

DERBYSHIRE AND DERBY MINERALS LOCAL PLAN

**Towards a Minerals Local Plan:
Spring 2018 Consultation**

Background Paper Sand & Gravel Sites Assessment Methodology

December 2017

Introduction and Background

- 1.1 This proposed methodology for assessing potential sites for sand and gravel extraction in Derbyshire and Derby takes account of information in the consultation paper, “Towards a Strategy for Providing an Adequate and Steady Supply of Sand and Gravel” and its supporting paper, both published in April 2015 as part of the next stage in developing the emerging Derbyshire and Derby Minerals Local Plan. Any comments made to this consultation, which are relevant to the methodology, have been taken into account in the preparation of this paper. Further comments received during the 2016 Rolling Consultation have also been taken into account. The methodology has also been revised to be in accordance with the Hard Rock Sites Methodology which was published for consultation in 2017. This has mainly involved alterations to the layout and organisation of the criteria and has not altered the overall approach or the outcome of the assessments to any significant extent.
- 1.2 The methodology also takes account of information in the Local Aggregate Assessment 2016 and is also compliant with the draft Strategic Sustainability Principles in the emerging Minerals Local Plan.
- 1.3 The National Planning Policy Framework (NPPF) sets out that mineral planning authorities (MPAs) should make provision for the continued extraction of mineral resources of local and national importance. Sand and gravel is an aggregate mineral of both local and national importance, of which there are proven resources in Derbyshire and Derby. In terms of aggregate, the NPPF states that MPAs must plan for a steady and adequate supply through the preparation of a Local Aggregate Assessment (LAA), which will identify the amount of aggregate that will be required to be provided over the Plan period. The Derbyshire, Derby and Peak District LAA (2016) has identified a need for a further 2.03 million tonnes of sand and gravel to be provided from Derbyshire and Derby over the Plan period to 2030. The Minerals Local Plan will allocate sites to provide for this. Potential site allocations have been identified through the following methods:
 - Analysis of mineral resource information, particularly British Geological Survey Mineral Resource Data.
 - Submission of sites by the minerals industry/landowners, including the resubmission of sites that were assessed through the abandoned sites DPD. The

form used to collect information from operators regarding potential allocations is included at Appendix 4.

- Review of existing unworked allocations in the Minerals Local Plan.
- Review of existing site specific information and the application of local knowledge.

The sites which have been suggested through this process are:

SG01 - Extension to Willington Quarry (Cemex)

SG02 - Northern extension to Swarkestone Quarry (Tarmac)

SG03 - Southern extension to Swarkestone Quarry (Tarmac)

SG04 - Extension to Elvaston Quarry (Tarmac)

SG05 - Repton/Foremark (Hansons)

SG06 - Foston (Hansons)

SG07 - Egginton (Hansons)

- 1.4 Location plans of these sites are available at Appendix 3. These sites must now be assessed using a methodology that has been developed with local communities and stakeholders. The basis of the methodology was first developed as part of the Sites DPD in 2007 (which was not progressed beyond Preferred Options stage in order to instead develop a one document Plan). This methodology has since been updated and refined, taking account of comments which were received at the Issues and Options stage of the Minerals Local Plan in 2010 and then from the sand and gravel drop-in sessions in 2012 and also from comments that have been received through consultation on planning applications for sand and gravel extraction in the area. It has also been updated to take account of the most recent Government policy in the National Planning Policy Framework (2012) and the National Planning Practice Guidance (2014).
- 1.5 Table 1 below sets out the criteria that have been used in assessing each site, in order to help achieve the objectives of the Plan. These criteria cover a wide range of environmental, social and economic considerations and relate to aspects and impacts of mineral development that are covered in the NPPF, NPPG and other relevant guidance and information. We have also had regard to the sustainability appraisal scoping report in developing the criteria.

- 1.6 Initially, the MPA sought to identify those broad areas where extraction would be most suitable and sustainable by undertaking a 'strategic areas' evaluation, set out at Appendix 1. The evaluation exercise concludes that there should be no specific preference set out in the assessments for mineral working in the Trent, Derwent or Lower Dove Valley. It concludes that an assessment of all the economic, social and environmental factors, using a comparative method of scored comparison will ensure that all sites are considered on an equal footing in this respect, regardless of their general location within the valleys.
- 1.7 The NPPF does not indicate a preference for whether allocated sites should be new greenfield sites or extensions to existing sites. The National Planning Practice Guidance explains this further, setting out that all sites should be treated on their own merits, taking account of the need for the specific mineral; economic considerations (such as being able to continue to extract the resource, retaining jobs, being able to utilise existing plant and other infrastructure), and positive and negative environmental impacts (including the feasibility of a strategic approach to restoration). At the Issues and Options stage, people expressed overall support for allocating extensions rather than new sites. This preference continued in views which were expressed at the sand and gravel drop-in sessions in late 2012.
- 1.8 Having taken this latest guidance into account, together with public opinion expressed on this issue, we have included in this site assessment methodology criteria that favour the sites which would best utilise existing infrastructure, retain jobs, avoid sterilisation of mineral resources, and take account of cumulative impact and potential for strategic restoration.

Stage 1 - Evidence Gathering

- 1.9 A desktop analysis will be carried out initially for each site, which will seek to collect a significant amount of the information in order to assess a number of the criteria, before all sites are visited to assess those criteria which require further more detailed attention and also to verify some desktop data.
- 1.10 In assessing each site, comments from local people received at the sand and gravel drop-in sessions in late 2012 will be used to inform the assessments. We will also take

advice from appropriate bodies such as the Environment Agency, Natural England, Historic England and East Midlands Airport, as well as consulting DCC specialists on issues including ecology, landscape and the historic environment.

Stage 2 – Identifying Major Constraints

- 1.11 At this initial stage, any sites that are found to have major infrastructural or environmental constraints, which mean they are unlikely to be able to be worked, will be ruled out of the assessment. This includes issues such as lack of economic mineral, whether the site could be accessed without causing undue harm or disruption to the area, incompatibility with policies and proposals in District/Borough Local Plans (Under the Duty to Co-operate we liaise with District/Borough Councils and this will detect where this is an issue) and whether the site is able to be delivered during the Plan period.
- 1.12 Government guidance in the National Planning Policy Framework (NPPF) states that sites that are included for development in a Local Plan should be realistic, deliverable and achievable. It is important, therefore, to ensure that sites which are not considered to be deliverable are filtered out of the process at an early stage. This includes sites that have been put forward by the minerals industry which are unlikely to be worked until after the end of the Plan period (2030).

Stage 3 – Detailed Assessment

- 1.13 An assessment has been undertaken for each of the suggested sites using the criteria set out in Table 1 below.

Stage 4 - Analysis of Results

- 1.14 In order to consider which sites are most suitable to allocate in the Minerals Local Plan, it is proposed to use the following method:
- 1.15 For each of the criteria, we have set out the scale of impacts against which to measure the effects of working each site. We have categorised the impacts into those factors that would favour the selection of the site for working and those that would count against selecting the site for working. We have assigned scores to the factors to enable the

evaluation process to be used as a mechanism to aid the understanding of the comparative merits of the sites; a score of 4 for major positive factors in favour of allocation down to a score of 1 for major negative factors against allocation. We took the decision to use positive scores even for the negative factors because it is easier to compare results which are all positive rather than results for some of the sites being negative and others positive.

- ++ Major positive factor in favour of allocation (4 points)
- + Positive factor in favour of allocation (3 points)
- Negative factor against favouring an allocation (2 points)
- Major negative factor against favouring an allocation (1 point)

- 1.16 Once the sites have been assessed, the scores for the criteria for the social and economic categories will be added to produce a total for each of these categories. For the environmental criteria, the scoring from an environmental matrix will be used. This will combine both the site assessment work and the strategic environmental sensitivity work.
- 1.17 For each category, the sites will then be ranked, so the lowest scoring site (i.e. with the least potential for allocation) achieves a ranking of '1'. Where two sites have the same score, the difference will be split (so if two sites have an economic score of 9, and would have been ranked 2nd and 3rd, these would both be assigned a ranking of 2.5). Where three sites get the same score, all sites would be allocated the middle ranking, i.e. if the sites which are ranked 6, 7 and 8 scored the same, all three will be assigned a ranking of 7.
- 1.18 These economic, social and environmental rankings will then be added together to provide an overall score – theoretical maximum 24; minimum 3. This will determine the overall potential for working each site. Sites with high potential will be deemed as potential allocations in this Minerals Local Plan and will undergo further more detailed analysis. Sites in the medium category may have the potential to be considered as allocations if there are insufficient sites with high potential to meet the remaining requirement for sand and gravel over the Plan period or, during the Plan period, monitoring indicates that the allocated sites are not being, or will not be, delivered as

anticipated. Sites with low potential are unlikely to be considered for allocation in the Plan.

Explanatory Note
None/Few/Some/Many

For some indicators the Assessment provides an indication of the number of properties affected by a criterion by using the general terms none, few, some and many. These general terms have been assigned numbers to provide an indication of the number of properties involved.

None – 0, Few – 1-5, Some – 6-19, Many 20+

Sensitive Receptors

For some indicators the Assessment refers to impacts on sensitive receptors; examples of such receptors are set out below:

Visual sensitive receptors: Residences, Retirement Homes, Hospitals, Community Facilities, Hotels, Footpath/Trail users etc.

Noise Sensitive receptors: Residences, Retirement Homes, Hospitals, Schools, Places of Worship, Offices, Farms, Hotels etc.

Dust Sensitive receptors: Residences, Retirement Homes, Hospitals, Schools, Farms, Hotels, Some industries such as food processing, hi-tech etc.

