protecting infrastructure that could help to reduce transport emissions. It is possible that housing and employment development could be restricted in safeguarded areas, but this is an uncertainty.
- 3.4.9 Objectives 5 and 6 could conflict with waste and minerals and economic SA objectives, as certain locations containing resources may be deemed inappropriate on the grounds of social and environmental impacts. This is the challenge of minerals planning though, and well-designed schemes can mitigate potential effects. Conversely, both policies are broadly compatible with objectives relating to communities, and the built and natural environment.
- 3.4.10 Objective 5 could seek to enhance community amenity and social health (through restoration and aftercare) rather than focusing only on avoiding negative effects.
- 3.4.11 Objective 7 should have a positive effect on the built and natural environment of the Peak District National Park, though the increase in provision in the Plan area could have effects in that area.
- 3.4.12 On balance, the objective is considered to be broadly compatible with the SA objectives given the national importance of the Peak District National Park and concentration of designated habitats in this area. This objective should also have positive effects on the minerals industry by ensuring that a reduction in provision in the Peak District is offset by an increase in the Plan area
- 3.4.13 Objective 8 is compatible with the majority of SA objectives. Planning to mitigate and adapt to climate change is positive for biodiversity, water resources and community health. Improved resilience to climate change is also positive for the local economy and improved energy and water efficiency is beneficial for the minerals industry.

3.5 Emerging strategies for mineral resources

3.5.1 This section sets out a high level assessment of the emerging approaches for different mineral resources and for the broader plan principles. Where new options were identified (following the initial issues and options stage) a commentary on their broad performance is provided.

Aggregate crushed rock: Options were identified at previous stages of the plan making process. The results of the appraisal were presented in an interim SA Report (reference). The strategy towards aggregate crushed rock has progressed and an emerging policy approach has been developed which is the focus of this appraisal (see below).

Derbyshire and Derby will maintain provision for the production of land won aggregate crushed rock at a rate of 7.27 mtpa throughout the Plan period. This figure will be kept under review and revised if necessary, in accordance with the Local Aggregate Assessment. The MPAs will maintain a landbank of at least 10 years of planning permissions for the extraction of aggregate grade crushed rock.

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
↔	↔	↑	↔	↔	↔	↔	↑

Appraisal summary: The emerging approach is underpinned by evidence (The Local Aggregate Assessment), which suggests that the provision of crushed rock at a rate of 7.27 mtpa is adequate to support needs in Derbyshire. A positive effect on minerals provision is predicted, with knock on benefits for employment in this sector and construction trades that rely upon a supply of aggregates. There is sufficient landbank to meet supply beyond the plan period from current reserves. Whilst there may be environmental effects to the working of minerals at existing sites, these will have been explored through the plan permitting process. Although the provision is slightly higher to allow for recovery in the economy, it is not clear whether there would be significant effects on environmental assets. At this stage, the effects are not predicted to be significant and further extraction would need to be accompanied by an assessment of environmental effects. The effect on transport and air quality is predicted to be similar given that levels of provision would remain fairly similar to past rates of supply. Provision for a higher rate of 7.27 mtpa helps to offset/facilitate reduced quarrying in the Peak District National Park. Whilst this falls outside the plan area, there are clearly benefits for the environment and landscapes in the Peak District. It is difficult to restore quarries formed from crushed rock extraction to their former uses, which can have significant environmental effects. However, as discussed above, the provision over the plan period is already permitted, and there will be no need for the allocation of new sites. Therefore, the effects upon the environment should already be understood and form part of the 'projected baseline'. As such, a neutral effect is predicted for environmental factors.

Brickclay and fireclay (Supply): Three options have been developed to help move towards a strategy for the supply of brickclay and fireclay. These are procedural in nature, and not considered to be ‘reasonable alternatives’ in the context of the SA. However, a high-level appraisal of each approach is provided below to demonstrate the sustainability credentials of each option.

Issue 1 – Ensuring an adequate and steady supply of brickclay

- Option 1: Make provision through permitted reserves and specific site allocations
- Option 2: Make provision through permitted reserves and a criteria based policy
- Option 3: Make provision through permitted reserves and a combination of site allocations and a criteria based policy

	Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
1	↔	↔	↑↓	↔	↔	↔	↑	↑
2	?	?	↑	?	↔	↔	?	↑
3	↔	↔	↑	↔	↔	↔	↑	↑

Appraisal summary: Each option involves reliance on existing permitted reserves, which would form the bulk of supply over the plan period. The effects of extracting these reserves have already been explored and are ‘committed’, therefore the policy would have a neutral effect in this respect. With regards to additional resources being extracted, option 1 would provide the greatest certainty. Only one site has been identified at present (an extension of the working area at the existing Mouselow Quarry site). Given that this site is already operational (and the nature of the proposed site extension) increased extraction is not likely to lead to significant effects on the environment. Consequently, a neutral effect is predicted for biodiversity, land and water and heritage and landscape. Increased workings at Mouselow Quarry are not likely to have a significant effect on transport and air quality as there are already established links to the manufacturing plant at Denton, and overall levels of output are similar.

No further sites have been identified for workings, which would make this option difficult to achieve without allowing flexibility for further sites to come forward. This approach could therefore have negative implications for waste and minerals provision (albeit there would still be positive effects given the certainty of the site extension at Mouselow).

A criteria based policy (option 2) would provide less certainty that sites would be identified for further provision. There is also the potential that sites could have negative environmental effects, and could generate traffic and emissions. It is expected that a criteria based policy would take these factors into account though, and sites that were not well related to manufacturers/buyers would no doubt be less economically viable so not be proposed. Nevertheless, more uncertain effects are predicted for option 2 with regards to biodiversity, land and water and heritage/landscape.

Option 3 combines option 1 and 2, and so the effects are likely to be similar. Allocations at known / promoted sites could help to add certainty, whilst a criteria based element to the policy will provide the flexibility to support further workings. This approach is therefore the most positive for minerals and waste.

Building Stone: Options were identified at previous stages of the plan making process. The results of the appraisal were presented in the first interim SA Report. However, the strategy towards building stone has progressed and an emerging policy approach is being developed. Two options have been identified following the submission of a site for potential working at Bent Lane / Darley Lane - New Parish Quarry).

These options that follow have been presented in the 'Towards a Strategy for Building Stone Paper' as part of the rolling consultation.

1. Should the site at Bent Lane / Darley Lane be allocated as a site in addition to a criteria based policy?
2. Should all applications for building stone works be determined by a criteria based policy?

A high level appraisal of these two broad policy options is presented below.

	Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
1	?↓	↑	↑	↑↓	↓	↑	↓	↑
2	?	?	↔	?	?	?	?	↔

Appraisal summary:

Broadly speaking, the site proposed for option 1 would not generate significant negative effects on ecology. However, there may be potential to affect the connectivity of habitats, and locally important species. Though mitigation should be possible, a potential negative effect is recorded. For option 2, the effects depend on the location of sites. Whilst a criteria based approach will include biodiversity as a key consideration, it is possible that minor impacts on biodiversity could still occur. The effects at this stage are uncertain though.

With regards to agricultural land and water, the site proposed as part of option 1 is located in Flood Zone 1 on low value agricultural land. Therefore, there would be avoidance of negative effects. Whilst it is still possible that other sites could be brought forward through a criteria based policy, the requirement to do so would be lesser. Therefore, the potential for negative effects would be lower. For option 2, sites may come forward that have some impacts in terms of land, but it is expected that the criteria would ensure that unsuitable sites did not come forward, especially with regards to flooding. However, negative impacts may be more likely to occur given that the location of sites is unknown.

Option 1 provides greater certainty of a supply of minerals compared to option 2. It is possible to ascertain that positive effects would occur for option 1, but for option 2 there is greater uncertainty.

Option 1 would provide greater certainty to meet specific needs to support the character of buildings and settlements in Derbyshire and Derby and beyond that are reliant on the types of building stone found in Derbyshire. Effects of this option could therefore secure benefits in terms of local distinctiveness in the Plan area. However, the quarry itself could have negative effects on landscapes with historic environment. Therefore, mixed effects are recorded. Some of the building stone resources are located close to the Peak District National Park and therefore there is potential for extensions to existing sites and proposals coming forward under option 2 to have negative effects upon its setting. However promoting extensions to existing sites could also assist with securing restoration of existing sites. It is uncertain what the effects would be at this stage.

As this is a new site (for option 1), access and exiting infrastructure does not exist. The export route could potentially have negative effects on local road networks. It is also possible that negative effects could occur on sites determined through a criteria-based policy, but there are uncertainties at this stage.

A criteria based policy will seek to ensure that impacts on communities and health are minimised. However, the extent to which effects occurs is dependent upon the location of sites. For Option 1, there are some known issue that could occur with regards to dust, noise and visual amenity. Therefore negative impacts would be anticipated without mitigation. For option 2, the effects are uncertain.

Both options could support the local economy by allowing for extraction of minerals. However, the effects for option 1 are more certain given that a site is identified.

Coal: An appraisal of an emerging approach for coal was undertaken at issues and options stage, with the findings presented in an interim SA Report. A range of issues and options were established. Each of these is discussed below.

Although these options are not considered to be reasonable alternatives in the context of the SA; a proportionate appraisal of each has been undertaken below.

Issue 1 – Identifying Future Coal Extraction Areas

Option 1 - Identify the extent of shallow coal resources and list the environmental, social and economic constraints.

Option 2 - Identify broad locations where coal extraction may be acceptable

Option 3 – Identify specific sites where coal extraction could be suitable

	Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
1	↔	↔	↑?	↔	↔	↑	↔	?
2	↔	↔	↑	↔	↔	↑	↔	↔
3	↑	↓	↑↓	↑	↑	↓	↔	↑↓

Appraisal summary:

The effects of option 1 are difficult to predict as the location of extraction sites would not be known and spread over a large area of potential. However, having regard to environmental constraints ought to help minimize the potential for negative effects (consequently neutral effects are predicted at this stage). This approach does not set a specific target for extraction, but is flexible enough to ensure that coal resources can be accessed and not sterilized. Consequently, a positive effect is predicted for waste and minerals. This option does not assume that coal resources will be extracted and could set criteria to ensure that extraction is located in locations which reduce the need to travel (which would be positive with regards to climatic factors and energy use). The lack of location specific policy under this approach puts the onus on developers to identify suitable sites and prepare applications. This creates some uncertainty about the likelihood of coal resources being extracted. There will be a need to balance the need for housing and employment development against the need for minerals resources. It is important to ensure that development is not restricted in the broad area of search.

Option 2 is similar to option 1, but narrows the areas of search, which would presumably exclude areas that were not suitable due to environmental constraints, viability issues and transportation. This would help to focus future applications for coal in areas that are more likely to be suitable, which provides the industry with more confidence in achieving successful applications for extraction in these areas. Whilst this approach provides more certainty and direction than option 1, it is unclear whether the information is available to identify appropriate broad locations in the Local Plan. It is presumed that this approach would be more positive for the waste and minerals industry, as it provides direction to broad locations, whilst not restricting provision to specific sites.

Option 3 would identify specific sites for allocation. This would be difficult to achieve as the level of information required to support allocations is not available to the Councils. There would therefore be a need to invest in substantial technical studies to support such an approach. Notwithstanding this, an approach that relied upon site allocations would have mixed effects. On one hand it would be positive for the minerals industry by giving confidence that specific sites are suitable for coal extraction. However, it would also limit opportunities in other locations throughout the Plan area which could be negative should opportunities be identified throughout the plan period. It is presumed that the site allocation process would give consideration of environmental factors, which should ensure that negative effects are minimised on biodiversity, heritage and landscape. However, without knowing what sites would be allocated there is still a degree of uncertainty.

In terms of climate change, it is desirable to encourage the use of alternative sources of fuel, so allocating sites would not be attractive in this respect as it pre-empts the use of coal and will also be likely to lead to the loss of soil resources (whilst this could also happen under the other two options, it is not as certain given that site allocations would not be identified).

The allocation of sites should be positive for the local economy, as it provides a clear steer to the minerals industry. It would also avoid the need to identify larger areas of safeguarding, which would be less restrictive to other types of development. However, negative effects could occur by allocating sites that do not come forward.

Coal (*further issues, with no reasonable alternatives identified*)

Issue 2 - Surface mining constraint areas

Two options were identified relating to whether surface water constraint areas should be identified in the Local Plan. These are procedural in nature and it is not considered that these area reasonable alternatives in the context of the SA.

Issue 3 - Sustainable Principles for the Provision of Coal Extraction

No options were identified with regards to this issue.

Issue 4 - The Need for a Specific Criterion Based Policy for Coal Extraction and Related Development Proposals

Two options were identified relating to whether a specific policy should be included in the Plan or not. This is a procedural matter and not likely to lead to substantial differences in SA terms (nor would it be possible to deduce meaningful conclusions from such a comparison).

Issue 5 - In Addition to the Environmental Criteria Policy, what additional matters should be included in a separate and specific coal development policy

Two options were identified relating to whether a specific policy should be included in the Plan or not. This is a procedural matter and not likely to lead to substantial differences in SA terms (nor would it be possible to deduce meaningful conclusions from such a comparison)

Issue 6: Methodology for the Assessment of Cumulative Impacts (see separate assessment).

Issue 7: How to Assess the Benefits of Coal Extraction and Other Coal Related Developments

Two options were identified relating to how benefits are considered. This is a procedural matter and not likely to lead to substantial differences in SA terms (nor would it be possible to deduce meaningful conclusions from such a comparison).

Issue 8: Prior extraction of coal

Two options were identified relating to whether a specific policy should be included in the Plan or not. This is a procedural matter and not likely to lead to substantial differences in SA terms (nor would it be possible to deduce meaningful conclusions from such a comparison)

Issue 9: Reworking of Colliery Spoil Tips

Two options were identified relating to whether a specific policy should be included in the Plan or not. This is a procedural matter and not likely to lead to substantial differences in SA terms (nor would it be possible to deduce meaningful conclusions from such a comparison)

Deep mined coal: The interim Sustainability Appraisal found that a criterion based policy should be adequate to avoid the sterilisation of reserves, particularly in light of the lack of technical information about the location, scale and viability of those reserves. It was also considered an appropriate approach in climate change terms by not pre-empting the use of coal in preference to other alternatives. It was considered that the designation of constraint areas would help to protect the most sensitive areas with positive implications for biodiversity, landscape, heritage and natural resources. In contrast, the lack of detailed information about the extent of constraints could mean that non-designated areas with unknown constraints could be more vulnerable to development pressures.

At this stage, four issues have been identified. Options have only been identified for issue three and four as outlined below.

Issue 1: Making provision for possible future deep mined coal extraction

Issue 2: How should the plan develop a policy approach for proposals for deep mine coal extraction

It is a national policy requirement to consider provision for deep mined coal, and so no alternative approaches are suggested.

Issue 3: The need for a specific and separate policy for deep mined coal:

This is more of a procedural issue, as criteria could be included within a standalone policy (and still include specific criteria relating to certain minerals).

Issue 4: The need for additional criteria for testing the acceptability of deep mined coal:

Two procedural options have been presented; 1) to rely upon the NPPF/ NPPG 2) to include additional criteria.

A high level appraisal of the emerging approach is presented below, with some commentary on the possible implications of the identified options.

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
↔	↔	↔	↔	↔	↔	↔	↔

Appraisal summary: It is difficult to ascertain the effects of the emerging policy approach, as different procedural options are still being consulted upon, and would probably result in very similar outcomes against the SA Framework. Generally, the inclusion of a policy is a positive approach, as it helps to set out what will be expected of proposals, where opportunities may exist, and how developments should be tested for acceptability. The criteria listed in the NPPF/NPPG cover a wide range of sustainability factors, and so the policy is likely to have a neutral effect at worst. An approach that adds some more specific criteria could have further benefits on those aspects of sustainability, but there would be a need to balance requirements with practicality and viability issues. An approach that implements the national policy perspective is likely to have neutral effects, as this would be a requirement anyway. Where additional criteria are identified, as well as possible opportunity areas for extraction, the potential for effects (mainly positive) increases. However, these can only be tested once a firmer policy approach has been established.

Hydrocarbons: An appraisal of an emerging approach for hydrocarbons was undertaken at issues and options stage, with the findings presented in an interim SA Report. Subsequently, a range of broad procedural options for hydrocarbon have been identified. These options are not considered to be reasonable alternatives in the context of the SA; however, a proportionate appraisal of the emerging approach to Hydrocarbons has been undertaken below, including a commentary on different approaches proposed in the 'Towards a Strategy for Hydrocarbons' consultation.

Emerging approach to the provision of hydrocarbons

It is intended that the Plan will adopt an approach to the provision of hydrocarbon minerals in accordance with the policy guidance of the NPPF and NPPG. The Plan, as a minimum, will identify on a plan the areas currently subject to Petroleum Exploration and Development Licences and also any operational sites at the time of publication but will not seek to identify specific sites for future development due to the limitations of the existing information. The Plan may be able to identify areas where hydrocarbons resources are present and where development could be undertaken (*for which three procedural options have been established*). The Plan will also set out criteria for the assessment of planning applications including the following: Landscape, Biodiversity/Ecology, Heritage, Archaeology, Geology/Geomorphology, Water Protection/Flood Zones, Green Belt, Contaminated Land.

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
↔	↓	↑	↔	↔	↑	↔	↔

Appraisal summary: The proposed approach is in-line with the NPPF and NPPG, which ought to lead to neutral effects in the main. Not allocating sites for future development is positive with regards to climatic factors, as it does not pre-empt the use of fossil fuels. The plan could identify broader areas of potential development, which would help to guide the minerals industry. However, this approach has yet to be determined and is the subject of consultation. In the long term, it may be necessary to make use of hydrocarbon resources to improve energy security and a reliable mix of fuel. Therefore, an approach that identifies areas where hydrocarbons development may be suitable in principle could be more positive on the economy (which is heavily reliant upon and affected by the supply and price of energy). However, the information required to adopt this approach is not available, and not identifying areas in the Plan does not preclude the potential for future development.

The draft list of assessment criteria will ensure that most aspects of environmental sustainability are addressed. However, it is suggested that soil resources should be included on this list, as there may be potential for the loss of high quality agricultural land. Towards the eastern border of the Plan area along the coal measures, much of the agricultural land is grade 4. However, there are parcels of Grade 3 land throughout the County, and a large swathe of Grade 2 land to the east of Hardstoft, Heath and Calow (which are on the edge of the East Midlands oil and gas province).

Industrial limestone: An appraisal of an emerging approach for industrial limestone was undertaken at issues and options stage, with the findings presented in an interim SA Report. Subsequently, a range of broad procedural options for industrial limestone have been identified. These options are not considered to be reasonable alternatives in the context of the SA; however, a proportionate appraisal of the emerging approach to Industrial Limestone has been undertaken below; including a commentary on different approaches proposed in the 'Towards a Strategy for Industrial Limestone' consultation. This includes five 'issues' relating to maintaining an adequate and steady supply of industrial limestone and the materials required for cement production. The key issue, which all other issues relate to is Issue 1, which is replicated below:

Issue 1: Options for making provision for an adequate and steady supply of industrial limestone

- Option 1: Make provision through existing permitted reserves and allocations
- Option 2: Make provision through existing permitted reserves and a criteria based policy.
- Option 3: Make provision through existing permitted reserves, allocations and a criteria based policy.

