



## Marblaegis Mine, Nottinghamshire

### Periodic Review of Mineral Permissions pursuant to Section 96 of Environment Act 1995

#### PLANNING STATEMENT

## TABLE OF CONTENTS

### FORMS AND CERTIFICATES

### PLANNING STATEMENT

<b>1.</b>	<b>INTRODUCTION .....</b>	<b>1</b>
	Overview.....	1
	The Site.....	1
	Planning History .....	2
	Statutory Basis of the Submission.....	3
	Environmental Impact Assessment.....	5
	The Applicant .....	6
	Publication .....	7
<b>2.</b>	<b>THE SITE .....</b>	<b>8</b>
	Introduction.....	8
	Location.....	8
	Site Description and Setting .....	8
	Sensitive Receptors.....	14
	Employment .....	15
	Planning History .....	15
<b>3.</b>	<b>DEVELOPMENT PROPOSALS .....</b>	<b>17</b>
	Introduction.....	17
	The Review Proposals .....	17
	The Section 73 Applications .....	32
<b>4.</b>	<b>ENVIRONMENTAL CONSIDERATIONS.....</b>	<b>33</b>
	Introduction.....	33
	Hydrogeology.....	34
	Surface Stability.....	37
	Vibration.....	39
	Air Quality.....	42
	Ecology.....	42
	Landscape.....	43
	Noise.....	43
	Socio Economic.....	43
	Traffic.....	44
<b>5.</b>	<b>PLANNING POLICY .....</b>	<b>46</b>
	Introduction.....	46
	National Policy .....	46
	The Development Plan.....	48
	Policy Summary .....	53
<b>6.</b>	<b>PROPOSED CONDITIONS .....</b>	<b>54</b>
	Introduction.....	54
	Schedule of Proposed Conditions.....	54
<b>7.</b>	<b>CONCLUSIONS .....</b>	<b>57</b>

## LIST OF DRAWINGS

Drawing Number	Drawing Title	Size	Scale
MM 2/1	Site Location	A3	1:50,000
Plan 1	EL-162 Marblaegis & Glebe Mine Extent of ROMP review site	A3	1:35,000
Plan 2	EL-163 Marblaegis Mine Extent of ROMP review site	A1	1:10,000
Plan 3	Ecological and Cultural Heritage Designations (SLR)	A3	1:40,000
Plan 4	EL-174 Planning and landownership	A3	1:35,000
Plan 5	EL-175 Geology	A3	1:10,000
Plan 6	EL-176 Mining Information Plan	A3	1:35,000
Plan 7	EL-177 Mining Development Plan	A1	1:10,000
Plan 8	EL-178 Blast Vibration Monitoring Plan	A1	1:10,000

## LIST OF APPENDICES

Appendix Number	Appendix Title
1	NCC Notice of ROMP Review.
2	A) Marblaegis Mine Screening request (December 2015). B) Nottinghamshire County Council Screening opinion (22 <sup>nd</sup> January 2016).
3	Existing Marbalegis & Glebe mine planning consent and approved plans (30 <sup>th</sup> June 1999).
4	Costock extension consent and approved plan ref: 8/11/01544/CMA (1 <sup>st</sup> February 2012).
5	Proposed scheme for blast vibration monitoring.
6	FPCR Silver Seal Mine - Nature Conservation Management Plan - July 2012.
7	FPCR Silver Seal Mine – Butterfly Monitoring Surveys - October 2014.
8	British Gypsum - Condition 12 - Silver Seal Mine – Annual Aftercare report – July 2015.
9	British Gypsum - Condition 5 'Mining Development Plan' update - July 2015.

## FORMS AND CERTIFICATES

The following submissions are being made to Nottinghamshire County Council:

- 1) Periodic review of mineral planning permissions (RoMP) pursuant to Section 96 and Schedule 14 of the Environment Act 1995.**

## 1. INTRODUCTION

### Overview

- 1.1 This document comprises a ‘Planning Statement’ and has been prepared by SLR Consulting Limited ('SLR') on behalf of Saint-Gobain Construction Products UK Limited, trading as British Gypsum ('the applicant'). The statement is part of the submission being formally made to Nottinghamshire County Council (as Mineral Planning Authority, ‘MPA’) in support of an “*application for the determination of new planning conditions*” under the Environment Act 1995 ('the 1995 Act') at Marblaegis and Glebe Mines, East Leake.
- 1.2 It should be noted that two other planning applications have been submitted to the MPA alongside the 1995 Act submission to ‘vary’ existing planning conditions that limit the duration of mining operations for the same site. These planning applications are made under s.73 of the Town and Country Planning Act 1990.
- 1.3 As such the three submissions comprise:
- Application form and certificates for the ROMP review under the 1995 Act;
  - A Planning Statement (this document) addressing the review submission (and where appropriate refers to the separate s.73 planning applications in a holistic fashion);
  - A series of Plans (contained in this statement) illustrating the extent of the mine and how it will be developed as required for the ROMP;
  - A schedule of planning conditions (contained in Chapter 6 of this statement) again as required under the ROMP;
  - Application form and certificates for planning application under the Town and Country Planning Act 1990 together with accompanying supporting letter to vary condition 2 of planning permission 8/00/01321/CMA; and
  - Application form and certificates for planning application under the Town and Country Planning Act 1990 together with accompanying supporting letter to vary condition 4 of planning permission 8/11/01544/CMA.

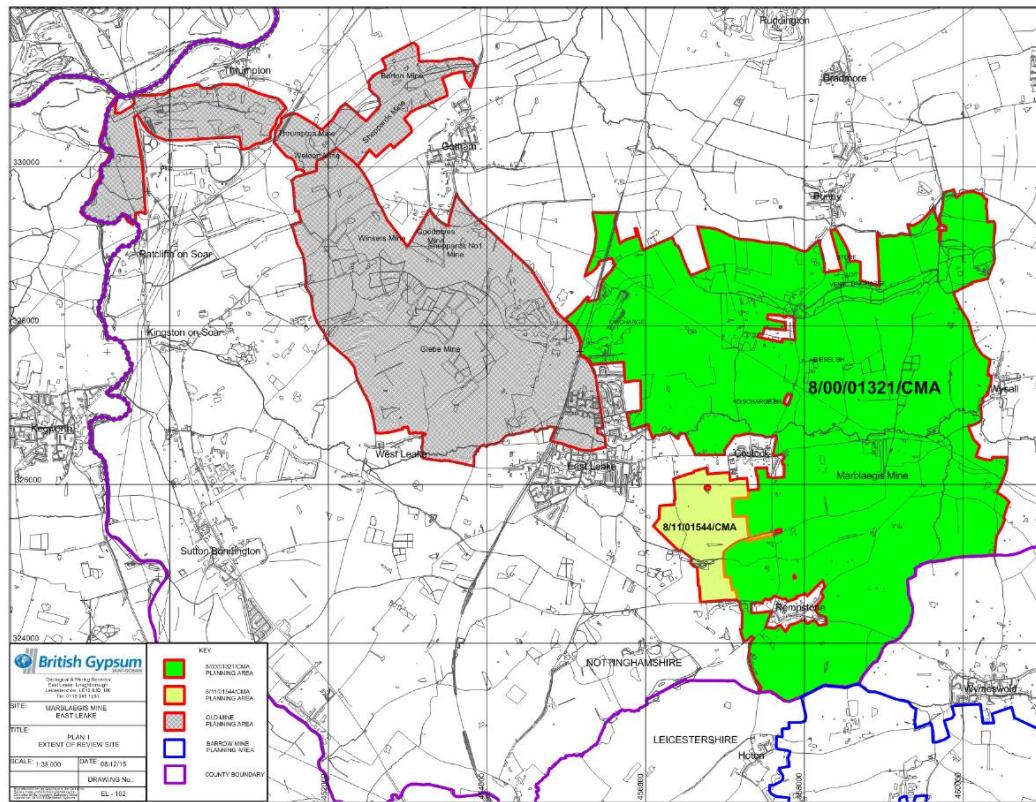
### The Site

- 1.4 This submission relates to the Marblaegis and Glebe Mines which cover some 3,852 hectares within south Nottinghamshire. The main entrance to the mine, together with the mine offices are located to the north of the village of East Leake, some 12.2km south of Nottingham and 8.3km north east of Loughborough<sup>1</sup>. The location of the mine is shown on Drawing MM 2/1 (within Chapter 2 below) whilst the extent of the planning permissions at the mine are illustrated on Figure 1-1 and Plan 1 (EL-162).

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<sup>1</sup> Distances measured from the mine entrance to centre of urban area

**Figure 1-1**  
**Extent of “ROMP” review site (see also Plan 1: EL-162).**



## Planning History

- 1.5 The mining of gypsum from the East Leake area pre-dates the modern planning system. The earliest records suggest this activity commenced in medieval times but it was not until the late 19th century that the development of the modern industry began.
- 1.6 The current mining operations are governed by two planning permissions granted in 2001 and 2012. It is these planning permissions that have been identified by the MPA (see paragraph 1.10 below) that are to be reviewed under the 1995 Act, namely:
  - Planning permission ref. 8/00/01321/CMA dated 11<sup>th</sup> April 2001 (**Appendix 3**) authorising “*application to vary conditions 7, 8 and 9 of planning permission 8/98/01279*”; and
  - Planning permission ref. 8/11/01544/CMA dated 1<sup>st</sup> February 2012 (**Appendix 4**) authorising “*an extension to the existing Marblaegis Mine of around 118 hectares for the underground extraction of gypsum*”.
- 1.7 Collectively, the area covered by these planning permissions is referred to under the 1995 Act as the ‘Mining Site’. Chapter 3 of this Volume provides more details of future development of the mine whilst the planning history for the mine is described in Chapter 2 *ibid*.

## Statutory Basis of the Submission

- 1.8 All mineral operations are subject to periodic review on a 15 year cycle under the provisions of Section 96 of the Environment Act 1995<sup>2</sup>. The purpose of the review is to ensure that mineral operations are undertaken in accordance with modern standards and regulated by appropriate modern planning conditions. As such the review looks at the conditions that should be attached to the planning permission as opposed to whether the mineral operation should be undertaken at that location. The review process can include ancillary mining development (as granted under part 17 of Schedule 2 to the Town and Country (General Permitted Development) (England) Order 2015 for example) but excludes “*on-site cement works and brickworks, as well as any off-site remote processing plants*”<sup>3</sup>.
- 1.9 Guidance on the procedures to be followed, and the approach which MPA’s need to follow as part of a review under the 1995 Act (the ‘Review’) are set out in the web based Planning Practice Guidance which replaced the Minerals Planning Guidance Note 14 (MPG14) issued in September 1995. The exercise of a ‘Review of Old Mining Permissions’ and subsequent ‘Periodic Review of Mineral Planning Permissions’ are commonly referred to by the acronym ‘ROMP Review’. The legislation therefore places a requirement on the mineral owner or operator to submit to the MPA for approval, a detailed scheme to demonstrate how the development can be carried out in an environmentally acceptable manner, so that new conditions that are consistent with modern environmental standards and working practices can be applied. Whilst the existing planning permissions will remain in force, the new conditions will apply to the whole of the site under review, removing any ambiguities between different planning permissions. It is important to note that the review process is not a planning application, and thus the MPA cannot diminish the asset value or remove working rights without the payment of compensation to the operator. As such, the issue of whether mineral should be extracted from the site is not under debate.
- 1.10 Nottinghamshire County Council (as MPA) wrote to the applicant on 25<sup>th</sup> March 2015 (see **Appendix 1**) advising that the planning permissions at Marblaegis Mine (referred to as the ‘Mining Site’ in accordance with the terminology used in Schedule 14 to the 1995 Act) are due to be reviewed by 10<sup>th</sup> April 2016. This review only covers the mine operations and not the plaster and plasterboard works located adjacent to the Mining Site at East Leake.
- 1.11 By virtue of case law and subsequent amendments to the regulations governing Environmental Impact Assessment, reviews under the 1995 Act are deemed to be “*development consents*” and thus fall within the scope of the Town and Country Planning (Environmental Impact Assessment) Regulations 2011. This is considered further in the next sub-section to this chapter.
- 1.12 The applicant is therefore making a submission pursuant to Section 96 of the Environment Act 1995. The procedures to be followed when considering the

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<sup>2</sup> As amended by the Growth and Infrastructure Act 2013

<sup>3</sup> Planning Practice Guidance Paragraph: 195 Reference ID: 27-195-20150415

environmental effects associated with applications for the Periodic Review of Mineral Permissions (a “ROMP” application) are set out under Schedule 14 of the 1995 Act.

1.13 Paragraph 6(2) of Schedule 14 of the 1995 Act specifies that an application:

“ ..... shall be in writing and shall:-

- (a) Identify the mineral site to which the application relates;
- (b) Specify the land or minerals comprised in the site of which the applicant is owner or, as the case may be, in which the applicant is entitled to an interest;
- (c) Identify the relevant planning permissions relating to the site;
- (d) Identify, and give an address for, each other person that the applicant knows or, after reasonable enquiry, has cause to believe to be an owner of any land, or entitled to any interest in any mineral, comprised in the site;
- (e) Set out the conditions to which the applicant proposes the permissions referred to paragraph (c) above should be subject;  
*and,*
- (f) Be accompanied by the appropriate certificate .....

1.14 This statement sets out how the Mining Site will continue to be developed over its life and propose a set of planning conditions that future operations should be regulated by. It is important to note that the submission will not seek to extend the area from which gypsum can be extracted or seek to change the working methods employed at the Mining Site from that previously approved.

1.15 Notwithstanding this, it is desired to amend the date by when all operations at the Mining Site should cease. The current planning conditions limit the operation of the mine such that it should cease by 31<sup>st</sup> December 2025. Based on the geological data the applicant has, the reserves of gypsum will not have been fully worked by the current cessation date. In view of this, parallel planning applications are being submitted with the Review to allow the continuation of mining operations beyond 2025. It is not possible under the provisions of the 1995 Act to amend the cessation date and so two parallel planning applications are being made pursuant to Section 73 of the Town and Country Planning Act 1990 to facilitate this change.

1.16 Section 3 below provides further information on the development of the mine.

## Environmental Impact Assessment

- 1.17 The Environmental Impact Assessment Directive<sup>4</sup> (the “EIA Directive”) requires that, before granting “development consent” for projects, including development proposals, authorities should carry out a procedure known as environmental impact assessment (or “EIA”) of any project which is likely to have significant effects on the environment. The aim of the EIA Directive is to ensure that the authority giving consent for a project makes its decision in the knowledge of any likely significant effects on the environment. The first EIA Directive (85/337/EEC) came into force in 1988 and has been amended on three separate occasions in 1997, 2003 and 2009. The initial Directive of 1985 and its three amendments have been codified by Directive 2011/92/EU of 13<sup>th</sup> December 2011. As a result of a review process<sup>5</sup>, on 26<sup>th</sup> October 2012, the Commission adopted a proposal for a revised Directive<sup>6</sup>. The newly amended EIA Directive (2014/52/EU) came into force on 15<sup>th</sup> May 2014 to simplify the rules for assessing the potential effects of projects on the environment. It is unlikely that the revisions to the EIA Directive will be in place before the Review and planning applications for Marblaegis Mine are determined.
- 1.18 The current EIA Directive<sup>4</sup> has been implemented by regulations for development proposals under the Town and Country Planning Act 1990 (the 1990 Act).
- 1.19 Since 1988, EIA has been applied to relevant proposals for new development through a number of regulations made under the Town and Country Planning Acts (including the 1990 Act). Most recently, in August 2011, the regulations were replaced by the Town and Country Planning (Environmental Impact Assessment) Regulations 2011<sup>7</sup> (the EIA Regulations), which implements the Codified European Directive within England.
- 1.20 The EIA Regulations specify the types of development for which an EIA is mandatory (Schedule 1 Projects) and categories of development where an EIA may be required (Schedule 2 Projects). Surface mining operations are referred to in Schedule 1 where the surface area exceeds 25ha (150ha for peat extraction). Underground mining appears in Schedule 2 (under description 2(b)).
- 1.21 The procedure used to determine whether a proposed project is likely to have significant effects on the environment is known as “Screening”. For underground mining, the Schedule indicates that all such developments need to be screened (i.e. there is no minimum size).
- 1.22 When screening Schedule 2 projects, the local planning authority must take account of the selection criteria in Schedule 3 of the Regulations. Not all of the criteria will be relevant in every case. Each case should be considered on its own merits in a balanced way.