Table 1: Site Assessment Criteria

- ++ Major positive factor in favour of allocation (4 points)
- + Positive factor in favour of allocation (3 points)
- Negative factor against favouring an allocation (2 points)
- Major negative factor against favouring an allocation (1 point)

Criteria	Ref.	Score	Points	Scale of effect/impact	Considerations
ECONOMIC CRITERIA					
Need for the Mineral	01	++	4	Detailed evidence to support the need for additional reserves to maintain supply throughout the Plan period	NPPF requires that local plans should plan for an adequate and steady supply of industrial minerals. Additionally for some industrial minerals, especially those used in cement production and brick clay the NPPF sets out specific requirements for providing a stock of permitted reserves (land bank). Is there an identified need for additional reserves to maintain supply throughout the Plan period?
		+	3	Some evidence to support the need for additional reserves to maintain supply throughout the Plan period	
		--	1	Insufficient evidence to support the need for additional reserves to maintain supply throughout the Plan period	
Existing Infrastructure	02	+	3	Existing quarrying infrastructure would be used.	Is there existing infrastructure that would be utilised by the proposed operation? This is set out in NPPG as a consideration in judging potential sites. What are the impacts of using the existing plant arrangements including connecting the proposed site to it?
		-	2	New quarrying infrastructure would have to be developed for the operation.	
Location of Site to Market Areas	03	+	3	The site is well located to serve its intended market	Market areas vary greatly for minerals depending on their type from international, national or more local. Where relevant, an assessment will be made on the appropriateness of the location of the site for its intended market. Is the site located appropriately in relation to the market it is intended to serve?
		-	2	The site is not well located to serve its intended market	
Conservation of Resources	04	+	3	The site is likely to remain unworked if not allocated	NPPF recognises that minerals are a finite resource and therefore it is important to make the best use of them in order to ensure their long-term conservation.
		-	2	The site is likely to be worked if not allocated due to its scale/location	

Criteria	Ref.	Score	Points	Scale of effect/impact	Considerations
					In some cases it might be that if a site isn't allocated to be worked as part of a current operation, its scale or location would affect the likelihood of it being worked in the future. If the site wasn't allocated is it likely that the site would remain unworked due to its location/scale?
Employment	05	++ -	4 2	A new operation which would result in the creation of new jobs The continuation of an operation leading to the retention of existing jobs or a new operation which would result in the creation of new jobs but which would result in job losses elsewhere	The minerals industry can provide an important source of local employment. NPPG states that economic considerations, such as the retention of jobs, should be taken into account in considering the suitability of new sites and extensions to existing sites. Would the proposal create new jobs? Would the proposal lead to the retention of jobs at a currently operational site? Would the proposal create new jobs but lead to job losses elsewhere?
Resources: Yield	06	++ + - --	4 3 2 1	>75,000 tph 50,000 – 75,000 tph 25,000 – 50,000 tph < 25,000 tph	Does the site contain a viable mineral resource which will contribute to the overall requirement over the Plan period? What is the number of tonnes per ha? i.e. proposed working area/estimated yield
Possible Maximum Economic total			20		
SOCIAL CRITERIA					
Duration of Mineral Extraction	07	++ + - --	4 3 2 1	Short-term 0-10 years Medium-term 10-20 years Long-term 20-30 years Very long-term 30+ years	NPPF requires the cumulative impact of proposals to be taken into account. The duration of the operation should be a consideration as it will affect the overall scale of impact on local communities. What is the intended timeframe for working the site (i.e. short-term 0-10 years etc.?)
Visual Intrusion	08	++ + - --	4 3 2 1	The site has few or no visually sensitive receptors and/or only small parts of the site will be visible from them. The site has few visually sensitive receptors but large parts (or more than one part) of the site will be visible from them. The site has some visually sensitive receptors and/or some parts of the site will be visible from them. The site has many visually sensitive receptors and/or large parts (or more than one part) of the site will be visible from them.	Visual intrusion covers impact of the workings in relation to nearby communities and impact on landscape during and after working. This section covers impact on communities. Impact on landscape character will be dealt with separately. Assessment makes a judgement of visual impact on 'sensitive receptors'. In terms of visual impact these have been classed as occupied residential properties and places where people go e.g. schools/hospitals/community centres/leisure facilities. Public Rights of Way have also been included in this assessment. The assessment takes into account as far as possible; proximity to sensitive receptors topography of site existing screening measures

Criteria	Ref.	Score	Points	Scale of effect/impact	Considerations
Noise		++	4	The site has no noise sensitive receptors within 500m of the boundary of the site	<p>NPPF requires that mineral operations do not have unacceptable adverse noise impacts. At the planning application stage it is likely that a Noise Assessment study will need to be undertaken. At this stage however it is possible to indicate where noise might be an issue by assessing the number of noise sensitive receptors and their distance from the site. In the absence of detailed information about the sources of noise the site boundary has been used from which to measure potential impacts.</p> <p>The assessment takes into account the number of 'noise sensitive receptors' within 200 and 500m of site.</p>
		+	3	The site has no or few noise sensitive receptors within 200m of the boundary of the site and some within 500m	
		-	2	The site has no or few noise sensitive receptors within 200m of the boundary of the site and many within 500m	
		--	1	The site has many noise sensitive receptors within 200m of the boundary of the site	
Dust	09	++	4	The site has no high/medium dust sensitive receptors within 400m of the boundary of the site	<p>This criteria deals with nuisance dust only. Dust likely to cause harm to human health is dealt with below under air quality</p> <p>NPPF requires that mineral operations do not have unacceptable adverse dust impacts. NPPG sets out further guidance on this matter. At the planning application stage it is likely that a Dust Assessment Study will need to be undertaken. At this stage, however, it is possible to indicate where dust might be an issue by assessing the number of dust sensitive receptors and their distance from the site. In the absence of detailed information about the sources of dust the site boundary has been used from which to measure potential impacts.</p> <p>Dust arising from a quarry can reduce amenity in the local community due to visible dust plumes and dust soiling. The generally coarser dust that leads to these effects may, therefore, be referred to as 'dis-amenity dust'. The smaller dust particles can remain airborne longer, potentially increasing local ambient concentrations of suspended particulate matter (e.g. PM10 and to a lesser extent PM2.5), which is associated with a range of health effects. Mineral site impacts are more likely to result in PM10 particulates rather than PM2.5 matter.</p> <p>The IAQM study states that adverse dust impacts are uncommon beyond 400m of quarries. The greatest potential for high rates of dust deposition and elevated PM10 concentrations will be within 100m of a source and this can include both large (>30um) and small dust particles. Intermediate sized particles (10um to 30um) may travel up to 400m, with occasional elevated levels of dust deposition and PM10 possible. Particles of less than PM10 have the potential</p>
		+	3	The site has no or few high/medium dust sensitive receptors within 100m of the boundary of the site and some within 400m	
		-	2	The site has no or few high/medium dust sensitive receptors within 100m of the boundary of the site and many within 400m	
		--	1	The site has many high/medium dust sensitive receptors within 100m of the boundary of the site	

Criteria	Ref.	Score	Points	Scale of effect/impact	Considerations
					to persist beyond 400m but with minimal significance due to dispersion. These bands have been used to define indicators for assessment.
Dust - Air Quality/ Health Impacts	10	+ - --	3 2 1	Site does not lie within 1000m of an AQMA Site lies within 1000m of an AQMA Site lies within an AQMA	Smaller particles (< 10um) which make up a small proportion of dust emitted from most mineral workings can travel up to 1000m or more. These small particles (PM10s) are associated with effects on human health. NPPG states that measures to control fine particulates (PM ₁₀) to address any impacts of dust might be necessary if, within a site, the actual source of emission (e.g. the haul roads, crushers, stockpiles etc.) is in close proximity to any residential property or other sensitive use. Unacceptable levels of PM10s are one factor that may result in the establishment of an Air Quality Management Area to address the problem. The presence of such an area has been regarded as an indicator that air quality is poor therefore might constrain the location of additional dust generating development. Given that PM10s can travel up to and over 1000m, this has been used as a cut-off point.
Transport- Export Route	11	++ + - --	4 3 2 1	Direct onto the strategic road network (i.e. an A class road or a road that is a designated freight route. Direct onto a B class road with short haul to strategic road network Direct onto a B class road but with long haul to strategic road network Direct on to minor roads unsuitable for HGVs	What are the existing or proposed access arrangements (vehicular) for the site?
Transport – Capacity for Sustainable Transport Options	12	++ + -	4 3 2	All material would be transported by rail or canal Some material would be transported by rail or canal All material would be transported by road	NPPF promotes the use of alternatives to road transport provided that they are environmentally preferable. This helps to reduce carbon emissions thus reducing the impacts on the climate.
Transport – distance to markets	13	++ + - --	4 3 2 1	Less than 20 miles (32 km) 20 – 25 miles (32 – 40 km) 26 – 30 miles (42 – 48 km) Above 30 miles (48km)	In the interests of sustainability and climate change, it is preferable, in general, to reduce the distance that mineral is transported. What is the average distance to the main markets?

Criteria	Ref.	Score	Points	Scale of effect/impact	Considerations
Transport - Safe and effective access to and from the site	14	++ - --	4 2 1	Existing approved access to current highway standards Existing approved access not to current highway standard but no pattern of existing collisions or congestion at access location or no existing access, but subject to agreement with local highway authority new access likely to be accepted Existing approved access not to current highway standard and current pattern of existing collisions or congestion at access location or no existing access and subject to agreement with local highway authority new access unlikely to be acceptable.	What are the existing or proposed access arrangements for the site?
Transport – Local Amenity	15	++ + - --	4 3 2 1	HGVs would have to pass no sensitive receptors to reach the main market area HGVs would have to pass a few sensitive receptors to reach the main market area HGVs would have to pass some sensitive receptors to reach the main market area HGVs would have to pass many sensitive receptors to reach the main market area	
Benefits from the proposed after-use	16	++ + - --	4 3 2 1	Social, economic and environmental benefits arising from the proposed after- use Two of the above benefits arising from the proposed after-use One of the above benefits arising from the proposed after- use No benefits arising from the proposed after- use	What are the overall potential benefits from the proposed restoration and after-use of the site? What benefits have people asked for during consultation on the Plan. Will the restoration scheme fit in with the overall restoration strategy for the valleys?
Cumulative impact	17	+ - --	3 2 1	There are no significant impacts of past or present mineral extraction or other significant commercial activity in the area There are not any current mineral workings in the area but there have been workings in the recent past and there is other commercial activity in the area There is a concentration of mineral workings and other commercial activity in the areas, which	Cumulative impact arises not only from successive mineral operations in the same area, but also coupled with other types of commercial activity, which may have an impact on an area over time.