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
?	↔	↑	?	↔	↔	↔	↑

Appraisal summary: Each option relies substantially on existing permitted reserves, which means that the effects upon sustainability factors is not likely to be significant (i.e. these reserves are likely to be worked in the absence of Plan anyway). However, further supply could be needed, which could have positive or negative effects upon aspects of sustainability. It is difficult to compare procedural options, without further information about the location of development. However, it is possible to discuss the general merits of different approaches, and the overall effect that a policy on industrial limestone is likely to have.

In broad terms, each policy approach would have a positive effect on 'waste and minerals', as the primary principle is to secure a steady and stable supply of industrial limestone. However, an approach that relies solely upon allocations is likely to fall short, given that there is uncertainty about the level of need required, the complexity of the market (e.g. changing specifications) and a lack of information about potential site options or areas of search. Conversely, an approach reliant solely on criteria based policy does not provide the same level of certainty. For this reason, option 3 is considered to be the most beneficial approach to waste, minerals and the local economy.

The only sites that have been identified as potential sources of supply are extensions to existing sites (Ashwood Dale and Whitwell Quarry and Aldwark / Brassington Moor). The constraints associated with these sites are already known and continued operation of existing processing plant and access would be unlikely to have significant effects. However, extensions to the site could lead to further impacts on environmental receptors, particularly landscape. Ashwood Dale Quarry (Buxton) is the subject of a planning application, with the accompanying Environmental Statement demonstrating that effects upon communities or environmental assets are unlikely. Positive socio-economic effects are predicted though.

Five potential extension sites have been identified at Whitwell Quarry (one of which is in Nottinghamshire). General constraints in the area are the presence of Welbeck Abbey Registered Park, Scheduled Monuments at Creswell Crags and falling within a SSSI risk zone. Expansion at Aldwark/Brassington Moor has the potential to have impacts on the landscape and adjoining Peak District National Park.

A criteria based policy is likely to include consideration of environmental constraints and transport links; which should help to minimise negative effects and direct growth to the most suitable areas.

Reducing quarrying in the Peak District National Park: Two options were appraised as part of an issues and options stage, with the findings presented in the interim SA Report. An appraisal of an emerging approach for this plan element was also undertaken as part of the SA.

The first Interim Sustainability Appraisal concluded that Option 2 (to reduce the landbank of crushed rock in DCC and the Peak District National Park) is expected to perform better than Option 1 (to reduce the landbank of crushed rock in DCC) in terms of achieving environmental and social objectives by reducing permitted extraction in the Peak District National Park and therefore assist in the delivery of the Park's objectives and also maintain potential recreational areas for Derbyshire and Derby's communities.

In terms of meeting economic objectives, both options would reduce the overall land bank for crushed rock however this is not expected to result in provision for less than what is required as part of the apportionment set out in the national and regional guidelines for aggregates provision and both options would still grant new permissions where these are applied for therefore still encouraging minerals extraction where this is needed. This would also help to maintain the important role the extraction of this aggregate plays in national supplies as the Plan area has the second highest annual output of limestone in England.

A draft policy is being prepared and an appraisal will be presented in the SA Report.

Cumulative impacts: Three issues have been identified in relation to cumulative impacts. For issues 2 and 3, two procedural options have been identified related to the methodology for assessing cumulative impacts. Although these options are not considered to be reasonable alternatives in the context of the SA; a proportionate appraisal of each has been undertaken below.

Issue 2 – Methodology for the assessment of cumulative effects

- Option 1: Based upon NPPF guidance
- Option 2: Based upon the approach suggested by Mr Justice Brown.

	Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
1	↔	↔	↔	↔	↔	↔	↔	↔
2	↔	↔	↔	↔	↔	↔	↔	↔

Issue 2 - Appraisal summary: The significance of effects is difficult to determine given the high level procedural nature of these options. However, both options ought to have positive effects upon sustainability factors as they seek to ensure that new developments in combination with existing and planned developments do not have significant negative effects upon the environment, communities or the economy. This should ensure a neutral effect upon the baseline position for each sustainability objective. Option 2 is likely to be more positive with regards to the identification of negative effects as it takes a more comprehensive approach compared to option 1. In turn, this could be more costly in terms of mitigation measures.

Issue 3 – Methodology for establishing the baseline for assessing cumulative impacts

- Option 1: Use different baselines taking into account historical context.
- Option 2: Use the same criteria for all areas.

1	↔	↔	↔	↑	↓	↔	↑	↔
2	↔	↔	↑	↔	↔	↔	↔	↔

Issue 3 – Appraisal Summary

Taking into account historical context in determining sensitivity (option 1) could be positive for heritage and landscapes which have already been affected by development (i.e. these areas may be more sensitive to further development). This approach could also be positive for communities by recognising the effects of industrial decline, which are more prominent in some locations. Conversely, this approach could direct development away from areas that are well served by infrastructure and supply lines (i.e. those areas which are determined to be most sensitive due to past and present activities), which is less positive for transport. Option 2 which sets a consistent (but flexible) across the Plan area is likely to be more balanced for the minerals industry, and does not place areas at an 'advantage' or 'disadvantage' on the basis of historic activity. For both options, it is difficult to determine the significance of effects as they are procedural in nature and do not relate to specific areas or sites.

Safeguarding mineral resources (SMP6): An appraisal of an emerging approach for this plan element was undertaken at previous stages of plan making. The findings were presented in the interim SA Report. Subsequently, a policy approach has been developed for Safeguarding mineral resources (i.e. draft Policy SMP6). An appraisal of this policy is presented below (essentially an update of the appraisal for the emerging approach).

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
↔	↔	↑	↔	↔	↑	↑	?

Appraisal summary: There is a need to include a policy to safeguard minerals. The proposed approach would have positive implications by ensuring a steady supply of minerals for economic development. It would also help to ensure that the need for mineral imports was minimised, which would reduce carbon emissions.

The SA of the emerging approach suggested a more flexible approach to protection dependent upon the scarcity of mineral resources and their 'importance'. The revised policy (SMP6) take this into account by identifying that safeguarded areas for some minerals will be more selective; involving the land around existing workings.

The draft policy will safeguard minerals in urban areas where there are proven resources. There is an exemption list, to ensure that the majority of development is unaffected. However, larger housing and employment development in areas where minerals are known to exist would need to demonstrate that the resources cannot be extracted prior to their development. This could discourage the development of some sites, including brownfield land, but on the other hand, provides opportunities to extract resources, which could possibly partially fund subsequent development for other uses. An uncertain effect is predicted at this stage for economy and housing as further detail is to be drawn up relating to redevelopment of a site in the urban area. However, it is not expected that significant effects would occur as the policy ought to take account of viability and feasibility of resource extraction.

Safeguarding minerals infrastructure: The issues of safeguarding infrastructure were not explicitly explored at previous stages of the issues and options process. However, the MSA identified a number of key issues that need to be addressed to be able to develop the final strategy. Some of the options identified for these issues are procedural in nature and therefore, the impacts in the SA would not be particularly discernable between the different approaches. The issues are as follows.

- Issue 1 - How should minerals infrastructure be safeguarded?
- Issue 2 - The use of consultation areas.
- Issue 3 - Allowing redevelopment for other uses.
- Issue 4 – The need for a protocol for setting out safeguarding consultation procedures.

Options have been identified for issues 1-3. A discussion is presented below.

Issue 1

- Option 1 - Safeguard only the strategic facilities
- Option 2 - Determine the need to safeguard facilities on a case by case basis
- Option 3 - Apply an overarching policy covering all infrastructure

Each approach relates to how safeguarded areas would be determined. Whilst this would affect the process of determining appropriate development, the options are unlikely to result in significantly different impacts from one another (the options are procedural). Therefore, it is not considered necessary or helpful to appraise these options in the SA.

Issue 2

- Option 1 - Determine the need and size of consultation areas on a case by case basis.
- Option 2 - Establish a standard consultation area around all facilities
- Option 3 - Define consultation areas around the strategic infrastructure facilities only with the area defined on a site by site basis.

Whilst these options would affect the number of schemes that would potentially fall within consultation areas, the outcome of consultation is likely to be very similar irrespective of the option (these options are procedural). Option 2 would lead to a greater consideration of a wider range of facilities, which could be more beneficial for minerals and transport, but have negative implications in terms of other forms of potential development. Effects on other aspects of sustainability are unlikely to occur regardless of the option.

Issue 3

- Option 1 - All safeguarded sites to remain protected for the duration of the plan.
- Option 2 - Allow for the removal of safeguarding protection in some circumstances.

These options differ in their approach to the protection of safeguarded infrastructure and could lead to differences in effects for a number of sustainability factors. These issues are discussed below.

	Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
1	↔	↔	↑	↓	↑	↔	↔	↓
2	↔	↔	?	↑	↔	↔	↔	↑

Option 1 provides the strongest level of protection in terms of waste and minerals and in the longer term would best ensure that there is infrastructure to support minerals workings and transport (without having to develop new facilities). However, it does not provide the flexibility for other uses to be supported if appropriate. This could have negative implications in terms of other forms of development. It may also lead to facilities falling into dereliction, which could be negative with regards to landscape and townscape character. Option 2 is more flexible, and could therefore lead to possible loss of infrastructure in the long term. However, this is unlikely given that there would be a need to demonstrate that infrastructure was not needed and/or inadequate. This option would also provide opportunities for economic growth in other sectors if appropriate which is positive for the economy and for the public realm.

Restoration of Hard Rock - Carboniferous Limestone Quarries:

The first Interim SA Report presents a high level assessment of two options relating to the restoration of quarries along the A515 corridor. Developing a specific coherent strategy was considered to be the most desirable approach, compared to the continuation of a criteria based policy on a site-by-site basis.

The next stage of the Plan making process sought to consider whether a strategic approach could also be taken for other hard rock quarries. Three options are identified as follows.

Issue 1 – What area should the strategy cover

- Option 1: Apply to the A515 quarries only
- Option 2: Apply to all of the hard rock quarries within the Carboniferous Limestone
- Option 3: Apply to all hard rock quarries within the Plan area?

Issue 2 identifies the issues that could affect the restoration of Carboniferous limestone quarries, whilst Issue 3 identified draft principles for restoration. There are no options for either of these issues.

	Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
1	↑	↔	↔	↑	↔	↔	↑	↑
2	↑	↔	↔	↑	↔	↔	↑	↑
3	↑	↔	↔	↑↓	↔	↔	↑	↑

Option 1 is expected to have benefits related to heritage and landscape, biodiversity flora and fauna, land and water resources, communities and health and the local economy by providing a strategic landscape management scheme for this area. In particular significant positive effects upon the local landscape along this corridor and potentially indirect positive effects on the setting of the nearby Peak District National Park are expected as it will ensure a particular standard is met for all sites in terms of management and after care and this will also provide certainty to the minerals industry. These effects are somewhat uncertain as it will depend on the types of restoration proposed and when sites are expected to be restored which is unknown.

Option 2 expands the area covered by a restoration strategy. Whilst this is positive with regards to encouraging a joined-up approach to restoration, there may be differences across the carboniferous limestone that is not reflected by a standard approach. Covering a wider area could potentially lead to stronger ecological connections and green infrastructure corridors. It also provides clarity on requirements across a larger area. However, a standard approach would possibly not reflect locally specific issues that need to be addressed.

Option 3 expands the area covered by a restoration strategy even further. Again, this is positive in some respects by allowing for strategic links to be established that could benefit biodiversity and communities. However, the character of the landscape is different for sandstone producing sites, which are also dispersed more widely and present less opportunities for joined-up restoration.

Ultimately it may be most appropriate to devise a number of restoration strategies that are predicated on the landscape character within which they sit, and the proximity of other quarries that could form part of a wider strategy.

Sand and gravel: At issues and options stage, an appraisal of an emerging approach for sand and gravel was undertaken. It was concluded that allocating extensions to existing sites rather than finding new extraction sites could put additional pressure on the environments within which current facilities are located. However, it would help to negate environmental impacts in other parts of the Plan area. It would also prevent the need to identify alternative sources of supply; helping to reduce barriers/costs to extraction. Expanding existing sites also helps to retain employment over a longer period of time for communities that currently rely upon these opportunities. Emerging policy approaches for sand and gravel provision and site selection have subsequently been developed as follows:

Emerging policy for the provision of sand and gravel

Derbyshire and Derby will maintain provision for the production of land won sand and gravel at a rate of 1.04mtpa throughout the Plan period. This figure will be kept under review and revised if necessary, in accordance with the Local Aggregate Assessment.

The MPAs will maintain a landbank of at least seven years of planning permissions for the extraction of sand and gravel.

Emerging Approach for Sand and Gravel Site Selection

In order to maintain an adequate and steady supply of minerals during the Plan period, land will be allocated to meet the identified shortfall of 2 million tonnes in the requirement for sand and gravel, where acceptable in economic, social and environmental terms.

Taking into account all of the above considerations, the suggested sites will all be assessed against the same set of social, economic and environmental criteria, which will determine their potential for mineral working in overall sustainability terms. These criteria are being developed through engagement with local communities and other stakeholders. Taking account of the responses at the recent drop-in sessions, there will be no weighting applied to the sites as a result of their general location, either in the Trent and Derwent Valleys or the Lower Dove Valley. Preference will be given to extensions of existing sites over new sites.

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
↑↓	↑↓	↑	↑↓	↔	↔	↔	↑

Appraisal summary: The policy approach identifies that the shortfall in sand and gravel will be met through the allocation of sites. Though there is a preference for extensions, this does not rule out new sites if they are demonstrably sustainable. As such, an appraisal of each site option will need to be undertaken to determine more accurately what the effects of the strategy for sand and gravel will be. At this stage it is possible to comment on the broad approach being proposed in general terms.

The main aspect of the policy relevant to the appraisal is the consistency in appraisal for all sites, as well as the preference for existing sites rather than new sites. Applying consistent criteria ensures a fair assessment of sites against sustainability factors, and is therefore likely to inform an appropriate strategy. The preference applied to existing sites could have mixed effects. On one hand, it will ensure that new development is located in accessible locations, make good use of existing infrastructure and continue to provide employment for communities that rely upon these industries. However, there is potential for negative effects upon biodiversity, land and water, and heritage and landscape, especially given that these areas have already experienced historic extraction of minerals.

On the other hand, it does protect ‘new’ areas from potential negative effects, and the potential effects of extensions should be well understood given the assessment required to support permission of current sites. Furthermore, the emerging approach towards restoration in the river valleys should also help to ensure that a managed strategy for restoration is implemented across these areas.

Restoration of the Trent river valleys: The SA undertaken at issues and options stage appraised two broad options for the delivery of a strategy for the restoration and working of minerals in the river valley. It was concluded in the SA that a joined-up approach to landscape management would have a more positive effect upon biodiversity, land and water resources, communities and health and the local economy. An emerging policy (replicated below) has been drafted that takes account of the findings in the SA as well as other evidence and consultation responses.

This Strategy will ensure that a more coordinated landscape scale approach is taken to the working and restoration of mineral workings in the Trent Valley. It will seek to create more resilient landscapes; firstly, through the conservation of the areas identified as being of highest environmental value, secondly with robust mitigation and management in those areas where some change is proposed and thirdly through the planning and enhancement of areas which have been identified as currently being deficient in these environmental qualities.

The Councils will work with communities and mineral operators and other stakeholders to help ensure that proposals for mineral working in the Trent, Derwent and Lower Dove Valleys show how the restoration of these sites will fit in with this long term strategy.

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
↑	?	↑	↑	↔	?	↑	↑

Appraisal summary: The policy approach is likely to have medium to long term positive effects upon biodiversity and landscape management by delivering a network of green infrastructure, which could involve water habitats. This could have knock-on benefits for communities by creating opportunities for recreation.

The policy will set a clear standard for the restoration of sand and gravel sites, which will give the minerals industry certainty about the standard of restoration and aftercare expected, as well as guiding the allocation of sand and gravel sites.

Some sites could be vulnerable to flooding or the proposed restoration may result in increased flood risk, or effects upon water quality. However, conversely, a joined up approach may better help identify potential for water / flood management schemes. Therefore, an uncertain effect is predicted for climatic factors, energy and flooding and land and water resources.

Sustainability principles (SMP1: Sustainability): Sustainability has been identified as a key issue for the Plan from the early stages. Consequently, a draft policy has been developed that will embed sustainability principles in the Minerals Local Plan.

When considering proposals for mineral development, the Councils will take a positive approach that reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework. The Councils will always work proactively with applicants to find solutions, which mean that proposals can be approved wherever possible, and to secure well-designed schemes and development that makes the most efficient use of the resource and improves the economic, social and environmental conditions in the plan area. Planning applications that accord with the relevant policies in this Minerals Local Plan will be approved without delay, unless material considerations indicate otherwise.

If there is an issue that is not addressed in this Plan, it will be judged in accordance with the policies in the National Planning Policy Framework.

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
↔	↔	↑	↔	↔	↔	↔	↑

Appraisal summary: Whilst this policy sets a positive framework for the achievement of sustainable minerals development, it essentially repeats national principles, which it is expected would be delivered through a Minerals Plan anyway. Therefore, in isolation, this policy is unlikely to have any significant effects upon the majority of sustainability factors. Notwithstanding this, the strong emphasis placed upon ensuring that developments come forward (without delay) ought to be positive with regards to waste and minerals and the economy.

Sustainability principles (SMP2: Climate Change): Climate Change has been identified as a key issue for the Plan from the early stages. Consequently, a draft policy has been developed that will seek to address strategic climate change issues.

Planning permission will be granted for proposals for minerals development that take account of climate change for the lifetime of the development, from construction through to operation, decommissioning and restoration.

Proposals should incorporate measures to minimise greenhouse gas emissions (mitigation) and to allow flexibility for future adaptation to the impacts of climate change (adaptation), which may include some or all of the following:

- *Locating and designing the facility, and designing transport related to the development, in ways that seek to minimise greenhouse gas emissions, Incorporating carbon off-setting measures.*
- *Using renewable, decentralised, or low carbon energy sources to power the facility.*
- *Incorporating measures to minimise flood risk associated with the development.*

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
?	↔	↑	↔	↑	↑	↑	↑

Appraisal summary: The draft policy is likely to have a positive effect on a number of sustainability factors. Primarily, the requirement for developments to minimise greenhouse gas emissions should have a positive effect on energy and climate change. Encouraging efficient reuse and recycling of materials as well as smarter transportation of materials should also have positive effects on minerals and waste, air quality and transport. In some instances, it may be possible to contribute to increased resilience to climate change (for example improving habitat connectivity, and managing flood risk). An uncertain effect is predicted at this stage; as such opportunities will depend upon the location and details of minerals sites. However, in principle, the policy is positive in this respect.

Sustainability principles (SMP3: Economic, social and environmental principles for Minerals Development): In order to reflect those issues which are particularly important to local people in dealing with proposals for minerals development in the Plan area, an emerging strategic approach has been captured in the following draft policy.