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<sup>4</sup>Council Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment:  
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:026:0001:0021:EN:PDF>

<sup>5</sup> <http://ec.europa.eu/environment/eia/review.htm>

<sup>6</sup> <http://ec.europa.eu/environment/eia/pdf/COM-2012-628.pdf>

<sup>7</sup> SI 2011 No. 1824

- 1.23 The government advises<sup>8</sup> that only a very small proportion of Schedule 2 development will require an assessment. While it is not possible to formulate criteria or thresholds which will provide a universal test of whether or not an assessment is required, it is possible to offer a broad indication of the type or scale of development which is likely to require an assessment. It is also possible to provide an indication of the sort of development for which an assessment is unlikely to be necessary. In this respect, government guidance<sup>9</sup> indicates that for underground mining (in common with surface mining), EIA is likely to be needed for “*All new open cast mines and underground mines. Clay, sand and gravel workings, quarries covering more than 15 hectares or involve the extraction of more than 30,000 tonnes of mineral per year.*” It then adds that “*The likelihood of significant effects will tend to depend on the scale and duration of the works, and the likely consequent impact of noise, dust, discharges to water and visual intrusion.*” The guidance also clearly states:

*“it should not be presumed that developments above the indicative thresholds should always be subject to assessment, or those falling below these thresholds could never give rise to significant effects, especially where the development is in an environmentally sensitive location. Each development will need to be considered on its merits.”*

- 1.24 In accordance with the provisions of Regulation 5 of the EIA Regulations a formal request was made to the MPA on 17 December 2015 for a Screening Opinion (see **Appendix 2a**). The MPA responded on the 22 January 2016 indicating that in their opinion, the development was not EIA development under the Regulations, and as such, and EIA would not be required. A copy of the MPA’s Screening Opinion is included at **Appendix 2b** to this document.

## The Applicant

- 1.25 British Gypsum is the trading name of Saint Gobain Construction Products United Kingdom Limited. In the UK British Gypsum employ over 1,100 people at five manufacturing sites and four training schools.
- 1.26 British Gypsum is 100% owned by Saint Gobain SA. Saint Gobain, who are based in France and have operations in 64 countries and employ 190,000 people. Saint Gobain is the world’s largest plaster and plasterboard manufacturer. Saint Gobain acquired British Gypsum in 2006.
- 1.27 Saint Gobain’s main sectors of operation are Construction Products and Building Distribution, British Gypsum is the largest of Saint Gobain’s Construction Products businesses in the UK. In the UK the main building distribution brand is the Jewson chain of builders merchants.

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<sup>8</sup> <http://planningguidance.planningportal.gov.uk/blog/guidance/environmental-impact-assessment/screening-schedule-2-projects/> (Paragraph: 018 Reference ID: 4-018-20140306)

<sup>9</sup> <http://planningguidance.planningportal.gov.uk/blog/guidance/environmental-impact-assessment/considering-and-determining-planning-applications-that-have-been-subject-to-an-environmental-impact-assessment/annex/> (Paragraph: 058 Reference ID: 4-058-20140306)

- 1.28 Marblaegis Mining Company started in 1914 and later became part of British Plaster Board (BPB). In 1964 the company became known as British Gypsum and continues to trade as British Gypsum, but the parent company changed its name to Saint Gobain Construction Products UK Limited in 2015.

## Publication

- 1.29 Paper copies of the submission can be obtained from SLR Consulting Ltd at the following address:

Aspect House  
Aspect Business Park  
Bennerley Road  
Nottingham  
NG6 8WR

- 1.30 This statement is available in both paper and CD-ROM format, for which a charge of £75 and £25 is applicable respectively. In addition, the application documents will also be available to download from the Nottinghamshire County Council website.

## 2. THE SITE

### Introduction

- 2.1 This chapter of the statement briefly describes the existing physical and environmental characteristics of the land associated with Marblaegis Mine and the surrounding environs. It is important to note that, in stark contrast to the majority of mineral operations in Nottinghamshire, only a small part of the mine is ‘above ground’ and thus visible; the vast majority of the ‘land’ associated with the two planning permissions relates to the below ground gypsum deposits.
- 2.2 Allied to this, it should be noted that the plaster and plasterboard factory which lies adjacent to the mine entrance at East Leake does not form part of the Mining Site and is subject to separate planning permissions. As such it falls outwith the scope of the Review under the 1995 Act.

### Location

- 2.3 The main entrance (referred to as a ‘drift’<sup>10</sup>) to Marblaegis Mine, together with the mine offices, are located to the north of the village of East Leake in the southern part of Nottinghamshire. The entrance is used for conveying crushed rock from the mine and for vehicles used by personnel accessing the mine. The second means of access/egress, known as the ‘Silver Seal mine’, is gained via an adit<sup>11</sup> at to the south east of Bunny village adjacent to the A60. This is utilised for transporting large equipment, materials, for exhaust ventilation for the mine and escape/rescue purposes.
- 2.4 For identification purposes the entrance to Marblaegis Mine is centred on National Grid Reference (NGR) SK 55556 27892. Drawing MM2/1 shows the location of the mine in relation to the surrounding settlement pattern.
- 2.5 In terms of local governance, the mine is situated within the Borough of Rushcliffe and County of Nottinghamshire.

### Site Description and Setting

#### Extent

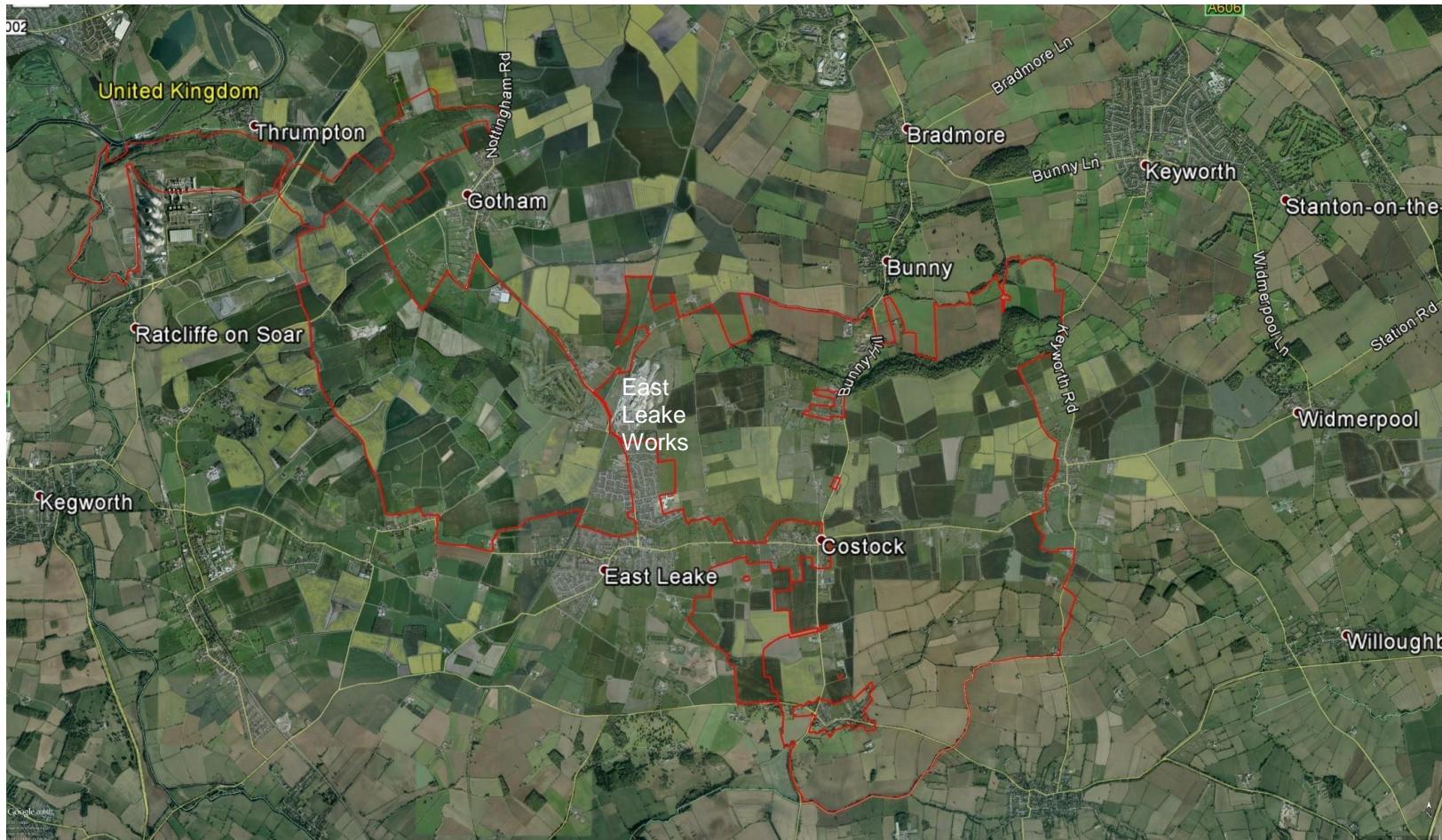
- 2.6 The area of land covered by the Marblaegis Mine planning consents extends to a total of 2,072 hectares (ha), covering both the extension of the planning consent for underground mining granted in 2012 and the larger area that was already consented. Old mines (Glebe, Barton, Sheppards, Winsers, Goodacres, Weldon and Thrumpton) cover a further 1,780 hectares.
- 2.7 The extent of the Mining Site is shown on Plan 1 (EL-162) and illustrated on an aerial view of the site in Figure 2-1 overleaf (edged red).

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<sup>10</sup> Drift is an entrance to a mine working that is on a decline from the point of entry

<sup>11</sup> Adit is an entrance to a mine working that is driven horizontally into the ground

Figure 2-1  
The Mining Site



## Geology

- 2.8 In the UK, naturally occurring economic deposits of gypsum are relatively rare, there are only five mines and one quarry in operation in the UK, one of these is Marblaegis Mine.
- 2.9 Two main seams of gypsum are present in the East Leake sequence. Mining is currently restricted at East Leake to the lower seam, the Tutbury gypsum seam; this seam is up to 2.5m thick and varies between 30m and 120m below the surface. The upper seam: the Newark gypsum seam is more variable in thickness and was previously worked by opencast and underground mining methods at Cropwell Bishop. A mixture of high-purity (food/medical grade) and construction grade gypsum is currently mined by opencast methods at Bantycock Quarry, Balderton, Newark.
- 2.10 The East Leake evaporite deposits are Triassic in age. They formed in a period of arid (desert like) conditions. The gypsum seams are found in the Mercia Mudstone Formation (which is a gypsiferous red mudstone with occasional siltstone and sandstone (these are known locally as 'skerry') bands (see Plan 5, EL-176).
- 2.11 With increased depths the gypsum deposits become anhydritic (i.e. the gypsum deposit has not been re-hydrated); anhydritic gypsum (referred to as Anhydrite<sup>12</sup>) is still suitable for use in the manufacture of cement rock but are not suitable, without beneficiation (using dense media separation plant to remove the small percentages of heavier anhydrite from the gypsum seam) for use in mill rock for the manufacture of plaster or plasterboard.
- 2.12 At present the higher grade gypsum deposits<sup>13</sup> are currently mined for cementrock and mill rock. The water of crystallisation in Gypsum is the aspect relied upon when making plaster and plasterboard. Where gypsum is heated in "kettles" and converted to hemi-hydrate  $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$ , when water is added to the dry hemi-hydrate powder re-hydration occurs, the gypsum recrystallising as a hard plaster.
- 2.13 A mixture of gypsum and anhydrite can be used by cement manufacturers, but this is currently supplied by British Gypsum's Fauld Mine in Staffordshire. Marblaegis Mine supplies cementrock currently containing only gypsum. The option of using Marblaegis gypsum would be pursued should the Fauld material no longer be available. At Fauld, Marblaegis rock is utilised to achieve the desirable anhydrite: gypsum ratio and correct chloride levels.
- 2.14 The gypsum seams are rarely found at outcrop as they either dissolve away (due to the solubility of gypsum) or are concealed beneath a thick mantle of glacial drift deposits.
- 2.15 The structure of the Tutbury gypsum seam has been established by extensive geological investigations involving the drilling of over 150 exploratory surface

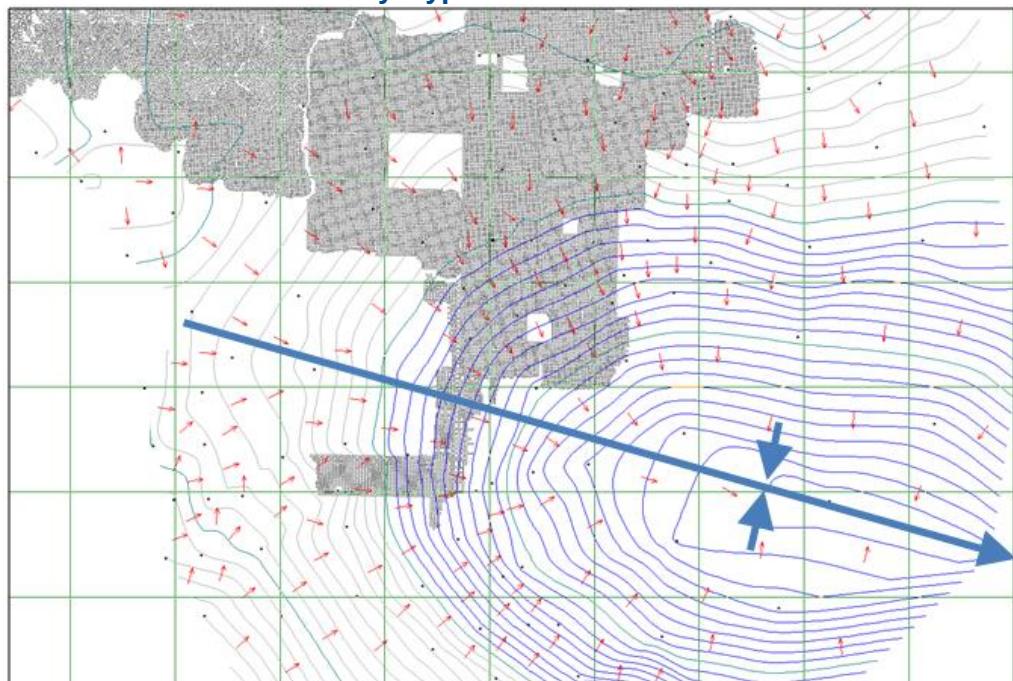
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<sup>12</sup>  $\text{CaSO}_4$

<sup>13</sup>  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$

boreholes. Figure 2-2 shows an extract of the geological structure illustrating a plunging (east – southeast) syncline oriented north – northwest to east – southeast. Gradients are low ~1 in 50.

**Figure 2-2**  
**Tutbury Gypsum Seam Structure**



### ***Land associated with the Mineral Permissions***

- 2.16 The mine drift is located within the East Leake plasterboard works site. Mineral extraction is wholly by underground methods (known as “room and pillar”) and thus not visible at the surface. The method of working also does not interfere with the surface land use, with the pillars affording permanent support to the strata and surface above the workings.

### **Planning Permission 8/00/01321/CMA (The 2001 Planning Permission)**

- 2.17 The 2001 planning permission covers two mining areas; Glebe Mine and Marblaegis Mine (see plan 1 EL-162 and plan 2 EL-163). Glebe Mine lies to the west of Gotham Road in East Leake and extends underneath the West Leake Hills. It lies to the north of West Leake Road and the village of West Leake, with the western boundary following Dark Lane/West Leake Lane, whilst the eastern extent is formed by Gotham Road/Leake Road. The northern extent lies just south of the River Trent, though strictly speaking this area also includes Barton, Sheppards, Winsers, Goodacres, Weldon and Thrumpton mines. Glebe Mine has now closed following exhaustion of workable deposits by underground methods of extraction in the early 1990's.
- 2.18 Marblaegis Mine extends eastwards and southwards from the mine drift covering a large area of south east Nottinghamshire, between the villages of East Leake to the north west, Bunny to the north where the Silver Seal

entrance (the second means of access/egress) is located, Wysall to the east, Costock and Rempstone. The southern extent of the consented area is formed by the county boundary between Nottinghamshire and Leicestershire. The area is bisected by the A60, which runs north-south through the area. The boundary of the planning permission skirts around the edges of the settlements of East Leake, Costock and Wysall, and encircles the village of Rempstone. The permission also excludes several properties/groups of properties close to the A60.