Criteria	Ref.	Score	Points	Scale of effect/impact	Considerations
				currently have, or have had, impacts either concurrently or successively over a long period of time.	
Airport Safeguarding Birdstrike Issue – potential risk to aircraft safety	18	+	3	Site lies within an area where there is a low potential risk of birdstrike	What is the potential risk of birdstrike? We have established in consultation with EMA the degree to which the suggested sites pose a potential risk to aircraft safety taking into account how the airport operates. We have also taken into account the potential impact on the smaller Derby Aerodrome near Egginton.
		-	2	Site lies within an area where there is a medium potential risk of birdstrike	
		--	1	Site lies in an area where there is a high potential risk of birdstrike	
Possible Maximum Social total			49		
ENVIRONMENTAL CRITERIA					
Water Environment – Flood Risk	19	+	3	Site lies within flood zone 1- lowest probability of flooding	The EA designates flood zones which are susceptible to different risks of flooding. Zone 1 has the lowest probability of flooding and Zone 3 the highest. National Planning Practice Guidance advises that a risk-based sequential test should be applied to proposals with the aim of steering new development to areas at the lowest probability of flooding. It classifies land uses according to their vulnerability to flooding; sand and gravel workings are classed as 'water compatible' development which is appropriate development in any of the three zones. However, mineral working should not increase flood risk elsewhere and needs to be designed, worked and restored accordingly. It sets out that it may be possible to locate ancillary facilities such as processing plant and offices in areas at lowest flood risk. Sequential working and restoration can be designed to reduce flood risk by providing flood storage and attenuation.
		-	2	Site lies within flood zone 2- medium probability of flooding	
		--	1	Site lies within flood zone 3- high probability of flooding	
Water Environment – groundwater	20	++	4	Site lies outside a groundwater protection zone	NPPF requires that mineral operations do not have unacceptable adverse impacts on groundwater. The EA designates Groundwater Source Protection Zones for important groundwater sources such as wells, boreholes and springs used for drinking water supply, and classifies them according to their sensitivity. It is important within these Zones not to interrupt the flow or to pollute the groundwater. In principle, source protection zones 1 are the most important to protect from harmful development..
		+	3	Site lies within a groundwater protection zone 3	
		-	2	Site lies within a groundwater protection zone 2	
		--	1	Site lies within a groundwater protection zone 1	

Criteria	Ref.	Score	Points	Scale of effect/impact	Considerations
Water Environment - aquifer protection	21	+ - --	3 2 1	Site lies on a Non Aquifer Site lies on a Secondary Aquifer Site lies on a Principal Aquifer	NPPG advises that groundwater is a consideration that should be taken into account. Permeable rock deposits that store groundwater are known as aquifers. The EA designates two types of aquifer, superficial drift and bedrock deposits. Aquifers are further classified as Principal or Secondary. Principal aquifers usually provide a high level of water storage and may support water supply and/or river base flow on a strategic scale. Consequently they require the greatest protection from development that might be harmful to them.
Ecology – existing impacts from mineral extraction	22	++ + - --	4 3 2 1	Over a wide area habitats have been fragmented by mineral extraction or habitats of limited quality have been created through mineral extraction but have potential to make a major contribution to biodiversity targets Localised but moderate to high impacts Only localised, limited impacts associated with mineral extraction on habitats within or adjacent to the site None or insignificant impacts from mineral extraction on habitats within or adjacent to the site	Presence or absence of existing impacts from mineral extraction
Ecology – UK, regional and local BAP priority species and habitats	23	++ + - --	4 3 2 1	Extensive areas of degraded or biodiversity poor habitats that provide a context for possible allocation with an emphasis on habitat creation contributing to UK priority habitats Some areas of degraded or biodiversity poor habitats that provide a context for possible allocation with an emphasis on habitat restoration or creation contributing to UK and local priority habitats Some areas of positive ecological value including UK or local priority habitats or species which should be considered for protection/conservation Extensive areas of positive ecological value including UK priority habitats or species which should be considered for protection/conservation	Presence or absence of existing priority habitats and species as identified by UK, regional and local BAPs

Criteria	Ref.	Score	Points	Scale of effect/impact	Considerations
Ecology – ecological coherence: Natural Areas/ Wildlife Corridors/linkages	24	++ + - --	4 3 2 1	The proposed site no longer accords with the established habitats over a wider area. The proposed site has few characteristics that accord with the established habitats over a wider area and its internal ecological coherence is poor OR coherence of the wider area is poor The proposed site generally accords with the established habitats over a wider area (or in part) but the condition of habitats is poor OR few features within the site but encompassed by landscapes which have ecological coherence The proposed site accords with the established habitats over a wider area and habitat pattern is strong	Does the site have strong ecological coherence?
Ecology – Habitat Creation	25	++ + - --	4 3 2 1	The proposed site offers excellent opportunities to create or enhance UK priority habitats within the site and offers biodiversity benefit over a wider area e.g. by enhancing a habitat corridor. The site offers some opportunities to create or enhance UK or local priority habitats within its boundaries, making overall habitat gain, but may not make appropriate linkages to wider area. Existing habitats are intact and habitat creation would only provide limited biodiversity enhancement within the site or the wider area. Existing habitats are intact and make a strong contribution to priority biodiversity targets for conservation and there is strong ecological coherence within the site; habitat creation would not enhance the site or the wider area.	Does the site provide opportunities for habitat creation?
Landscape-existing impacts from mineral extraction	26	++ + — --	4 3 2 1	There are widespread, moderate to high impacts associated with past mineral extraction There are localised moderate to high impacts associated with past mineral extraction There are only localised, low impacts associated with past mineral extraction There are insignificant impacts associated with past mineral working	What are the existing impacts on the landscape from any nearby mineral extraction?

Criteria	Ref.	Score	Points	Scale of effect/impact	Considerations
Landscape – Strength of Landscape Character	27	++ + - --	4 3 2 1	<p>The proposed site no longer accords with the established landscape character and the restoration of a 'new' landscape is required (Restore/create)</p> <p>The proposed site has few characteristics that accord with the established landscape character and the condition is poor (Enhance)</p> <p>The proposed site generally accords with the established landscape character (or in part) but the condition could be enhanced (Conserve and enhance)</p> <p>The proposed site accords with the established landscape character and is in good condition (Conserve)</p>	Is the character of the landscape strong and visually coherent?
Landscape/– visual impact	28	++ + - --	4 3 2 1	<p>The site has few or no visual receptors and/or only small parts of the site will be visible</p> <p>The site has few visual receptors but large parts (or more than one part) of the site will be visible</p> <p>The site has some visual receptors and/or some parts of the site will be visible</p> <p>The site has many visual receptors and/or large parts (or more than one part) of the site will be visible</p>	What would be the visual impact on the landscape of working the site?
Historic Environment –designated sites and settings	29	+ - --	3 2 1	<p>No perceivable impact on a designation and/or its setting</p> <p>Impact on Grade II Listed Building/Registered Historic Park and Garden, Conservation Area and/or its setting</p> <p>Impact on Grade I or II* Listed Building/Registered Historic Park and Garden, Scheduled Monument, World Heritage Site and/or its setting.</p>	<p>NPPF requires that mineral operations do not have unacceptable adverse impacts on the historic environment. It requires that heritage assets are conserved in a manner appropriate to their significance, and places great weight on the conservation of designated heritage assets.</p> <p>Would working the site impact on a designated heritage asset/site and/or its setting?</p>

Criteria	Ref.	Score	Points	Scale of effect/impact	Considerations
Historic Environment – Archaeology	30	++ + - --	4 3 2 1	Little or known earthworks and/or known archaeology with low potential for buried archaeology Occasional or localised earthworks (may not be visually evident) and/or known archaeology with limited potential for buried remains Frequent, visible and interpretable earthworks and/or some known archaeology with significant potential for buried remains Extensive, visible and interpretable earthworks and/or known archaeology with high potential for buried remains.	What is the archaeological importance of the site?
Historic Environment –historic landscape	31	++ + - --	4 3 2 1	Historic field pattern largely gone Remnant field patterns with significant boundary loss Recognisable field patterns with some boundary loss Evidence of multi-period landscape and/or intact field pattern (as indicated by 1 st edition OS or earlier)	Is the historic character of the landscape strong?
Best and most versatile agricultural land	32	++ + -	4 3 2	The site lies within an area where there is a low likelihood of bmv land (less than 20% of the land is likely to be bmv). The site lies within an area where there is a moderate likelihood of bmv land (20-60% of the land is likely to be bmv). The site lies within an area where there is a high likelihood of bmv land (more than 60% is likely to be bmv).	What is the likelihood of the site containing bmv land? At this stage we do not have detailed working and restoration proposals to assess how much bmv land will be conserved and in many cases we do not have information about the presence of bmv land. We have decided therefore to use DEFRA's predictive agricultural land classification map to indicate whether the site lies within an area where there is a high, moderate or low likelihood of bmv land being present. In principle areas of bmv land should be protected.
Maximum Environmental total			53		
DUTY TO COOPERATE					
Conformity with other local plans (allocations)		++ - --	4 2 1	The site is in conformity with other local plans The site is not in conformity but the issue is likely to be resolvable The site is not in conformity with other local plans and the issue is unlikely to be resolved	NPPF requires local planning authorities to co-operate on strategic cross border issues which includes ensuring that local plans are compatible Is the site in conformity with other local plans?

APPENDIX 1

The Main Impacts of Sand and Gravel Working

We have identified and described in more detail here, the main impacts from the working of sand and gravel sites, which will be assessed in the site selection methodology. These are set out in National Planning Practice Guidance as issues that should be addressed when assessing the impact of new sites for mineral extraction.

Visual Intrusion

- 1.1 Mineral working can impact visually both on local communities and on the character of the landscape both during and following working in respect of reclamation. The main visual impact of mineral working is that it can change or destroy some of the existing features of the landscape or landscape character. For example, extraction in the Sherwood Sandstones leaves a moderately deep dry void with little on site material, other than soils for low level reclamation. For valley gravels, the relatively shallow nature of workings means that they are especially voracious in terms of land take, and therefore impact over a large area. The lack of suitable fill material and floodplain location has led to increased water areas, which can be alien to the existing landscape character.
- 1.2 The actual extraction process can be visually intrusive in terms of quarry faces, overburden mounds, processing plant and machinery, lighting and screening.

Noise

- 1.3 Most noise from mineral operations is created by machinery used for extraction, processing and transportation. NPPG sets out that proposals for mineral development should;
 - Assess the main characteristics of the production process and its environs, including the location of noise-sensitive properties and sensitive environmental sites;

- assess the existing acoustic environment around the site of the proposed operations, including background noise levels at nearby noise-sensitive properties;
- estimate the likely future noise from the development and its impact on the neighbourhood of the proposed operations;

Dust

- 1.4 The NPPF states at paragraph 144 that unavoidable dust emissions should be controlled, mitigated or removed at source. Dust may be generated at mineral sites during a range of site preparation, excavation, stockpiling, loading, transportation and mineral-processing operations. Some land uses are more sensitive to dust, for example, hospitals and hi-tech industries have high sensitivity, schools and residential areas have medium sensitivity whilst farms and heavy industry have low sensitivity. Large dust particles (>30um), which make up the greatest source of dust emitted from mineral workings will largely deposit within 100m of sources. Intermediate sized particles (10-30 um) are likely to travel up to 200-500 m. Large/intermediate particles are classed as nuisance dust.