Proposals for minerals development will be supported:

- *To maintain the continued and sustained production of minerals from the Plan area over the Plan period to support the economy of Derbyshire and Derby, as well as the national economy.*
- *Where they make the most efficient use of those resources, whilst ensuring that any minerals development does not harm significantly the special built and natural character of the area and does not cause harm to local communities, either individually or cumulatively with other development in the same area.*
- *Where it would not have an adverse impact on areas covered by international, national and local environmental designations, apart from in special circumstances.*
- *Where high standards of working, restoration and aftercare of mineral workings will be promoted, to help offset any harm that may be caused by mineral working.*

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
↓?	↔	↑	↑	↔	↔	↑	↑

Appraisal summary: The draft policy is likely to have a positive effect upon minerals and waste development, as it is generally supportive of development if reasonable requirements are met. Maintaining a steady supply of minerals is a key element to the policy, which will help to ensure that economic development is supported both locally and nationally. The policy seeks to protect communities, as well as heritage and landscape character. The effects on biodiversity are potentially negative, as although the policy seeks to protect designated sites, it allows for harm in ‘special circumstances’ (*this is different to the consideration of effects for the built and natural character of the area, which states that development should not cause ‘significant harm’*). There is also no mention of non-designated biodiversity areas or priority species. The fourth clause does provide the framework for ‘offsetting’ impacts through measures during working, restoration and aftercare. This could (and usually does) involve habitat enhancement measures. However, to be clearer and provide a more proactive policy approach, it is recommended that the policy makes specific reference to the need to mitigate effects as far as possible, followed by compensation and/or enhancement. As written, the policy could be perceived as suggesting that the built and natural character of an area is more important than potential effects upon designated environmental sites.

The policy does not allude to potential effects on soil, air or water resources. Though these issues would typically be picked up in an EIA, it would be useful to provide a positive policy framework regarding their protection, mitigation and enhancement (*Given that this policy seeks to achieve an appropriate balance between economic, social and environmental factors*).

Sustainability principles (SMP4: Spatial Strategy):

Proposals for mineral development in Derbyshire and Derby which embrace the following spatial principles will be supported:

- *Where proposals ensure the availability of sites and facilities for the production of secondary and/or recycled materials which can substitute for primary minerals.*
- *Where sites are proposed for primary mineral production, it can be shown that the need for the mineral cannot be met from sources of secondary and/or recycled materials and that it provides overall gains across the three sustainability themes, giving priority to the extension of existing sites.*
- *Where the site is in a location where the use of sustainable modes of transport can be maximised thus helping to ensure that the development minimises its impact on the causes of climate change.*
- *Where development will be located which minimises adverse impacts on the local environment and the amenity and quality of life of local communities, including where maximum use will be made of the primary road network to reduce the need for transport through villages.*
- *Where the strategic restoration of mineral workings has been considered from the outset in their planning and development and that the sites will be restored at the earliest opportunity and in the most appropriate manner for the area, resulting in after-uses which provide benefits to the environment and local communities.*

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
?	↑	↑	?	↑	↑	↑	↑

Appraisal summary: Rather than setting out a detailed spatial strategy, the policy sets strategic principles for the location of minerals development. This makes it more difficult to ascertain the likely significant effects of development. However, it can be assumed that there will be a focus on the extension of existing sites, recycled and secondary materials as a substitute for primary minerals and a link to existing strategic infrastructure networks. This approach should have a positive effect upon waste and minerals by encouraging recycling, and the extension of existing sites, which have proven resources. Taking this approach, there is an assumption that sand and gravel sites would be extended or re-opened (where they are inactive) along the river valleys in particular. Although there could be some localised effects upon communities and amenity, landscape and heritage, it is possible that these could be mitigated, as the issues associated with existing sites (and their surroundings) should be well known. There are no significant constraints with regards to biodiversity in this area, and good links to the strategic road network, which should help to minimise transport emissions.

With regards to crushed rock there are concentrations of existing quarries around the Buxton and Wirksworth areas both of which lie close to the Peak District National Park. These areas lie close to a number of SSSIs and so there is potential for negative effects upon wildlife if expansion occurs here. Having said this, it should be possible to mitigate effects, and some of the quarries themselves are designated as SSSIs due to their value to wildlife. Consequently an uncertain effect is predicted against biodiversity. Similarly, a number of existing quarries lie within the Derwent Valley Mills World Heritage Site, so there would be potential for negative effects upon its setting should extensions to these sites be proposed. At this stage it is uncertain whether extensions to such quarries would be proposed. Furthermore, the development of new sites could also have similar effects as known resources also fall into areas of sensitivity for biodiversity and landscape/heritage. Therefore, an uncertain effect is predicted at this stage.

The principles ought to have a positive effect on land resources and energy use, by encouraging the reuse of materials on focusing on extensions to exiting sites. The effect on housing and employment should also be positive as the principles should ensure a steady supply of minerals to support economic activity and housebuilding.

Sustainable transport of minerals: An emerging policy approach has been established for the transport of minerals. This requires proposals for minerals development to minimise the impact of transport movements on the environment and local communities and maximise the use of alternatives to road transport. Proposals for minerals development should demonstrate:

1. *how transport movements relate to mineral resources and markets;*
2. *how opportunities for alternative methods of transport have been evaluated;*
3. *how access to the strategic highway network is suitable and how impacts on road safety and congestion have been addressed; and*
4. *what measures have been incorporated including mitigation to avoid unacceptable harm to the environment and local communities?*

Where appropriate, developer contributions will be sought for transport/highway improvements to mitigate the impacts of mineral development.

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
↔	↔	↔	↔	↑	↑	↑	↔

Appraisal summary: Given the reliance upon existing transport networks, and the relationship between current minerals sites / resources and the end market, it is acknowledged that the dominant mode of travel going forward is likely to be road transport. Rail and water transport can be expensive to implement the required infrastructure, and so they only tend to be utilised for high value materials and / or longer distances. In this respect, the policy (though positive in its intention) is unlikely to have significant effects upon air quality and transport or climatic factors. However, the policy is positive and should ensure that all possibilities to reduce transport and to source alternative methods of transport have at least been evaluated.

Perhaps the greatest potential for reducing the transport of minerals is to minimise the demand for virgin materials. In the first instance and to make use of resources more efficiently. By reducing waste, and re-using secondary materials locally, it will help to reduce the need to transport minerals. This is something that the end market needs to improve upon though, and not necessarily something minerals developments can ensure. Nevertheless, perhaps it would be beneficial to include a clause that requires development proposals to demonstrate a need for virgin minerals in the immediate area and a lack of supply from other areas that are closer / more easily reached by sustainable modes of transport (particularly where there are longer distances involved to end markets).

The effects upon communities and health ought to be positive, as there is a need to ensure road safety and amenity is protected. With regards to environmental factors such as biodiversity, heritage and landscape, the effects are in all likelihood going to remain the same, because existing routes are expected to remain the most suitable and most utilised. Therefore, a neutral effect could be expected. In the instance that the policy identified more sustainable modes of travel (rail or water) there may be a potential for increased effects on water environments, or biodiversity, but these effects could likely be managed. Conversely, a reduction in road transport of minerals would have positive implications for air quality, communities and health.

Vein minerals:

Issue 1: Emerging approach to vein minerals

At issues and options stage, an appraisal of an emerging approach for vein minerals was undertaken. The interim Sustainability Appraisal found that a criteria based policy would have positive implications for landscape, geodiversity, biodiversity and natural resources. However, given that it can be difficult to find suitable sites for vein mineral extraction and that demand fluctuates widely, it may be appropriate to allow development without the need to demonstrate there is a demand for the mineral. Scale and methods of working could still be included in a criteria based policy though. Moving forward, the approach that has been identified is as follows:

To include a plan identifying the area or areas where vein minerals are known to exist or are likely to be found. Not to attempt to indicate the potential acceptability of extraction within those areas, nor to set out any targets or provision figures for vein minerals

Issue 2: The need for a specific environmental criteria policy for vein minerals

This is more of a procedural issue, as criteria could be included within a standalone policy (and still include specific criteria relating to certain minerals).

Issue 3: The criteria to be used to assess development proposals for vein minerals

A list of issues/criteria is proposed as follows: *noise, dust, air quality, lighting, visual intrusion, landscape character, archaeological and heritage features, traffic, contamination of land, soil resources, best and most versatile agricultural land, flood risk, the water environment, land stability and subsidence, nationally protected geological and geomorphological site features, site restoration and aftercare, the proportion of host rock compared to that of vein minerals, impacts upon the Peak District National Park.*

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
↑	↑	↑	↑	↑	↑	↑	↔

Appraisal summary: The emerging policy approach is fairly 'light touch' in terms of identifying sites for extraction (i.e. it simply provides a map of known and potential resources. This allows a degree of flexibility to allow for sites to be identified within a broader area of potential. The effects are positive for waste and minerals, but not significantly so.

The list of site assessment criteria are wide-ranging and ought to address any potential effects upon environmental and social factors. However, it is difficult to predict the extent of effects at this stage as no firm criteria have been established, and the policy is also high-level, and not site specific. Nevertheless, positive implications have been recorded for biodiversity, land and water resources, waste and minerals, heritage and landscape, air quality, flooding and communities and health. A neutral effect on the economy and housing is predicted, as the policy is unlikely to significantly affect levels of housebuilding or economic activity. A criterion could potentially be added to the list of assessment criteria to cover the potential for minerals developments to ensure that local communities benefit from employment opportunities.

Restoration and aftercare: An emerging policy approach has been established that sets out the likely content and approach to this issue. A high level appraisal is presented below.

Planning proposals for all mineral extraction schemes will have to demonstrate that, from the outset of the preparation of the application, provision has been made for the restoration and sustainable after-use of the site. Restoration schemes for allocated sites should also be in accordance with the specific, more detailed principles for those particular sites. A range of requirements and criteria could be included in the strategic policy.

Biodiversity , Flora and Fauna	Land and Water Resources	Waste and Minerals	Heritage and Landscape	Air quality and Transport	Climatic Factors, Energy and Flooding	Communities and Health	Local Economy, Employment and Housing
↑	↑	↔	↑	↔	↑	↑	?

Appraisal summary: The emerging policy approach ought to have a positive effect upon biodiversity in the long term by requiring enhancements to be integral to site restoration. The same is the case for landscape and green infrastructure, which should ensure that important features are protected, and the site restored in a sympathetic way.

With regards to land, there is a requirement to demonstrate how best and most agricultural land would be retained or enhanced, which should limit the loss of such resources in the longer term (ensuring minimal negative changes to the baseline position). The certainty of effects should be secured, as there is a need to ensure adequate financial contributions to cover restoration and aftercare costs. Provision is also made to ensure no net increase in flood risk.

There is potential for positive effects to communities, as restoration proposals should seek to provide community benefits and where possible employment opportunities. Where any wider restoration strategies exist, schemes must consider how they can implement the aims of those plans, as well as securing better integration with current and new landscapes, ecology networks and green infrastructure.

The effect on waste and minerals are predicted to be neutral as restoration schemes ought not to hold back mineral extraction, and waste materials could be used as part of infill materials (preferably from sources of close proximity).

4 APPRAISAL OF SITE OPTIONS

4.1 Sand and gravel site assessment methodology

4.1.1 The Councils established a site assessment methodology to assist in the understanding of site options for sand and gravel. The site assessment methodology (May 2016) along with the detailed site assessments were presented as part of the rolling consultation.

4.1.2 The full methodology is presented on the Council's website along with a detailed completed proforma for each of the site options as part of the Autumn 2020 Sand and Gravel sites consultation. These show each sites performance across the full range of assessment criteria.

<https://www.derbyshire.gov.uk/environment/planning/planning-policy/minerals-waste-development-framework/minerals-plan/minerals-local-plan.aspx>

4.1.3 The methodology is comprehensive, covering a range of planning related issues and site constraints and opportunities. Many of the criteria within the site assessment section overlap with the SA Objectives (purposefully).

4.1.4 In developing a site appraisal framework for the SA, the starting point was therefore to draw upon the criteria already established in the wider site assessment methodology. This avoids duplication of effort and provides a consistent approach to site assessment.

4.1.5 The table below sets out the relevant site assessment criteria for each of the SA Objectives. As there are sufficient site assessment criteria for each of the objectives, it was considered unnecessary to add additional criteria (i.e. further to those already considered in the site assessment).

4.1.6 Each of the site criteria is 'scored' as follows:

--	Major negative effects
-	Minor negative effects
+	Minor positive effects
++	Major positive effects

SA Topics	SA Objectives	Site assessment criteria
Biodiversity, flora and fauna	To protect and enhance biodiversity and geodiversity	<p><i>Ecology</i> - existing impacts from mineral extraction</p> <p><i>Ecology</i> - UK, regional and local BAP priority species and habitats</p> <p><i>Ecology</i> - ecological coherence: Natural Areas/ Wildlife Corridors/linkages</p> <p><i>Ecology</i> - Habitat creation</p> <p><i>Geodiversity</i> - Geological and geomorphological features</p>
Land and water resources	To protect, conserve and enhance air, water and soil quality, minimise light and noise pollution and land instability.	<p><i>Soil</i> - Best and most versatile agricultural land</p> <p><i>Water environment</i> - Groundwater</p> <p><i>Water environment</i> - Aquifer protection</p>

SA Topics	SA Objectives	Site assessment criteria
Waste and minerals	To achieve a more efficient use of natural resources and infrastructure, minimise the production of waste and increase reuse, recycling and recovery of waste in Derby and Derbyshire.	<i>Existing Infrastructure</i> - Is there existing infrastructure on site? <i>Location of site</i> – Proximity to intended market
Heritage and landscape	To protect, conserve and enhance the quality, local distinctiveness and enjoyment of Derby and Derbyshire's diverse landscapes, green infrastructure, townscape character and cultural heritage.	<i>Landscape</i> - Existing impacts from mineral extraction <i>Landscape</i> - Strength of existing infrastructure <i>Landscape</i> - Visual impact (<i>Criteria deleted as the site assessment method was refined</i>) <i>Historic environment</i> - Designated sites and settings <i>Historic environment</i> - Archaeology <i>Historic environment</i> - Historic landscape
Air quality and transport	To protect, conserve and enhance air, water and soil quality, minimise light and noise pollution and land instability.	<i>Soil covered in 'land and water resources'</i> <i>Water covered in 'land and water resources'</i>
	To minimise traffic levels, journey lengths, the number of road traffic related accidents, and to encourage sustainable forms of transport in Derby and Derbyshire.	<i>Transport</i> – Export Route <i>Transport</i> – Capacity for Sustainable Transport Options
Climatic factors and energy	To reduce contributions to climate change, by reducing greenhouse gas emissions, promoting efficient energy use and encouraging the use of renewable energy.	No criteria identified. Design and operation of sites can incorporate efficient uses of energy and renewable energy regardless of location.
	To limit vulnerability to flooding, taking account of climate change	<i>Water environment</i> - Flood risk
Communities and health	To protect, maintain and improve the health and well-being of Derby and Derbyshire's people and communities.	<i>Transport</i> - Safe and effective access to and from the site <i>Transport</i> - Local amenity <i>Air quality/human health</i> – Proximity to AQMA <i>Dust</i> – Proximity to sensitive receptors <i>Noise</i> - Proximity to sensitive receptors <i>Visual Impact</i> - Proximity to sensitive receptors
Local employment and housing	To maximise the potential economic benefits of mineral operations and waste management to a sustainable economy in Derby and Derbyshire and other parts of the Country.	<i>Employment</i> – New and existing jobs

4.2 Sand and Gravel site assessment summary (December 2016 and updates in August 2020 for selected sites)

4.2.1 The summary table below sets out a visual summary the performance of each sand and gravel site option against each of the relevant site assessment criteria. This information has been drawn from the detailed site proformas prepared by the Council. Some sites have remained consistent throughout the process (Swarkestone North, Elvaston, Egginton), whilst site boundaries have been amended for others (Willington, Swarkestone South), and additional site options have emerged, whether this be an entirely new site (Twyford) or significant changes to the scale of previous sites (Foremark 2, Foston 2). The summary below relates to the site options as they stand at August 2020. Previous iterations of the sites that have changed are no longer included in the assessment tables as they are considered no longer reasonable.

Site assessment criteria	Willington (Updated)	Swarkestone North	Swarkestone South (Updated)	Elvaston	Foremark	Foston	Egginton	Twyford	Foremark 2	Foston 2
Status (change, new, no change)	Change- area proposed for consultation in Spring 2018	No Change	Change- minus land proposed for allocation in the 2018 consultation which has received planning permission	No change	No change	No change	No Change	New site	New site- smaller than original site	New site- smaller than original site
Biodiversity										
Ecology - existing impacts from mineral extraction	Green	Green	Yellow	Red	Red	Red	Red	Green	Red	Red
Ecology - BAP priority species and habitats	Red	Yellow	Yellow	Yellow	Red	Yellow	Red	Green	Yellow	Green
Ecology - Ecological coherence	Red	Green	Green	Yellow	Red	Yellow	Red	Yellow	Red	Green
Ecology - Habitat creation	Yellow	Green	Green	Green	Red	Yellow	Red	Green	Yellow	Green
Land and water resources										
Soil - Best and most versatile agricultural land	Green	Yellow	Green	Green	Green	Green	Green	Yellow	Green	Green
Water environment - Groundwater	Green	Green	Yellow	Green	Green	Green	Green	Green	Green	Green
Water environment - Aquifer protection	Yellow	Yellow	Red	Yellow	Yellow	Yellow	Yellow	Red	Red	Yellow
Waste and minerals										
Existing Infrastructure - Is there existing infrastructure on site?	Green	Green	Green	Green	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Location of site – Proximity to intended market	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Heritage and landscape										
Landscape and visual amenity- Existing infrastructure	Green	Green	Yellow	Yellow	Red	Red	Red	Yellow		

Site assessment criteria	Willington (Updated)	Swarkestone North	Swarkestone South (Updated)	Eivaston	Foremark	Foston	Egginton	Twyford	Foremark 2	Foston 2
Status (change, new, no change)	Change- area proposed for consultation in Spring 2018	No Change	Change- minus land proposed for allocation in the 2018 consultation which has received planning permission	No change	No change	No change	No Change	New site	New site- smaller than original site	New site- smaller than original site
Landscape - Strength of existing landscape character	Red	Green	Green	Green	Red	Green	Red	Yellow	Yellow	Green
Landscape - Visual impact	?	Green	?	Yellow	Red	Yellow	Yellow	Diagonal	Diagonal	Diagonal
Landscape - Existing impacts from mineral extraction	Green	Green	Yellow	Red	Red	Red	Yellow	Yellow	Red	Red
Historic environment - Designated sites and settings	Red	Red	Yellow	Red	Yellow	Green	Green	Red	Red	Yellow
Historic environment - Archaeology	Yellow	Green	Yellow	Green	Red	Green	Red	Red	Red	Yellow
Historic environment - Historic landscape character	Red	Green	Green	Green	Red	Green	Red	Green	Yellow	Green
Air quality and transport										
Transport – Export route	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Transport – Sustainable Transport Options	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Climatic factors										
Water environment - Flood risk	Red	Red	Red	Red	Red	Red	Red	Red	Red	Red
Communities and health										
Transport - Local amenity	Green	Yellow	Green	Green	Red	Green	Green	Green	Green	Green
Air quality/human health – Proximity to AQMA	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Dust – Proximity to sensitive receptors	Green	Yellow	Green	Yellow	Red	Yellow	Yellow	Green	Green	Green
Noise - Proximity to sensitive receptors	Green	Yellow	Green	Yellow	Red	Yellow	Yellow	Green	Green	Green
Visual Impact	Green	Yellow	Green	Yellow	Red	Yellow	Green	Yellow	Yellow	Green
Local Employment and housing										
Employment – New and existing jobs	Green	Green	Green	Green	Yellow	Yellow	Yellow	Green	Yellow	Yellow

4.3 Discussion of sand and gravel site performance

Willington (updated site boundary)

- 4.2.2 This site is a proposed extension to the active site at Willington Pit; it is 18ha, located in the Trent Valley and currently in agricultural use, mostly for grazing livestock.
- 4.2.3 In terms of the sites potential impacts on social and economic factors, the site scores consistently positively. It also generally scores positively in terms of its effects upon resources, including: land, water waste and minerals.
- 4.2.4 When focusing on the site's impacts upon the areas heritage and landscape assets the site scores poorly, although the existing mineral extraction in the area has already had some negative impacts to the detriment of the surrounding landscape and historic environment.
- 4.2.5 The site also scores poorly in terms of its impacts upon biodiversity in the area, however, similarly to the aforementioned issues, the existing extraction at Willington Pit has already had effects on local ecology. A package of mitigation and restoration measures would be needed to ensure that negative environmental effects are addressed.