### Planning Permission 8/11/01544/CMA (the 2012 Planning Permission)

2.19 The 2012 planning permission (see plan 1 EL-162 and plan 2 EL-163) extended the 2001 permission in a westerly direction to the south of Costock between Rempstone and Costock. The permission covers an area of 118ha within an area bounded by Leake Road to the north the A6006 to the south, the A60 to the east and Loughborough Road to the west. A small area in the vicinity of Elms Farm property is excluded from the permission area. Workings commenced within this area in July 2013.

### Land Use

2.20 The consented area is predominately overlain by agricultural land, primarily arable with some pasture. Fields form a mosaic pattern being of varying size (from small to large) and irregular in shape. In the main the fields are bounded by mature hedgerows. In addition, blocks of woodland are evident within the area, including a substantial linear belt (Old Wood) running in an east (near Windmill Hill) to west (near Rough Hill) orientation at the northern part of the permission area. The agricultural land is interspersed with individual properties and farmsteads, with a diffuse cluster of properties located to the west of the A60 (at Bunny Hill Top) in the vicinity of Ash Lane, approximately 1.4km to the east of the works. Also within the area to the east of the A60 there is an oil well which operates in accordance with a planning permission granted by the County Council as Minerals Planning Authority. To the west of the Mining Site is a sand and gravel quarry operated by CEMEX.

2.21 The Kingston Brook and Sheepwash Brook flow east to west through the Mining Site where there is also a small pond surrounded by woodland which is designated as the Sheepwash Brook Wetlands Site of Importance for Nature Conservation (SINC), designated for its 'valuable marsh and grasslands'. The Sheepwash Brook flows into the Kingston Brook to the north which itself is a tributary of the River Soar.

### ***Surface (above ground) Mine Features***

2.22 The above ground elements are mainly located by the mine drift. Above ground features to the mine comprise:

- office accommodation containing offices, kitchen, archive, mines rescue coordination room, meeting / training room, changing / showering facilities and lamp room;

- buildings (used for spare parts and mobile equipment storage);
- out building (storage of materials);
- roads and mine vehicle parking areas; and
- conveyors, rock screens, storage bins and sampling unit.

2.23 Other above ground features include the Silver Seal adit at Bunny, an air shaft, water supply and water discharge boreholes.

**Figure 2-3**  
**Mine offices and welfare building**



## Access

- 2.24 Access to Marblaegis Mine is in common with the main plaster / plasterboard works. For HGVs, access is gained off Bunny Lane at NGR SK 55422 28464, whilst for personnel, access is gained off Gotham Road at NGR SK 55259 27637.
- 2.25 The main mine drift, which is limited in size, is also used for the conveyor route that links the mine workings with the plant; as such it is not suitable for use by large plant and machinery. A secondary access into the mine (the Silver Seal adit) is located off an unnamed road between the A60 and Wysall Road to the south of Bunny (NGR SK 58529 28633).
- 2.26 For safety reasons both the Marblaegis and Silver Seal entrances are fitted with automatic security doors to prevent unauthorised access to the mine.

**Figure 2-4**  
**Mine Drift Entrance**



## Sensitive Receptors

- 2.27 The underground nature of the mineral workings means that there are few types of sensitive receptor that would be affected by the actual extraction operations. In this respect, sensitive receptors are residential properties or other occupied premises, either within settlements or isolated buildings, which are sensitive to blast induced ground vibration. To ameliorate the impacts of such vibration, stand-off's to properties and limits on vibration levels are imposed through planning conditions.
- 2.28 A review of data held on the DEFRA's (Department for Environment, Food and Rural Affairs) MAGIC database shows that there are no significant ecological designations within the Mining Site (see plan 3). This includes:
- Special Areas of Conservation (SAC)
  - Special Protection Areas (SPA)
  - Ramsar Sites
  - National Nature Reserves (NNR)
  - Local Nature Reserves (LNR)
  - Site is Special Scientific Interest (SSSI)
- 2.29 The nearest SSSIs are Rushcliffe Golf Course, located on the eastern edge of Glebe Mine and Gotham Hill Pasture on the northern part of Glebe Mine. As noted above Glebe Mine has ceased working following exhaustion of workable reserves
- 2.30 In terms of heritage interests, there are no Scheduled Monuments or Registered Parks and Gardens (RPG) within the permission area covering the active workings (i.e. Marblaegis Mine). The nearest Scheduled Monument to Marblaegis Mine is "*Thorpe in the Glebe medieval settlement*,

*including church site and open field system*", located adjacent to the eastern boundary of the permission, close to Thorpe in the Glebe. The nearest RPG is Stanford Hall, approximately 700m to the west of the permission. There are a large number of listed buildings within the general area, most of which are located in the villages. However, a small number (four) are within the permission area. Finally, the "*Roman Site on Redhill*" (Scheduled Monument) lies above the most northern part of the permission area in the vicinity of Ratcliffe` on Soar power station. As noted above, this is not an active part of the mine (and would not be worked in the future).

- 2.31 Plan 3 illustrates the significant environmental constraints within the vicinity of the Mining Site.

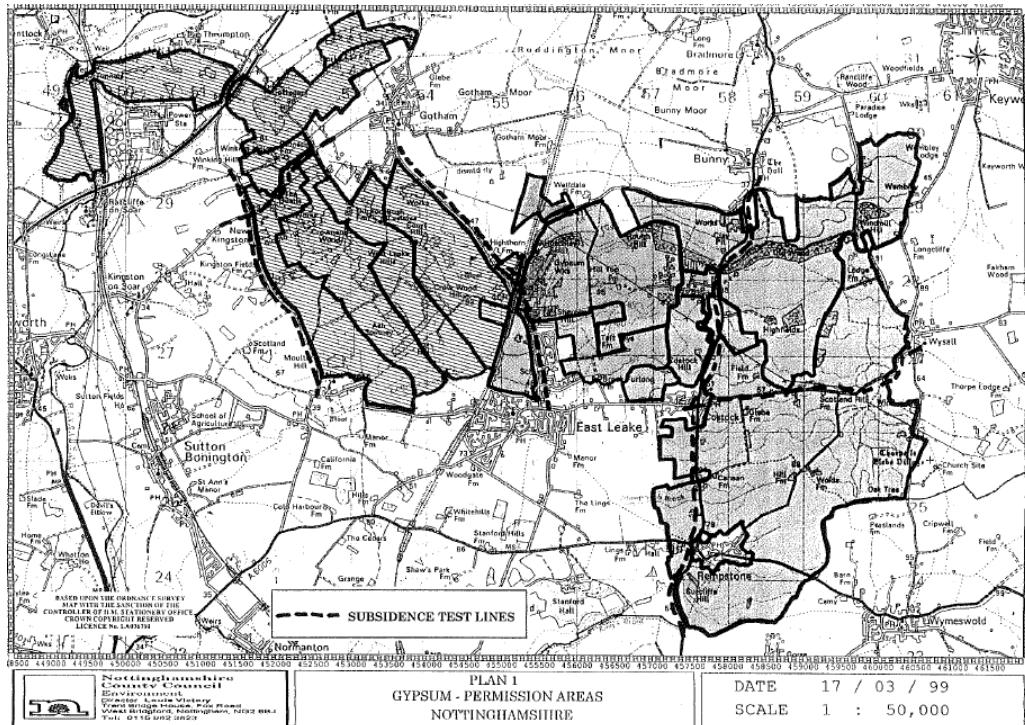
## Employment

- 2.32 The Mining Site currently supports the employment of 26 personnel directly associated with the extraction of gypsum. Allied to this, the Mining Site supports a range of contractor services including: cement rock HGV delivery drivers, water quality monitoring, monthly planned preventative maintenance vibration & oil analysis, roof bolting, conveyor belt vulcanising, office cleaning, fabrication, mechanical and electrical engineering maintenance services.
- 2.33 The plaster and plasterboard works at East Leake Works which is supplied from the mine, supports the direct employment of an additional 264 personnel and at least an additional 125 contractors (stores, logistics, delivery drivers etc.).

## Planning History

- 2.34 The mining of gypsum from the East Leake area pre-dates the modern planning system. The earliest records suggest this activity commenced in medieval times but it was not until the late 19th century (1890) that the mining began and development of the modern industry is recognised. The Marblaegis Company Limited was formed at the beginning of the First World War. The first planning permission for the Marblaegis and Glebe mines is understood to have been granted in c.1951 and numerous permissions have been granted since.
- 2.35 At the present time, the underground workings associated with Marblaegis Mine extend to approximately 580 hectares (this includes recently approved workings in the Costock area). An initial review (under the 1995 Act) was submitted in October 1998 by British Gypsum which comprised a single supporting statement and a proposed set of conditions to cover all the earlier mining consents. This was approved by Nottingham County Council on the 30<sup>th</sup> June 1999. The extent of the Marblaegis and Glebe mines at this time is illustrated in Figure 2-5 below, this excludes the recent Costock permission which is also part of the review; the complete extent of the Mining Site is shown edged in red on Plans 1 and 2 (EL-162 and EL-163).

**Figure 2-5**  
**Marblaegis and Glebe Mines (ref: 8/00/01321/CMA)**



- 2.36 The main planning permission for the mine was approved on 11<sup>th</sup> April 2001 (ref: 8/00/01321) when conditions 7, 8 and 9 of an earlier planning permission (ref. 8/98/01279) were varied. A second planning permission was granted on 1<sup>st</sup> February 2012 for an extension to Marblaegis Mine into the Costock area, this permission covers an additional around 118ha for the underground extraction of gypsum (ref 8/11/01544/CMA). Together these two planning permissions form the Mineral Site which is to undergo a review under the 1995 Act.
- 2.37 The extent of the Mineral Site is shown on Plan 1. The Mining Site, comprising Marblaegis Mine, together with the Costock extension covers an area of 2,072 ha, with old mines: Glebe, Barton, Sheppards, Winsers, Goodacres, Weldon and Thrumpton covering a further 1,780 ha
- 2.38 As mentioned above this application relates to planning permissions 8/00/01321 and 8/11/01544/CMA i.e. the underground mining of gypsum which provides the raw material for the manufacture of the various products at the adjacent East Leake Works site and cement rock, which is exported from the site.
- 2.39 The extent of land (surface ownership) under the control of the applicant is shown edged in blue on Plan 4 (EL-174).

### 3. DEVELOPMENT PROPOSALS

#### Introduction

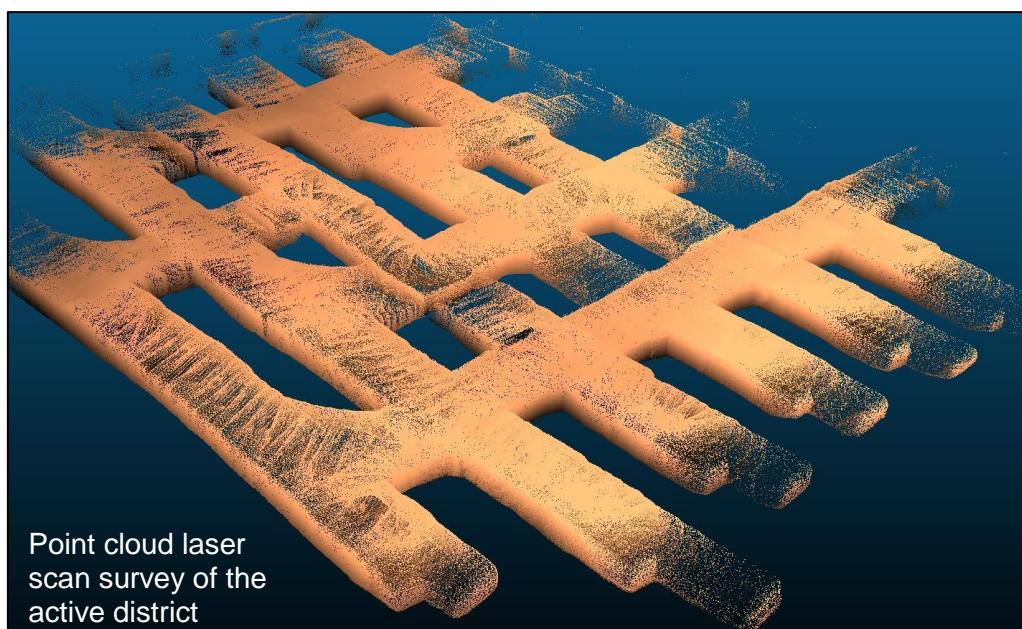
- 3.1 The first part of this chapter provides details of the continued development of the Mining Site from the current date to the exhaustion of gypsum reserves within the confines of the permission area. The second part sets out the proposed changes needed to the existing conditions to facilitate the complete working of the mineral deposit.

#### The Review Proposals

##### *Extraction and Processing*

- 3.2 The proposals incorporate the extraction of gypsum from the working face, its primary processing (underground) and bringing to the surface the extracted gypsum for use in the adjoining plaster/plasterboard factory (the Works). As noted in earlier chapters to this statement, the operation of the adjacent Works is not subject to the 1995 Act review.
- 3.3 Gypsum is extracted using a technique known as room and pillar mining, whereby approximately 25% of the reserve is left in situ in rectangular 'pillars' that support the strata above the gypsum seam. The pillars are set out on a regular grid such that the workings take on the appearance of a lattice in plan form. Each tunnel/heading is set out using lasers, with the centre line of the tunnel marked on the advancing face.

**Figure 3-1**  
**Three dimensional view of the East Leake mine workings**



- 3.4 Gypsum has been extracted at Marblaegis Mine using both drill and blast techniques and electric face cutting methods. In 2006, electric face cutting equipment was introduced to the mine. The cutting plant (see Figure 3-2 below) comprises a series of metal teeth (with tungsten carbide tips) on a cylindrical drum which can be raised up and down to the full height of the tunnel. The drum rotates with the teeth cutting into the face; extracted rock is collected at the bottom of the cutting machine and fed via conveyor to the back of the cutting machine and fed into a waiting shuttle car (also electrically powered). The shuttle car transfers the extracted rock from the face to the mobile primary crushing plant (feeder breaker) where the rock is crushed to a uniform size so that it can be transferred via the underground conveyor system to the underground secondary crusher (sizer) and then onto the surface. At the surface the rock can be screened with the fine material being sold for cement rock and the coarse retained for on-site plaster and plasterboard manufacture.
- 3.5 Figures 3-3 and 3-4 illustrate the shuttle car and primary crusher respectively.

**Figure 3-2**  
**Electric powered face cutting machine (trailing power cable and dust suppression water supply visible on the right hand side)**



**Figure 3-3**  
**Electric powered Shuttle Car (trailing power cable visible on the right hand side)**



**Figure 3-4**  
**Electric Primary Crusher and over belt magnet**

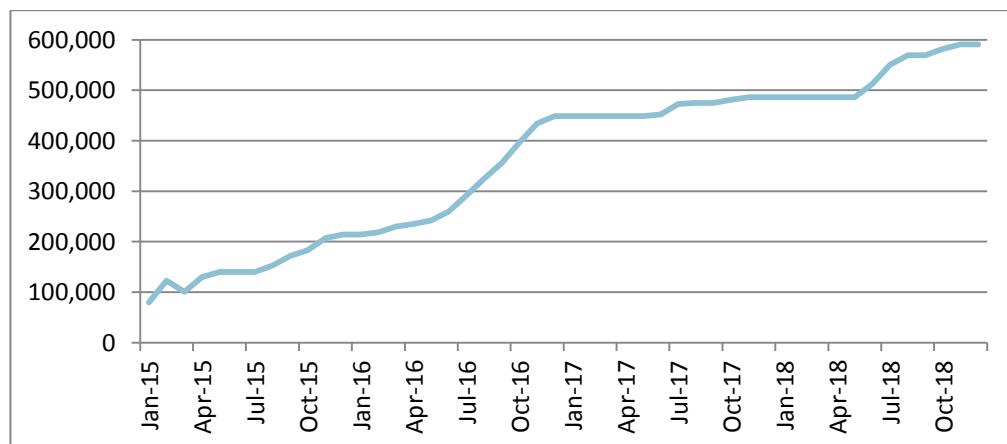


- 3.6 The mine is ventilated during operation by means of a large electrical fans located underground inside the Silver Seal mine entrance. Fast acting roller shutter doors, temporary ‘brattice’ panels, plasterboard and block walls are installed at various locations within the mine to direct the flow of air through the mine to ensure that there are comfortable operating conditions for the underground personnel and to manage Radon gas which is naturally present within the mine workings.

