HILLSIDE QUARRY, THURLSTONE

Supporting Statement for continuation of quarrying works

For

Grenoside Rock Developments Ltd

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PLANNING APPLICATION FOR THE CONTINUED QUARRYING WORKS AT HILLSIDE QUARRY, THURLSTONE FOR GRENOSIDE ROCK DEVELOPMENTS LTD

1.0 INTRODUCTION

1.1 The site has previously been worked for mineral extraction under application number B/05/0459/PU for an initial 3 year period.

1.2 The proposal is to extract approximately 9,500 m^3 of sandstone a year over a period of 10 years and provide a low level restoration scheme that does not involve the importation of any waste materials.

1.3 Before the imposition of planning control, stone was extracted from a small quarry within the site and used to repair walls and buildings on the nearby farm and associated land.

1.4 The quarry works sandstone rock which exists in thick beds with intervening laminated beds. It is of an ideal quality to supply the market with dimension stone, riven flat, rockery stone, dry stone walling and building sandstone. The potential exists to produce some aggregate, such as decorative chippings and crusher run, but in view of the road infrastructure considerations no significant volume of such products will be taken from the site.

1.5 As part of the proposed operations as with the previous application, the quarry is still to be used as a research and development facility by Rockjet Ltd, a company which is developing the technology for cutting rock using high pressure water. Other established and experimental rock cutting technology such as diamond wire cutting and diamond drilling, will be used on the site for producing dimension stone and sculpted items.

1.6 The role of Rokjet in developing this technology has not been particularly successful due to the length of time granted for the previous planning application.

1.7 It is intended that certain parts of the excavation will be used to demonstrate the ability of the technology to produce precise excavations required in civil engineering applications such as dam abutments or tunnel portals.

1.8 Annex 3 of MPS1 emphasises the importance of safeguarding and maintaining the supply of building stone for the conservation of built heritage and the restoration of historic buildings, particularly where stone is scarce in terms of its technical properties or aesthetic characteristics, or has characteristics which match those required for repair and preservation purposes of culturally important buildings.

1.9 Anecdotal evidence from industry and conservation stakeholders indicates there is a scarcity of certain types of natural stone building materials; however there is little or no evidence relating to building stone or flagstone demand and supply in the region.

1.10 All of the range of products provided by Hillside Quarry is in demand locally, particularly within the Peak District National Park and adjacent areas where they represent a continuing supply of traditional materials for either refurbishment or new build.

2.0 *THE QUARRY AND LOCATION*

2.1 The site is located off Cross Lane at Hill Side, 1 km south-south-west of Thurlstone, near Penistone, South Yorkshire. Refer to the Location Plan, Drawing No. GR.D/HQ/LOC-01.

2.2 The quarry is situated on the southern flank of the Don Valley, at a point where the land rises steeply from the river below, before levelling out to form the gently sloping features of Thurlstone Common. The quarry is situated on the crest of this change in gradient on land currently used for grazing.

2.3 Below it, the land slopes steeply, down to properties on Hill Side Lane, some 30 metres vertically below and further down to the disused Sheffield to Manchester Railway cutting, some 60 metres vertically below. This disused railway line now forms the route of the Trans Pennine Trail Bridleway.

2.4 The River Don flows through the valley bottom approximately 90 metres below the site

2.5 The proposed quarry at Hillside, Thurlstone is designed to be worked using a mixture of hydraulic power, diamond drilling/cutting and abrasive-assisted water cutting.

2.6 The intended products are high value items such as:

Flagstones
Roofing slates
Window sills
Window and door heads
Stone Gateposts
Sectional Stone Columns
Bespoke Stone products
Saleable Block
Demonstration pieces

During the course of manufacturing the above items, other saleable by-products will arise in limited quantities.

These would be:

Dry walling stone
Dressed building stone
Rockery feature stone

2.7 All of the range of products is in demand locally, particularly within the Peak District National Park and adjacent areas where they represent a continuing supply of traditional materials for either refurbishment or new build.