Swarkestone North

- 4.2.6 As an extension to an active site, it would be possible to make use of existing infrastructure and to support the retention of existing jobs.
- 4.2.7 Whilst there could be minor negative effects on ecology, the potential for habitat creation is strong and impacts on the landscape are unlikely to be significant.
- 4.2.8 There could be potential effects on a scheduled monument, as well as minor amenity impacts in terms of noise and dust and transport movements.
- 4.2.9 On balance a site extension is likely to be acceptable in broad sustainability terms.

Swarkestone South (updated site boundary)

- 4.2.10 This site is an extension to the existing Swarkestone Quarry; it is 79ha and situated to the west of the existing quarry. Repton Village is situated to the south-west and Ingleby and Foremark to the south-east. The site is currently in agricultural use, predominantly as pasture land.
- 4.2.11 There are mixed effects predicted for the site's biodiversity, however no significant impacts are anticipated. In terms of resources, effects on soil are positive, however in terms of water the effects are predicted to be negative.
- 4.2.12 The site is well located in relation to its intended market and makes use of existing infrastructure. When focusing on heritage and landscape, minor negative impacts are predicted where the site only has localised impacts from existing operations. Other factors within landscape and heritage assessments predict mixed effects, though none significant.
- 4.2.13 The site would have positive impacts for local communities and jobs in the area, aside from predicted issues in terms of visual intrusion.
- 4.2.14 On balance, a site extension is likely to be acceptable in broad sustainability terms, but a package of mitigation, enhancement and restoration will be required.

Elvaston

- 4.2.15 As an extension to an existing site, there will be potential to use existing infrastructure and the retention of jobs would be more likely. The distance to markets is also very close and the transport routes do not affect local amenity significantly.
- 4.2.16 The site extension would be on low quality agricultural land but would have visual amenity implications and could have a significant effect on heritage. There may also be some minor impacts on residential amenity (dust / noise).

4.2.17 Though there is potential BAP habitat and effects on ecological coherence, the impacts on biodiversity would not be anticipated to be major with suitable mitigation.

4.2.18 On balance a site extension is likely to be acceptable in broad sustainability terms.

Foremark (original site)

4.2.19 The site is physically separated from existing minerals workings. Consequently, there is no current disturbance to biodiversity, landscape/heritage or human receptors. The site is located in the River Trent Valley and would be visually intrusive, have amenity impacts and significantly affect ecological connectivity.

4.2.20 The site has no existing infrastructure, but it is well connected to markets. However, the potential for sustainable transport is limited.

4.2.21 On balance, this site performs the poorest of any of the site options in sustainability terms.

Foston (original site)

4.2.22 This is a new site and so there would be a requirement for new infrastructure to be developed. There is no current disturbance to biodiversity, landscape / heritage receptors or amenity. Therefore, working of the site would be likely to lead to an adverse impact on landscape character, visual amenity and biodiversity. There could also be noise and dust issues.

4.2.23 On balance, the impacts are not anticipated to be significant and ought to be possible to mitigate.

4.2.24 The site is also within reasonable proximity to markets, but sustainable modes of travel could be limited.

Egginton

4.2.25 The site is physically separated from existing minerals workings. Consequently, there is no current disturbance to biodiversity, landscape/heritage or human receptors. The site would be visually intrusive, have amenity impacts and could significantly affect ecological connectivity.

4.2.26 The site has no existing infrastructure, but it is well connected to markets. However, the potential for sustainable transport is limited.

Twyford

4.2.27 Twyford is a site which would replace the Willington site when it runs out of reserves by 2025. It is 159ha and situated to the north and east of Twyford; it is divided into two by the A5132. The River Trent acts as the southern boundary and the site is currently in agricultural use.

4.2.28 Minor positive and negative effects, though none significant, are predicted in terms of biodiversity should the site be used. These effects are likely to be localised and there is opportunity to create/enhance UK or local priority species within the site boundaries.

4.2.29 Mixed effects are also noted for land, water, waste and minerals with significant negative impacts due to its location on a principal aquifer. The site is vulnerable to flooding as it is within Flood Zone 3.

4.2.30 The site has potential to have negative effects on the areas heritage and landscape. It is located in close proximity to areas and buildings of historical importance with impacts on the site's archaeological assets and surrounding landscape possible.

4.2.31 The site is not predicted to have major negative impacts on communities and health with good transport links, no AQMAs in close proximity or sensitive receptors in terms of noise. Dust and visual impacts could offer some negative effects. The site is also likely to retain employment in the area.

4.2.32 In summary, this site has a mix of outcomes in terms of sustainability. There are some significant negative effects identified that will need to be addressed.

Foremark 2 (Reduced area)

4.2.33 This site, within the Trent Valley, is to the south of Repton and measures 70ha. It is in agricultural use for primarily arable uses with some livestock grazing.

4.2.34 In terms of biodiversity, the site scores poorly and is predicted to have mostly negative effects, with the more significant of those effects derived from the site's lack of pre-existing mineral extraction and the potential of the site for ensuring ecological coherence.

4.2.35 The site performs well in regard to agricultural land, however in terms of water, the site is located on a principal aquifer.

4.2.36 The site's lack of existing infrastructure on site means that it scores poorly in relation to impacts on heritage and landscape. It is also predicted to negatively affect heritage assets in the area.

4.2.37 The site is well located in relation to its intended market and has broadly positive impacts for local communities and health, however local employment effects are seen as slightly negative, where jobs would be retained from operations elsewhere.

4.2.38 On balance, this site scores relatively well in terms of socio-economic factors, but a range of environmental constraints would need to be addressed to ensure that unacceptable effects do not arise. Compared to the original (larger) site at Foremark, this smaller site performs generally better when considered across the full range of site appraisal criteria.

Foston 2 (Reduced area)

4.2.39 This site is a 71ha greenfield site which is located to the south of the A50, to the west of Scropton Village and to the south of Foston. It is currently in agricultural use, with the predominant use classified as arable. The site's lack of existing impacts from mineral extraction means that it scores badly in terms of ecology from this perspective. However the more specific factors of ecological potential on the site highlight minor positive effects. Compared to the larger original site boundary, the effects on biodiversity are improved.

4.2.40 The site has mixed effects in relation to land and water resources, with significant positive effects predicted for soil. Effects would be mostly negative in relation to the local historic environment, aside from positive effects where the historic field pattern on the site has largely gone.

4.2.41 The site is well located in terms of its intended market and scores positively in terms of its impact upon communities and health, however local employment effects are seen as slightly negative, where jobs would be retained from operations elsewhere.

4.2.42 In summary, this site scores relatively well according to high level sustainability criteria. Broadly speaking, the site performs better when compared to the initial site boundary in this location.

4.4 Hard Rock site assessment methodology

- 4.4.1 The Councils have developed a site assessment methodology for testing reasonable site options for hard rock. The full methodology is presented on the Council’s website along with a detailed completed proforma for each of the site options. These show each sites performance across the full range of assessment criteria.
- 4.4.2 The site assessment methodology along with the detailed site assessments were presented as part of the rolling consultation in December 2016.
- 4.4.3 The methodology is comprehensive, covering a range of planning related issues and site constraints and opportunities. Many of the criteria within the site assessment section overlap with the SA Objectives. In developing a site appraisal framework for the SA, the starting point was therefore to draw upon the criteria already established in the wider site assessment methodology. This avoids duplication of effort and provides a consistent approach to site assessment.
- 4.4.4 The table below sets out the relevant site assessment criteria for each of the SA Objectives. As there are sufficient site assessment criteria for each of the objectives, it was considered unnecessary to add additional criteria (i.e. further to those already considered in the site assessment).
- 4.4.5 It should be noted that some criteria are slightly different to the sand and gravel site appraisal criteria. This is to account to the different issues with hard rock resources compared to sand and gravel. In the main though, the criteria are the same.
- 4.4.6 Each of the site criteria is ‘scored’ as follows:

--	Major negative effects
-	Minor negative effects
+	Minor positive effects
++	Major positive effects

SA Topics	SA Objectives	Site assessment criteria
Biodiversity, flora and fauna	To protect and enhance biodiversity and geodiversity	<i>Ecology</i> - existing impacts from mineral extraction <i>Ecology</i> - UK, regional and local BAP priority species and habitats <i>Ecology</i> - ecological coherence: Natural Areas/ Wildlife Corridors/linkages <i>Ecology</i> - Habitat creation
Land and water resources	To protect, conserve and enhance air, water and soil quality, minimise light and noise pollution and land instability.	<i>Soil</i> - Best and most versatile agricultural land <i>Water environment</i> - Groundwater <i>Water environment</i> - Aquifer protection

SA Topics	SA Objectives	Site assessment criteria
Waste and minerals	To achieve a more efficient use of natural resources and infrastructure, minimise the production of waste and increase reuse, recycling and recovery of waste in Derby and Derbyshire.	<p><i>Quality/Yield of minerals</i></p> <p><i>Minerals use</i></p> <p><i>Existing Infrastructure</i> - Is there existing infrastructure on site?</p> <p><i>Location of site</i> – Proximity to intended market</p> <p><i>Sterilisation of resources</i> – Likelihood of sterilisation if site not allocated</p>
Heritage and landscape	To protect, conserve and enhance the quality, local distinctiveness and enjoyment of Derby and Derbyshire's diverse landscapes, green infrastructure, townscape character and cultural heritage.	<p><i>Landscape</i> - Existing impacts from mineral extraction</p> <p><i>Landscape</i> - Strength of existing infrastructure</p> <p><i>Landscape</i> – Impact on Peak District National Park</p> <p><i>Historic environment</i> - Designated sites and settings</p> <p><i>Historic environment</i> - Archaeology</p> <p><i>Historic environment</i> - Historic landscape</p>
Air quality and transport	To protect, conserve and enhance air, water and soil quality, minimise light and noise pollution and land instability.	<p><i>Soil covered in 'land and water resources'</i></p> <p><i>Water covered in 'land and water resources'</i></p>
	To minimise traffic levels, journey lengths, the number of road traffic related accidents, and to encourage sustainable forms of transport in Derby and Derbyshire.	<p><i>Transport</i> – Export route</p> <p><i>Transport</i> - Capacity for sustainable travel</p> <p><i>Air quality/human health</i> – Proximity to AQMA</p>
Climatic factors and energy	To reduce contributions to climate change, by reducing greenhouse gas emissions, promoting efficient energy use and encouraging the use of renewable energy.	No criteria identified. Design and operation of sites can incorporate efficient uses of energy and renewable energy regardless of location.
	To limit vulnerability to flooding, taking account of climate change	<i>Water environment</i> - Flood risk
Communities and health	To protect, maintain and improve the health and well-being of Derby and Derbyshire's people and communities.	<p><i>Transport</i> - Safe and effective access to and from the site</p> <p><i>Duration of mineral extraction</i></p> <p><i>Transport</i> - Local amenity</p> <p><i>Nuisance dust</i> – Proximity to sensitive receptors</p> <p><i>Noise</i> - Proximity to sensitive receptors</p> <p><i>Visual intrusion</i> - Proximity to sensitive receptors</p>
Local employment and housing	To maximise the potential economic benefits of mineral operations and waste management to a sustainable economy in Derby and Derbyshire and other parts of the Country.	<i>Employment</i> – New and existing jobs

4.5 Hard Rock site assessment summary (December 2016 / January 2017)

- 4.5.1 The summary table below sets out the performance of each hard rock site option against each of the relevant site assessment criteria. Following publication of the Site Assessment Methodology in 2016/2017 the methodology was revised and the initial assessments updated. The revised methodology and reassessments form part of the Spring 2018 Consultation).

Site assessment criteria	Aldwark Proposition	Ashwood Dale	Mouselow	Parish Quarry	Whitwell
Biodiversity					
Ecology - existing impacts from mineral extraction	Yellow	Yellow	Yellow	Yellow	Green
Ecology - BAP priority species and habitats	Yellow	Green	Green	Green	Green
Ecology - Ecological coherence	Green	Green	Green	Yellow	Green
Ecology - Habitat creation	Green	Green	Green	Green	Green
Geodiversity - Geological and geomorphological features	Green	Green	Green	Green	Green
Land and water resources					
Soil - Best and most versatile agricultural land	Green	Green	Green	Green	Yellow
Water environment - Groundwater	Green	Green	Green	Green	Green
Water environment - Aquifer protection	Red	Red	Yellow	Yellow	Red
Waste and minerals					
Use of mineral resources	Green	Green	Green	Green	Green
Quality / Yield of minerals	Green	Green	Green	Green	Green
Existing Infrastructure - Is there existing infrastructure on site?	Green	Green	Green	Yellow	Green
Conservation of resources – Likelihood if site not allocated	Green	Green	Green	Yellow	Green
Location of site – Proximity to intended market	Green	Green	Green	Green	Green
Heritage and landscape					
Landscape - Strength of existing landscape character	Red	Yellow	Yellow	Yellow	Green
Landscape - Existing impacts from mineral extraction	Yellow	Yellow	Green	Yellow	Yellow
Landscape - Impact on the Peak District National Park	Red	Yellow	Green	Green	Green
Historic environment - Designated sites and settings	Green	Green	Green	Green	Green
Historic environment - Archaeology	Green	Green	Green	Green	Green
Historic environment - Historic landscape character	Yellow	Yellow	Green	Red	Green
Air quality and transport					
Air quality/human health – Proximity to AQMA	Green	Green	Green	Green	Green
Transport - Export Route	Green	Green	Green	Red	Green
Transport - Capacity for sustainable transport options	Yellow	Yellow	Yellow	Yellow	Yellow
Climatic factors					
Water environment - Flood risk	Green	Green	Green	Green	Green
Communities and health					
Transport - Safe and effective access to site	Green	Yellow	Green	Yellow	Green
Duration of mineral extraction	Red	Red	Green	Yellow	Yellow
Transport - Local amenity	Green	Green	Green	Yellow	Green
Nuisance dust – Proximity to sensitive receptors	Green	Yellow	Yellow	Green	Yellow
Noise - Proximity to sensitive receptors	Green	Yellow	Yellow	Yellow	Yellow
Visual intrusion – Sensitive receptors	Red	Yellow	Yellow	Red	Green
Local Employment and housing					
Employment – New and existing jobs	Green	Green	Green	Green	Green

4.6 Discussion of hard rock site performance

Whitwell

- 4.6.1 The site will have major positive effects with regards to the use of minerals and the efficiency of extraction.
- 4.6.2 The Whitwell site also performs well against most of the site assessment criteria. As an existing site, it has good access to markets, established infrastructure and transport links. However, the potential for sustainable transport modes is limited.
- 4.6.3 Whilst there could be a small loss of best and most versatile agricultural land and the site lies over an aquifer, the effects on the environment are mostly limited. There are positive effects recorded in relation to ecology due to the relatively insensitive nature of the site. The effects on landscape and heritage would also be mostly 'positive' as the character of the existing areas is already affected by previous workings and the site is also relatively well contained visually.
- 4.6.4 There are some potential noise and dust issues in parts of the sites that could affect sensitive receptors. However, it ought to be possible to implement appropriate mitigation.

Ashwood Dale

- 4.6.5 The site will have major positive effects with regards to the use of minerals and the efficiency of extraction. As an existing site, it has good access to markets, established infrastructure and transport links. However, the potential for sustainable transport modes is limited.
- 4.6.6 Though the extension would not be on best and most versatile agricultural land it demonstrates historic pastoral field patterns which contribute to the wider landscape character. The extension would also be visually intrusive in some locations and there could be dust and noise issues.
- 4.6.7 On the other hand, the ecological impacts are likely to be limited.

Mouselow

- 4.6.8 The site will have major positive effects with regards to the use of minerals and the efficiency of extraction. As an existing site, it also has good access to markets, established infrastructure and transport links. However, the potential for sustainable transport modes is somewhat limited.
- 4.6.9 The potential for effects on environmental factors is mostly limited in the context of the exiting workings. However, the extension could affect areas with some value for landscape and ecology. These issues ought to be possible to mitigate though.
- 4.6.10 In respect of amenity concerns, noise and dust could present minor issues, but the site should present safe and effective transport access.

New Parish Quarry

- 4.6.11 The site would have minor positive effects with regards to the use of minerals and efficiency of extraction. As a new site, there is no existing infrastructure or established access routes, but the creation of a new workings would lead to positive effects in terms of job creation.
- 4.6.12 As a new site in the countryside, there could be significant effects on landscape and amenity would likely be affected in terms of visual intrusion, traffic and noise. There is also potential for significant negative effects on the historic landscape.

Aldwark Brassington

- 4.6.13 The site would have major positive effects with regards to the use of minerals and the efficiency of extraction. As an existing site, it has good access to markets, established infrastructure and transport links. However, the potential for sustainable transport modes is somewhat limited.

- 4.6.14 The rural nature of the site means that potential dust and noise issues are less likely to affect sensitive receptors. However, there is potential for major negative impacts on landscape character, and visual intrusion, including in the Peak District National Park.
- 4.6.15 Though the effects on ecology are not anticipated to be significant, there is potential for priority species to be affected nearby.

5 APPRAISAL OF THE PROPOSED APPROACH

5.1 Introduction and methods

- 5.1.1 This section presents an appraisal of the Proposed Approach (as set out in Spring 2018) against the SA Framework. The effects have been determined through professional opinion, taking account of the current and projected baseline position for each SA Objective / Topic.
- 5.1.2 The effects have been identified taking into account a range of characteristics including: *magnitude, duration, frequency, and likelihood*. Combined, these factors have helped to identify the nature and significance of effects.
- 5.1.3 The appraisal considers cumulative effects, synergistic effects and how the different plan policies interact with one another. This is important as Plan policies should be read in the context of the whole plan, not just on their own. Nevertheless, a detailed appraisal of each individual plan policy is provided at **Appendix A** for completeness.