Air Quality

- 1.5 In line with research carried out by Arup Environmental in 1995, smaller particles of dust (<10 um) which make up a small proportion of dust emitted from most mineral workings can travel up to 1000m or more. These small particles (PM10s) are associated with effects on human health. Air Quality Strategy sets health-based standards and objectives for nine air pollutants of most concern. One of the pollutants that require measuring is the level of PM10s. Where the standards/objectives are not being met, Local Authorities are required to designate Air Quality Management Areas (AQMAs) and draw up Air Quality Action Plans setting out proposals to address the problem. The presence of an AQMA indicates that air quality is poor and may constrain the location of additional dust generating development.

Water Environment

- 1.6 Mineral working can affect both surface and ground water by physically removing the water course or requiring it to be diverted or by causing pollution. Extraction in

floodplains e.g. river valley sand and gravels can reduce storage capacity, impede flows and thereby increase the risk of flooding elsewhere. Potential obstructions include soil and overburden mounds and fixed plant. Guidance on flood risk in the NPPG requires MPAs to take into account flood risk in considering development proposals, and it identifies three flood zones from Zone 1 (lowest probability of flooding) to Zone 3 (highest probability of flooding). The NPPF Technical Guidance advises that a risk-based sequential test should be applied to proposals with the aim of steering new development to areas at the lowest probability of flooding. It classifies land uses according to their vulnerability to flooding; sand and gravel workings are classed as 'water compatible' development, which is appropriate development in any of the three zones. It is preferable however to locate development in Zone 1 in the first instance. At the planning application stage flood risk assessments will need to be carried out for sand and gravel workings to assess whether the development would increase the risk of flooding.

- 1.7 Extraction can also affect groundwater levels and may cause pollution, thereby affecting abstraction sources. Groundwater Source Protection Zones are defined for 2000 groundwater sources used for public drinking water supply. It can also affect surrounding features, such as canals and ecological sites through draw down and a reduction in river flows.

Transport

- 1.8 The transport of minerals and the importation of waste and other inert material to infill mineral voids can generate large numbers of lorry movements. All sand and gravel is currently transported to market by road, although conveyors and barge are usually used to transport excavated mineral to the processing plant. Government policy is to encourage the non-road transport of minerals where this is feasible and environmentally beneficial however, such opportunities appear to be limited currently for the transport of sand and gravel. Mineral traffic can have considerable impact on local amenity, creating problems such as public safety, congestion, noise, vibration, air pollution and visual intrusion. These problems are potentially most severe where lorries use minor roads unsuited to their weight and size, where they pass through

sensitive areas or areas with poor accident records and at the point of access to the public highway.

Cumulative Impact

- 1.9 There may be situations where there is a concentration of mineral workings close to a community either concurrently or successively over a long period of time. There may also be other significant commercial operations in the area which add to the overall impact of development in the area. The impact of such development, cumulatively, may be damaging to local amenity and the general quality of life.

Biodiversity/Geodiversity

- 1.10 As well as the loss of top soil, habitats and species through mineral excavation, other effects of mineral workings can also impact on biodiversity/geodiversity. Noise might affect animals and birds. Dust might affect vegetation through coating and thereby impact on the health of trees, plants etc. Dust may produce chemical effects resulting in changes in soil chemistry which may lead to changes in plant chemistry. Contaminated run off from mineral workings could affect flora and fauna in nearby water courses. Important geological features may be lost through extraction.
- 1.11 Government policy in the NPPF is to protect the most important habitats, species and geological sites through designation, ranging from sites of international (Special Areas of Conservation, Special Protection Areas), national (Sites of Special Scientific Interest, National Nature Reserves) through to those of regional and local importance (Regional Important Geological Sites, Sites of Importance for Nature Conservation/Wildlife Sites, Local Nature Reserves). The weight of protection for sites varies with the level of their designation. More recently, through Biodiversity Action Plans, greater emphasis has been placed on protecting the environment as a whole outside designated areas, including a network of natural habitats. Sites and features which provide wildlife corridors, links or stepping stones from one habitat to another are important to enable the migration and dispersal of wildlife. Such features include rivers, riverbanks, hedgerows, ponds and small woods.

Ancient Woodland/Veteran trees

- 1.12 Ancient woodland is a valuable biodiversity resource for its diversity of species and for its longevity as woodland. Once lost it cannot be re-created. Most of these woodlands are designated as SSSIs or SINCS. Any woodland outside the protection of designation should also be protected from loss or deterioration. Aged or veteran trees found outside ancient woodland are also valuable for biodiversity and their loss should be avoided.

Landscape

- 1.13 Both mineral extraction and the reclamation of worked out sites can have major impacts on the character of the landscape. Government policy aims to protect landscape character as whole rather than selected parts of it. The County Council's Landscape Character Assessment¹ identifies regional character areas and their component landscape types. It identifies key characteristics, which make up each landscape type. Mineral development should not have an unacceptable effect on landscape character and diversity.

Historic Environment

- 1.14 Mineral working can impact on the historic environment in several ways. Excavation may impact on the setting of historic sites, buildings or monuments and may lead to damage or loss of unknown archaeological sites. The effects of subsidence, de-watering, vibration and dust can also affect the historic environment.
- 1.15 Government policy is to protect the most important features and sites of historic importance through designation, ranging from sites of international (World Heritage Site) and national (Scheduled Monuments, Listed Buildings, Historic Parks and Gardens) to those of local importance (Conservation Areas, Sites and Monuments Record). The weight of protection for sites varies with the level of their designation. More recently through Historic Landscape Characterisation, greater emphasis is placed on protecting the historic environment as a whole outside designated areas. Historic Landscape Characterisation Maps provide information on the historic features

¹ The Landscape Character of Derbyshire – February 2004

that survive in the landscape today. Such elements need to be conserved if the historic character of the landscape is to be maintained.

Best and Most Versatile Agricultural Land

- 1.16 The majority of mineral workings affect agricultural land. Government policy aims to protect the best and most versatile agricultural land (grades 1, 2 and 3a) from being depleted. However, rather than giving blanket protection to such land, agricultural quality should be considered alongside other sustainability factors for individual sites.

Restoration

- 1.17 A range of options exists for the after use of mineral workings. Reclamation can provide the opportunity to fill the site to original levels or, depending on the scale of the void and the availability of suitable fill material, it can be reclaimed to a lower level for 'dry' uses or to a water use. A site could be returned to its original use or an alternative use, which may benefit the local or wider community. Opportunities exist, for example, to enhance landscape character, increase biodiversity, provide additional informal and formal recreational facilities or provide water storage. In considering reclamation options account needs to be taken of any relevant guidance/plans/strategies/initiatives including: SPG on the after use of sand and gravel sites in the Trent Valley, City and District Local Plans/DPDs including green belt policies, Lowland Derbyshire BAP, On Trent Initiative etc.

Birdstrike

- 1.18 The increasing reclamation of worked out sand and gravel pits to wetlands, designed to attract a diverse range of birds, has led to a national concern that such uses increase the risk of birdstrike hazard around aerodromes. A system of safeguarding has been introduced to counter the threat of birdstrike hazard. East Midlands Airport lies approximately 2 km to the south of the Trent Valley. The 13km birdstrike safeguarding zone centred on the airport covers much of the sand and gravel resource area; additionally, the smaller aerodrome of Derby airport at Egginton lies within the resource area. The need to avoid increasing the risk of birdstrike to unacceptable levels is a major issue, therefore, when considering potential restoration schemes.

APPENDIX 2

Derbyshire and Derby Minerals Local Plan - Sites Assessment Strategic Area Assessment

1.0 Introduction

- 1.1 In considering how best to make provision for the future supply of sand and gravel, a key issue is where that provision should be made. Sand and gravel deposits in Derbyshire comprise the river valley gravels and bedrock deposits. River gravels include tracts of sand and gravel which occur beneath alluvium along the floors of the major valleys, and in the river terrace deposits flanking the valley sides in the Trent, Derwent and lower Dove river valleys. One of the key issues that we have addressed is where to locate additional sand and gravel provision.
- 1.2 Historically, the majority of large scale sand and gravel within Derbyshire has taken place in the river gravels, on the Trent, Derwent and lower Dove mainly in the area generally to the east of the village of Hilton. The adopted Minerals Local Plan (Policy MP21) allocates sites for working in this broad area of the valley. As resources in this area become increasingly worked out, there is pressure to work deposits in the more western parts of the lower Dove Valley, an area in which major extraction has so far not taken place.
- 1.3 A major strategic issue, therefore, is to consider whether the future supply of sand and gravel should continue to be met mainly from the Trent and Derwent Valley or whether the Lower Dove Valley should now contribute towards the future supply of sand and gravel in Derby and Derbyshire, to help relieve the impact on communities in the Trent Valley.
- 1.4 In considering these issues, the mineral planning authority has sought to identify those broad areas where extraction would be most sustainable.

2.0 Trent and Derwent Valleys

History

- 2.1 The majority of sand and gravel working has taken place in this area of Derbyshire in the past. There are currently four active operations; Swarkestone, Shardlow, Willington and Attenborough, supplying aggregates mainly to the nearby conurbations of Derby and Nottingham. One further quarry; Elvaston is inactive but is likely to become active again during the Plan period.

Minerals Local Plan

- 2.2 The adopted Minerals Local Plan, through Policy MP21, allocates all of its sites for working in this area.

Suggested Sites

- 2.3 The preparation of this Plan has resulted in five sites being put forward for consideration as sand and gravel operations in the Minerals Local Plan in this area. This includes one site, which is allocated in the adopted MLP, but which has not been the subject of a planning application. They are listed below:

Extension to Willington Quarry

Swarkestone Quarry (northern extension)

Swarkestone Quarry (southern extension)

Extension to Elvaston Quarry

Repton/Foremark (new site)

Location and General Description of the Area

- 2.4 This area lies about 3km to the south of Derby and its eastern end lies a similar distance from the Nottingham conurbation. It is made up of broad areas of low lying, flat or gently undulating grazing or arable land, punctuated by small to medium sized settlements.

Resources

- 2.5 The principal river is the Trent; the lower reaches of its tributaries and the Derwent also flows through this area, joining the River Trent near Shardlow. Deposits are typically between 4 and 8 metres thick and consist of a mixture of sand and gravel in varying proportions, from which coarse and fine aggregates are produced mainly for use in concreting.