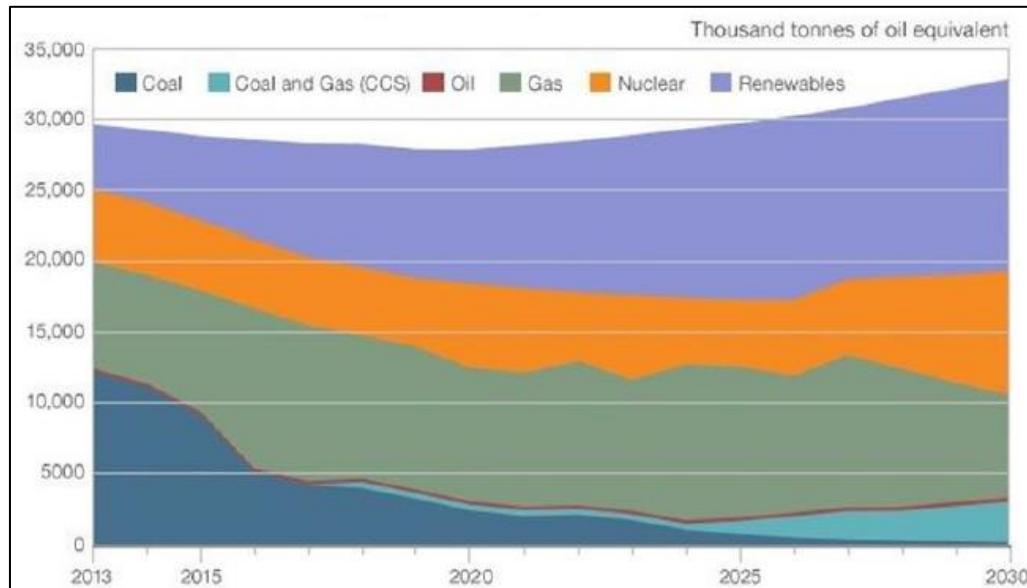
### ***Phasing of Operations***

- 3.7 Plan 7 (ref. EL-177) shows the extent of the underground workings at the Mining Site. Currently, the working face (the active mining district) is located underneath agricultural land between Costock (in the north), Rempstone (to the south), East Leake (to the west). The workings have advanced around the village of Costock before advancing southwards towards Rempstone.
- 3.8 The gypsum is currently extracted at a rate of around 250,000 tonnes per annum (tpa). The mine had in the late 1980’s an installed capacity of over 600,000 tpa. The mine output is expected to progressively rise (see Figure 3-5) in response to both government initiatives to reduce coal fired electricity generation (resulting in reduced desulphur gypsum availability) and to meet growing construction industry demands (see Figure 3-6). This increase in output will be reflected in significant increasing employment levels within both the mine production and engineering support functions.

**Figure 3-5  
Projected future mine output**



**Figure 3-6**  
**Future sources of electricity (2013-2030)**  
 (Source: Statutory Security of Supply Report 2014, p72)



- 3.9 The current planning permission has a requirement to submit “*mining development plans*” showing the development of the mine workings over the next five year period<sup>14</sup>. The most recent was submitted to the MPA in July 2015 (a copy of which is contained in **Appendix 9**). This showed the mine workings advancing in a 200m wide panel (C3 district) in a westerly direction in the ‘Costock’ permission area, together with 200m wide panels being driven in a northerly direction towards Costock. Allied to this, the mine workings would also continue to be driven in a southerly direction towards Rempstone (R2 district), parallel to (and to the east of) the A60. This involved a narrower panel width being developed between a collection of “*property pillars*” before widening to the standard 200m panel width.
- 3.10 Two mining districts are currently operated to help balance the quality of the mineral being delivered to the Works at East Leake.
- 3.11 To the east of the current mine workings (within the limits of the planning consents) the Tutbury gypsum seam is both deeper and thinner; with depth the seam quality reduces with increased amounts of harder anhydrite, this requires both drill and blasting techniques to be utilised and investment in dense media separation equipment to recover mill rock quality gypsum (for plaster and plasterboard feedstock). However the quality of this area is suitable for cement rock without further processing.
- 3.12 In the medium term, mine development will extend to the east (and south of Rempstone (Zone 2, refer to Plan 7, EL-177)). The reserves to the south and east of Rempstone are currently being evaluated in more detail.

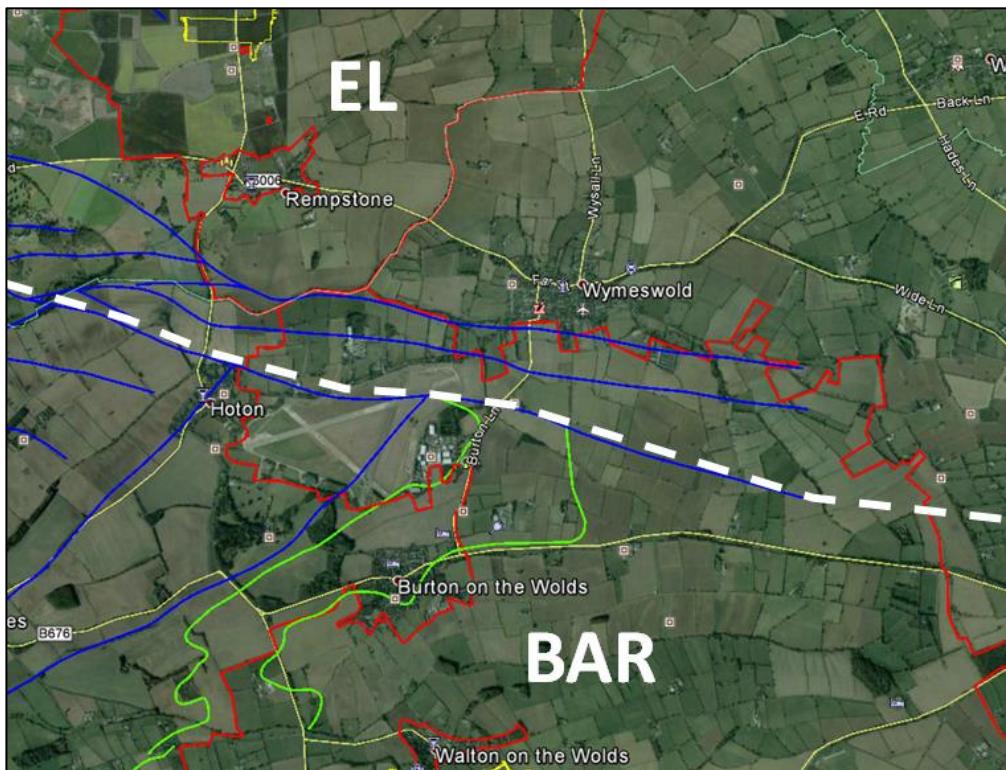
<sup>14</sup> Condition 5 of planning permission 8/00/01321/CMA and condition 7 of planning permission 8/11/01544/CMA

- 3.13 In the longer term, both Zone 3 to the east of the current Marblaegis Mine workings and Zone 4 into the northern most Barrow mine consented area will be worked.
- 3.14 In view of the quality restrictions of the deposit and variable market conditions, it is not considered appropriate to show the detailed phased workings beyond five years from the current date. Instead, the requirement to submit on a regular basis five yearly development plans is retained within the proposed conditions.

### **Barrow Mine**

- 3.15 The applicant also operates a gypsum mine at Barrow on Soar in Leicestershire. The extracted gypsum is brought to the surface at Barrow on Soar where it is processed into the Thistle branded plaster products. The extent of the planning permission area for the Barrow Mine is contiguous with the Mining Site, with the limits defined by the Nottinghamshire – Leicestershire county boundary.
- 3.16 The mine workings at Barrow also work the Tutbury gypsum seam; however the mine workings are at a different depth than at the Marblaegis Mine (Mining Site) due to the presence of a geological fault. The northern part of the Barrow Mine reserves, lying to the north of the fault, would be difficult to be worked as part of the Barrow development due to the 80m throw on the fault. These reserves represent a continuation of the reserves that are worked at the Mining Site, and so could be brought to the surface at the Mining Site. The extent of these reserves is shown on Plan 7 (ref. EL 177) whilst Figure 3-7 overleaf shows the location of the faults (white and blue lines) in relation to the Mining Site and Barrow Mine

**Figure 3.7**  
**Showing the fault positions (in blue) to the south of the Marblaegis Mine consent and the limit of the Barrow mine planning consent (outlined in red).**



- 3.17 The extraction of these reserves is authorised through a reviewed planning permission (ref. 2000/0381/02) issued by Leicestershire County Council on 23 August 2000, for which condition 6 stipulates:

*"No access to or egress from the underground workings for the movement of plant, personnel, minerals or mineral waste shall take place except from the existing Barrow Mine adits".*

- 3.18 Allied to this, condition 7 provides that (at Barrow):

*"All gypsum extracted from the mine shall be transported to the covered storage building at the adjacent works site by enclosed conveyor. No unprocessed gypsum shall be exported from the site."*

- 3.19 As it is more difficult to convey the reserves to the Barrow mine adit, to avoid sterilisation it is prudent to work and convey them into Marblaegis Mine. There are no conditions in the extant planning permissions for the Mining Site that would prohibit this; the nearest conditions indicate that gypsum extracted from the areas authorised by the planning permissions is to be "brought to surface at the East Leake site", unless otherwise agreed with the MPA. The conditions are silent on the transportation of gypsum from an adjoining area. As part of the 1995 Act review it is also proposed to seek the agreement to transfer the reserves of gypsum extracted from the area shown on Plan 7 (EL-177) to the East Leake drift of the Mining Site. A

corresponding planning application will be submitted to Leicestershire County Council to vary the extant planning conditions.

## **Reserves and Mineral Quality**

### **Reserves**

- 3.20 The reserves/resources at Marblaegis Mine are divided into lower and higher-grade. The lower-grade anhydritic gypsum resources are suitable for cement rock manufacture and higher-grade ‘mill-rock’ reserves are suitable for plaster and plasterboard.
- 3.21 Since the early 1990’s the use of desulphurised gypsum (DSG) has resulted in lower depletion of reserves and has helped conserve natural gypsum resources in the area.
- 3.22 The gypsum purity of the Tutbury gypsum seam is on average 76%, this is considerably lower than desulphogypsum. It is possible to manufacture heavier acoustic and fire-resistant board from this material, however light weight plasterboard is made by blending the mine rock with higher purity imported gypsum.
- 3.23 Cement rock is used in the final stage of cement manufacture when cement clinker and gypsum are inter-ground in large mills to produce cement. The gypsum acts as a retarder, delaying the set of the cement or the concrete made with the cement, allowing time for it to be delivered and worked. Without gypsum, concrete would set too quickly.
- 3.24 The reserves to the south of Rempstone will require further geological investigation to fully understand the faulting present and significant development work and investment will be required to develop the area ready for the working mining districts.
- 3.25 The reserves are estimated based on the results of the exploration drilling which defines the grade and depth below surface. The latter, determines the size of pillars and hence the recovery/extraction rate (see Mine design sections 3.30 – 3.38).
- 3.26 The proven reserves are estimated at around 13 million tonnes within the consented area, this is split into approximately 6 million tonnes (Mt) of ‘mill rock’ suitable for plaster and plasterboard north of Rempstone (zone 1), 5 Mt, south of Rempstone (zone 2) and 2 Mt of mill rock to the east of the mine (zone 3). Based on the anticipated demand and production these reserves are sufficient for at least a further 26 years (i.e. until 2042). The Barrow consent (zone 4) is currently estimated to contain approximately a further 2 Mt of accessible resources. Further drilling is required to confirm the full extent of workable reserves within zones 2 – 4. Within zone 3 an additional resource of 4 Mt of cementrock is present.

## Mineral Quality

- 3.27 The quality of the Tutbury gypsum seam reduces with increased depth due to increasing chloride levels, reducing gypsum purity and increasing percentages of anhydrite (non re-hydrated gypsum) within the Tutbury gypsum seam.
- 3.28 The presence of a small percentage of anhydrite within the gypsum seam relates to incomplete hydration of anhydrite back to gypsum by meteoric water (surface water percolating down through the strata).
- 3.29 The working of two districts at once: one shallower, one deeper allows the blending and homogenisation of the different grades of gypsum to ensure the delivered rock has the right chemistry to meet the plaster / plasterboard plant specification.

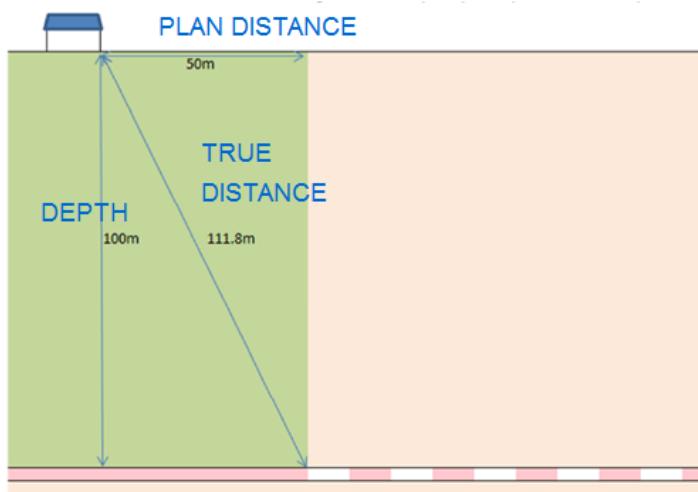
## Mine Design

- 3.30 Since the mid 1970's the geotechnical properties of the Tutbury gypsum seam have been subject to detailed studies. These studies have been carried out mainly by the Universities of Newcastle-upon-Tyne and Leeds in conjunction with British Gypsum Technical management personnel. From these studies rock strength characteristics have been derived to form the basis of the engineering designs for safe underground mine workings.
- 3.31 The mechanical strength of gypsum has been determined by laboratory scale tests conducted on cores of rock. The strength of a gypsum pillar in a mine is a function of these mechanical properties and the geometry of the pillar. The design is based on the anticipated mining height.
- 3.32 Similar tests have also been undertaken on saturated samples of gypsum in order to quantify the long term strength of the gypsum pillars when the mine is ultimately flooded.
- 3.33 To ensure both the short and long term safety and stability of the workings the pillars in the mine are designed to an internationally recognised factor of safety of around 3 (dry) and minimum of 1.6 (wet) i.e. 60% stronger than required to resist the weight of the overlying strata. These test results include factors that take into account the variable nature of the gypsum samples.
- 3.34 In the past, collapse of some of the old mine workings has occurred, notably at Glebe Mine. These collapses relate to early areas of mining when the technology governing extraction rates and mine design was poorly understood.
- 3.35 In the mine today, the room and pillar workings has roadways with a maximum width of 6.5m and a maximum mining height of 2.5m.
- 3.36 The pillar sizes increase with depth. In the machine mined area, between 0 – 100m depth: from 9m x 5m, giving an extraction rate of 74%; between 100 – 125m depth where the pillars are 12m x 5m in size and the extraction rate is

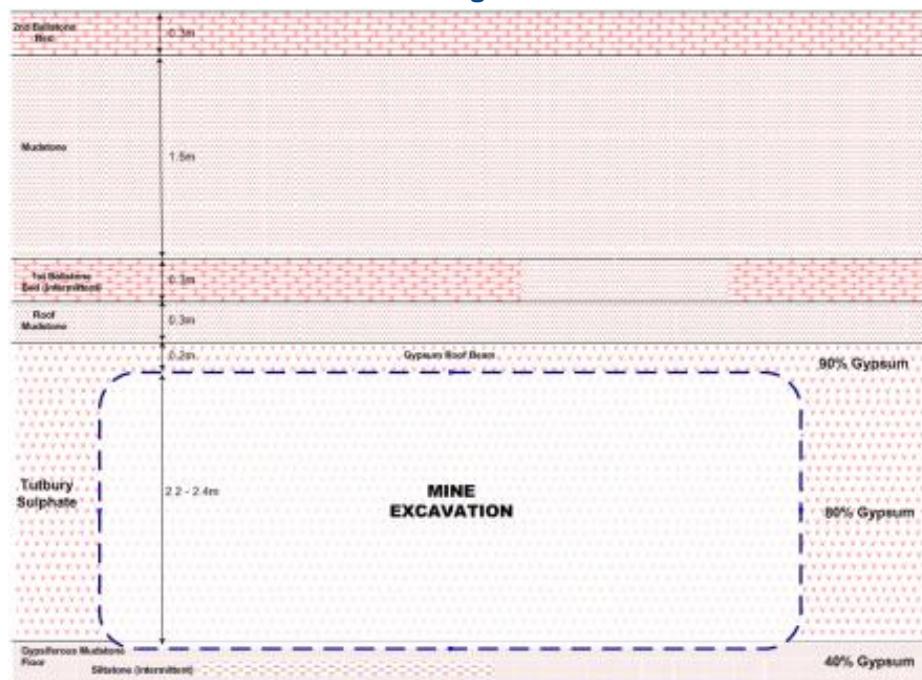
72% and 125m – 140m where the pillars are 13m x 5m and the extraction rate 71%.