2.8 These materials are such that the majority of vehicles used in the transport from site will be of the smaller types, i.e. non HGV.

2.9 It should be noted that fill material will be generated during these operations, but will be kept on site as part of the restoration scheme.

3.0 EMPLOYMENT PROSPECTS

3.1 Currently Grenoside Rock Developments have 7 people on their books. This number is the basic number to operate and manage the quarry and sell its products. In addition, we regularly employ contractors to haul stone both within and away from the quarry. Conservatively we may say this equates to 1 more full-time job at present.

3.2 The establishment and on-going maintenance of the Quarry infrastructure demands the services of local engineers, fabricators, and mechanics. Other services bought in from local sources include specialist stone cutting, diamond drilling and others.

3.3 In total it is fair to say that we are providing currently 10 jobs. These jobs have been established and are being maintained in the bleakest economic period we have seen for decades. All analysis of our sales prospects is favourable, both locally and further afield.

3.4 The business plan for Grenoside Rock Developments demands that we produce more of the added-value products and sell less of the lower value products if there is a chance of adding value to that product. To this end we have been involved in negotiations for premises to use as a Stone-cutting and Masonry Yard. Given our projected production over the period covered by this application, the throughput of such a yard would demand a workforce of at least 5 persons, not counting any multi-function operators between the Yard and Hillside Quarry.

3.5 This expansion of our business is obviously dependant on the grant of this extension to our Planning Permission.

3.6 To serve as a Transfer Station we are also renting hard standing in the former Bullhouse Wire Works premises when other companies are reneging on leases on similar properties. This in itself may be small but it represents another contribution to the local economy.

4.0 GEOLOGY

Reference Sheets:-
Yorks County Sheet Series Nos. 273 and 281 and OS Sheet No. SE20SW.

Refer to the Geological Plan, Drawing No. HSQ2002/002.

4.1 The quarry is situated within the outcrop of the Grenoside Rock, on the southern flank of the Don Valley at Hill Side. The land use is rough pasture and below this, the strata dips to the north-east on a gentle gradient of 6 degrees. Away from the quarry itself a full section of Grenoside Rock can be viewed in the disused railway cutting some 60 metres below. The blocks of stone are seen to be widely spaced and thickly bedded up to 2 metres, with thin beds of laminated mudstone defining the workable lifts.

4.2 The deposit is described on the geological sheet as a gritty sandstone and extends eastwards beyond the site, beyond Brock Holes Lane and towards Hacking Hill. To the dip after 1000m the stratum becomes overlain by a thin coal.

4.3 Drilling has indicated that the base of the sandstone horizon is gritty and weak, which is possibly due to the action of water. The sandstone appears to be freely draining due to it being heavily jointed and the underlying mudstone will act as an impermeable plane. It is possible that at this interface, groundwater has weakened the matrix that holds the sandstone particles together.

4.4 There is a fault 1 kilometre to the south-west of the site that downthrows the strata to the north-east but the general trend of the fault system is south-west to north-east. There is no evidence of any faults in the application area.

Site Investigation

4.5 A combination of 7 open and cored holes were drilled on 11 February 2002 to prove the extent and characteristics of the sandstone. Using this information, we have been able to interpolate and sandstone horizon model, which shows that the thickness of the deposit ranges from between 8 to 16 metres, in a west to east direction across the site, with a dip of 6.5• to the north-east.

4.6 Refer to the Site Survey Plan, Drawing No. HSQ2002/003, and the Borehole Sections attached in Appendix G.

5.0 METHOD OF WORKING

5.1 A small area of land has historically been quarried for flagstone, as far down as the top of blockstone horizon. Spoils have been stripped from this area and placed in a screening bund to the north side of the excavated void, in order to create a level storage and parking area for agricultural machinery.