End Use of and Market for Mineral

- 2.6 Over 80% of the river valley sand and gravel is used in the manufacture of concrete, either ready mixed concrete or concrete products. Quarries in this area principally supply the Derby and Nottingham conurbations and nearby concrete product manufacturers e.g. Stanton Bonna at Ilkeston and Marshalls at Sawley.

Contribution of area to ensuring supply

- 2.7 The majority of the County's current active sites are located in this area and the potential, therefore, for extensions is far greater.

Method of Working

- 2.8 Extraction initially involves the removal of topsoil, subsoil and overburden. The exposed sand and gravel is excavated by hydraulic excavators and loaded onto conveyors, dump trucks or barges to be transported to the processing plant. The high water table at most river valley quarries means that workings have to be pumped to enable dry extraction.
- 2.9 At the plant, a series of washing, crushing and screening operations grade and sort the minerals into different sizes to meet the specifications of the construction industry e.g. grain size, shape and crushing strength. Waste is pumped into silt ponds. The final processed material is stored in silos or stockpiles according to size before either being transported to the customer or being used on site in the production of ready mixed concrete. All sand and gravel in Derbyshire is transported to markets by road.

Visual Intrusion

- 2.10 There are many settlements associated with the river valleys and therefore the impact of mineral workings on local communities is an important consideration. The landscape of this area is characterised by pastoral and arable agricultural land set within broad, open river valleys with many urban features. These include power stations, pylons, road and rail lines and mineral workings. The visual impact of working can be a concern; the relatively shallow nature of river valley workings means that they are especially voracious in terms of land take, and therefore can impact over a large area. Additionally, the height of some of the structures at the processing plant and stockpile areas can be particularly intrusive in these relatively flat open landscapes. The lack of suitable fill material and floodplain location has led to increased large scale water areas which are alien to the established landscape character.

Noise

- 2.11 Most noise from mineral operations is created by the machinery used for extraction, processing and transporting minerals to the market. Valley gravel extraction is a relatively quiet process, usually carried out in a de-watered working by dragline. Some noise will be generated at the processing plant and any associated ready mix concrete/asphalt plants. Noise is also generated from lorries, which are the principal means of transporting material to markets or transporting infill material.
- 2.12 In order to preserve areas of tranquillity, in the absence of any other data, CPRE Tranquil Area Maps have been used to provide strategic information on the existing noise climate. The area does not include any tranquil areas principally because it contains many urban features such as primary roads, pylons, mineral workings etc. The river valleys are generally, however, more populated than the Sherwood Sandstones and therefore are likely to contain more sensitive receptors that potentially could be affected by noise.

Dust

- 2.13 Due to the wet nature of valley gravel workings dust is not a major problem during the extraction process. Most sources of dust are likely to be from the processing and stockpiling of the mineral. The river valleys are generally, however, more populated than the Sherwood Sandstones and are likely, therefore, to contain more sensitive receptors that potentially could be affected by dust.

Air Quality

- 2.14 As explained above, dust tends not to be a problem associated with valley gravel extraction. MPS2 advises that small particles(<10 um) which make up as small proportion of dust emitted from most mineral workings can travel up to 1000 metres or more. These small particles (PM10s) are associated with effects on human health. Unacceptable levels of PM10s are one factor that may result in the establishment of an Air Quality Management Area to address the problem. The presence of such an area has been regarded as an indicator that air quality is poor and therefore, in principle, might constrain the location of additional dust generating development.
- 2.15 The area does not contain any designated Air Quality Management Areas, in which air quality objectives are not being met, which so far in Derbyshire have been associated with road traffic pollution.

Water Environment

- 2.16 The working and reclamation of river gravel deposits raises a number of water related issues such as flood risk, ground and surface water protection and the impact on the ecological and recreational value of the river corridor. The Valley Gravels all lie within Flood Zone 3 where there is the highest possibility of flooding. The EA classifies sand and gravel workings as being water compatible i.e. they can be developed without affecting flooding issues but the plant and infrastructure are not so will need to undertake SFRA and apply sequential test to these. The EA classifies aquifers as major or minor depending on the extent that they are used for public/private water supply within a given area. In principle, therefore major aquifers require the greatest protection from development that might be harmful to them. The valley gravels are

classed as a minor aquifer and not, therefore, as important as the Sherwood Sandstones.

Transport

- 2.17 All mineral in Derbyshire is transported to the market by road. The river valleys contain major roads, which provide excellent links to transport sand and gravel to markets i.e. urban areas; the A50 provides an east-west link whilst the A38 and the M1 provide north-south links. The impact on communities from mineral lorries using local roads to access the primary road network is an important consideration.

Landscape

- 2.18 The river valley gravels are located within the Trent Valley Washlands Landscape Character Area and predominantly within the Riverside Meadows and Lowland Village Farmlands Landscape Character Types (LCT). Field work undertaken as part of the Derbyshire Landscape Character Assessment has recorded impacts of recent change on the landscape. One of the factors considered in this survey was the impact of mineral extraction including sand and gravel. These impacts were recorded in terms of whether the impact was high, moderate or low, and whether widespread or localised. The assessment concluded that, for the eastern area of the valley, the impact of mineral extraction is greater and more widespread, having a major effect on the established landscape character.

Ecology

- 2.19 The river valleys are areas of ecological importance. They contain significant areas of national priority habitats and support viable populations of national priority species. The rivers themselves and their associated valleys are recognised as valuable wildlife corridors, both for terrestrial animals and for migratory birds. Priority habitats summarised in the Derbyshire LCA include wet woodland, cereal field margins, floodplain grazing marsh, rush pasture, reedbeds, lowland fen meadows, neutral grassland, standing open water and canals, and rivers and streams. Past mineral extraction has led to the significant loss of priority habitats in the area, yet at the same

time provides some major opportunities to create other new linked and sustainable habitats within the riparian landscape.

Historic Environment

- 2.20 The river valleys are important archaeological areas. The Trent Valley has been a focus of human activity since early prehistoric times particularly from the Neolithic period onwards and is, therefore, very rich in archaeological remains. Much of the evidence for settlements is now only visible from aerial photographs although some upstanding monuments and areas of ridge and furrow do survive. There is great potential for well-preserved remains in the flood plains often associated with former river channels. These remains can be deeply buried and difficult to locate.

Best and most versatile agricultural land

- 2.21 The majority of mineral workings affect agricultural land. Government Policy aims to protect the best and most versatile agricultural land (grades 1, 2 and 3a) from being depleted. To carry out a strategic assessment of bmv land we have used the DEFRA predictive Agricultural Land Classification Map December 1983. This map denotes that agricultural land located on the alluvial deposits has a low or moderate chance of land being classified as bmv. (i.e. low – areas where less than 20% of the land is likely to be bmv and moderate where 20% to 60% of the land is likely to be bmv). Nearly all of the suggested sites are located within the alluvial deposits. On the terraces, deposits are located on slightly higher ground above the floodplain, and there is a higher chance that agricultural land will be bmv (i.e. areas where more than 60% of land is likely to be bmv).

Airport safeguarding

- 2.22 The increasing reclamation of worked out sand and gravel pits to wetlands, designed to attract a diverse range of birds, has led to a national concern that such uses increase the risk of birdstrike hazard around aerodromes. East Midlands Airport lies approximately 2 km to the south of the valley, whilst the smaller airfield at Egginton lies within the valley to the south west of Derby. The 13km birdstrike safeguarding zone centred on the East Midlands airport covers much of the eastern area of the

Trent Valley and therefore the need to avoid increasing the risk of birdstrike is a major consideration.

Restoration

- 2.23 The shallow nature of river valley workings enables them to be excavated and restored progressively in phases, which reduces the overall impact of working. The shallowness of workings also enables sites to be restored to original levels if suitable fill material is available. The floodplain location does, however, restrict their infilling to inert waste.
- 2.24 There is an increasing shortage of inert waste, which has resulted in more and more sites being reclaimed for water uses. Whilst such uses can provide important opportunities for nature conservation and water recreation, the impact of increasing large areas of water on the character of the landscape is a concern. Additionally, large areas of water have raised concerns in relation to increasing the risk of birdstrike hazard around aerodromes, as explained above.

Cumulative Impact

- 2.25 The river valleys are well populated, with a number of towns and villages in the area. Large scale extraction has taken place in the Trent Valley since the 1940s and the cumulative impact of workings on local communities and the environment is an important issue that needs to be taken into account. Historically, workings have tended to be small to medium in scale and geographically spread throughout the area, thereby, to some extent, dissipating the overall effects of extraction. However, workings have impacted on the local amenity of some communities for a number of years; mineral traffic is often cited as a particular nuisance.
- 2.26 Extraction has had a major impact on the overall landscape character of the area particularly in terms of after-uses. In the past, sites were restored mainly to agriculture, although not always sympathetic to traditional farming patterns. In more recent times, they have been increasingly reclaimed to open water, which is not a key or prominent characteristic of the area. Mineral working and associated restoration can however

provide opportunities for enhancing landscape character and biodiversity through the reinstatement of traditional features such as wetlands, floodplains and woodlands. It can also provide additional community benefits by way of recreation and increased accessibility to the countryside.

2.27 The main factors which would favour the allocation of sites in this area are:

- Major widespread impacts already exist from current/previous workings
- Good quality deposits
- Major potential for extensions
- Shallow workings on low lying land– visually unobtrusive
- No ‘tranquil areas’ present
- Minor impact from dust – wet working
- Good road links to main market areas
- River gravels classed as a Minor Aquifer
- Low to moderate likelihood of bmv land for much of area

2.28 The main factors which would count against the allocation sites in this area are:

- Cumulative impact on communities greater in this area
- Flood zone 3 where there is a high risk of flooding
- River corridors ecologically important
- Rivers corridors archaeologically important
- 13 km airport safeguarding zone covers much of the area
- Lack of availability of inert waste

3.0 Lower Dove Valley

Planning History

3.1 Apart from a site at Egginton, which was worked in the 1960s and which is now restored to some extent, sand and gravel resources in this part of the valley have not

been worked on any great scale, although a number of borrow pits were opened up in the area during the construction of the A50 in the 1990s.

Suggested Sites

- 3.2 The preparation of this Plan has resulted in two sites being proposed for working in this area. They are listed below:

Foston (new site)

Egginton – Extension to former Egginton Quarry

Location and General Description of the area

- 3.3 This area lies to the south west of Derby, stretching from the county boundary in the west to the confluence of the Rivers Trent and Dove near Newton Solney.