- 3.37 In addition to this, when working close to residential properties, “*property pillars*” are left to ensure the long term stability of the properties. The size of the pillar is a function of the depth of the workings in that it is calculated on half the depth (e.g. where the mine workings are at 100m depth, the property protection pillar would be 50m from the residential property). The true distance from the mine is greater as illustrated in Figure 3-8.

**Figure 3-8**  
**Cross-section showing the residential property pillar (no extraction)**



**Figure 3-9**  
**Illustrative section showing the machine mined excavation**



- 3.38 Compliance with the mine design is measured at each quarterly survey of the mine and reported as SPI's (safety performance indicators). These track compliance with the design: roadway width and extraction rate. A company system known as the "STOP line compliance" ensures that mining is only undertaken where the company has planning permission, mineral rights and it is safe to do so *i.e.* avoid hazards such as near surface, faults, boreholes, flooded gravel pits and disused abandoned mine workings. All non-compliances with SPI's are reported as NCR's (non-compliance reports), investigated and actions implemented to prevent re-occurrence.

### ***Subsidence Monitoring***

- 3.39 The mine is designed (through the use of pillar and room) to minimise (if not eliminate) subsidence (the movement of the surface). Notwithstanding this, existing conditions require the monitoring of ground levels along the A60 and Wysall Road. Survey results are provided to the MPA on annual basis confirming the stability of these areas.
- 3.40 Subsidence is considered further in Chapter 4 of this statement.

### ***Blasting***

- 3.41 As noted above, blasting operations have not been used for the extraction of gypsum since 2006. However, it is necessary to retain both mining methods in order to enable mining of the lower grade cement rock reserves in the east of the mine. These are a strategic asset for both British Gypsum and the UK cement industry that rely on supplies of cement rock. The preference is to retain the capability of utilising both methods of extraction (as described above), it may be necessary in the future to re-introduce blasting. This will be necessary as the hardness of the deposit increases with depth due to increased anhydrite content of the gypsum. The following paragraphs describe blasting operations, based on experience at Marblaegis and other mines currently operated by the applicant using the drill and blast technique by the applicant.

### **Blasting Procedures**

- 3.42 When blasting is needed, rock is extracted from the gypsum seam/face by drilling around 30 horizontal and inclined holes typically up to 3.5m into the working face (see Figure 3-10). These holes are charged with ANFO (Ammonium Nitrate Fuel Oil) which is initiated by a primer and electric detonator. The holes are fired in groups separated by small time delays, governed by the detonator timings. These delays make the blast longer (in milliseconds) but mean that the maximum instantaneous change (MIC) is reduced, which in turn reduces the amount of ground vibration caused by the blast. No working or blasting is proposed within the half depth property pillars
- 3.43 Unlike blasting in quarries or open pit operations, it is not possible to blast large tonnages in a single blast. The depth of the workings and small maximum instantaneous charge weights means blast vibration / sound is only detectable at the surface in close proximity to the blasts.

**Figure 3-10**  
**Face drilling rig**



- 3.44 The effects of blasting are considered in Chapter 4 of this statement, along with proposed updated planning conditions (Chapter 6).

## Vibration Monitoring

- 3.45 Vibration monitoring will be undertaken to confirm the predicted vibration levels when blasting in close proximity to residential properties (see Plan 8 EL-178). The effects of blasting are considered in Chapter 4 of this statement, along with proposed updated planning conditions.
- 3.46 A proposed blast vibration monitoring scheme is included in Appendix 5.

## Waste

- 3.47 No mineral waste is produced by the mining process.
- 3.48 The companies Environmental Management system requires that waste is segregated and recycled at all locations on site whenever possible. In the mine segregation of oil contaminated rag and metal is undertaken with all waste being removed from the mine and either disposed of or recycled (see Figure 3-11).

**Figure 3-11**  
**Underground waste management**



### **Water Management**

- 3.49 The mine workings are in the main dry without substantial water ingress. Water entering the mine workings needs to be pumped out to allow extraction to take place. Water drains to low points in the mine workings (see Plan 6, EL-176) before being pumped to the surface.
- 3.50 The Mining Site has four discharge consents shown on Plan 6 (EL-176): the first (Ref No: T/58/45125/T) which controls discharge from Marblaegis Mine into Kingston Brook; the second from Silver Seal Mine (ref: EPR/AB3793VM), the third from the factory (see 3.51 below) and the fourth (T/58/40127/T) controls two discharges from Glebe Mine which is dewatered to prevent water ingress into the Marblaegis Mine workings. The total pumped discharge is around 0.75 million cubic metres per annum. All discharges are regularly monitored for compliance by a specialist independent testing company. The discharges have stipulated limits for typical pollutants and in all analysis to-date the effluent has been deemed to be satisfactory and within consent limits.
- 3.51 Environmental Permit for the factory has two discharges (RP3833KT, discharge points W1 and W2) for surface and process water (the process water that is discharged will contain an element of mine water). Approximately 85% of the mine water that is pumped to the plant is used in rehydration in the plaster board manufacturing process.

### **Operating Hours**

- 3.52 The current planning permissions at the Mining Site do not impose any restrictions on the winning and working of the gypsum deposit. As such, operations are undertaken on a 24 hour, seven day per week (24/7) basis. No conditions are therefore being put forward to restrict the hours the Mining Site may operate.
- 3.53 Notwithstanding this, the 2001 planning permission at the Mining Site limits the hours when blasting can be undertaken to between 0700 and 2300 hours Mondays to Fridays. No blasting shall take place on Saturdays, Sundays,

Bank or Public Holidays. These restrictions are proposed as part of this review (see Chapters 4 and 6 below).

### **Silver Seal Grassland Management**

- 3.54 As part of the Costock extension consent a restoration scheme was prepared by FPCR Environment and Design Ltd in 2012 to discharge the requirements of condition 10 of planning permission 8/11/01544/CMA. The scheme builds upon an earlier scheme required under condition 11 of planning permission 8/00/01321/CMA.
- 3.55 The 2012 scheme seeks to enhance the grassland around the Silver Seal mine entrance. This scheme was approved by the MPA on 12<sup>th</sup> November 2012 and has been implemented with significant biodiversity improvements, see **Appendices 7 and 8**.
- 3.56 A copy of the restoration scheme and is included in **Appendix 6** for ease of reference.

### **Final Restoration of the Mine Workings**

- 3.57 On cessation of operations the mine workings will be allowed to fill naturally with groundwater: it is likely to take several years for the workings to flood. The pillars are designed with a flooding safety factor included and so the ingress of water does not present a problem on cessation of operations.
- 3.58 In accordance with legislation, the two entrances (one adit, one drift) into the mine workings will be backfilled with inert material, sealed with concrete and made safe to prevent any entry into the abandoned mine workings. In addition, any ventilation shafts and service boreholes will also be appropriately sealed by filling with inert materials and capped with a layer of concrete to a level around 0.5m below the level of the adjacent surface. Soils will be placed on top of the concrete to final levels.

### **Aftercare**

- 3.59 Condition 10 of planning permission 8/00/01321/CMA provides that annual reports are submitted to the MPA detailing the aftercare work undertaken as part of the Nature Conservation Management Plan, the latest is included within **Appendix 8**. In accordance with the management plan butterfly surveys are also undertaken and submitted to the MPA (see **Appendix 7**).
- 3.60 The nature conservation management scheme has been designed to enhance the grassland around the Silver Seal mine entrance to encourage invertebrate, and in particular butterflies.

**Figure 3.11**  
**Toadflax at Silver Seal**



**Figure 3.12**  
**Cinnabar Moths at Silver Seal**



## The Section 73 Applications

- 3.61 As noted in Section 1 above, two planning applications are being submitted to the MPA in parallel with the 1995 Act review. The two applications are being made pursuant to Section 73 of the Town and Country Planning Act 1990. However, despite the number of planning applications being submitted, each planning application seeks the same amendment, in that each mineral planning permission should be subject to the same date by which mining operations are to cease.
- 3.62 Both of the planning applications governing the mining operations have the same 'end date' (i.e. the date when the mining of gypsum should cease). The current end dates are summarised in the following table.

**Table 3-1**  
**Planning Permission End Dates**

Planning Permission	Area	Condition	End Date
8/00/01321/CMA	Main Permission	2	31/12/2025
8/11/01544/CMA	Costock Extension	4	31/12/2025

- 3.63 The reasons provided for imposing the conditions are:
- “In order to define the permission”; and  
“For the avoidance of doubt”
- 3.64 Current estimates of reserves (see above), coupled with projected rates of production indicate that the reserves of gypsum at the Mining Site will not be completely worked out by the current end date. As such, workable reserves will still exist after 31 December 2025. In order to avoid unnecessary sterilisation of these reserves and allow for continued investment at the Mining Site, it is desired to amend the conditions referred to above in Table 3-1 to allow the continuation of extraction operations beyond the end of 2025. Whilst the 1995 Act review process allows for new conditions to be proposed, the review process can not authorise something for which planning permission does not exist. As such it is necessary to make the planning applications to 'vary' the conditions.
- 3.65 In relation to both planning conditions, planning permission is sought as follows:
- “The extraction of minerals from the area edged in red on Plan 2 (EL-163) shall cease on or before 22 February 2042”.

## 4 ENVIRONMENTAL CONSIDERATIONS

### Introduction

- 4.1 Given that the extraction of gypsum occurs below ground, many of the environmental impacts typically associated with “open pit” (or surface) mineral working do not manifest themselves. The nature of the mining operations are such that environmental impacts upon ecological and heritage assets, landscape (visual and landscape character of the area), dust and noise are unlikely to occur, let alone be significant. The use of explosive charges in blasting operations can cause ground vibration; however, since 2006 the gypsum has been extracted using an electric powered face cutting machine in preference to blasting. Notwithstanding this, should harder deposits be found then blasting may need to be re-introduced at the mine. Based on experience at other mines, improvements to blasting techniques has improved the control and management of blasting and resulted in greater control of the amount of vibration generated, allowing mining operations to proceed without significant adverse environmental impact whilst being in close proximity to residential properties.
- 4.2 Consideration needs to be given to the receiving environment, and in particular, whether the development is located within a ‘Sensitive Area’; these are defined as:
- Sites of Special Scientific Interest;
  - National Parks, the Broads and Areas of Outstanding Natural Beauty; and
  - World Heritage Sites and Scheduled Monuments.
- 4.3 The surface mine features are not located in a particularly environmentally sensitive or vulnerable location, with none of the features listed above lying in close proximity (see Plan 3). From Chapter 2 above, the nearest environmental assets are:
- Scheduled Monument lying adjacent to the boundary of the Mining Site;
  - Site of Special Scientific Interest adjacent to the boundary of the closed Glebe Mine; and
  - Registered Park and Garden (700m from the boundary of the Mining Site).
- 4.4 The workings, being underground, would not therefore directly or indirectly affect any sensitive ecological or heritage designations.
- 4.5 The review process does not apply to the plaster and plasterboard works located at East Leake.
- 4.6 The following paragraphs set out the main environmental considerations. The main issues are considered to be in relation to the water environment; surface stability; and vibration (when blasting is resumed at the Mining Site). Following on from this, consideration is given to the other usual facets of the environment, setting out why no significant effect would arise.

## Hydrogeology

- 4.7 The geology and hydrogeology of the mine area have been investigated in detail and are described below, in the context of the regional and local settings of the Mining Site. Investigations have been conducted and data collected from rotary core drilling and chemical assay of samples collected from the sulphate bearing strata, desk study investigation. In addition data obtained from boreholes drilled adjacent to the application area, and from published sources have been used to inform the conclusions.

## Regional Geology

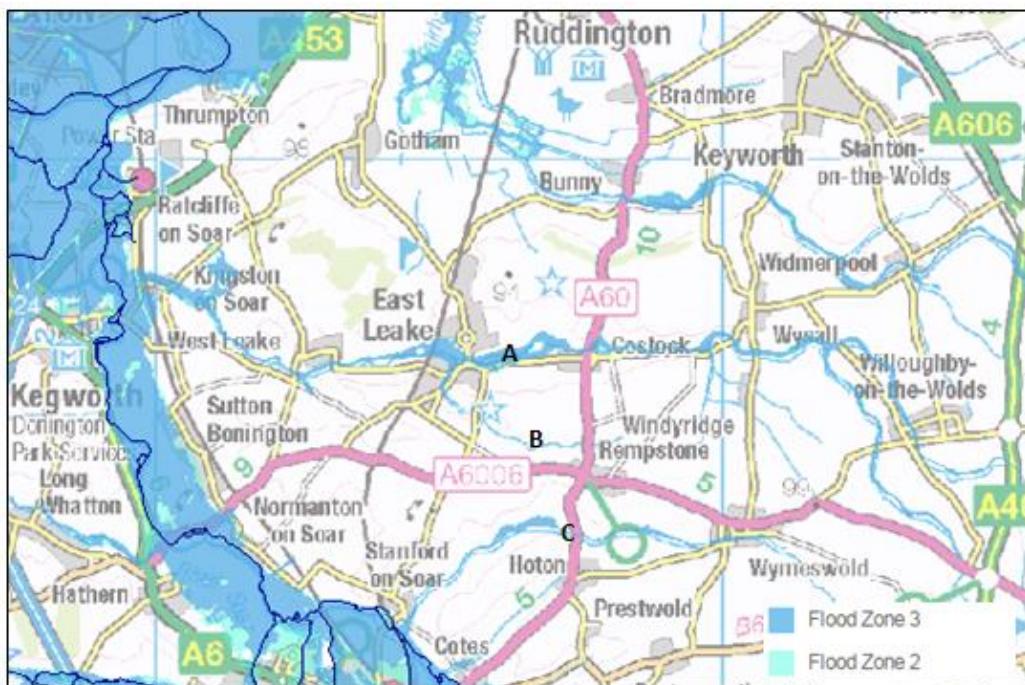
- 4.8 The Mining Site is described in the brief explanation of the Geological Map 142 of the 1:50,000 (Carney et al 2002) and the geology of the region is described in Howard et al (2009).
- 4.9 The region is located within Rushcliffe and forms part of the Nottinghamshire and Leicestershire Wolds landscape underlain mainly by mudstone rocks from the Upper Triassic age Mercia Mudstone, and limestone and shale of Lower Jurassic age. The latter generally form the higher ground whereas the weaker mudstones underlie many of the low laying areas. The strata mostly dip regionally at very low angles towards the east and the alternating limestone beds within the Jurassic rocks giving rise to the characteristic west-facing escarpments or known as the Nottinghamshire and Leicestershire Wolds landscape.
- 4.10 The formations referred to above conceal the Lower Triassic Sherwood Sandstone Group that has been penetrated by deep boreholes notably at Rempstone and East Leake. Older Palaeozoic strata have also been discovered notably in the deep oil wells constructed around Rempstone.
- 4.11 The area is affected by a major east–west trending fault structure, the Normanton Hills Fault that downthrows the rocks some 80m to the north. Localised folding of the Jurassic and Triassic strata is present orientated in a series of gentle east-west trending structures.
- 4.12 The current mining operations take place underground from the Mining Site at depths of up to 80 metres below ground in the Tutbury gypsum seam, which is developed within the Mercia Mudstone, which consists of red/brown and grey/green interbedded mudstones and sandstone. The Mining Site comprises a dissected plateau; this plateau feature is underlain by a mantle of glacial till comprising boulder clay, sands and gravels which conceal the bed rock over most of the area.