5.2 Summary of effects for the Proposed Approach

- 5.2.1 This section summarises and concludes upon the effects of the Plan against the eight sustainability themes.
- 5.2.2 Table 5.1 sets out a visual summary of the effects for each SA Topic. Table 5.2 complements this by setting out a discussion of the nature and significance of the effects.
- 5.2.3 Table 5.3 illustrates the nature of effects associated with all the individual policies within the Plan. Whilst the Plan needs to be viewed and appraised as a whole, having an understanding of the effects of specific policies allows for mitigation and enhancement measures to be identified. It can be seen that both positive and negative effects are predicted for some SA Topics.

Table 5.1: Significance 'score' for each SA Topic

SA Topic 1	SA Topic 2	SA Topic 3	SA Topic 4	SA Topic 5	SA Topic 6	SA Topic 7	SA Topic 8
Biodiversity Fauna and Flora	Land and water resources	Waste and minerals	Heritage and landscape	Air quality and transport	Climatic factors and energy	Communities and health	Local employment and housing
✘	✓ / ✘ / ?		✓ / ✘	✓		✘	✘

	The Plan is likely to have a significant positive effect .
✓	The Plan is likely to have a minor positive effect .
-	The Plan is likely to have a negligible / neutral effect .
✓ / ✘	The Plan is likely to have a mixture of positive and negative effects
✘	The Plan is likely to have a minor negative effect
	The Plan is likely to have a significant negative effect
?	It is uncertain what effect the Plan will have on the SA objective(s).

Table 5.2: Appraisal of the Proposed Approach 'as a whole'

1. Biodiversity, Fauna and Flora

The protection and enhancement of biodiversity, fauna and flora is considered across a number of policies throughout the Plan. In particular, the policies that support restoration / after-use are positive in terms of securing improvements to strategic green infrastructure in the longer term. This is furthered by policy DM5, which seeks to protect and achieve a net gain in biodiversity. Overall, this should lead to **significant positive effects** on biodiversity in the long term.

Whilst the nature of minerals development doesn't lend itself to protecting the natural environment as such, the Plan includes a range of policy measures to protect, maintain and enhance biodiversity. In the absence of the Plan, it is unlikely that such benefits would be generated.

There are likely to be **minor negative effects** upon biodiversity associated with site allocations / extensions to existing sites (for example Ashwood Dale and Mouselow). Whilst there is already disturbance in these areas, further working could lead to additional effects on biodiversity, as there are important habitats in these areas. With appropriate mitigation though, it is not anticipated that effects would be significant. Furthermore, a focus on existing sites will avoid disruption in areas that are currently unaffected by minerals workings.

2. Land and water resources

The Plan is predicted to have mixed effects on land and water resources.

On one hand, there is a range of policies which require the consideration and management of potential effects on environmental factors, including soil, water quality, flooding and land condition. Together, these policies ought to ensure that potential negative effects associated with minerals proposals can be managed appropriately.

Furthermore, the Plan explicitly seeks to improve the water environment and land through restoration and aftercare measures. Whilst the effects would only be likely to occur in the long term (potentially beyond the plan period), they are likely to be **minor positive effects**.

In addition, the policies that deal with coal may also have specific benefits for land as they could lead to remediation of contamination, land stabilisation and improved safety. A more restrictive approach to coal extraction would not present the same opportunities.

Conversely, the Plan supports a steady supply of mineral resources, which involves the proposed allocation of several sites. For Mouselow, there is likely to be a loss of agricultural land which would be difficult to return to its original condition. At sites identified for sand and gravel resources, there is potential for negative effects on the water environment given the proximity to watercourses, high water tables and presence of aquifers. Whilst these are recorded as **minor negative effects**, it should be acknowledged that development elsewhere would also be likely to have similar effects (and could occur in the absence of this Plan). Therefore, the effects are not significant.

The Plan offers flexibility in terms of enabling the extraction of all minerals should specific needs be identified. However, though the broad location of mineral resources is understood, it is not clear which particular sites would be proposed. Consequently, *uncertain effects* are predicted in this respect. It is not anticipated that there would be any significant effects though, as the Plan includes sufficient development management policies to guide and manage speculative proposals.

3. Waste and minerals

A key principle throughout the plan is to maintain a steady supply of a range of mineral resources in order to meet anticipated needs. The Plan also offers flexibility for sites to be worked should specific needs be identified and provided that any negative impacts are manageable.

Though the plan seeks to protect and enhance environmental resources, this is not considered likely to lead to a detrimental effect on the ability to extract important resources. Likewise, the need to protect community amenity should not be overly restrictive.

There is a focus on the extension of existing sites rather than entirely new workings, which is also positive with regards to waste and minerals by making the most out of existing infrastructure.

The Plan also takes a longer term view by seeking to protect mineral resources and associated infrastructure.

In combination, the effects upon the minerals industry and the protection of resources are predicted to be **significantly positive** in the longer term.

With regards to waste, a number of Plan policies seek to minimise waste generated through minerals working and also provide solutions for waste disposal where appropriate). Therefore, minor positive effects are predicted.

The Plan is not predicted to have any notable negative effects with regards to minerals and waste.

4. Heritage and landscape

The Plan is likely to have mixed effects on heritage and landscape.

The Plan generally seeks to protect and enhance the built and natural environment and certain policies directly support heritage by providing local materials that reflect the character of settlements.

Overall, there is a positive and proactive approach to the protection and restoration of the built and natural environment. However, due to the nature of development, negative effects will not be totally avoidable. Then again, the plan policies should help to ensure that the significance of effects is reduced and, in some cases, there may be positive effects (mostly in the longer term).

With regards to the strategy and key principles within the Plan, there is a focus on extensions to existing sites, and flexibility in determining further proposals for minerals development.

Where site extensions are proposed within Derbyshire, there is potential for negative effects (predominantly) on landscape. Extensions to existing sites are not predicted to generate the same degree of impact compared to new sites in unaffected areas. However, the nature of the environment where mineral resources are present means that there are still sensitive areas of landscape associated with site extensions. At the Mouselow site in particular, there are views from the Peak District National Park that need to be protected. Mitigation and enhancement measures detailed in site policies and broader Plan policies should help to ensure that potential negative effects are not significant though for this and other locations. Overall, **minor negative effects** are predicted, which are not permanent (given that restoration should return the landscape to its former condition (perhaps enhanced).

In some areas, such as the Peak District, **minor positive effects** on landscape and the character of settlements are likely as the plan continues to support reduced activity in the National Park. In the longer term, the approach to the restoration and after care of mineral sites should also lead to positive effects on the built and natural environment. The effects are considered more likely to be positive given the strategic approach to restoration.

5. Air quality and transport

The Plan is predicted to have mostly positive effects on transport and air quality. A number of policies are supportive of factors that would benefit the road network and ensure that air quality is protected. This includes measures which; encourage sustainable modes of transport, support smarter movement of minerals, locate workings close to markets/end users, and make the best use of existing infrastructure.

Focusing on extensions to existing works should also make the best use of existing infrastructure, and utilise established routes for transportation that largely avoid passing through towns and villages. Therefore, effects on the road network would be anticipated to be minor.

Though an increase in activity in existing locations of resource extraction would be likely, this would not be expected to have a negative effect on air quality as a result of additional vehicle movements. This is because the extensions would mostly be longer term schemes to maintain output from existing works (rather than adding cumulatively to the amount of activity at a particular site). Whilst there may be local impacts associated with works (e.g. increased dust), these ought to be possible to mitigate and are not considered likely to pose a significant issue for local communities.

Overall, a **minor positive effect** is predicted for transport and air quality. Whilst a range of policies are predicted to be positive, the in-combination effects are still not considered likely to lead to a significant change in the baseline condition. The Plan sets out positive principles and policies for encouraging sustainable transport, however, the realisation of such schemes and behaviour change is beyond the remit of this Plan alone.

6. Climatic factors and energy

Development typically leads to an increase in energy use, water use/disposal, and travel; which subsequently increase the amount of greenhouse gases that are emitted. It is important however to understand the context of the Minerals Plan, and that development would still be likely to occur in the absence of a Plan. Therefore the effects of the Plan are based upon how the form and distribution of development could have effects upon climate change, and whether this is more beneficial (or not) than the baseline position.

For this Plan, the proposed extensions at Whitwell, Ashwood Dale and Mouselow show overall **positive effects** (albeit minor); largely due to the fact they will be extensions of existing quarries and take advantage of existing infrastructure. This should reduce the need for new, energy consuming construction. However, in situations where cumulative effects could occur due to clusters of minerals works, the Plan could direct development away from areas that are well served by infrastructure, potentially have a **minor negative effect** with regards to emissions from transport.

In terms of climatic factors and energy use, Policy SMP3 is particularly pertinent and shows the intent and opportunities identified to achieve higher levels of sustainability. Of particular note, is the notion that unacceptably high levels of emissions could result in permissions being refused. This is likely to encourage more efficient and well-considered development having **significant positive effects** in the longer term with regards to energy and carbon emissions.

The Plan is also likely to have benefits in terms of flood management in the long term, as the restoration of sites encourages flood mitigation measures and natural drainage.

Whilst the use of fossil fuels is generally perceived as a negative activity with regards to climate change, it has benefits in terms of energy use. The Plan approach to the extraction of coal and other hydrocarbons strikes a balance between the need to encourage more sustainable forms of energy generation, and the need to improve energy security and maximise good opportunities for resource extraction. Therefore, the effects are predicted to be neutral in this respect.

Overall, the plan policies ought to contribute to a reduction in greenhouse gas emissions and improved resilience to the potential impacts of climate change. In combination, these constitute a **significant positive effect** on the baseline position. Though there could be some minor negative effects, these would be outweighed by the positives and the overall trends are anticipated to be positive.

7. Communities and health

The Plan is predicted to have mixed effects with regards to communities and health. On one hand, the extensions proposed to existing sites should continue to support communities that are well-connected to these workings. However, there may be short term impacts on amenity which affect wellbeing (SA7) in these areas for some residents.

The Plan should help to support the viability of certain local communities, thereby leading to the retention and / or provision of new jobs in the minerals industry itself, but also in companies along the supply chain. Benefits could be accrued by a range of communities, though these would mostly be clustered round areas traditionally known for minerals extraction. Given that access to employment is a positive contributor to good mental health and wellbeing, these are positive effects.

Conversely, a focus on site extensions, and directing growth away from the Peak District could lead to cumulative effects on certain communities with regards to amenity and the loss of recreational / green space whilst workings are operational. These are **minor negative effects**.

For some communities, including those in deprived areas, the lack of newly identified sites nearby may be viewed positively (from an amenity point of view) or negatively (in terms of fewer job opportunities).

In the longer-term, the restoration of sites ought to lead to improvements in the green and open space of an area, which can benefit health through the increased enjoyment of recreational facilities. However, this is dependent upon the quality of restoration and aftercare programmes.

Overall, a mixed effect is predicted. **Significant positive effects** are predicted to reflect the community benefits that ought to be secured at locations identified for extensions. However, the nature of development, could lead to cumulative negative effects on amenity whilst works are operational. This is a **minor negative effect** for some communities.

8. Local employment and housing

Overall, the Plan is predicted to have a **significant positive effect** with regards to employment and housing.

The spatial strategy and supporting principles promote the expansion of existing workings, which in principle should help to support the local communities that are reliant upon these sites (and future opportunities). Conversely, this approach may limit opportunities for communities in other locations, which is recorded as a **minor negative effect**.

The Plan seeks to ensure that a steady supply of a range of minerals are provided, which is vital to support the construction of new homes, infrastructure and other facilities. In combination the policies are therefore predicted to have a **significant positive effect** by helping to provide the resources needed to support the Governments growth agenda (for homes, economy and infrastructure).

The Plan also considers longer-term issues such as safeguarding mineral resources and infrastructure and land banks, which should also ensure that economic growth can be supported beyond the plan period and resources are not sterilised.

Although there are some **minor negative effects** recorded for policies that could be restrictive to growth e.g. safeguarding policies; these would not affect the broader achievement of economic growth and housing delivery.

Table 5.3: Summary of individual policy appraisal findings

Plan Policies	SA Topic 1	SA Topic 2	SA Topic 3	SA Topic 4	SA Topic 5	SA Topic 6	SA Topic 7	SA Topic 8
	Biodiversity, Fauna and Flora	Land and water resources	Waste and minerals	Heritage and landscape	Air quality and transport	Climatic factors and energy	Communities and health	Local employment and housing
SS1: Spatial Strategy	✓	✓	✓	✓	✓	✓	✓	✓ / ✗
SMP1: General Principles	✓	-	-	-	-	-	-	✓
SMP2: Economic, Social and Environmental Principles	✓	-	✓	✓	✓	✓	✓	✓
SMP3: Climate Change	✓	-	✓	✓	✓		-	✓
SMP4: Sustainable Transport Modes	-	-	✓	-	✓	✓	-	-
MS0: Secondary and recycled aggregates	-	-	✓	-	?	?	-	?
MS1: Supply of Sand and Gravel	-	-	✓	-	✓	-	-	✓
MS2: Allocations for Sand and Gravel Extraction	✗ / ✓	?	✓	✗	✓	-	✗ / ✓	✓
MS3: Other Sites for Sand and Gravel	-	-	✓	-	-	-	-	-
MS4: The Provision of Aggregate Crushed Rock	-	-	✓	-	-	-	-	-
MS5: The Provision of Sites for Aggregate Crushed Rock	✓	✓	✓	✓	-	-	-	-
MS6: Helping to Reduce Quarrying in the Peak District	✓	-	✓	✓	-	-	✗	✓
MS7: The Provision of Building Stone	-	-	✓	✓ / ?	-	-	-	-
MS8: Industrial Limestone Provision	?	?	✓	?	✓	-	-	-
MS9: Provision for cement making materials	?	?	✓	?	✓	✓	?	
SA1: Whitwell site allocations	?	?	✓	?	✓	-	?	✓
SA2: Ashwood Dale Site Allocation	✓ / ✗	✓ / ✗	✓	✓? / ✗	✓	✓	✓ / ✗	✓
MS10: Brick Clay Provision	-	-	✓	-	✓	✓	-	✓
SA3: Mouselow Site Allocation	✓ / ✗	✗	✓	✓? / ✗	✓	✓	-	✓
MS11: Stockpiling Brick Clay	-	-	✓	-	-	-	-	✓
MS12: Vein Minerals	-	✓	✓	-	-	-	?	-
MS13: Coal Extraction and Colliery Spoil Disposal Criteria	-	✓	✓	-	-	✓	?	✓
MS14: Reworking of Former Colliery Spoil Tips	-	✓	✓	-	-	✓	✓	✓
MS15: Assessment of the Benefits of Coal Mining Development	-	✓	✓	-	-	✓	?	✓
MS16: Incidental Coal Extraction	-	✓	✓	-	-	-	-	-
MS17: Proposals for Oil and Gas Exploration	✓	-	✓	-	-	✓	✓	-
MS18: Proposals for Oil & Gas Production & Ancillary Development	✓	-	✓	-	✓	✓	✓	-

Plan Policies	SA Topic 1	SA Topic 2	SA Topic 3	SA Topic 4	SA Topic 5	SA Topic 6	SA Topic 7	SA Topic 8
	Biodiversity, Fauna and Flora	Land and water resources	Waste and minerals	Heritage and landscape	Air quality and transport	Climatic factors and energy	Communities and health	Local employment and housing
MS19: Borrow pits	?	?	✓	?	✓	-	-	✓
MS20: Reworking of former colliery and other spoil tips	?	?	✓	?	?	?	?	✓
MS21: Incidental working of clay and other minerals	-	✓	✓	-	-	-	-	✓
MS22: Mineral Related Development	-	-	-	-	-	-	-	-
SG1: Safeguarding Mineral Resources	-	-	✓	-	-	-	-	-
SG2: Development within Mineral Safeguarding Areas	?	?	✓	?	-	-	?	✓ / ✗
CP1: Cumulative Impacts	✓	✓	-	✓	-	✗	✓	-
R1: Restoration and After-Use of Mineral Sites		✓	-	✓	-	✓		✓
R2: Emerging Approach for the Trent Valley Strategy		-	-	✓	-	-	✓	?
R3: Restoration of Carboniferous Limestone Quarries	✓	?	✓	✓	-	-	✓	?
DM1: Development Management Criteria	✓	✓	✓	✓	-	✓	✓	✓
DM2: Planning conditions and obligations	-	-	-	-	-	-	-	-
DM3: Transport	-	-	-	-	✓	✓	✓	-
DM4: Landscape and green infrastructure	✓	?	-	✓	-	-	✓	-
DM5: Biodiversity		-	-	✓	-	-	✓	-
DM6: Historic Heritage	-	-	-	✓	-	-	-	-
DM7: Water management	✓	✓	-	-	-	✓	✓	-
DM8: Extensions to sites	✗ / ✓	-	✓	✗ / ✓	✓	✓	✗ / ✓	✓
DM9: Bird strike management	✓	-	-	-	-	-	-	✓

5.3 Mitigation and enhancement

- 5.3.1 Where negative effects have been identified through the appraisal process, mitigation measures have been considered and recommended to help minimise such effects. Where enhancement is considered possible, appropriate measures have been recommended also.
- 5.3.2 It is important to note that mitigation and enhancement measures were considered at the alternatives assessment stage of the SA. The Council took these recommendations into consideration when drafting the Plan strategy and supporting policies.

Recommendations made during policy development

Economic, social and environmental principles for minerals development:

- 5.3.3 It was recommended that the policy should take a more proactive approach to biodiversity enhancement by making reference to the need to mitigate effects as far as possible, followed by compensation and/or enhancement.

Hydrocarbons

- 5.3.4 The draft list of assessment criteria was likely to ensure that most aspects of environmental sustainability are addressed. However, it was suggested that soil resources should be included on this list, as there may be potential for the loss of high quality agricultural land.

Safeguarding mineral resources

- 5.3.5 The SA of the emerging approach suggested a more flexible approach to protection dependent upon the scarcity of mineral resources and their 'importance'. The revised policy took this into account by identifying that safeguarded areas for some minerals will be more selective; involving the land around existing workings.

Sustainable transport of minerals

- 5.3.6 It was suggested to include a clause that requires development proposals to demonstrate a need for virgin minerals in the immediate area and a lack of supply from other areas that are closer / more easily reached by sustainable modes of transport (particularly where there are longer distances involved to end markets).

Vein minerals

- 5.3.7 It was suggested that a criterion could be added to the list of assessment criteria to help ensure that local communities benefit from employment opportunities in the minerals industry.
- 5.3.8 Given that it can be difficult to find suitable sites for vein minerals extraction and demand fluctuates widely - it was suggested that it may be appropriate to allow development without the need to demonstrate there is demand for the mineral. Scale and methods of working could still be included in a criteria-based policy.

Industrial Limestone

- 5.3.9 It was suggested that it may be beneficial to allocate likely areas for extraction of minerals of national importance. This would ensure that there is certainty about supply well in advance.