Resources

- 3.4 Sand and gravel deposits within this area consist of river gravels. The principal river in this area is the Lower Dove. Information indicates that the deposits are of similar quality and depth to those in the Trent Valley i.e. between 4 and 8 metres and consisting of a mixture of sand and gravel.

End Use of and Market for Mineral

- 3.5 It is anticipated that any material won from this part of the valley would be used for similar end uses to the current sites to the east of Hilton i.e. the manufacture of concrete, either ready mixed concrete or concrete products. In terms of markets Derby is located about 6 km away and Burton and Uttoxeter are easily accessible. Nottingham is a little further away i.e. about 30 km to the eastern edge of the conurbation.

Contribution of area to ensuring supply

- 3.6 Policy MP18 of the adopted Minerals Local Plan favours extensions to existing sites, rather than new sites, provided that they are environmentally acceptable. Given that

this area contains no active sites and that the four sites suggested are all new sites, this area has to be considered less favourable in terms of satisfying this policy than the Trent Valley area.

Method of Working

- 3.7 Extraction initially involves the removal of topsoil, subsoil and overburden. The exposed sand and gravel is excavated by dragline or hydraulic excavators and loaded onto conveyors, dump trucks or barges to be transported to the processing plant. The high water table at most river valley quarries means that workings have to be pumped to enable dry extraction.
- 3.8 At the plant a series of washing, crushing and screening operations grade and sort the minerals into different sizes to meet the specifications of the construction industry e.g. grain size, shape and crushing strength. Waste is pumped into silt ponds. The final processed material is stored in bins or stockpiles according to size before being used on site e.g. in the production of ready mixed concrete or transported to the customer. All sand and gravel in Derbyshire is transported to markets by road.

Visual Intrusion

- 3.9 There are many settlements associated with the river valleys, and therefore the impact of mineral workings on local communities is a major issue. The landscape of this area is characterised by pastoral and arable agricultural land set within broad, open river valleys with some urban features including pylons, road and rail lines. The visual impact of working can be a concern; the relatively shallow nature of river valley workings means that they are especially voracious in terms of 'land take', and can impact, therefore, over a large area. Additionally, the height of some of the structures at the processing plant and stockpile areas would be particularly intrusive in the flat open floodplains. The lack of suitable fill material and floodplain location has led to increased large scale water areas, which would be alien to the existing landscape character.

Noise

- 3.10 Most noise from mineral operations is created by machinery used for extraction, processing and transporting minerals to the market. Valley gravel extraction is a relatively quiet process usually carried out in a de-watered working by dragline. Some noise will be generated at the processing plant and any associated ready mix concrete/asphalt plants. Noise is also generated from lorries which are the principal means of transporting material to markets or transporting infill material.
- 3.11 In order to preserve areas of tranquillity, in the absence of any other data, CPRE Tranquil Area Maps have been used to provide strategic information on the existing noise climate. 'Tranquil Areas' have been defined as places that are sufficiently away from the visual noise of development or traffic to be considered unspoilt by urban influences. A few pockets of the area lying adjacent to the River Dove, have been defined as 'Tranquil Areas'. The river valleys are generally, however, more populated than the Sherwood Sandstones and therefore are likely to contain more sensitive receptors that potentially could be affected by noise.

Dust

- 3.12 Due to the wet nature of valley gravel workings dust is not a major problem during the extraction process. Most sources of dust are likely to be from the processing and stockpiling of the mineral. The river valleys are generally, however, more populated than the Sherwood Sandstones and therefore are likely to contain more sensitive receptors that potentially could be affected by dust.

Air Quality

- 3.13 As explained above, dust tends not to be a problem associated with valley gravel extraction. MPS2 advises that small particles(<10 um) which make up a small proportion of dust emitted from most mineral workings can travel up to 1000 metres or more. These small particles (PM10s) are associated with effects on human health. Unacceptable levels of PM10s are one factor that may result in the establishment of an Air Quality Management Area to address the problem. The presence of such an

area has been regarded as an indicator that air quality is poor and therefore might constrain the location of additional dust generating development.

- 3.14 The area does not contain any designated Air Quality Management Areas, in which air quality objectives are not being met, which so far in Derbyshire have been associated with road traffic pollution.

Water Environment

- 3.15 The working and reclamation of river gravel deposits raises a number of water related issues such as flood risk, ground and surface water protection and the impact on the ecological and recreational value of the river corridor. The valley gravels lie within Flood Zone 3 where there is the highest possibility of flooding. The EA classifies aquifers as major or minor depending on the extent that they are used for public/private water supply within a given area. In principle therefore major aquifers require the greatest protection from development that might be harmful to them. The valley gravels are classed as a minor aquifer and, therefore, not so important as the Sherwood Sandstones.

Transport

- 3.16 All mineral in Derbyshire is transported to the market by road. The river valleys contain major roads which provide excellent links to transport sand and gravel to markets i.e. urban areas; the A50 provides an east-west link whilst the A38 and the M1 provide north-south links. The impact on communities from mineral lorries using local roads to access the primary road network is an important consideration.

Landscape

- 3.17 The river valley gravels are located within the Trent Valley Washlands Landscape Character Area and predominantly within the Riverside Meadows and Lowland Village Farmlands Landscape Character Type (LCT). Field work undertaken as part of the Derbyshire Landscape Character Assessment has recorded impacts of recent change on the landscape. One of the factors considered in this survey was the impact of mineral extraction including sand and gravel. These impacts were recorded in terms

of whether the impact was high, moderate or low, and whether widespread or localised. The Assessment demonstrated that, for the area west of Hilton, there has been little impact of mineral extraction limited to a small number of borrow pits used in the construction of the A50, and the impacts are generally lower and localised.

Ecology

- 3.18 The river valleys are areas of ecological importance. They contain significant areas of national priority habitats and support viable populations of national priority species. The rivers themselves and their associated valleys are recognised as valuable wildlife corridors, both for terrestrial animals and for migratory birds. Priority habitats summarised in the Derbyshire LCA include wet woodland, cereal field margins, floodplain grazing marsh, rush pasture, reedbeds, lowland fen meadows, neutral grassland, standing open water and canals, and rivers and streams. Although there have been some losses to existing priority habitats, mineral extraction provides only limited opportunities to create new sustainable priority habitats as part of an agricultural landscape.

Historic Environment

- 3.19 The river valleys are important archaeological areas. The Trent Valley has been a focus of human activity since early prehistoric times particularly from the Neolithic period onwards and therefore is very rich in archaeological remains. Much of the evidence for settlements is now only visible from aerial photographs although some upstanding monuments and areas of ridge and furrow do survive. There is great potential for well-preserved remains in the flood plains often associated with former river channels. These remains can be deeply buried and difficult to locate.

Best and most versatile agricultural land

- 3.20 The majority of mineral workings affect agricultural land. Government Policy aims to protect the best and most versatile agricultural land (grades 1, 2 and 3a) from being depleted. To carry out a strategic assessment of bmv land we have used the DEFRA predictive Agricultural Land Classification Map December 1983. This map denotes that agricultural land located on the alluvial deposits has a low or moderate chance of

land being classified as bmv. (i.e. low – areas where less than 20% of the land is likely to be bmv and moderate where 20 to 60% of the land is likely to be bmv). All of the suggested sites are located within the alluvial deposits. On the terrace deposits located on slightly higher ground above the floodplain there is a higher chance that agricultural land will be bmv (i.e. areas where more than 60% of land is likely to be bmv).

Airport safeguarding

- 3.21 The increasing reclamation of worked out sand and gravel pits to wetlands, designed to attract a diverse range of birds, has led to a national concern that such uses would increase the risk of birdstrike hazard around aerodromes. This area lies beyond the 13 km 'safeguarding zone' centred on the East Midlands airport and therefore the need to avoid potential 'birdstrike' is not such a major consideration for this area.

Restoration

- 3.22 The shallow nature of river valley workings enables them to be excavated and progressively restored in phases, which reduces the overall impact of working. The shallowness of workings also enables sites to be restored to original levels if suitable fill material is available. The floodplain location does however restrict their infilling to inert waste.
- 3.23 There is an increasing shortage of inert waste which has resulted in more and more sites reclaimed for water uses. Whilst such uses can provide important opportunities for nature conservation and water recreation, the impact of increasing large areas of water on the character of the landscape is a concern.
- 3.24 Additionally, large water areas have raised concerns in relation to the risk of potential birdstrike hazard around aerodromes as detailed above.

Cumulative Impact

- 3.25 The river valleys are well populated with villages located on the higher terraces that are freer draining and less prone to flooding. Sand and gravel resources in the Dove

Valley have not been worked on any great scale; working being limited to the relatively small Egginton pit in the 1960s, a number of borrow pits that were opened up during the construction of the A50 in the 1990s. Cumulative impact is not, therefore, a major consideration in this area.

3.26 The main factors which would favour the allocation of sites in this area are:

- Cumulative impact of mineral working not a consideration in this area
- Good quality deposits
- Shallow workings – visually unobtrusive
- Minor impact from dust – wet working
- Good major road links to main market areas
- River gravels classed as a Minor Aquifer
- Low to moderate likelihood of bmv land for much of area
- Airport safeguarding for birdstrike not a major issue for this area

3.27 The main factors which would count against the allocation of sites in this area are:

- Very few impacts on landscape character from current/previous workings
- No scope for extensions
- Pockets of tranquil areas present
- Flood zone 1 where there is a high risk of flooding
- River corridors ecologically important
- Rivers corridors archaeologically important
- Lack of availability of inert waste

Conclusion

As can be seen from the above, the main differences between the two areas are that:

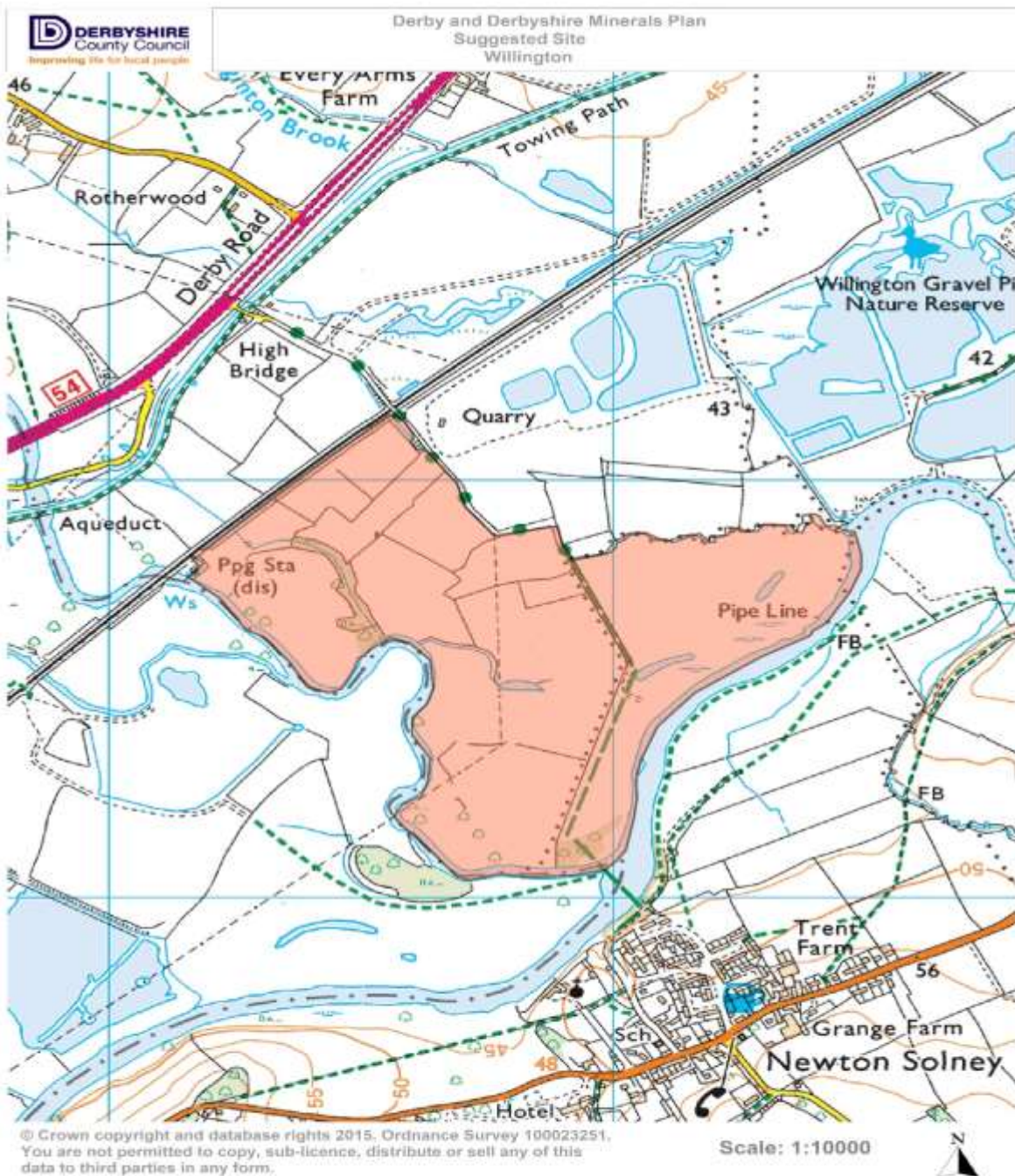
1. The Dove Valley has not experienced the impacts of mineral working to the extent which the Trent and Derwent valleys have. The landscape in the Dove Valley therefore remains largely intact.
2. There are opportunities for extensions to existing quarries in the Trent and Derwent valleys but not in the the Dove Valley.
3. This, however, results in ongoing cumulative impact of quarrying on communities in the Trent and Derwent valleys, whereas this is not an issue in the Dove valley.
4. Also, birdstrike is not so much of an issue in the Dove Valley, whereas it is in the majority of the Trent and Derwent valleys.

The main consideration, therefore, is whether extensions to existing sites in the Trent and Derwent Valleys, which result in cumulative impact are preferable to new sites in the Dove Valley where rather than cumulative impact being an issue, the opening up of a new area to quarrying is.

Responses from the sand and gravel drop-in sessions were split equally on this issue. Taking all these factors into account, it seems that there is no clear indication to which approach we should take on this issue and therefore, on balance, we consider that there should be no preference built into the site assessments in respect of the strategic areas i.e. this issue should not be set out as a specific criterion in the assessments. An assessment of all economic, social and environmental factors using a comparative method of scored and weighted comparison will ensure that all sites are considered on an equal footing regardless of their spatial location.