## Regional Hydrology and Hydrogeology

- 4.13 The mine is located within the catchment for the River Soar that is a subsidiary part of the northeast flowing Lower Trent Catchment. It is drained by the east - west flowing (a) Kingston Brook in the north, (b) Sheepwash Brook in the centre and in the south by the (c) Kings Brook. The plateau that the mine area occupies is situated at over 80m AOD and forms locally high ground. For an

appreciable part of their entire length these water courses flow over the Mercia Mudstone which is relatively impermeable with a low infiltration capacity. Most of the land is either in some form of agricultural use or in an urbanised / amenity forestry use. The land generally has a system of land drains constructed for the benefit of these uses and feed the main water courses. No large areas of surface water are present, although several small temporary lakes have been developed as part of the sand and gravel extraction workings operated by CEMEX, southeast of East Leake.

**Figure 4-1**  
**Flood risk zones**



- 4.14 Water quality information is published by the Environment Agency for the Kingston Brook at East Leake and Fairham Brook in the area and both are classified as good to average, but both contain high levels of nitrates and phosphates associated with widespread agricultural activity. There are no licensed points of abstraction within a 3km radius of the Mining Site.
- 4.15 Groundwater is able to infiltrate into the thinly bedded Jurassic limestones of the Barnstone Formation occupying the highest ground. It is designated a Secondary 'A' Aquifer by the Environment Agency in accordance with the latest Groundwater Protection Policy, and the Water Framework Directive. This class of aquifer is defined as being capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. The Barnstone Formation is responsible for the spring line that forms at the toe of the escarpment feature which occurs at the junction with the underlying impermeable shales of the Westbury Formation known colloquially in the region as the 'Rhaetic escarpment'. Seepages of groundwater into the field drainage system will form a significant local component of base flow to the surface water courses. All of the other geological formations that are present close to the surface in the application area comprise mudstones and have been grouped together as 'non aquifers'

now designated by the Environment Agency as Secondary 'B' Aquifers defined as comprising predominantly lower permeability layers which may store and yield limited amounts of groundwater. The Sherwood Sandstone Group is a Principle Aquifer and its presence has been established by deep boreholes.

- 4.16 The Mining Site is not located in any Source Protection Zone.
- 4.17 On the whole Marblaegis can be considered to be a relatively dry mine. Water enters some of the older parts of the Marblaegis Mine where the workings, in the Tutbury gypsum seam were mined relatively close (< 30m) to the surface; these areas are known to have an increased hydraulic connectivity to the drift deposits and / or surface water bodies. Modern workings would not progress to this low depth and the risk of similar ingress in the future is considered low.

### **Water Management**

- 4.18 Any water entering the mine needs to be pumped out to allow extraction to take place. The mining site has four discharge points, two via the factory (consent ref: RP3833KT, W1 and W2) into a tributary of Fairham Brook, discharge from Marblaegis Mine into Kingston Brook (consent Ref No: T/58/45125/T) and from Silver Seal adit (consent ref: EPR/AB3793VM) also into Fairham Brook. Glebe mine has two discharges (ref: T58/40127/T) into Kingston Brook. The total pumped discharge is presently 0.75Mm<sup>3</sup> pa.
- 4.19 All discharges are monitored by the Environment Agency and are regularly sampled. The discharges have stipulated limits for typical pollutants and in all analysis to-date the discharge has been deemed to be satisfactory and within consent limits. The continued operation of the mine is not predicted to result in a significant increase to the discharge rates and the existing discharge points would continue to be utilised.
- 4.20 The mine discharge into Kingston Brook forms the most important source of base flow. Mine water is also discharged at the East Leake Works where it is nearly all consumed as 'process water' for the manufacture of plasterboard.
- 4.21 Any potential impacts on both ground and surface waters are forecast to be extremely low, largely because most of the extracted mine water is consumed in the manufacturing process at East Leake Works. Nevertheless, some water is discharged in its natural, unaltered state to surface water courses (Kingston Brook). The volumes and quality of water discharged from the mine into Kingston Brook and Fairham Brook is restricted and controlled by the discharge consent issued by the Environment Agency.
- 4.22 The risk of potential pollution from emergency situations e.g. a significant oil spill or a major fire, is reduced via the series of underground storage areas through which water passes before discharge. These lagoons facilitate emergency clean-up/settlement operations prior to discharge and will be maintained throughout the life of the mine.

## Final Restoration

- 4.23 It is the intention to allow the mine to fill naturally with water once mining has fully ceased and it is likely to take several years for the workings to fill with ground water. Gypsum is sparingly soluble in fresh water, but the water in the area has a high dissolved solid content and is already naturally saturated with calcium sulphate that prevents damage to the mine support pillars from dissolution. The pillars are designed with a safety factor included to allow for the reduction in pillar strength as a result of flooding.

## Surface Stability

- 4.24 Gypsum has been mined in the East Leake area for over a hundred years. A number of collapses are known to have occurred during this time. However some collapses are due to the natural dissolution of gypsum at sub outcrop beyond the mining area and are not associated with mining activity.
- 4.25 There has been no subsidence relating to the modern workings at Marblaegis Mine. The mine is geotechnically designed and regularly inspected. There has been some subsidence and deterioration associated with areas of early workings dating back to the 1940's and 50's, this subsidence has been restored.
- 4.26 Areas of the mine that show any signs of deterioration would be located, barriered off and surface owners notified. For any known areas where members of the public would be at risk from surface subsidence, the applicant would contact surface landowners and would arrange for the area to be fenced off and safety signs erected. The areas affected would be re-graded and restored if / when subsidence occurred. Infilling of subsidence hollows would be undertaken using appropriate materials having regard to waste management regulations.
- 4.27 The risk of subsidence from the post 1970's mine workings is very low. Inspections of the post 1970's mine workings generally show only minor degradation. In parts of Marblaegis Mine the pre-1970's mine workings may still represent a subsidence risk. In the event of subsidence the appropriate restoration would be carried out.
- 4.28 Linked to subsidence is natural gypsum dissolution. Gypsum is a soluble rock; it is classified as an evaporite rock, as it was originally deposited by crystallisation from water. The result of gypsum dissolution is not dissimilar to limestone solution, with Karstic features forming including sinkholes.
- 4.29 There are several different types of sinkhole. Some result from the surface dissolution of the gypsum (solution sinkholes), for example limestone slowly dissolves when attacked by rainfall or groundwater that is acidic.
- 4.30 Sinkholes also occur where a thin covering of loose superficial material such as sand, clay or soil covers the soluble rocks beneath. In this setting, the soil can be washed into solutionally widened fissures below, leading to the development of a cavity within the overlying material

- 4.31 If the cover material is sandy, it will tend to gradually slump into the fissures, slowly creating a sinkhole over time. However, if the material is more cohesive, like clay, then the cavity can grow quite large before collapsing; a process termed a 'drop out' sinkhole.

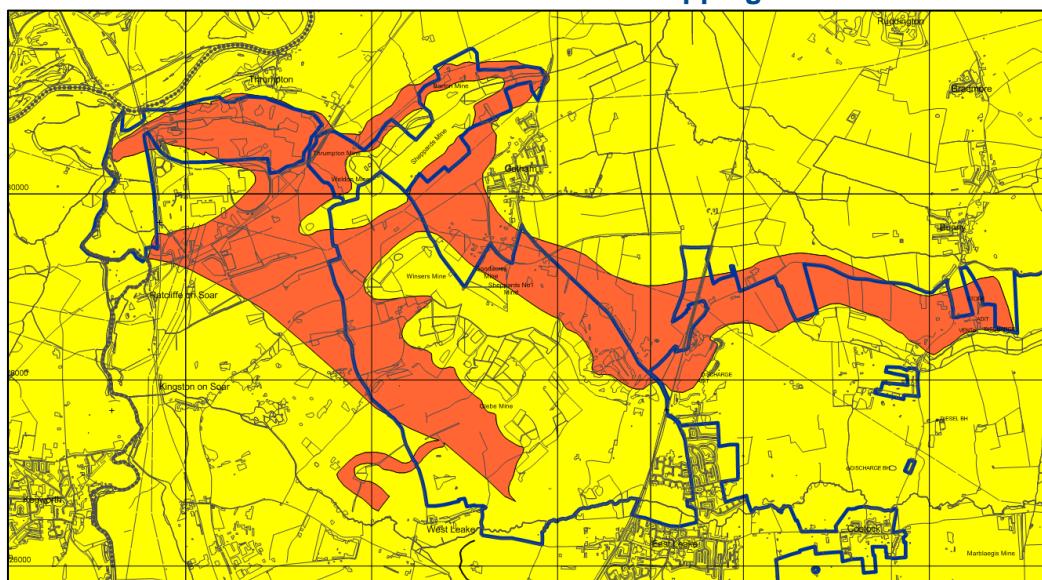
4.32 Several things can trigger sinkholes. The simple process of gradual dissolution can cause a sinkhole to form at the surface. However, other factors, including humans can induce sinkholes to form, such as: heavy rain or surface flooding can initiate the collapse of cavities, within superficial deposits. Leaking pipes, burst water mains and irrigation are all documented examples of things that trigger sinkholes. Changes in water table level such as drought or groundwater abstraction can cause sinkholes by changing the level of the water-table. This removes the buoyant support water provides to a cavity. Draining these cavities can cause them to collapse; no such collapses would be expected in excess of 60 years after mining commenced.

4.33 Mining can be a factor in causing sinkholes, either by dewatering and lowering of the water-table or by intercepting clay filled voids which subsequently collapse. No clay filled voids have been intersected at Marblaegis Mine.

4.34 Areas prone to sinkhole formation occur throughout the UK, although most are relatively small or are in upland rural locations. These include areas underlain by Carboniferous limestones, notably the Mendips, parts of Wales, the Peak District, the northern Pennines and Yorkshire Dales.

4.35 The most susceptible area in the UK is the Permian gypsum deposits of NE England, particularly around Ripon where many large sinkholes have developed, some have affected property and infrastructure. This is because gypsum is far more soluble than limestone, and thus dissolves more rapidly due to the presence of water in the underlying limestone aquifer. See Figure 4-1 below which shows the soluble rock hazard mapping undertaken by the BGS (British Geological Survey) in the vicinity of East Leake.

**Figure 4-1**  
**BGS Soluble Rock Hazard Mapping**



The area shaded red above is an area classified by the BGS as “*Significant soluble rocks are present. Low possibility of localised subsidence or dissolution related-degradation of bedrock occurring naturally, but may be possible in adverse conditions such as high surface or subsurface water flow*”.<sup>15</sup>

- 4.36 In the vicinity of Marblaegis Mine, there is some evidence of gypsum dissolution linked to natural dissolution of gypsum which outcrop beneath the glacial drift.
- 4.37 Prior to restoration of mining related subsidence features, the company assesses the planning and waste permitting requirements. The aim of restoration works is to reinstate the land to its former use and utility. Where the surface is not controlled by British Gypsum negotiations are undertaken with the respective surface land owner to identify the best method for addressing the subsidence; identifying suitable fill materials; surface treatment as appropriate to the original land use; prior to restoration commencing the company makes an assessment of whether the subsidence is stable and that restoration can commence, this is done using observations, previous experience and surveying as necessary.
- 4.38 If it is necessary to infill agricultural land which has subsided as a result of mining operations or dissolution of gypsum, this will be done using the appropriate materials which would normally be permitted development.
- 4.39 As noted in Chapter 3 above, the existing planning conditions require surveying of the level of a number of roads in the area to confirm that no subsidence is occurring. Results are submitted to the MPA annually.

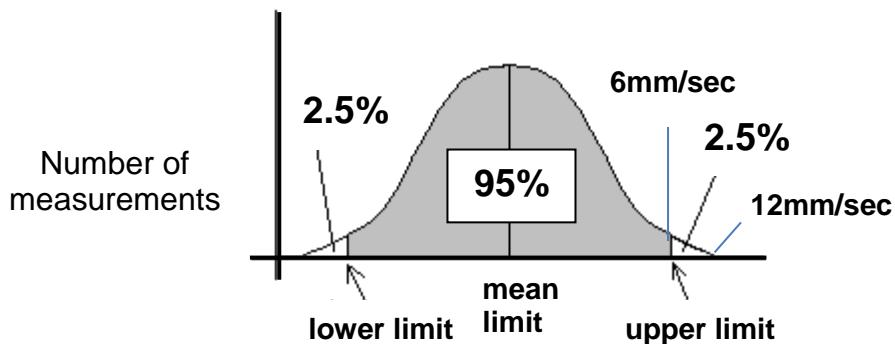
## Vibration

- 4.40 The detonation of explosives within a confined borehole generates stress (seismic) waves causing localised vibration, distortion or cracking. This type of ground vibration is always generated, even by the most well designed blasts, and will radiate away from the blast source, attenuating as distance increases.
- 4.41 Properties in the vicinity of the Mining Site are already protected from potential damage due to blast vibration by virtue of planning condition 8 and condition 9 on planning permission reference 8/00/01321/CMA. Condition 8 restricts the timing of blasting within 200m distance of any residential property (see plan 8 EL-178) and Condition 9 restricts the maximum vibration level (expressed as peak particle velocity or PPV and measured in millimetres per second or mm/s) to 8mm/s at 95% confidence levels and no blasts are to exceed 12mm/s. Ground vibration is measured at a receptor in any of three mutually perpendicular planes using a seismograph during the blast.
- 4.42 In order to keep within this 95% limit, blasts must be designed to average typically less than half of the upper limit as illustrated in figure 4-2 below.

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<sup>15</sup> [www.bgs.ac.uk/products/geosure/solublePHI.html](http://www.bgs.ac.uk/products/geosure/solublePHI.html)

**Figure 4-2**  
**Graph illustrating the 95% confidence limit**



- 4.43 All blasts will be designed to comply with the limits by varying the maximum instantaneous charge (MIC) as detailed in Table 4-1. A scheme for blast monitoring at East Leake is proposed as part of this submission, (contained with **Appendix 5**).

**Table 4-1:**  
**Proposed maximum instantaneous charge weights**  
**(to achieve 6mm/sec 95%confidence level)**

Surface distance to residential property (m)	MIC (kg)
50	1.1
60	1.5
70	2.1
80	2.7
90	3.4
100	4.2
110	5.1
120	6.1
130	7.1
140	8.3
150	9.5
160	10.8
170	12.2
180	13.7
190	15.2
200	16.9

- 4.44 Blasts in a room and pillar mine are very small compared to surface quarry operations. A typical blast from an individual face at Marblaegis yields only 120 tonnes of gypsum. To meet demand / production requirements, multiple faces are charged and fired on a daily basis, at intervals during the operating hours (often at end of shift), these will be fired in groups of faces from each operational district.
- 4.45 The vibration produced is dependent on the maximum instantaneous charge (MIC). This is the maximum amount of explosives fired simultaneously at one moment (the standard is within 6 milliseconds of each other). In a typical production blast, up to 32 shot holes are fired on each face. These are fired in

groups separated by delays, which are governed by the detonator timings. These delays make the blast longer (in milliseconds) but mean that the amount of explosive being detonated at any one moment is lower. Typically each individual face blast will last less than 1 second, firing of multiple faces will typically take no more than a couple of minutes.