Mineral safeguarding areas

- 5.3.10 It was suggested that the approach to safeguarding could be made more flexible by offering different levels of protection according to the scarcity of mineral resources and where the cumulative impacts of previous developments could lead to an unacceptable loss of resources.

Further recommendations

- 5.3.11 The Plan has been positively prepared and taken account of sustainability factors upfront as an integral part of the process. Consequently, few negative effects have been identified.
- 5.3.12 Though there are some minor negative effects remaining, no mitigation measures have been identified as these are residual or unavoidable effects (for example, it is inevitable that there will be some degree of landscape change as a result of a large scale minerals site).
- 5.3.13 Therefore, only one recommendation for enhancement remains at this stage.

Table 5.4: Further recommendations

Identified effects	Recommendations
<p>Policy SMP2 which sets out key environmental principles does not mention potential impacts on soil.</p> <p>Furthermore, site allocation SA3 would lead to the loss of agricultural land. There is no policy measure in the Policy or elsewhere in the plan to offset / compensate for this loss.</p>	<p>Though the loss of agricultural land is difficult to compensate for, it would be useful to provide a positive policy framework regarding its protection, mitigation and enhancement at a strategic level (<i>Given that policy SMP2 seeks to achieve an appropriate balance between economic, social and environmental factors</i>).</p> <p>Agricultural land quality ought to be a factor taken into consideration in the determination of appropriate sites for mineral extraction. This is alluded to within policy DM1, but not as a strategic principle.</p> <p>Where feasible, extraction should avoid high quality land, and be avoided where suitable lower quality alternatives exist. Any affected land should be returned to productive agricultural use. Should this not be possible, it would be beneficial to support agricultural land protection / enhancement off-site.</p>

5.4 Monitoring

- 5.4.1 There is a need to set out measures to monitor the significant effects associated with the Plan. At this stage, the Plan has not been finalised, and therefore the effects are not certain. However, it is useful to set out some potential indicators for consultation purposes. Table 5.5 below sets out the significant effects identified for the Proposed Approach, with associated monitoring measures identified at this stage.
- 5.4.2 These monitoring measures may need to be amended in light of the effects identified in the Proposed Submission Version of the Plan.
- 5.4.3 Monitoring measures must be finalised and included within an SA Statement once the Plan is adopted.

Table 5.5: Draft monitoring measures for significant effects

Significant effects identified	Potential monitoring measures
<p>Biodiversity</p> <p>Significant positive effects are predicted relating to the long term benefits associated with restoration and the principle of a net gain in biodiversity.</p>	<p>To monitor whether significant positive effects are achieved in reality, the following measures are proposed:</p> <ul style="list-style-type: none"> • Net gain/loss in biodiversity • Restoration scheme progress
<p>Minerals and waste:</p> <p>A key principle throughout the plan is to maintain a steady supply of a range of mineral resources in order to meet anticipated needs. The Plan also offers flexibility for sites to be worked should specific needs be identified. Therefore significant positive effects are predicted.</p>	<p>To monitor whether significant positive effects are achieved in reality, the following measures are proposed:</p> <ul style="list-style-type: none"> • Performance against land bank targets. • Performance against mineral supply targets/projections.
<p>Climatic factors and energy:</p> <p>The Plan seeks to ensure that proposals do not lead to unacceptably high levels of emissions. This is likely to encourage more efficient and well-considered development having significant positive effects in the longer term with regards to energy and carbon emissions.</p>	<p>To monitor whether significant positive effects are achieved in reality, the following measures are proposed:</p> <ul style="list-style-type: none"> • Emissions generated by minerals facilities (on site and transportation).
<p>Communities and health</p> <p>Significant positive effects are predicted to reflect the community benefits that ought to be secured at locations identified for extensions (for example job maintenance / creation, and enhancements to open space in the longer term).</p>	<p>To monitor whether significant positive effects are achieved in reality, the following measures are proposed:</p> <ul style="list-style-type: none"> • Number of new jobs benefiting nearby communities (i.e. within a 10mile radius). • Amount and type of recreational facilities secured through restoration (actual schemes as well as agreements secured for the longer term).

Significant effects identified	Potential monitoring measures
<p>Economy and housing:</p> <p>The Plan seeks to ensure that a steady supply of a range of minerals are provided, which is vital to support the construction of new homes, infrastructure and other facilities. In combination the policies are therefore predicted to have a significant positive effect by helping to provide the resources needed to support the Governments growth agenda (for homes, economy and infrastructure).</p>	<p>To monitor whether significant positive effects are achieved in reality, the following measures are proposed:</p> <p>It is difficult to measure effects upon the delivery of housing and economic growth.</p>

6 NEXT STEPS

6.1 Next Steps

- 6.1.1 The Councils are inviting comments on assessments of further sand and gravel site options that have been undertaken since the Spring 2018 consultation.
- 6.1.2 Following consultation, the Councils will take account of feedback before preparing a Pre-Submission version of the Plan that will be the subject of further consultation. Further SA work will be undertaken to support this next stage of plan making. Principally, this will mean updating the appraisal of the draft Plan to reflect any changes to the proposed approach and supporting policies.
- 6.1.3 At this stage a full SA Report will be prepared which sets out an appraisal of the Plan.
- 6.1.4 The SA Report must build upon the interim SA Reports and contain all the information required by the SEA Regulations; namely relating to:
- Scoping
 - Consideration and appraisal of alternatives
 - Outline reasons for selecting the preferred approach(es) in light of reasonable alternatives.
 - An appraisal of the Plan
 - Discussion of how the SA has influenced the plan making process.
 - Mitigation and enhancement measures
 - Monitoring
- 6.1.5 The SA Report must be consulted upon alongside the Pre-Submission Plan.
- 6.1.6 Finally a Submission Version of the Plan will be published.
- 6.1.7 Once the Plan is submitted for Examination, it is likely that further SA work will be necessary in response to any changes / modifications to the Plan.
- 6.1.8 Following Adoption an SA Statement must be prepared which sets out a summary of the SA process, how it has influenced the Plan's development and also finalises monitoring measures.

Appendix A: Appraisal of the Proposed Approach (Spring 2018)

Strategy	SA Topic 1	SA Topic 2	SA Topic 3	SA Topic 4	SA Topic 5	SA Topic 6	SA Topic 7	SA Topic 8
Strategic Policies Spatial Strategy	Biodiversity , Fauna and Flora	Land and water resources	Waste and minerals	Heritage and landscape	Air quality and transport	Climatic factors and energy	Communities and health	Local employment and housing
SS1: Spatial Strategy	✓	✓	✓	✓	✓	✓	✓	✓/✗
SMP1: General Principles	✓	-	-	-	-	-	-	✓
SMP2: Economic, Social and Environmental Principles	✓	-	✓	✓	✓	✓	✓	✓
SMP3: Climate Change	✓	-	✓	✓	✓		-	✓
SMP4: Sustainable Transport Modes	-	-	✓	-	✓	✓	-	-

Discussion

The spatial strategy is predicated on the following key principles: a preference for extensions to existing sites; making the most of secondary materials; locating workings where sustainable modes of transport can be utilised; avoiding unacceptable impacts on the environment and reducing the effects of transport through villages; early consideration of restoration and aftercare with a focus on securing environmental and community benefits. The spatial principles are positive with regards to a range of sustainability factors. With regards to a focus on existing sites, this ought to ensure that effects are limited to areas where minerals workings are already established (thereby protecting unaffected areas). Though this could increase the risk of cumulative impacts on environmental and community receptors, there is also a need to ensure that environmental and amenity impacts are not unacceptable and that enhancements are secured through restoration. Consequently, a minor positive effect is predicted overall for SA1, SA2, SA4 and SA7. With regards to air quality and transport (SA5) and climatic factors and energy (SA6) the policy seeks to direct growth towards locations that support sustainable transport of materials. This is also positive and ought to make positive use of existing infrastructure.

The spatial strategy is unlikely to prevent the achievement of a stable and supply secure of minerals, and thus effects on minerals are likely to be positive also. Likewise, a positive effect is predicted for waste due to the focus on secondary materials where possible (SA3). With regards to employment, the strategy is likely to support the retention of existing jobs and economic activity in areas where minerals workings are currently located. This is positive in one respect, as it helps to provide security in these local economies. However, it may prevent the establishment of jobs and economic activity in other locations. On balance mixed effects are predicted for the economy (SA8). Though mostly positive effects are predicted across the range of sustainability factors, none of these are predicted to be significant as a result of this policy in isolation. It does however present the framework for further plan policies to build upon these spatial principles.

Whilst policy SMP1 sets a positive framework for the achievement of sustainable minerals development, it essentially repeats national principles, which it is expected would be delivered through a Minerals Plan anyway. Therefore, in isolation, this policy is unlikely to have any significant effects upon the majority of sustainability factors. Notwithstanding this, the strong emphasis placed upon ensuring that developments come forward (without delay) ought to be positive with regards to waste and minerals (SA3) and the economy (SA8).

Policy SMP2 is likely to have a **positive effect** upon minerals and waste development (SA3), as it is generally supportive of development if reasonable requirements are met. Maintaining a steady supply of minerals is a key element to the policy, which will help to ensure that economic development is supported both locally and nationally (SA8). The policy seeks to protect communities, as well as heritage and landscape character, which ought to generate **positive effects** for these factors. The effects on biodiversity are also likely to be **positive effects** as the policy seeks to protect designated and non designated habitats and species. The policy also provides the framework for offsetting impacts through mitigation measures during working, restoration and aftercare. This could (and usually does) involve habitat enhancement measures. With regards to transport, air quality and emissions, the policy encourages alternatives to road travel, which ought to help reduce emissions from transport and reduce the impact of heavy goods vehicles on the local transport network. Therefore, **positive effects** are predicted for SA5 and SA6.

The policy does not allude to potential effects on soil, air or water resources. Though these issues would typically be picked up in an EIA (and are addressed in other plan policies), it would be useful to provide a positive policy framework regarding their protection, mitigation and enhancement (*Given that this policy seeks to achieve an appropriate balance between economic, social and environmental factors*). As the policy stands, a **neutral effect** is predicted for SA2.

Policy SMP3 is likely to have a positive effect on a number of sustainability factors. Primarily, the requirement for developments to minimise greenhouse gas emissions, consider low carbon energy generation and carbon offsetting measures should have a **positive effect** on energy and climate change. The policy also seeks to manage flood risk on and offsite, which is positive for climate change (SA6). Of particular note, is the notion that unacceptably high levels of emissions could result in permissions being refused. This is likely to encourage more efficient and well-considered developments that could lead to **significant positive effects** in the longer term with regards to climate change and energy (SA6).

Encouraging efficient reuse and recycling of materials as well as smarter transportation of materials should also have positive effects on minerals and waste (SA3), air quality (SA5) and transport (SA5). In some instances, it may be possible to contribute to increased resilience to climate change (for example improving habitat connectivity, and managing flood risk). The policy is likely to have **positive effects** in this respect as it encourages such measures and the need to consider strategic linkages in green infrastructure.

Landscape character, quality and resilience to a changing climate are also likely to benefit, because ecological enhancement measures ought to be complementary to the character of the surrounding landscapes. Consequently a **minor positive effect** is predicted for SA4.

Though the policy will lead to safer environments with regards to flood risk, the effects on communities are not considered to be significant. The local economy ought to benefit from improved efficiency and the encouragement of low carbon energy and carbon offsetting should help to support these economic sectors. A **minor positive effect** is predicted for SA8.

Given the reliance upon existing transport networks, and the relationship between current minerals sites / resources and the end market, it is acknowledged that the dominant mode of travel going forward is likely to be road transport. Rail and water transport can be expensive to implement the required infrastructure, and so they only tend to be utilised for high value materials and / or longer distances. In this respect, Policy SMP4 (though positive in its intention) is unlikely to have significant effects upon air quality and transport or climatic factors. However, the policy is positive and should ensure that possibilities to reduce transport and to source alternative methods of transport have at least been evaluated at a high level. There is little detail in the policy and no firm requirement, so the likelihood of positive measures being implemented is mostly dependent upon market factors.

The effects on communities are likely to be **neutral**. Whilst reduced road transport ought to benefit communities in terms of amenity and congestion there is no explicit mention of safety measures or routing, and so significant effects are unlikely.

With regards to environmental factors such as biodiversity, heritage and landscape, the effects are in all likelihood going to remain the same, because existing routes are expected to remain the most suitable and most utilised. Therefore, a **neutral effect** could be expected. In the instance that the policy leads to more sustainable modes of travel (rail or water) there may be a potential for increased effects on water environments, or biodiversity, but these effects could likely be managed. In addition, transport of minerals by pipeline could have effects on soil, water and biodiversity. Conversely, a reduction in road transport of minerals would have **positive effects** for air quality, communities and health.

Minerals Supply	SA Topic 1	SA Topic 2	SA Topic 3	SA Topic 4	SA Topic 5	SA Topic 6	SA Topic 7	SA Topic 8
Secondary Materials	Biodiversity , Fauna and Flora	Land and water resources	Waste and minerals	Heritage and landscape	Air quality and transport	Climatic factors and energy	Communities and health	Local employment and housing
MS0: Secondary and recycled aggregates	-	-	✓	-	?	?	-	?

Discussion

Policy MS0 sets out the approach to the preferred types of locations for secondary and recycled aggregates facilities. The types of location preferred are less likely to have a negative effect on visual amenity as they are mostly associated with existing works and industrial areas. The policy also makes it clear that unacceptable effects on local communities must be avoided. Consequently, the overall effects on communities and health (SA8) are predicted to be neutral. Likewise, there is a requirement to ensure that environmental factors are taken into account, and the preferred locations are less likely to support sensitive biodiversity habitats. Therefore, new facilities are unlikely to have a negative effect on biodiversity (SA1), land and water resources (SA2) and the built and natural environment (SA4).

With regards to transport and traffic, it is difficult to determine effects without knowing the precise location of facilities. However, the general support given to development close to existing waste facilities should help to reduce the need for new infrastructure and the distances that materials are transported. A minor (but uncertain) positive effect (SA6) is predicted, but this is uncertain. Similarly, a reduction in greenhouse gas emissions would be achieved should the policy lead to development of secondary aggregates facilities. This could be in terms of a reduction in the use of virgin materials, but also as a result of transport being able to make use of existing and efficient infrastructure.

Supporting facilities for secondary and recycled aggregates and providing a steer as to the most appropriate locations should be helpful to the waste and recycling industry, and could therefore help to support an increase in the use of secondary aggregates. This should have positive effects with regards to a reduction in the need for extraction and a decrease in waste being disposed of (SA3). However, a significant effect is unlikely as the policy does not set strict requirements for the use of secondary aggregates.

The effects on housing are unlikely to be significant as the preferred locations are unlikely to be suitable for housing so there would not be competing land use issues. A minor positive effect could be achieved with regards to the economy (SA8) by helping guide potential developers to suitable locations for recycling facilities (which employ local people).

Minerals Supply	SA Topic 1	SA Topic 2	SA Topic 3	SA Topic 4	SA Topic 5	SA Topic 6	SA Topic 7	SA Topic 8
Sand and Gravel	Biodiversity, Fauna and Flora	Land and water resources	Waste and minerals	Heritage and landscape	Air quality and transport	Climatic factors and energy	Communities and health	Local employment and housing
MS1: Supply of Sand and Gravel	-	-	✓	-	✓	-	-	✓
MS2: Allocations for Sand and Gravel Extraction	✗ / ✓	?	✓	✗	✓	-	✗ / ✓	✓
MS3: Other Sites for Sand and Gravel	-	-	✓	-	-	-	-	-

Policy MS1 seeks to ensure a steady and adequate supply of sand and gravel by making provision for its extraction, maintaining a landbank of at least 7 years and prioritising proposals that seek to extend existing operations ahead of new sites. The policy is therefore likely to have a **minor positive effect** on waste and minerals, as it proposes a steady supply appropriate to demand which should also avoid an unhealthy oversupply of minerals and negative effects upon natural resources (SA topic 2).

A minimum 7 year landbank should further safeguard supply and the local employment and economy that this sector supports (SA topic 8). Although there is a preference for the extension of existing sites, the policy does not rule out new sites if they can be demonstrated to be sustainable. The preference applied to existing sites is likely to have mixed effects. It should ensure that new development is located in accessible locations (SA topic 5) with good existing infrastructure and sustains the existing employment at the site (SA topic 8). However, continued extraction at existing sites could also exacerbate or cause new adverse effects on biodiversity, land and water resources and heritage and landscape (SA topics 1, 2 and 4). Equally, though such effects would be avoided from potentially alternative new locations for minerals working.

Policy MS2 allocates land for the extension of the Willington and Swarkestone Quarries under conditions that they can only be worked following the cessation of operations on the existing site. Policy MS3 restricts development outside these allocated areas unless a specific identified shortfall in the landbank can be demonstrated. A **minor positive effect** on waste and minerals (SA topic 3) and employment (SA topic 8) is predicted as the allocated sites should secure a stable and steady supply of sand and gravel while measures to demonstrate need on non-allocated sites should avoid an oversupply and the creation of negative effects on environmental and social receptors in currently unaffected areas.

The allocated sites also benefit from good existing transport infrastructure and existing markets are within relatively close proximity (SA topic 5). These are positive effects for SA Topic 5, but the likely mode of transport would be by road, so these would not be significant positive effects. Development on these sites should support the retention of existing jobs which is a minor positive effect with regards to the number of jobs involved (SA topic 8).

The proximity of these sites to nearby settlements is likely to have **minor negative effects** with regards to amenity, visual intrusion and transportation (SA topic 7). However, given that the overall output from the sites would not be expected to increase substantially, the level of traffic movements and minerals extraction activities would be anticipated to be similar to the existing works. This ought to ensure that adverse effects on communities are not significantly different to the baseline position. In the longer term (beyond the plan period) when restoration of the sites is implemented, there ought to be benefits for communities should land be created with recreational value.

A potential **minor negative effect** is predicted on biodiversity due to the presence of BAP species at Willington Quarry and a possible severance of ecological networks. The strength of the landscape character in this area may also lead to negative effects on landscape and heritage features. There are also potential **minor negative effects** upon biodiversity and the visual amenity of landscape at Swarkestone. In the longer term, it is likely that the voids created by working will be filled with water (due to a high water table at sand and gravel sites). This ought to have **positive effects** in the longer term with regards to creating habitats for biodiversity.

Given the close proximity of sand and gravel sites to water resources (For example the River Trent), there is potential for negative effects upon water including in watercourses and groundwater. Extraction of water could potentially have detrimental effects on groundwater during the operation of the workings. Though the areas are not within groundwater protection zones, they are in areas of 'intermediate' vulnerability. Whilst there should be requirements in place through environmental permitting to ensure that pollution incidents do not occur, an **uncertain (negative) effect** is predicted for SA topic 2 to reflect these potential issues. The majority of land involved is either Grade 4 or 3 agricultural land, which is not considered to be a significant loss.

With regards to the effects of non-allocated sites that may come forward during the plan period (MS3), this is heavily dependent upon site location, and so effects are difficult to predict at this stage. However, the preference for extension to existing sites (and at the allocated sites as a priority) ought to ensure that adverse effects on social and environmental factors are avoided.