APPENDIX 3 – LOCATION PLANS OF SUGGESTED SITES

Site Name: Willington
Reference Number: SG01
Proposed By: Cemex

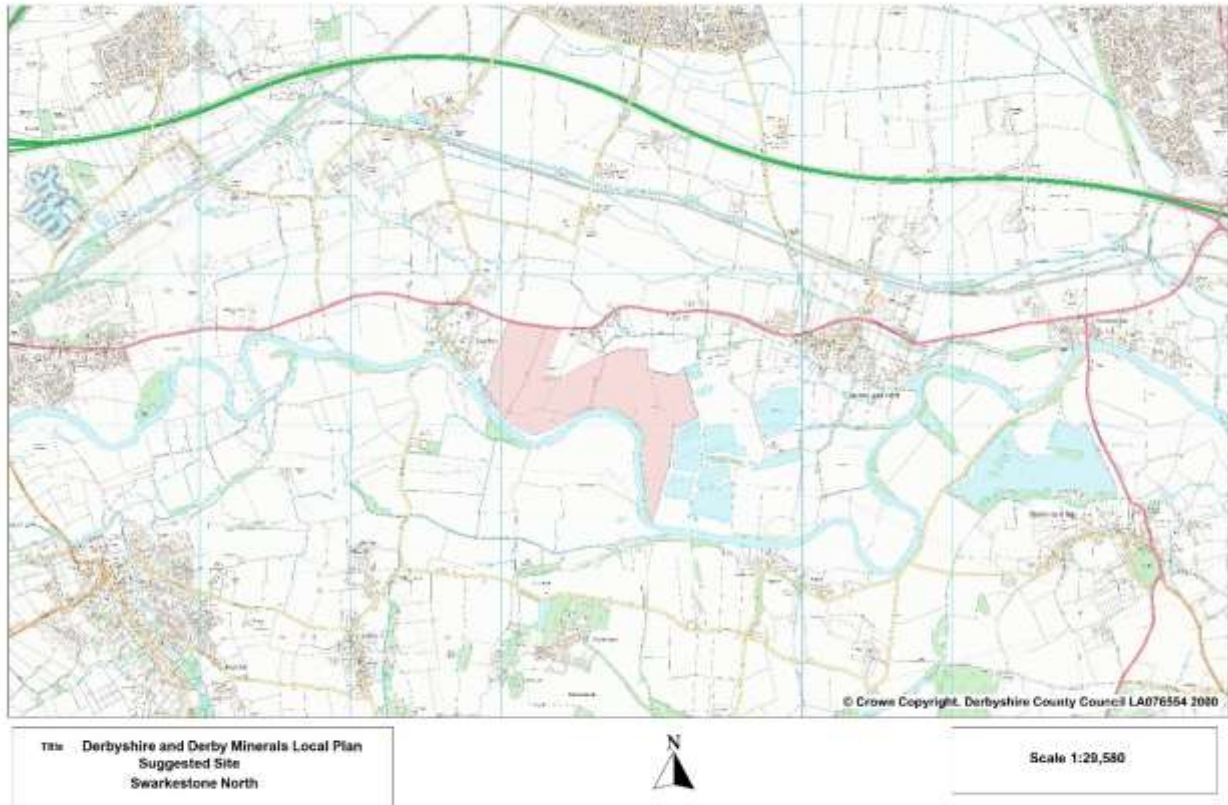


Swarkestone North

Site Name: Swarkestone North

Reference Number: SG02

Proposed By: Tarmac



Swarkestone South

Site Name: Swarkestone South

Reference Number: SG03

Proposed By: Tarmac



Title Derbyshire and Derby Minerals Local Plan
Suggested Site
Swarkestone South

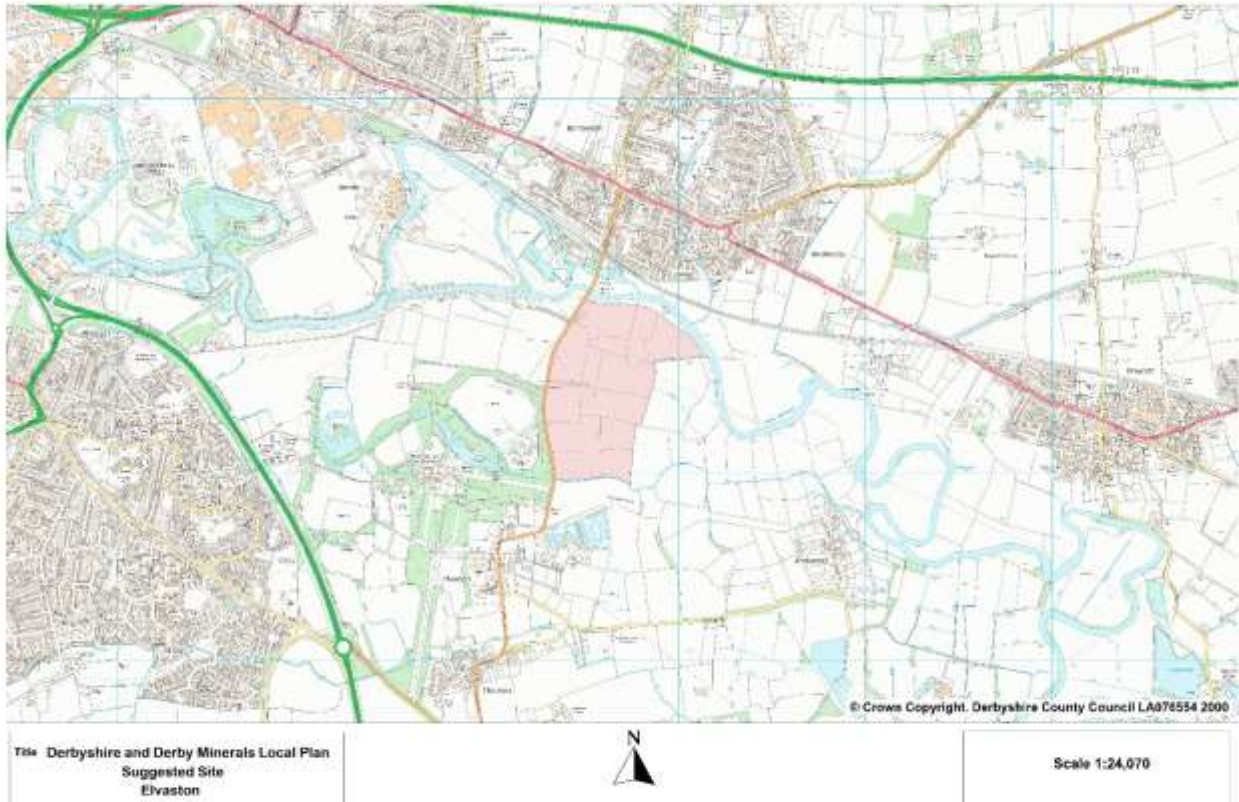


Scale 1:66,380

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Elvaston

Site Name: Elvaston
Reference Number: SG04
Proposed By: Tarmac



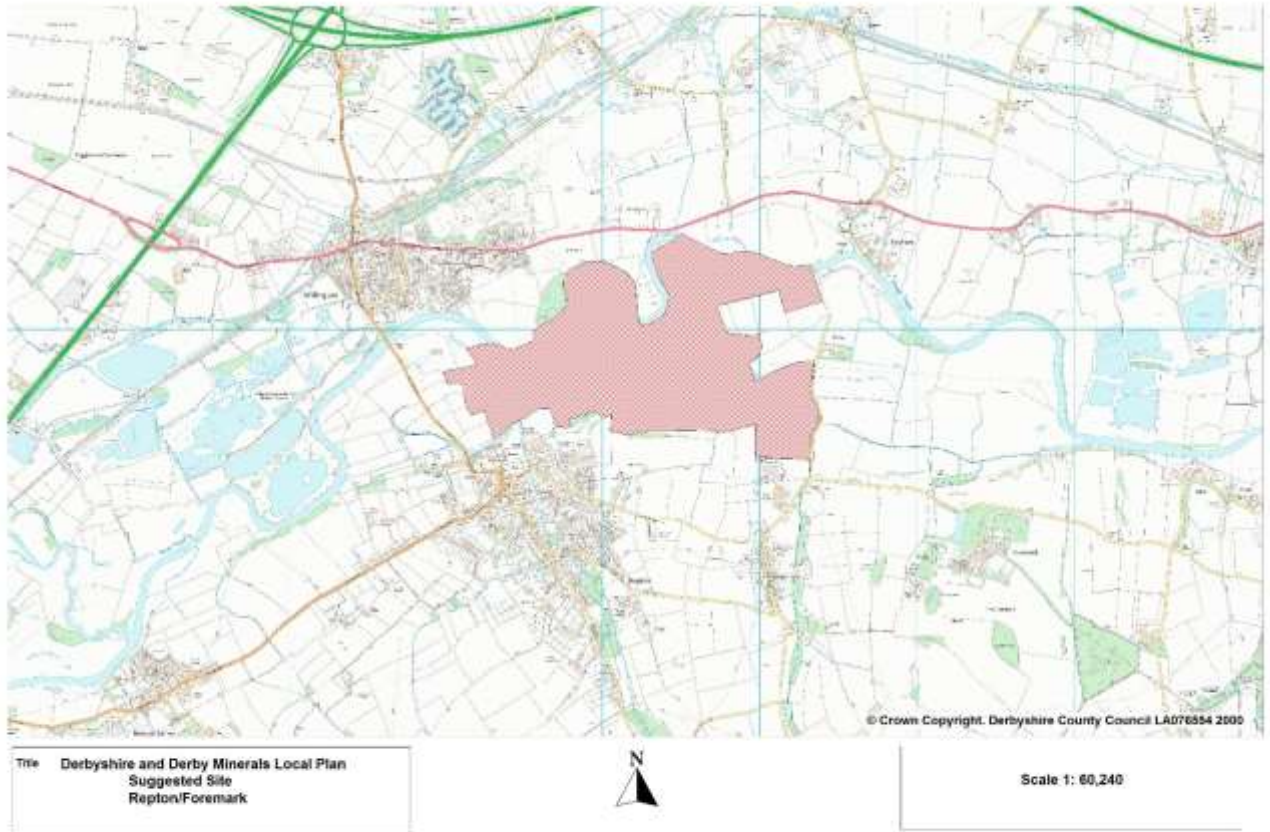
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Repton/Foremark

Site Name: Repton/Foremark

Reference Number: SG05

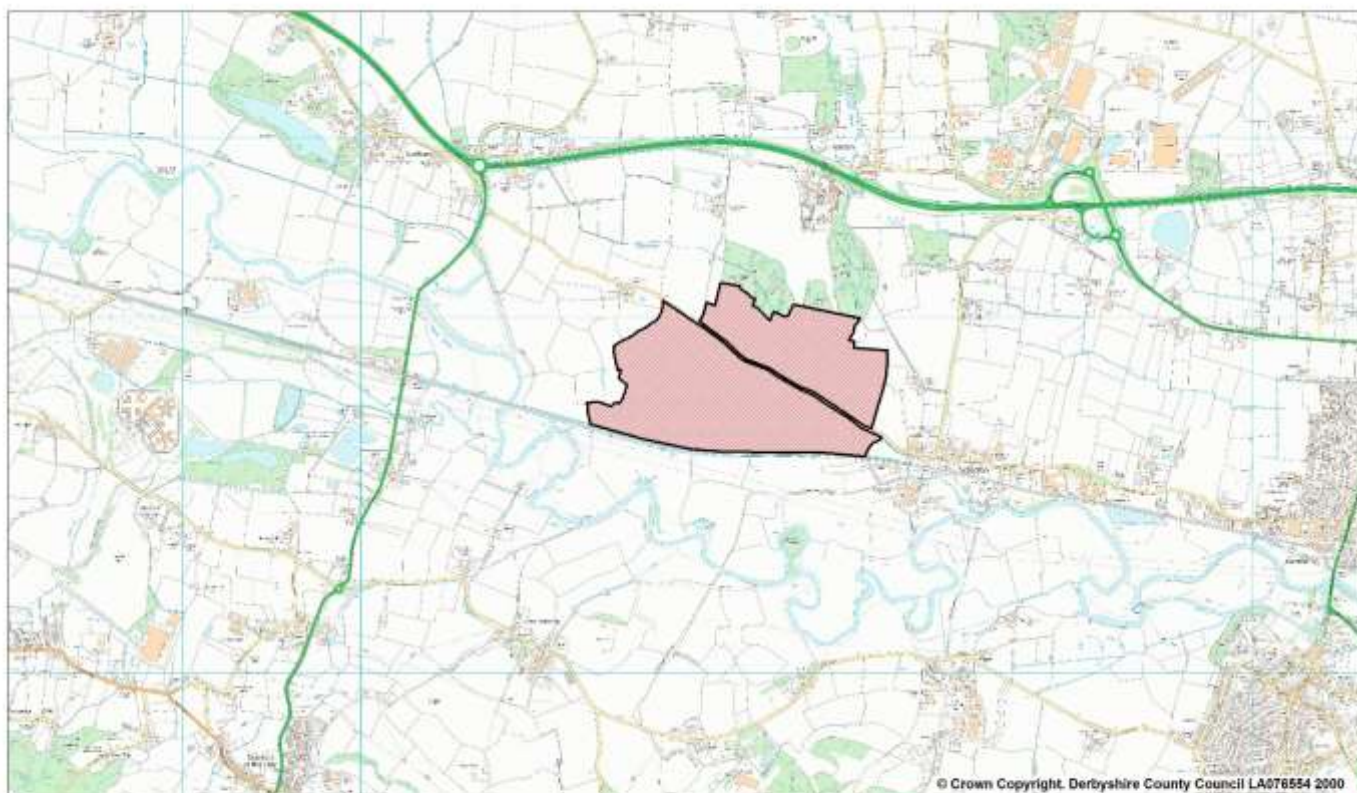
Proposed By: Hansons



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Foston

Site Name: Foston
Reference Number: SG06
Proposed By: Hansons



Title Derby and Derbyshire Minerals Plan
Suggested Site
Foston



Scale 1:57,380

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Eggington

Site Name: Eggington
Reference Number: SG07
Proposed By: Hansons



Title Derbyshire and Derby Minerals Local Plan
Suggested Site
Eggington



Scale 1: 22,880

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APPENDIX 4

Derbyshire and Derby Minerals Local Plan

Site Assessment – Information required in support of sites

The information must be able to demonstrate that the potential allocation is deliverable and can be worked in a sustainable way. This should be based on a concept of how the site would most likely be worked and restored.

Please note that the level of detail required is not that which is needed to support a detailed planning application or an Environmental Impact Assessment.

General Information

Name of Site

Name of Operator

Location and area of Site (OS base map)

Brief description of proposed site

Mineral Extraction

Mineral to be extracted

Total quantity of saleable minerals to be extracted (tonnes)

Size of proposed Site Area (ha)

Size of excavation area (ha)

Average Depth of deposit (metres)

Average Depth of overburden (metres)

Timing and proposed duration of mineral extraction (end date/no of years)

End use of minerals

Proposed markets for minerals

Distance to markets

Land ownership- legal and surface or underground rights to work the mineral

Mineral Processing

Location of processing plant

Plant Capacity:

Estimated normal capacity of processing plant (tpa)

Estimated maximum capacity of processing plant (tpa)

Will there be other processing plants on site?

Transport

Mode of transport for processed minerals

Proposed access to site

Routes to be used to the primary road network from the site

Number and size of loaded HGVs likely to enter or leave site daily

Residential Amenity and other land uses

How do you propose to mitigate any effects of mineral working on local amenity (residential and other sensitive receptors)?

Environmental Effects

Are there any statutory designations that would be affected by working the site?

How do you propose to mitigate any effects of working on the natural and historic environment?

Including effects on:

Landscape character

Biodiversity

Geological Features

Historic Environment

Archaeology

Woodland

Agricultural Land

Is any part of site classed as 'Best and Most versatile' agricultural land? If so how much is likely to be permanently lost?

Water Resources

How do you propose to mitigate any effects of working on surface and ground water?

Restoration and after- use

What is the proposed after-use of the site?

Will the scheme require importation of waste?

If so, identify nature and source of waste

Estimate of quantity of waste to be imported and timescales (tpa)

Mode of transport for waste

Will the restoration scheme provide any environmental benefits?

For example:

increased biodiversity

increased public recreation areas

reclamation of derelict land.

Benefits

Are there any other benefits from working the site?

For example:

Economic importance of mineral

Employment opportunities

Other Information

Information on any other significant planning issues that you think apply to this site.

Please note that this information will be publicly available.