- 4.46 The human body is very sensitive to vibration, which can result in subjective concern being expressed, even when vibration levels are well below the threshold of damage. A person will generally become aware of blast induced vibration at levels of around 0.5 - 1.5mm/sec. Such levels are routinely generated by domestic activities in residential properties and are entirely safe. Table 4-3 gives examples of vibration levels routinely generated in a property.

**Table 4-3**  
**Vibration Levels Generated by Everyday Activities**

Activity	Vibration level $\text{mms}^{-1}$ ppv
Walking, measured on a wooden floor	1.0 – 2.5
Door slam, measured on a wooden floor	2.0 – 5.0
Door slam, measured over the doorway	12.0 – 35.0
Foot stamps, measured on a wooden floor	5.0 – 50.0

- 4.47 Guidance on the environmental effects of blasting is contained in the report issued by the former DETR in April 1998<sup>16</sup>. The report draws together all the recommendations including those from BS6472 and BS7385 and the withdrawn MPG's 9 and 14. Paragraph 7.33 of the conclusion and recommendations of the report is particularly relevant in determining an appropriate level for blasting vibration.
- 4.48 This guidance advises that levels should be as low as possible but that a maximum PPV 8mm/s at a 95% confidence level, with an absolute limit of 12mm/s is appropriate where a fair balance between economic and environmental effects has to be made.
- 4.49 With regard to physical damage to properties, extensive research has been carried out around the world, the most prominent being undertaken by the United States Bureau of Mines (USBM). Damage to a structure could occur if the dynamic stresses induced in a structure by vibration exceed the allowable design stress for the specific building material. Classifications of building damage range from very fine plaster cracking up to major cracking of structural elements. In particular, when defining damage to buildings, the following classifications are used:
- Cosmetic or threshold – the formation of hairline cracks or the growth of existing cracks in plaster, dry wall surfaces or mortar joints.
  - Minor – the formation of large cracks or loosening or falling of plaster on dry wall surfaces, or cracks through bricks/concrete blocks.
  - Major or structural – damage to structural elements of the building.

<sup>16</sup> The Environmental Effects of Production Blasting from Surface Mineral Workings, Vibrock. Published by the Stationery Office 1998 (ISBN 0-11-753412-9)

- 4.50 Studies by the USBM concluded that vibration levels in excess of  $50\text{mms}^{-1}$  ppv are required to cause structural damage. The onset of cosmetic damage can be associated with lower vibration levels. Vibration levels between  $19\text{mms}^{-1}$  ppv and  $50\text{mms}^{-1}$  ppv for open pit blasting are generally considered safe in the UK. It should be noted that these limits are for the worst-case structure conditions and that they are independent of the number of blasting events and their durations. No damage has occurred in any of the published data at vibration levels of less than  $12.7\text{mms}^{-1}$  ppv.
- 4.51 BS7385 identifies 20mm/sec as the limit for cosmetic damage to buildings from vibration for residential (and light commercial) buildings. Major structural damage can occur to building if the PPV levels are greater than 50mm/sec.
- 4.52 The proposed 6mm/sec level (95% confidence value) blast vibration limit is a reduction from the currently consented level and is in line with guidance and will not result in any damage to property: cosmetic, minor or structural. This is the same level as recently consented at British Gypsum's Fauld mine, Staffordshire and Birkhead mine, Cumbria.

## Air Quality

- 4.53 The mining operations have limited potential to generate dust. Whilst the process of winning gypsum from the face and primary crushing have the potential to generate dust, suitable mitigation measures (through the use of water sprays for example) are in place to ensure that the working environment for the workforce is suitable. Moreover, the enclosed nature of the mining operations is such that dust at the surface receptors is not an issue.
- 4.54 The use of electric powered cutting equipment, haulage cars and crushing plant significantly reduces the gaseous emissions from diesel engines (such as NOx, CO, and CO<sub>2</sub>). Notwithstanding this, at other mines where diesel powered plant is used, gaseous emissions are managed such that these are not an issue, either in the mine, or at surface.
- 4.55 British Gypsum regularly (every 90 days) monitor the amount of gases (carbon monoxide and nitrous oxide) in the existing mine air to continue to safeguard the health of the workers at Marblaegis Mine.
- 4.56 This monitoring has not demonstrated any concerns.
- 4.57 As such, it is considered unlikely that there would be any significant impacts associated with air quality, and thus no planning conditions are considered necessary.

## Ecology

- 4.58 The underground mining operations give rise to no direct or indirect impacts on ecological interests (which are located at the surface). The nearest designation of note is the Rushcliffe Golf Course SSSI, which is adjacent to the permission area for the closed Glebe Mine.

- 4.59 As such, it is considered unlikely that there would be any significant impacts on ecology.
- 4.60 As noted above, a management plan has been adopted for the Silver Seal adit and the implementation of this scheme has enhanced biodiversity in the area.

## Landscape

- 4.61 The underground mining operations give rise to no direct or indirect landscape or visual impacts.
- 4.62 As such, it is considered unlikely that there would be any significant impacts on the landscape or visual amenity.
- 4.63 A management plan has been approved for the Silver Seal adit and the implementation of this scheme, whilst aimed at biodiversity enhancements, will help approve the appearance of this part of the Mining Site.

## Noise

- 4.64 The enclosed nature of the mining operations, being at least 40m below the surface, is such that noise at the surface receptors is not an issue. This is confirmed through the lack of noise related complaints received by the applicant in relation to mining operations. Moreover, electric powered machinery is used and no blasting is currently undertaken.
- 4.65 Ancillary to the mining operations is the ventilation of the mine; this is achieved using fans located at the Silver Seal entrance. These fans are located underground with the nearest receptors located adjacent to the A60, some 600m away.
- 4.66 The review proposals would not reduce any standoffs to receptors (i.e. it wouldn't bring the workings any closer than currently permitted). Moreover, the proposals would not alter any working practices.
- 4.67 As such, it is considered unlikely that there would be any significant impacts associated with noise and thus no planning conditions are considered necessary.

## Socio Economic

- 4.68 The factory supplies plaster and plasterboard products throughout England and currently employs a total of 416 people: 264 (the East Leake factory), 27 (the mine) and 125 contractors (including haulage, logistics, stores canteen and cleaning).
- 4.69 Since the 2008 recession, the factory has gradually increased output and operating hours, currently working 7 days per week 24 hours/day. Producing approximately 66 million m<sup>2</sup> of plasterboard and 208,000 tonnes of plaster.
- 4.70 In order to meet customer demand, the plasterboard factory output was stepped up in March 2015 and again in July 2015 to where it is currently

operating to the maximum operating hours available. This resulted in the number of employees being increased from 236 at the start of 2015 to 266 at the end.

- 4.71 The factory and mine currently provides direct employment for 291 employees and contributes approximately £13 million to the economy in the form of direct wages and local business rates. A large proportion of these positions are skilled roles, including logistics, electrical, mechanical and production operators.
- 4.72 The East Leake site has a budget of £25m for spend on contract companies and non-raw material suppliers of which a significant proportion will be within a 15 mile radius
- 4.73 Over 50% of the employees at the East Leake Works and Marblaegis Mine live within 10 miles of the Works/mine, see Table 4-2 below.

**Table 4-2**  
**Distance employees live from the factory**

Distance (miles)	Number of employees	%
0 - 5	56	21%
5 – 10	82	31%
10 -15	53	20%
15 – 30	53	20%
30+	20	8%

## Traffic

- 4.74 The majority of material extracted from the mine is used in the adjacent plaster and plasterboard works, being transferred by conveyors from the working district of the mine to the works. The current conveyor lines are around 4-5km in length at the present time.
- 4.75 A small amount of material (averaging 15% of 'run of mine' production) is exported to Fauld Mine, other factories or cement works. Data from 2009 to the present date shows that the amount of material exported averages around 17,000tpa (maximum in recent years being 25,000 tpa): this equates to a maximum of 105t per day, or 4 loads (8 movements) per day. This is small in comparison to the HGV movements associated with the plaster and plasterboard works at East Leake.
- 4.76 The HGV's delivering cement rock will arrive at the site with a delivery of high-purity gypsum from Newark for blending with the mine rock in the plasterboard process to achieve the required grade.

- 4.77 All material exported from the mine is transported by HGVs. The site entrance has been described in Section 2 above. HGV's leaving the site turn both left and right out of the gate onto Bunny Lane to gain access to the A60 and A453 (via Gypsum Way).
- 4.78 As such, it is considered unlikely that there would be any significant impacts associated with traffic arising directly from the mine exports and thus no planning conditions are considered necessary.

**Figure 4-3**  
**Cement rock load out point**



**Figure 4.4**  
**Wheel wash facility**



## 5. PLANNING POLICY

### Introduction

- 5.1 It is clear from national legislation and the National Planning Policy Framework (NPPF) that the Government is committed to a plan led system, with the Development Plan forming the basis of all planning decisions. Section 38(6) of the Planning and Compulsory Purchase Act 2004 (PCPA 2004) confers a presumption in favour of development proposals which accord with the Development Plan (which for the time being still comprises the Regional Spatial Strategy and the Development Plan Documents taken as a whole<sup>17</sup>), unless material considerations indicate otherwise. This is reiterated in the NPPF<sup>18</sup>. Sub Section 5 of Section 38 also states that, “*if to any extent a policy contained in a development plan for an area conflicts with another policy in the development plan the conflict must be resolved in favour of the policy which is contained in the last document to be adopted, approved or published (as the case may be)*”.
- 5.2 This principle has been developed and clarified by case law, which has confirmed that a particular proposal does not need to accord with each and every policy in a development plan; the key issue is that it accords with the overall thrust of development plan policies taken as a whole.
- 5.3 At the national level, planning policy is set out in the NPPF (and associated web based Planning Practice Guidance). This addresses general principles and policies together with providing guidance on minerals, and forms a material consideration to the consideration of a planning application. National guidance is translated into more detailed policy through the Development Plan, but will take precedence where the Development Plan is out of step with national policy.
- 5.4 As such national planning policies are a material consideration in determining any planning application. Other material considerations include specific strategies, such as those relating to waste management, together with ministerial statements.

### National Policy

#### **NPPF**

- 5.5 The government published the National Planning Policy Framework (NPPF) on 27 March 2012. As a result, virtually all of the Planning Policy Statements (PPS), Planning Policy Guidance Notes (PPG), Minerals Policy Statements (MPS) and Minerals Planning Guidance (MPG) notes have been revoked with immediate effect. This includes the cancellation of MPS1 (Planning and Minerals 2006); MPS2 (Controlling and Mitigating the Environmental Effects of Mineral Extraction in England – Annex 1 Dust and Annex 2 Noise 2005); and MPG7 (Reclamation of Mineral Workings 1996).

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<sup>17</sup> Section 38(3) Planning and Compulsory Purchase Act 2004

<sup>18</sup> Paragraph 2, NPPF.

- 5.6 However, whilst these documents have been replaced, there is general consistency of approach via the advice on noise, dust and restoration initially set out in the NPPF Technical Guidance Note March 2012 (paragraphs 23 – 43), and more recently by the National Planning Practice Guidance (NPPG) on Minerals<sup>19</sup> (March 2014) which accompanies NPPF and which replaces the original NPPF Technical Guidance.
- 5.7 There has thus been no material change to technical national policy advice relating to mineral extraction: it has simply been redrafted and re-presented in a different format.
- 5.8 At the heart of the NPPF is a presumption in favour of sustainable development<sup>20</sup>, which for decision making means:
- approving development proposals that accord with the development plan without delay; and
  - where the development plan is absent, silent or relevant policies are out-of-date, granting permission unless:
    - any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole; or
    - specific policies in this Framework indicate development should be restricted.
- 5.9 In terms of sustainable development, the NPPF identifies three dimensions<sup>21</sup> which require the planning system to perform a number of roles:
- an economic role – contributing to building a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth and innovation; and by identifying and coordinating development requirements, including the provision of infrastructure;
  - a social role – supporting strong, vibrant and healthy communities, by providing the supply of housing required to meet the needs of present and future generations; and by creating a high quality built environment, with accessible local services that reflect the community's needs and support its health, social and cultural well-being; and
  - an environmental role – contributing to protecting and enhancing our natural, built and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy.
- 5.10 These roles should not be undertaken in isolation, because they are mutually dependent. To achieve sustainable development, economic, social and environmental gains should be sought jointly and simultaneously through the planning system<sup>22</sup>.

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<sup>19</sup> <http://planningguidance.communities.gov.uk/blog/guidance/minerals/>

<sup>20</sup> Paragraph 14, NPPF

<sup>21</sup> Paragraph 7, NPPF

<sup>22</sup> Paragraph 8, NPPF

- 5.11 In this context Marblaegis Mine is an important supplier of raw materials for the manufacture of gypsum based products such as plaster and plaster board; key materials for the construction sector. The nature of the mineral mined from Marblaegis Mine is such that it can be considered to be of national importance. At the local scale, the mine supports the employment of 26 members of staff, together with providing indirect employment opportunities through supporting local businesses. At the same time, previous environmental studies undertaken have not identified any significant adverse impact, and thus it is not necessary to consider the balance between the benefits of the scheme and potential harm.
- 5.12 Turning to national policy for minerals, Paragraph 13 of the former MPS1 commented that "*Minerals can only be worked where they naturally occur*". This long established concept is retained in the NPPF at paragraph 142, which states:
- "Minerals are essential to support sustainable economic growth and our quality of life. It is therefore important that there is a sufficient supply of material to provide the infrastructure, buildings, energy and goods that the country needs. However, since minerals are a finite natural resource, and can only be worked where they are found, it is important to make best use of them to secure their long-term conservation".*
- 5.13 When determining planning applications for minerals developments, the NPPF advises (paragraph 144) that Local Planning Authorities should "*give great weight to the benefits of the mineral extraction, including to the economy*". It also advocates that:
- "there are no unacceptable adverse impacts on the natural and historic environment, human health or aviation safety, and take into account the cumulative effect of multiple impacts from individual sites and/or from a number of sites in a locality; and*
- ensure that any unavoidable noise, dust and particle emissions and any blasting vibrations are controlled, mitigated or removed at source, and establish appropriate noise limits for extraction in proximity to noise sensitive properties"*
- 5.14 Finally, Minerals Planning Authorities should plan for a steady and adequate supply of industrial minerals (Paragraph 146). Landbanks ranging from at least ten years (silica sand) to 25 years (brick clay and for cement primary and secondary materials to support a new kiln) should be maintained. By allowing all of the mineral permissions at Marblaegis Mine to expire in 2042 will ensure that a landbank of at least 15 years is maintained at the mine (being in line with that for cement primary (chalk and limestone) and secondary (clay and shale) materials to maintain an existing plant).

## The Development Plan

- 5.15 The PCPA 2004 reformed the development plan system, replacing Local Plans with a requirement to produce a Local Development Framework (LDF).

The LDF would comprise a portfolio of Development Plan Documents (DPDs). With the introduction of the Localism Act 2011, the LDF is to be replaced by Local Plans.

- 5.16 To maintain continuity in the Development Plan system during transition to the LDFs (and now Local Plans), arrangements were put in place for the existing adopted Structure Plan and the Minerals, Waste and District Local Plan policies to be ‘saved’. Of importance to the planning application is the Secretary of State’s saving direction where all Minerals Local Plan policies were saved until replaced by new adopted policies, with 7 exceptions.
- 5.17 The East Midlands Regional Spatial Strategy has been formally revoked by Statutory Order SI 2013/629. This was laid in Parliament on 20th March 2013 and came into effect on 12th April 2013. The same order also revoked any remaining saved policies in the structure plans within the region.
- 5.18 The Development Plan for the area within which the Mining Site is situated comprises the “*Saved Policies*” of the:
- Nottinghamshire Minerals Local Plan (adopted December 2005); and
  - Rushcliffe Borough Local Plan Part 1: Core Strategy (adopted December 2014).
- 5.19 Allied to this Nottinghamshire County Council is in the process of replacing the 2005 Minerals Local Plan with a new plan; the council issued a “*Preferred Approach to Consultation*” in October 2013 which contains a number of draft policies. Referring to the council’s web site a ‘*Submission Draft*’ is to be published in c. February 2016. As this plan has not been examined in public then the weight to the attached to it has to be moderated.
- 5.20 The Borough Local Plan Core Strategy (adopted December 2014 and covering the period to 2028) covers all matters involving the development or other use of land, with the exceptions of minerals and waste developments which by virtue of the Town and Country Planning (Prescription of County Matters) (England) Regulations 2003 fall to be considered against the Minerals Local Plan and Waste Local Plan respectively. The main considerations therefore relate to the general policies, and those aimed at safeguarding the environment.