Minerals Supply	SA Topic 1	SA Topic 2	SA Topic 3	SA Topic 4	SA Topic 5	SA Topic 6	SA Topic 7	SA Topic 8
Hard Rock	Biodiversity, Fauna and Flora	Land and water resources	Waste and minerals	Heritage and landscape	Air quality and transport	Climatic factors and energy	Communities and health	Local employment and housing
MS4: The Provision of Aggregate Crushed Rock	-	-	✓	-	-	-	-	-
MS5: The Provision of Sites for Aggregate Crushed Rock	✓	✓	✓	✓	-	-	-	-
MS6: Helping to Reduce Quarrying in the Peak District	✓	-	✓	✓	-	-	×	✓
MS7: The Provision of Building Stone	-	-	✓	✓ / ?	-	-	-	-
MS8: Industrial Limestone Provision	?	?	✓	?	✓	-	-	-
MS9: Provision for cement making materials	?	?	✓	?	✓	✓	?	
SA1: Whitwell site allocations	?	?	✓	?	✓	-	?	✓
SA2: Ashwood Dale Site Allocation	✓ / ×	✓ / ×	✓	✓? / ×	✓	✓	✓ / ×	✓

Policy MS4 seeks to maintain the provision for the production of aggregate crushed rock throughout the plan period at a rate in accordance with the most recent Local Aggregate Assessment and a landbank of at least 10 years. This is therefore a continuation of the current baseline, which means the effects upon most aspects of sustainability are likely to be **neutral**. For waste and minerals a **positive effect** is predicted (SA topic 3) as the policy will support the sector to meet existing demand but ensure that mineral resources are protected from excessive extraction.

Policy MS5 aims to restrict new provision of sites for Aggregate Crushed Rock unless there are overriding benefits of such schemes. This ought to have a **positive effect** on minerals (SA3) as it will maintain a steady landbank without leading to unnecessary extraction of resources.

As the policy seeks to encourage the utilisation of existing permitted reserves ahead of extensions to existing sites or entirely new sites, the environmental and social impacts associated with workings ought to be limited mostly to the existing sites (and therefore the potential for additional effects is unlikely). As these sites are already being worked and have already generated negative effects, further working on these sites are unlikely to generate significant further impacts compared to site extensions and new sites that are likely to have not already been negatively affected.

The policy does allow some flexibility for extensions or new operational sites, which means that there could be adverse effects on communities (SA topic 7) and environmental factors (SA1, SA2, SA4, SA5, SA6). However, mitigation measures and social infrastructure improvements are sought such as recreational and community facilities. The policy should therefore help to limit and offset adverse effects and therefore a **minor positive effect** is predicted.

The effects on employment are predicted to be **neutral** given that the level of aggregate provision (and economic activity) is likely to remain relatively unaffected by this policy.

Site allocation SA1 is related to MS4, MS5 and MS8 because extensions to Whitwell Quarry will contribute to additional industrial and aggregate limestone reserves. The policy states that activity must make use of existing infrastructure unless there are significant benefits in alternative arrangements. This should help to minimise disruption associated with the development of new infrastructure and is positive for transport and air quality (SA5).

There is also a preference for new works to start after existing works have stopped, which ought to ensure that the overall levels of activity (and therefore potential cumulative impacts) remain similar. Nevertheless, there are potential environmental and community effects associated with the extensions that would need to be managed. This includes effects on groundwater, proximity to Creswell Crags, landscape character and local amenity. Given that the extensions to Whitwell already have planning permission in principle; the effects of this policy are not considered to be significant as development is likely to take place anyway. However, the policy does provide a longer term steer should the sites not come forward and also provides a steer with regards to phasing. Section 106 agreements will be implemented to manage environmental and community effects, but at this stage, an **uncertain effect** is recorded to reflect the potential issues relating to biodiversity (SA1), water quality (SA2) and landscape (SA4). **Positive effects** are recorded for the economy (SA8) and minerals (SA3) because the site is an important source of local employment and a nationally important source of minerals. Therefore, ensuring that these extensions are able to come forward is positive (but not significant given that they should come forward anyway).

Site allocation SA2 involves primarily industrial limestone at an extension to Ashwood Dale Quarry. The policy sets the same requirements as SA1 relating to the phasing of workings and the use of existing infrastructure and site access arrangements. This should have positive effects on the local economy (SA8), waste and minerals (SA3) and transport (SA5) and emissions (SA6). There is potential for negative effects on environmental factors though, including biodiversity habitats and species associated with Cunning Dale and Ashwood Dale and links between. Though workings here could potentially cause disturbances to biodiversity during working, other plan policies ought to ensure that effects can be mitigated and in the long term there are opportunities to secure enhancements. Therefore, the effects at this stage are predicted to be both **positive** and **negative**. The same is the case for landscape character and visual amenity, though it may be more difficult to secure an effective restoration strategy. Therefore, there are uncertainties associated with the potential longer term positive effects. With regards to community impacts, the proximity of the site to residential areas (existing and proposed development) could generate adverse effects, but there is a buffer zone agreed that should mitigate effects to an extent. The loss of recreational and amenity value in the short term is still likely to occur, having negative effects on health and wellbeing (SA7), but longer term **positive effects** ought to be achieved through restoration.

Policy MS6 seeks to compensate for the reduction of quarrying activity in the Peak District National Park by allocating additional capacity for aggregate crushed rock in the plan area. This would have a **positive effect** on biodiversity (SA topic 1) and heritage and landscape (SA topic 4) as the policy supports the gradual shift of mineral extraction from a designated conservation area to less environmentally sensitive locations in Derbyshire. Although the effects on the environment within Derbyshire would be likely to increase, these ought to be of a lower magnitude (though this would also be dependent on the location of alternative extraction sites). Allocating additional capacity in Derbyshire to compensate for reduced output in the Peak District should safeguard production output across the region and help to maintain employment in the industry. Reduced output and job losses in the national park are set to occur regardless of Policy MS6. However, measures in this policy should counterbalance supply and safeguard / deliver new jobs in Derbyshire. A **neutral effect** is predicted on land and water resources, air quality and climatic factors. A minor **negative effect** is predicted on communities and health, as additional mineral extraction is likely to have more notable or prolonged effects on communities already experiencing negative effects. However, measures outlined in Policy MS5 should help to ensure these issues are minimised.

Policy MS7 does not allocate site for the supply of building stone but does include a criteria policy against which to assess sites that do come forward and thus is flexible and will allow sites to come forward, subsequently having a **positive effect** on the supply of minerals (SA topic 3). Some of the existing building stone quarries are located close to the Peak District National Park and extensions to these sites or additional sites within its vicinity may have a negative effect upon its setting. Similarly, new sites in Derbyshire may also have a negative effect on landscapes and the historic environment. However, it would not be appropriate to restrict all working of building stone, and so these effects are not attributable to Policy MS7 as such. Any effects would also be site specific and thus are uncertain at this stage too.

The positive contribution the supply of locally distinctive building stone will make towards maintaining the character of buildings, settlements and heritage assets in Derby and Derbyshire equates to a **positive effect** overall for SA4. The policy is predicted to have a neutral effect on communities and health as it requires any adverse impacts to be satisfactorily addressed. Although it is possible that some minor negative effects may still occur, these are not attributable to the policy, rather the act of minerals

workings per se. The small scale of operations supported by the policy is likely to be insufficient to support improvements to the local transport network to accommodate the additional traffic. However, any effects would only be small scale and temporary in that they would only last the duration of any extraction on site. Therefore, neutral effects are predicted.

Policy MS8 supports proposals for the extraction of industrial limestone where a need can be demonstrated and the recovery of the mineral is maximised to meet the identified need. A **positive effect** on minerals provision (SA topic 3) is predicted as the policy should allow for the extraction of industrial limestone where specific needs arise. The current permitted reserves are considered sufficient to provide a degree of certainty of generic supply, whilst specific needs could be addressed through additional allocations or permissions assessed against the criteria based policies of the Plan.

With regards to environmental impacts (SA topics 1, 2, 4) an **uncertain negative effect** is predicted as the policy does not propose measures to mitigate any adverse environmental effects associated with new developments or allocations. The location of mineral reserves is fairly limited spatially, with most resources being identified on the fringes of the Peak District National Park. Therefore, there is potential for negative effects upon landscape character, biodiversity and land and water resources in these sensitive locations. However, effects would not be anticipated to be significant given that the majority of resources would be met through commitments and other plan policies would need to be taken into account in the planning process. The effects could be predicted to be neutral should there be a more explicit reference to the need for development to be located in areas of least environmental sensitivity (should the required resources be available in a number of locations).

The effects upon communities and health (SA topic 7) are predicted to be **neutral**. Limestone reserves are limited in the Derbyshire area and are concentrated along the border with the Peak District National Park in and around Buxton and Matlock. With the exceptions of these towns, these areas are sparsely populated and thus an adverse effect of additional quarrying activity is less likely to affect a substantial amount of people (beyond the baseline position). These areas also have good road (A and B roads) and some rail access from the Buxton area for the movement of minerals, thus having **neutral effects** on transportation and helping to manage emissions from transport (SA topics 5 and 6).

Policy MS9 is supportive of works for cement making materials if there is a particular need and / or to maintain an appropriate landbank. The policy is relatively flexible in the provision of additional workings whether these are extensions to sites or new sites with good links to market. This should ensure a steady and appropriate supply of resources for construction activities, having a **positive effect** for SA3 and a **significant positive effect** with regards to SA8, by providing the resources needed to support the Governments growth agenda (for homes, economy and infrastructure). By requiring close links to existing markets / cement making facilities, the length of trips and emissions from transport ought to be minimised, and therefore **minor positive effects** are predicted for SA5 and SA6 (by controlling development in less 'accessible' locations). With regards to environmental and social effects upon communities, the policy is predicted to have uncertain effects. There is no explicit requirement for developments to consider the environmental and social effects of extension or new sites. Therefore, whilst other plan policies (which consider environmental factors and community impacts) will still need to be satisfied, there is a degree of uncertainty for SA1, SA2, SA4 and SA7.

Minerals Supply	SA Topic 1	SA Topic 2	SA Topic 3	SA Topic 4	SA Topic 5	SA Topic 6	SA Topic 7	SA Topic 8
Brick Clay	Biodiversity , Fauna and Flora	Land and water resources	Waste and minerals	Heritage and landscape	Air quality and transport	Climatic factors and energy	Communities and health	Local employment and housing
MS10: Brick Clay Provision	-	-	✓	-	✓	✓	-	✓
SA3: Mouselow Site Allocation	✓ / ✗	✗	✓	✓? / ✗	✓	✓	-	✓
MS11: Stockpiling Brick Clay	-	-	✓	-	-	-	-	✓

Discussion

Policies MS10 and MS11 support proposals for the extraction of Brick Clay where a need can be demonstrated at a brick works or clay products manufacturing site, where it would contribute towards the maintenance of a 25 year landbank or is required to achieve a particular blend, chemical or physical composition. Policy MS11 also seeks to ensure that stockpiling is undertaken sustainably and does not significantly delay the reclamation of the site. A **positive effect** is predicted for the supply of minerals (SA topic 3) as the policies aim to support the sustainable supply of Brick Clay by maintaining a 25 year stock of permitted reserves and by allowing additional sites where a commercial need can be demonstrated. This should also safeguard existing employment within the local quarrying and clay products manufacturing industries and enable the sector to adjust to commercial demands (SA8). The policies do not allocate sites, but do set the principle extensions to existing sites (in timings or physically) are preferable to new minerals workings. This should help to minimise the potential for negative environmental and social effects elsewhere. The need to demonstrate that extraction sites are located as close as possible to their uses should help to ensure that there are no major increases in traffic or emissions associated with clay extraction. Consequently, a **minor positive effect** is predicted for Air quality and transport (SA5) and climate factors (SA6).

Policy SA3 is linked to MS10 and MS11 as it relates to an extension at Mouselow Quarry for high quality brick-making shale. There are pre-application discussions already underway, and so some of the issues associated with the site are understood and being explored further. There is likely to be positive effects regarding minerals and the efficiency of extraction, and as an existing site there is good access to markets, established infrastructure and transport links. This ought to have **positive effects** with respect of air quality, transport and carbon emissions (SA5 and SA6), but the potential for sustainable transport modes is somewhat limited, and so benefits would not be significant. The potential for effects on environmental factors is mostly limited in the context of the existing workings. However, the extension could affect areas with some value for landscape and ecology. These issues ought to be possible to mitigate through the application of other plan policies, but minor negative effects are likely to remain in relation to views from the Peak District National Park. In the longer term, restoration should lead to enhancement of biodiversity, but it may be more difficult to achieve enhancement with relation to landscape character.

In respect of amenity concerns, noise and dust could present minor issues, but the site should present safe and effective transport access and not lead to significant effects on communities. The policy is **positive** with regards to mineral provision (SA3) and housing and employment (SA8) as it will contribute to the creation of important construction materials. Minor **negative effects** are predicted with relation to soil, as there would be a permanent loss of agricultural land (SA2).

Policy MS21 supports proposals for the prior extraction of clay and other minerals (except coal) where it can be demonstrated that it is necessary for the implementation of another development, avoids the long-term sterilisation of the mineral, remediates a contaminated site and does not cause unacceptable environmental and local amenity impacts. A positive effect is predicted for waste and minerals (SA topic 3). The effects are not significant as the policy itself is unlikely to support a stable supply of minerals but does support extraction to avoid the sterilisation of resources. It is unlikely that the scale and the extent of extraction would be such to have any medium or long term adverse environmental effects (SA topics 1, 2, 4, 5 and 6), but short term disturbance is possible. However, the policy seeks to ensure that any adverse environmental or community impacts are avoided. It is therefore unlikely that allowing incidental working of minerals would lead to significant negative effects.

A minor **positive effect** is predicated to reflect the potential for incidental working to remediate contaminated land (SA2) and to unlock the development potential of sites for housing or employment uses (SA8).

Minerals Supply	SA Topic 1	SA Topic 2	SA Topic 3	SA Topic 4	SA Topic 5	SA Topic 6	SA Topic 7	SA Topic 8
Vein Minerals	Biodiversity , Fauna and Flora	Land and water resources	Waste and minerals	Heritage and landscape	Air quality and transport	Climatic factors and energy	Communities and health	Local employment and housing
MS12: Vein Minerals	-	✓	✓	-	-	-	?	-

Discussion

Policy MS12 seeks to limit vein materials working and extraction operations to the minimum necessary duration and scale, requires development to be environmentally and visually acceptable, the waste generated to be appropriately disposed and the site to be restored in a manner appropriate to its surroundings. The policy is predicted to have a **neutral effect** on environmental factors such as biodiversity (SA1), land and water. Whilst the policy seeks to minimise any adverse effects on the environment as a result of mineral extraction works, it is expected that these would need to be managed through other plan policies (and in the absence of the Local Plan).

In regard to land and water resources (SA topic 2), a **positive effect** is predicted as measures are proposed to limit any unnecessary intrusion of land, to avoid damage to the landscape through subsidence or landslips and to ensure the land is remediated after quarrying activity. Although it is uncertain that this would result in an improvement in the condition of the land, the measures set out in the policy are such that the land should be restored to a reasonable condition.

The policy does not set out a landbank target to ensure a steady supply to meet ongoing demand and also does not limit the quantity of extractable minerals. This allows the policy to be flexible to fluctuating market demands for vein minerals, which should avoid excessive or under-supply and thus have a **minor positive effect** on waste and minerals (SA topic 3) in predicted. The policy also seeks to ensure adequate disposal of waste materials, which is a positive effect for waste and minerals (SA3).

As the policy does not allocate areas for extraction, the effects on transport, heritage and landscape and communities and health (SA topics 4, 5 and 7) have a degree of uncertainty. However, the extent of vein minerals is restricted across Derbyshire, so it is possible to surmise that effects would be most prominent in these areas. Given that resources are only present in these areas though, the policy is limited in how it can affect transportation, air quality and other factors related to location. Therefore a **neutral effect** is predicted.

Minerals Supply	SA Topic 1	SA Topic 2	SA Topic 3	SA Topic 4	SA Topic 5	SA Topic 6	SA Topic 7	SA Topic 8
Coal	Biodiversity, Fauna and Flora	Land and water resources	Waste and minerals	Heritage and landscape	Air quality and transport	Climatic factors and energy	Communities and health	Local employment and housing
MS13: Coal Extraction and Colliery Spoil Disposal Criteria	-	✓	✓	-	-	✓	?	✓
MS14: Reworking of Former Colliery Spoil Tips	-	✓	✓	-	-	✓	✓	✓
MS15: Assessment of the Benefits of Coal Mining Development	-	✓	✓	-	-	✓	?	✓
MS16: Incidental Coal Extraction	-	✓	✓	-	-	-	-	-

Discussion

Policies MS13 and MS14 enable the extraction of coal, the disposal of colliery spoil and the re-working of former colliery spoil tips providing that it would be environmentally acceptable or that the benefits of doing so clearly outweigh the likely impacts. Policy MS15 further outlines criteria to assess the benefits of coal mining development in the event that adverse environmental impacts are unavoidable.

In the context of national planning policy and a need to improve energy security / self-sufficiency, it is considered inappropriate to implement an overly restrictive approach to extraction. However, at the same time it is important that the approach does not encourage unfettered extraction of coal, which as a fossil fuel will contribute to climate change. Therefore, the role of the policy is to ensure that resources can be extracted where the effects on the environment are manageable. In this respect, a positive effect is predicted for minerals and waste (SA3).

With regards to environmental factors (SA topics 1, 2 and 6), policies MS13 and MS14 seek to ensure that impacts are 'acceptable', which ought to be beneficial for biodiversity, natural resources, heritage and landscape. However, where coal mining is proven to have overriding benefits, more substantial environmental impacts may well be accepted. Therefore, the effects are considered to be neutral on balance. The criterion for assessing benefits (MS15) does include consideration of other environmental benefits though such as improved land condition and stability, which should be positive for land and water resources (SA2). The need to ensure that benefits are substantial in terms of energy provision should also ensure that developments that are permitted on this basis contribute positively to energy security (SA6) and minerals provision (SA3).

A **neutral effect** is predicted for transport (SA topic 5). The majority of surface coal resources in Derbyshire are concentrated along the county's eastern boundary which has broadly good road and rail connections to local and national markets (including power stations and major steel manufacturing areas).

The likely impacts on communities and health (SA topic 7) are not clear at this stage as there is no specific reference to the need to address effects on communities (for MS13). Therefore, it is uncertain the extent to which such factors would influence permissions. The effects for MS14 ought to be positive though as the need to consider local amenity is highlighted.

A minor positive effect is predicted for local employment (SA topic 8). Whilst no specific sites or areas of opportunity are identified, the policies are relatively flexible and ought to allow for suitable developments to come forward without delay. This would contribute a small positive effect in terms of job creation (potentially in areas that suffer from deprivation).