### ***Nottinghamshire Minerals Local Plan***

- 5.21 The Nottinghamshire Minerals Local Plan (MLP) was adopted on the 5 December 2005 and is the single most relevant element of the Development Plan to the proposals. The Plan covers the period up to 2014 and thus whilst the period has expired, its saved policies remain in force until the new MLP is adopted. The MLP pre-dates both the NPPF and National Planning Practice Guidance; however, in the absence of a replacement plan, the MLP is still the main policy consideration (where it is consistent with the NPPF).
- 5.22 Chapter 3 of the MLP sets out the main policy considerations relative to the submission, addressing “*Environmental Protection*”.

- 5.23 **Policy M3.1** deals with the information that is required to support planning applications and regard has been had to these requirements in compiling the Planning Statement. Based on SLR's experience, together with the EIA Screening process, sufficient information to comply with this policy has been prepared and submitted.
- 5.24 **Policies M3.3, M3.4 and M3.22** deal with visual intrusion, screening and landscape character. As noted above, the continued development of the Mining Site, being underground, has minimal (if any) effect on the local landscape character or visual amenity. The above ground features of the Mining Site are limited in extent; for those located at East Leake, they are very small in comparison to the plaster/plasterboard works.
- 5.25 **Policies M3.5, M3.6 and M3.7** consider environmental pollution, and in particular noise, blasting (vibration) and dust respectively. In relation to noise, **Policy M3.5** provides that noise levels should be at "acceptable levels", with conditions imposed, where appropriate, setting out noise limits and restrictions on operating hours. The policy also considers the use of conveyors, 'sound proofing' fixed and mobile plant, use of stand-off distances and use of acoustic screens. **Policy M3.6** on blasting seeks to ensure that vibration levels are kept to acceptable limits and conditions imposed, were appropriate, setting out maximum vibration levels, restricting times when blasting can occur, limit air overpressure and require the monitoring of blast vibration levels on a regular basis. **Policy M3.7** indicates that dust from a development should not lead to an unacceptable impact. Where appropriate, conditions will be imposed to suppress dust generation and the policy cites examples of mitigation measures that can be adopted.
- 5.26 The water environment is covered by **Policies M3.8 and M3.9**; the former considers surface and groundwater quantity and quality, whilst the latter addresses flooding.
- 5.27 Traffic is addressed in **Policies M3.12 to M3.15**. **Policy M3.12** considers highways safety and protection, indicating that "*measures are in place to the County Council's satisfaction that prevents damage to the highway and also prevents mud and other deleterious material contaminating public highways*". **Policy M3.13** then addresses vehicle movements, indicating that the highway network should be able to satisfactorily accommodate the vehicle movements likely to be generated and would not cause unacceptable impact upon the environment and disturbance to local amenity. **Policy M3.14** then provides that the council will, as appropriate, impose conditions requiring the posting of site notices and/or the issuing of instructions to lorry drivers detailing any routes to be avoided. The condition also indicates that the council may seek to secure highway improvements or specify agreed vehicular routes. The final transport related policy (**M3.15**) considers bulk transport, and the use of *inter alia* rail.
- 5.28 Ecological aspects are addressed through Policies M3.17 to M3.20. The first policy (**M3.17**) addressed biodiversity, indicating that:

*"Planning permission will not be granted for minerals development which will adversely affect the integrity or continuity of habitats or*

*features identified as priorities in the UK and/ or Nottinghamshire Local Biodiversity Action Plan, unless an overriding need for development is demonstrated which outweighs the nature conservation importance of the feature.”*

- 5.29 **Policies M3.18 to M3.20** then consider ecological designations on a hierachal basis (European, national and local) with the degree of protection commensurate with the value of the designation.
- 5.30 The historic environment is covered by **Policies M3.24 and M3.25**; the former considers archaeology (archaeological remains of both national and less than national importance, and their setting) whilst the latter addresses historic designations such as listed buildings, conservation areas.
- 5.31 Finally, Chapter 10 of the MLP provides specific policies relating to gypsum.

## ***Emerging Minerals Local Plan***

- 5.32 Chapter 5 within the emerging MLP sets out the development management policies, the purpose of which help to deliver the strategic policies and objectives by providing the criteria against which future minerals development will be assessed. They relate specifically to individual, site level criteria such as environmental impacts and standards and provide guidance about how planning applications for minerals development in the county will be assessed.
- 5.33 **Policy DM1** provides an overarching policy aimed at protecting local amenity, addressing *inter alia* noise, blasting and dust, along with other aspects such as air quality, lighting, transport and stability of land. Proposals will be supported “*where it can be demonstrated that any potential adverse impacts on amenity associated with the following considerations are avoided and/or adequately mitigated to an acceptable level*”.
- 5.34 The water environment is addressed through **Policy DM2** covering both water quality/quantity and flooding (effectively merging Policies M3.8 and M3.9 considered above).
- 5.35 Ecological aspects are addressed through **Policy DM4** indicating that:
- there will be no significant adverse impacts on habitats or species or, where impacts cannot be avoided, adequate mitigation and/or compensation relative to the importance of the resource can be put in place; and
  - they will not give rise to any significant effects on the integrity of a European site, either alone or in combination with other plans or projects, as a result of changes to air or water quality, hydrology, noise, light and dust and that any impacts identified can be mitigated.
- 5.36 It also adds that Nottinghamshire’s biodiversity and geological resources will be enhanced, setting out four criteria to be considered.
- 5.37 The historic environment is addressed through **Policy DM6** providing that:

- the development would protect and where appropriate enhance nationally important historical assets and their settings; and
- the importance of the development outweighs the significance of any regionally or locally important designated or non-designated heritage assets that would be directly or indirectly affected by the development and where appropriate provision is made for the excavation and recording of any affected archaeological remains.

5.38 Finally, **Policy DM9** addresses highways safety and vehicle movements/routeing. For this policy, considerations include:

- the highway network can satisfactorily and safely accommodate the vehicle movements, including peaks in vehicle movements, likely to be generated;
- the transportation of minerals would not cause unacceptable impact on the environment and disturbance to local amenity;
- where appropriate, adequate vehicle routeing schemes have been put in place to minimise the impact of traffic on local communities;
- measures have been put in place to prevent material such as mud contaminating public highways.

5.39 Other policies in the emerging plan that are of note include:

- **Policy SP3** (climate change). The policy indicates that all minerals development should minimise their impact on the causes of climate change for the lifetime of the development. It sets out three criteria to be considered including:
  - reducing greenhouse gas emissions through location, design and operation;
  - avoiding areas vulnerable to the effects of climate change;
- **Policy SP6** (built and natural environment). All mineral development proposals will be required to deliver a high standard of environmental protection and enhancement and ensure that new development does not adversely impact on a range of criteria unless it can be demonstrated that there is an overriding need for a development and any impacts can be fully mitigated and/or compensated for.

## Rushcliffe Borough Local Plan Core Strategy

5.40 The Rushcliffe Borough Local Plan does not contain any policies relevant to mineral developments. As such, relevant policies are those aimed at safeguarding the environment, such as Policy 11 on the historic environment and Policy 17 addressing biodiversity. As Policies in the adopted and emerging MLP address these aspects, along with other environmental issues, then it is not necessary to consider the Local Plan further.

## Policy Summary

5.41 The following table provides a summary of relevant policies relating to the NPPF and the Development Plan.

**Table 5-1**  
**Summary of relevant Policies**

Subject	NPPF	Adopted MLP	New (2013)	MLP	Borough Plan
Amenity	Para's 109 and 120 to 125.  Also guidance in Planning Practice Guidance	M3.5  M3.6  M3.7	DM1		No specific policy
Archaeology/historic environment	Para's 126 to 141.	M3.24  M3.25	DM6	Policy 11	
Ecology	Para's 109, 113 and 117 to 119	M3.17  M3.18  M3.19  M3.20	DM4	Policy 17	
Landscape	Para's 109, 110, 111, 114, 115 and 118	M3.3  M3.4  M3.22	DM5	Policy 16	
Transport	Para's 29 to 41	M3.12  M3.13  M3.14  M3.15	DM9	Policy 14	
Water	Para's 99 to 108	M3.8  M3.9	DM2	No specific policy	

## 6 PROPOSED CONDITIONS

### Introduction

- 6.1 The purpose of the Periodic Review is to reconsider the conditions imposed via the Initial Review, and assess the extent to which the conditions should be revised and updated.
- 6.2 The initial onus is on the applicant to prepare an updated schedule of planning conditions. This statement is intended to assist this exercise by identifying the environmental and amenity effects of the updated quarry development scheme, the measures which are required to mitigate the identified effects, and the way in which these can be enforced by planning conditions or other regulatory regimes. This statement also includes a review of planning policy guidance, which provides a further context for issues which should be regulated by planning conditions and which, in certain cases, provides specific guidance on the content of conditions (e.g. noise and blast vibration).
- 6.3 The MPA is not obliged to accept the planning conditions proposed by the applicant, and they are entitled to impose different conditions or additional conditions. However, where a MPA determines conditions different from those submitted by the applicant, and the effect of the conditions, other than restoration or aftercare as compared to the effect of the existing conditions is to impose a restriction on working rights, then applicants whose interests have been adversely affected by the restrictions will be entitled to claim compensation (reference Schedule 14, paragraph 13 of the Environment Act 1995).

### Schedule of Proposed Conditions

#### Extent and Duration

1. This permission is for the continued underground extraction of gypsum by room and pillar mining methods from the area shown edged in red on Plan 2 [ref. EL-163].
2. The development hereby permitted shall be carried out in accordance with the following documents, unless otherwise agreed in writing with the MPA, or where amendments are made pursuant to other conditions below:
  - Chapters 3 and 4 of the Planning Statement dated April 2016
  - Plans 1 to 8
3. The extraction of minerals from the area outlined in red on Plan 2 [ref. EL-163], received by the MPA on 21 April 2016 shall cease on or before 22 February 2042.
4. A copy of the terms of this planning permission, including all documents referred to in this permission and any documents subsequently approved in accordance with this planning permission shall be kept at the offices for the Site (shown on the

Plan no. 1 [ref. EL-162] attached to this notice) and shall be made available for the inspection of any person(s) given responsibility for the management or control of the mineral activities/operations on the Site.

## **Mine Design**

5. No mineral shall be extracted from the underground area hereby permitted other than in conformity with the system of regular room and pillar extraction, having a maximum ratio of mineral extracted to mineral retained as pillars of support not exceeding 75% by area (i.e. typically a minimum of 25% of the gypsum horizon will be left undisturbed in the form of rectangular or square pillars of support).
6. Notwithstanding condition 5 above pillars of support shall be retained beneath all residential buildings existing at the time of granting of this permission within the area outlined in red on Plan 2 [ref. EL-163)]. Pillars of support shall be calculated based on a horizontal distance measured at the surface, equal to 0.5 times the vertical depth of the upper part of the excavations from any part of any existing residential building.
7. Subsidence test lines shall be set out along the routes highlighted on Plan 4 [ref. EL-174] and these lines shall be surveyed on a yearly basis. The results of the survey shall be submitted to the MPA before 1 July in each year. Remediation works shall be carried out to highways and drainage infrastructure damaged by subsidence caused by the extraction of gypsum.
8. Every two years, commencing with the date these conditions come into force a Mining Development plan shall be submitted to the MPA detailing the updated area that is proposed to be worked in the following five-year period.
9. Unless otherwise agreed in writing with the MPA, mineral extracted under this planning permission shall only be brought to the surface at the East Leake Works site, as highlighted on Plan 2 [ref. EL-163] received by the MPA on 21 April 2016.
10. Notwithstanding the provision of condition 9 above gypsum extracted from Zone 4 the area shown shaded light red on Plan 7 [ref. EL-177] of the adjoining Barrow Mine under planning permission 2000/0381/02 (or such amendment as may be approved by Leicestershire County Council) shall be brought to the surface at the East Leake Works site.

## **Blasting**

11. Except in the case of emergency or as otherwise agreed in writing with the MPA, blasting shall not take place within a lateral distance of 200m from any residential property except between the hours of 07:00 and 23:00 hours Mondays to Fridays (see Plan 8 [ref. EL-178]).
12. No blasting shall be carried out which would result in any resultant peak particle velocity attributable to the blast exceeding 6 mm per second in 95% of all blasts and no individual blast shall exceed a peak particle velocity of 12 mm per second at the footings of any residential property.

13. The MPA shall be notified in advance, in writing, when blasting is due to recommence at the mine and the arrangements for notifying residents likely to be affected.

### ***Groundwater and surface water drainage protection***

14. All oil, fuel and liquid chemical storage tanks and their associated filling points, vents, gauges, sight glasses and pipework are to be placed on impervious floors and enclosed with a bund of at least 110% capacity of the tanks which is to be maintained at that capacity or greater by removal of liquids and debris. Each bund shall be designed so as to prevent the release of stored materials in the event of a leak or spillage.
15. Any leaked or spilled substances, removed liquid and debris are to be disposed of to a facility licensed for that purpose.
16. Mine water shall be disposed of via the existing discharge points indicated on the Plan 6 [ref. EL-176]. No new surface outfalls, or alternative methods of disposal of mine water shall be installed or undertaken without the prior written approval of the Environment Agency. The MPA shall be notified of any changes approved by the Environment Agency within 4 weeks of the date of such approval being granted.

### ***Restoration***

17. The Silver Seal mine entrance shall be restored and managed in accordance with the Biodiversity enhancement scheme produced by FPCR and approved by the MPA on 12 November 2012.
18. Unless otherwise agreed in writing by the MPA within 12 months of the completion of winning and working of mineral hereby permitted the existing entrances to the mine workings, boreholes and ventilation shafts shall be closed up, sealed or capped by means of an impervious barrier.

## 7 CONCLUSIONS

- 7.1 Three submissions are being made to Nottinghamshire County Council in relation to Marblaegis Mine at East Leake. The main submission is made under the Environment Act 1995 and seeks to review the current planning permissions for the mine (referred to as the Mining Site) to ensure that it operates under modern conditions. The two other submissions seek to allow mining operations to continue after 31 December 2025, being the current date when the extraction of gypsum is to cease.
- 7.2 The Marblaegis and Glebe Mines which cover some 3,852 hectares within south Nottinghamshire. The main entrance to the mine, together with the mine offices are located to the north of the village of East Leake, some 12.2km south of Nottingham and 8.3km north east of Loughborough. The Glebe Mines, which extend northwards from East Leake are now exhausted of viable reserves; Marblaegis Mine still has significant reserves of gypsum sufficient to sustain production for c.25 years based on current anticipated demand/production rates.
- 7.3 It is important to note that the submissions do not seek to release any new reserves of gypsum by extending the working area. In addition, the submissions do not relate to the plaster and plasterboard works at East Leake.
- 7.4 Marbalegis Mine is a strategic regional and national asset; the mine supplies important indigenous raw materials to the downstream plaster and plasterboard industry which supplies the UK construction sector.
- 7.5 The mine and adjacent factory offer a significant local employment opportunity with over 378 people employed in the factory and mine alone.
- 7.6 The mine and factory offer very significant direct economic benefits to the local and regional economy with significant expenditure on materials and services in the local area.
- 7.7 Given that the extraction of gypsum occurs below ground, many of the environmental impacts typically associated with “open pit” (or surface) mineral working do not manifest themselves. The nature of the mining operations are such that environmental impacts upon ecological and heritage assets, landscape (visual and landscape character of the area), dust and noise are unlikely to occur, let alone be significant. Consideration has been given in this statement to the likely environmental issues and conditions are proposed to safeguard amenity of local residents and the environment at large.