Policy MS16 enables incidental coal extraction and is predicted to have positive effects on land resources (SA2) as it supports the extraction of coal if this would help to improve land stability, tackle contamination and improve safety. By allowing extraction in suitable circumstances a positive effect is also predicted for minerals resources (SA3). Though coal extraction could have impacts on environmental and social factors, the policy seeks to ensure that these are not unacceptable. Therefore, the overall effects on these factors are likely to be neutral.

Minerals Supply	SA Topic 1	SA Topic 2	SA Topic 3	SA Topic 4	SA Topic 5	SA Topic 6	SA Topic 7	SA Topic 8
Oil and gas	Biodiversity , Fauna and Flora	Land and water resources	Waste and minerals	Heritage and landscape	Air quality and transport	Climatic factors and energy	Communities and health	Local employment and housing
MS17: Proposals for Oil and Gas Exploration	✓	-	✓	-	-	✓	✓	-
MS18: Proposals for Oil & Gas Production & Ancillary Development	✓	-	✓	-	✓	✓	✓	-

Discussion

Certain exploration and appraisal proposals will be categorised as permitted development, and therefore would not be covered by policy MS17. Where the proposals for exploration do not justify permitted development though they will need to be in adherence to the proposed policy MS17. The broad locations where exploration activities can be undertaken are set within the Petroleum Exploration and Development License Areas. The policy cannot have an influence on these factors. However, as planning permission may be required to determine whether exploration is acceptable locally, the policy could have some effects upon sustainability factors.

With regards to exploration activities, the process is less invasive and intense as actual developments (MS18), and so the magnitude of effects is likely to be much lower for such activities. For MS18, the effects are likely to be more notable given that the policy seeks to manage longer term developments that can have substantial socio-economic and environmental impacts.

Policy MS17 seeks to ensure that proposals for the exploration and appraisal of oil and gas reserves are sited in the least sensitive locations, do not have adverse effects on the geological structure of the land, operations are temporary and sites are restored at the earliest opportunity. Option 1 requires applicants to demonstrate that development would not affect the integrity of sites designated or recognised for their landscape (SA4), historic heritage (SA4) or biodiversity (SA1). Option 2 differs by requiring applicants to demonstrate that all potential adverse environmental, social and economic impacts can be mitigated to levels which are acceptable to the Mineral Planning Authority. For either approach, **positive effects** are likely for these factors as they should steer exploration activities away from the most sensitive locations. The policy also requires restoration following exploration activities if a scheme is not viable. In the absence of such a policy, there would be less direction and so negative effects may be more likely to arise.

The policies do not encourage the development of fossil fuel extraction, but provide a framework for exploration activities and developments (which can reasonably come forward under the PEDL areas). Therefore, **neutral effects** are predicted with regards to climate change emissions (SA6). However, a **positive effect** is predicted for the supply of minerals and energy (SA topics 3 and 6), as the policies support the local exploration and extraction of oil and gas resources, potentially reducing the existing reliance on imports and improving the security of the national and local energy supply.

Reduced reliance on international imports and requirements for the use of pipelines for the transportation of the oil and gas should also contribute to a minor **positive effect** with regards to air quality and transport (SA topic 5). Most oil and gas is imported through pipelines from the EU and transported through pipelines across the country. However, some resources are imported through cargo from mainly OPEC countries and it is predicted that an increased indigenous supply should reduce the associated air pollution / emissions.

The growth of oil and gas extraction operations in Derbyshire should generate new employment in areas likely to have concentrations of deprived communities. However, whilst this is positive, the effects are not directly attributable to the policies, but rather market forces. Therefore **neutral effects** are predicted for SA8. The policies require proposals to not have any adverse effect on the geological structure of sites, which is positive for land. However, in some instances the extraction process may involve hydraulic fracturing which can potentially have detrimental effects on groundwater.

Policy MS18 seeks to minimise environmental impacts and requires any adverse impacts to be avoided or mitigated. However, the issue of water quality is not explicitly identified. Developments would need to obtain an environmental permit and health and safety factors in any case (which will cover water quality issue), but it would be beneficial to refer to these important factors as part of policies MS17 and MS18.

Minerals Supply	SA Topic 1	SA Topic 2	SA Topic 3	SA Topic 4	SA Topic 5	SA Topic 6	SA Topic 7	SA Topic 8
Other Minerals	Biodiversity , Fauna and Flora	Land and water resources	Waste and minerals	Heritage and landscape	Air quality and transport	Climatic factors and energy	Communities and health	Local employment and housing
MS19: Borrow pits	?	?	✓	?	✓	-	-	✓
MS20: Reworking of former colliery and other spoil tips	?	?	✓	?	?	?	?	✓
MS21: Incidental working of clay and other minerals	-	✓	✓	-	-	-	-	✓
MS22: Mineral Related Development	-	-	-	-	-	-	-	-

Discussion

MS19 allows for borrow pits to be utilised to support construction projects where appropriate. This should provide flexibility for projects, and reduce the need to import materials from further afield. The benefits are therefore likely to include a reduction in traffic and transport (SA5) associated with construction activities, potential to dispose of waste generated on site (SA3), and support for infrastructure projects that can boost the local economy (SA8). The effects are not predicted to be significant as this approach is not a substantial departure from the current policy framework. With regards to environmental factors such as biodiversity, land and water resources and heritage and landscape, it is unclear whether borrow pits would lead to increased local impacts. However, other plan policies ought to address such issues. The policy is unlikely to have major implications with regards to flooding or energy (SA6).

Policy MS20 deals with the reworking of former tips, requiring environmental and social factors to be taken into account to obtain planning permission. In principle the policy details are positive as they seek to ensure that there would be no loss of important features and that any changes would lead to significant improvements in the longer term. However, the policy is flexible enough to allow development in special circumstances even if effects upon environmental and social factors remain. This is positive with regards to waste and minerals (SA3) and economic activity (SA8), but adds uncertainty about the level of protection that the policy will provide for environmental factors. Therefore, uncertain effects are predicted for SA1, SA2, SA4, SA5, SA6 and SA7.

Policy MS21 allows for the incidental working of minerals where it is necessary to support development or to avoid sterilisation of important resources. This should help to ensure that developments are not held-up (SA8), whilst also obtaining mineral resources (SA3). Positive effects are predicted with regards to land resources (SA4), as the policy should help to facilitate the remediation of contamination. The policy also seeks to safeguard environmental features from such working, and so neutral effects on the baseline would be anticipated.

Policy MS22 is essentially a continuation of the existing policy framework, and therefore the effects of the policy will represent a continuation of the baseline position. In this respect, the effects upon sustainability factors are predicted to be **neutral**.

Safeguarding	SA Topic 1	SA Topic 2	SA Topic 3	SA Topic 4	SA Topic 5	SA Topic 6	SA Topic 7	SA Topic 8
Resources and infrastructure	Biodiversity , Fauna and Flora	Land and water resources	Waste and minerals	Heritage and landscape	Air quality and transport	Climatic factors and energy	Communities and health	Local employment and housing
SG1: Safeguarding Mineral Resources	-	-	✓	-	-	-	-	-
SG2: Development within Mineral Safeguarding Areas	?	?	✓	?	-	-	?	✓/x

Discussion

Policies SG1 and SG2 aim to safeguard crushed rock, sand and gravel, shallow coal, sandstone/gritstone and Sherwood sandstone/clay resources from non-mineral development that may sterilise the mineral resource. A **positive effect** on minerals provision (SA topic 3) is predicted as the policy will help to protect economically viable sources of minerals from being sterilised.

Housing and other non-mineral employment developments within designated minerals safeguarding areas will be required to either extract the resource prior to their development, to demonstrate that the resource is no longer exploitable or that the development would not result in the sterilisation of the resource. Given the extent of minerals safeguarding zones is substantial; this is likely to require a large number of development proposals to explore the potential effects on minerals. This could add to the costs and timing of achieving planning permission (SA8). However, there are exemptions in urban areas, and it is considered unlikely that mineral resources will be workable in all areas. Therefore, the anticipated effects would be minor. In the longer term, the effects on economic factors are positive as mineral resources are required to support construction activities.

With regards to environmental and social factors, minerals safeguarding would prevent development on land should there be a need to protect mineral resources from sterilisation. Where prior extraction is not involved, this could have positive effects on land which is (in some cases) within the open countryside, supporting biodiversity and / or providing community value for recreation and amenity. Therefore, the policy could have indirect benefits with regards to environmental and social factors. Uncertain effects are predicted at this stage for SA1, SA2, SA4 and SA7 to reflect the potential for short to medium term benefits in this respect. However, given the substantial land area covered by MSAs and uncertainty about which sites may come forward, it is difficult to establish definite effects.

Cumulative impacts	SA Topic 1	SA Topic 2	SA Topic 3	SA Topic 4	SA Topic 5	SA Topic 6	SA Topic 7	SA Topic 8
Cumulative impacts	Biodiversity , Fauna and Flora	Land and water resources	Waste and minerals	Heritage and landscape	Air quality and transport	Climatic factors and energy	Communities and health	Local employment and housing
CP1: Cumulative Impacts	✓	✓	-	✓	-	✗	✓	-

Discussion

Given that mineral resources (and therefore quarries) are often located / concentrated in specific locations, the potential for cumulative effects is an issue within Derbyshire. By requiring developments to consider such factors, Policy CP1 ought to have a **positive effect** on environmental factors such as wildlife (SA1), landscape and heritage (SA4) natural resources (SA2) climate change (SA6). However, such effects are broadly dependent on the site, locational context and the nature of the proposed mineral development.

There should also be **positive effects** for communities (SA7) by ensuring that several developments do not contribute to a significant adverse effect locally. Conversely, this approach could prevent further extraction of minerals in areas that are economically viable (SA3), or could direct development away from areas that are well served by infrastructure, potentially having a **negative effect** with regards to increased emissions from transport (SA topic 6).

Restoration	SA Topic 1	SA Topic 2	SA Topic 3	SA Topic 4	SA Topic 5	SA Topic 6	SA Topic 7	SA Topic 8
Restoration and aftercare	Biodiversity, Fauna and Flora	Land and water resources	Waste and minerals	Heritage and landscape	Air quality and transport	Climatic factors and energy	Communities and health	Local employment and housing
R1: Restoration and After-Use of Mineral Sites		✓	-	✓	-	✓		✓
R2: Emerging Approach for the Trent Valley Strategy		-	-	✓	-	-	✓	?
R3: Restoration of Carboniferous Limestone Quarries	✓	?	✓	✓	-	-	✓	?

Discussion

Policy R1 requires planning proposals for all minerals extraction schemes to demonstrate that provision has been made for the restoration and sustainable after-use of the site. A wide range of factors must be considered, and proposals should demonstrate how these have been taken into account in the restoration scheme. The criteria outlined in the policy provide particular emphasis on the need to ensure biodiversity and geodiversity enhancements (SA1) and that sites are restored in a sympathetic way with regard to landscape character (SA4). This ought to have **significant positive effects** for biodiversity (SA1) in the longer term, particularly given that there is a need to consider strategic linkages in green infrastructure and how improvements can be secured.

A **positive effect** is also predicted for land resources (SA topic 2), as the policy requires proposals to demonstrate how best and most agricultural land would be retained or enhanced, which should limit the loss of such resources in the longer term (ensuring minimal negative changes and possible enhancements to the baseline position). There is also a need to ensure no net increase in flood risk (SA2). There is potential for **significant positive effects** to communities in the longer term, as restoration proposals should seek to provide community benefits, recreational opportunities and where possible employment opportunities (SA topics 7 and 8). The effect on waste and minerals (SA topic 3) are predicted to be **neutral** as restoration schemes ought not to hold back mineral extraction, and waste materials could be used as part of infill materials (preferably from sources of close proximity).

Policy R2 outlines requirements for the restoration of sand and gravel sites in the Trent, Derwent and Lower Dove Valley areas. A **positive effect** is predicted in the medium to long term for biodiversity (SA topic 1) and heritage and landscape (SA topic 4), as the policy requires that the most environmentally sensitive areas are protected and those with deficiencies / lower quality are enhanced. The need to consider how schemes link to other restoration activities should also help to provide more strategic improvements in connectivity. Given that many restoration schemes for sand and gravel sites are likely to involve water-based features, there is potential for **significant positive effects** in terms of habitat creation in the longer term (SA1). Improvements to the landscape (SA4) are likely to be achieved as a result of restoration schemes, as well as providing recreational activities for communities and improving visual amenity (SA topic 7). A **neutral effect** is predicted for waste and minerals (SA topic 3) as the policy is not likely to undermine mineral extraction in these areas. The effects of this policy on land and water resources, air quality and transport and climatic factors (SA topics 2, 5, 6 and 8) are likely to be negligible as there would be no movement of materials following restoration. A **positive effect** is possible with regards to local employment through the use of local materials, businesses and labour to aid the restoration works (and potential recreational services) but there is a degree of uncertainty this stage associated with such effects.

Policy R3 sets out criteria for the restoration of carboniferous limestone quarries. A **positive effect** is predicted on biodiversity (SA topic 1) and heritage and landscape (SA topic 4) as the policy seeks to restore and enhance biodiversity, wildlife and landscapes to a standard and quality coherent with key local habitats and the surrounding area including the Peak District National Park. This is likely to create recreational opportunities and potentially support local tourism depending on the nature of the restoration scheme, potentially having a **positive effect** on communities and local employment (SA topics 7 and 8). The policy seeks to ensure that any waste placement in worked areas is carefully placed to avoid the sterilisation of any remaining material resource. The policy provides clarity about the standard of restoration and aftercare expected to the minerals industry which should subsequently provide greater certainty of the improvements being implemented. The effects on water are uncertain. Whilst measures to improve landscape and biodiversity could have knock-on benefits in terms of protecting water resources, this is not explicit. The need to ensure that hydrology and flood risk are tackled at the outset of minerals schemes through appropriate restoration strategies should be mentioned to ensure that the longer term effects are considered and managed. At this stage an uncertain effect is predicted.

Restoration	SA Topic 1	SA Topic 2	SA Topic 3	SA Topic 4	SA Topic 5	SA Topic 6	SA Topic 7	SA Topic 8
Development Management Policies	Biodiversity , Fauna and Flora	Land and water resources	Waste and minerals	Heritage and landscape	Air quality and transport	Climatic factors and energy	Communities and health	Local employment and housing
DM1: Development Management Criteria	✓	✓	✓	✓	-	✓	✓	✓
DM2: Planning conditions and obligations	-	-	-	-	-	-	-	-
DM3: Transport	-	-	-	-	✓	✓	✓	-
DM4: Landscape and green infrastructure	✓	?	-	✓	-	-	✓	-
DM5: Biodiversity		-	-	✓	-	-	✓	-
DM6: Historic Heritage	-	-	-	✓	-	-	-	-
DM7: Water management	✓	✓	-	-	-	✓	✓	-
DM8: Extensions to sites	✗ / ✓	-	✓	✗ / ✓	✓	✓	✗ / ✓	✓
DM9: Bird strike management	✓	-	-	-	-	-	-	✓

Discussion

Policy DM1 sets out the general framework upon which planning applications will be assessed. There is a need to consider a range of environmental factors, which should help to ensure that effects upon biodiversity (SA1), soil and water (SA2), heritage and landscape (SA4) are protected and potentially enhanced. Protection of amenity and rights of way are also key factors to consider, which ought to ensure positive effects (by helping to better manage potential negative effects that may otherwise have occurred in the absence of the plan). Similarly, there is a need to minimise flood risk and make improvements were possible (SA6). Whilst positive effects are likely, they are not significant; as such considerations would be likely to be made to an extent anyway in the absence of this new policy framework. Further detail about specific aspects of sustainability is also covered through other Plan policies. Whilst these principles could be restrictive of development in some locations, it is not likely that this would lead to a significant negative effect with regards to the ability to extract minerals (SA2). Therefore, neutral effects are predicted. Likewise, the effects on the economy and house building (SA8) are likely to be negligible.

Policy DM2 outlines the Councils intent to utilise obligations and conditions to manage impacts. This is a continuation of the current situation and thus **neutral effects** are predicted.

Policy DM3 is focused primarily on the reduction in road-based transport and ensuring a suitable highways network. This general approach ought to contribute to reductions in emissions from transport (SA6) and help to reduce air quality impacts (SA5). There is also a focus on safety and minimising effects on communities, which is a positive effect in terms of health (SA7). Whilst the policy seeks to ensure no significant adverse environmental impacts occur due to transport access and movements, this is not likely to have notable effects on biodiversity, land and water resources and heritage and landscape. (There are other plan policies that cover these issues in greater detail though).

Policy DM4 is likely to have positive effects with regards to environmental factors as there is a requirement to protect and enhance landscape quality (SA4), visual amenity (SA7), and ecological networks (SA1). The effects on water resources are less certain. **Neutral effects** are predicted with regards to the economy (SA8) and waste and minerals (SA3) as the policy is not considered likely to affect the delivery of schemes (Such environmental protection and enhancements measures are routine requirements as part of minerals development).

Policy DM5 is predicted to have **significant positive effects** with regards to biodiversity primarily as it seeks a net gain in biodiversity in the longer term. However, minor negative effects might still occur in the short to medium term. Protection and improvement of ecological networks should also have knock-on benefits with regards to landscape character and communities (e.g. recreational opportunities). **Neutral effects** are predicted with regards to the economy (SA8) and waste and minerals (SA3) as the policy is not considered likely to affect the delivery of schemes (Such environmental protection and enhancements measures are routine requirements as part of minerals development). The policy does not cover the transportation of materials and therefore the effects on SA5 and SA6 are also predicted to be **neutral**.

Policy DM6 is predicted to have **neutral effects** on the majority of sustainability factors as it focuses primarily on the historic environment. For SA6 a minor positive effect is predicted as the policy provides the framework for protecting heritage assets, the historic landscape and archaeology. The effects are not predicted to be significant as the policy is not a significant departure from the current policy framework.

Policy DM7 is predicted to have positive effects on sustainability factors that are reliant upon a well-managed water environment. This includes SA2, relating to the protection of water quality and availability, SA6 relating to the need to manage and reduce flood risk, SA1 due to the benefits that water-based environments can have on biodiversity and SA7 based upon the recreational benefits that communities could experience in the longer term.

Policy DM8 repeats the spatial strategy principle that extensions are preferable to new sites provided that social, economic and environmental issues are taken into consideration. This approach ought to make better use of infrastructure and thereby reduce the effects on air quality and transport (SA5) and emissions (SA6). Focusing on extensions should also help to support existing employment and local economies that benefit from existing minerals sites (SA8). The effects on environmental factors could be mixed. On one hand, a focus on areas that are already being worked could lead to cumulative impacts on biodiversity, landscape and communities, but this would avoid impacts in areas that are largely unaffected. The location of existing minerals workings suggests that some extensions could avoid significant environmental effects, but at others the presence of sensitive habitat and landscape would need to be managed. Mixed effects are therefore predicted.

Policy DM9 is predicted to have a **neutral effect** on most elements of sustainability as it focuses specifically on bird strike management. Ensuring safety ought to have positive effects with regards to the economy though as it will reduce risks and issues that could affect flights. There should also be **positive effects** for biodiversity as it avoids birds coming into contact with aeroplanes. However, the creation of habitats that are suitable for birds would be discouraged in some areas.