5.2 The quarry will be worked in 3 phases, allowing flagstone and blockstone benches to be worked simultaneously.

5.3 The quarry received permission to re-open following grant of planning for a 3 year period on 19th January 2007 from that time, 3m high soil screening bunds were erected around the perimeter of the site mitigating views and noise from the surrounding areas. Please refer to plan GRD/HQ/0709-01

5.4 The top leaf of weathered sandstone from phase 1 was stripped and stored in a heap on the south eastern part of the quarry.

5.5 A portion of the lower leaf of weathered sandstone has been processed for flags, paving and roof slates.

5.6 Extraction of the quality block stone is currently being worked from the western end of the quarry in a north easterly direction.

5.7 Phase 1. The remaining quality block stone is to be removed following the north westerly direction leaving a permanent 1:10 slope haul road against the northern boundary. Please refer to plan GRD/HQ/0709-02.

5.8 An amenity and mineral processing area is to be created in the western corner of the quarry, this will act to further mitigate visual and noise related issues. At current rates of progress this should be achieved by March 2010. This factor should be borne in mind when analysing the visual impact and noise reports included in this document.

5.9 Phase 2. A portion of the weathered sandstone from the spoil heap in the south of the quarry will be re-located and stored against the quarry haul road. Please refer to plan GRD/HQ/0709-03.

5.10 The weathered sandstone and quality block stone will then be worked in 2 benches in a south easterly direction, any spoil material generated from the upper leaf of weathered sandstone will be added to the spoil heap adjacent to the quarry haul road.

5.11 Flags, paving and roofing slates will be prepared in the mineral processing area in the western corner of the quarry.

5.12 A 10m wide access strip is to be retained along the north-eastern boundary for admittance to existing spoil heap.

5.13 Phase 3. The remaining weathered sandstone spoil heap will be re-located and added to the spoil heap in the base of the quarry exposing the remaining mineral for extraction. Again the weathered sandstone and quality block stone will be worked in 2 benches in a south-westerly direction and any spoil material generated from the upper leaf of weathered sandstone will be added to the spoil heap adjacent to the quarry haul road. Please refer to plan GRD/HQ/0709-04.

5.14 The spoil heap in the base of the quarry is to be pushed up against the exposed quarry faces creating 1:2.5 scree slopes forming a delph like low level restoration scheme. Please refer to plan GRD/HQ/0709-05.

5.15 The remaining mineral along the north western and north eastern boundaries is to be extracted and processed as before.

5.16 Once the all mineral is exhausted the remaining exposed quarry faces will be backfilled against in the same manner as before to complete the restoration profile. The screening bunds will be taken down and used to soil the slopes. No additional material will need to be imported to the site.

5.17 Reserves

It is estimated that the following quantities of sandstone will be produced from each phase:-

	Overburden		***Flags***		***Blockstone***		***Timeline***
	cu.m	**tonnes**	**cu.m**	**tonnes**	**cu.m**	**tonnes**	**Years**
Existing on Site	9,076	21,782	0	0	0	0	0.0
Phase 1	592	1,421	592	1,421	7,772	18,653	0.9
Phase 2	7,108	17,059	7,108	17,059	14,089	33,814	2.8
Phase 3	10,122	24,293	10,122	24,293	16,990	40,776	3.7
Phase 4	2,881	6,914	2,881	6,914	6,717	16,121	1.2
Totals	**29,779**	**71,470**	**20,703**	**49,687**	**45,568**	**109,363**	**8.7**

6.0 HYDROGEOLOGY

6.1 The proposed extension to the current quarry excavations are confined to the horizon of the Grenoside Rock. Surface exposures of a full section of this stratum are currently exposed in the area already worked and overburden occur in the North-West corner of the side, in the area of the old quarry. A further full section of the Grenoside Rock can be seen in the railway cutting in the vicinity of Hornthwaite Bridge approximately 700m from the site.

6.2 The overall lithology is that of a typical medium grained coal measures sandstone. Those surface exposures show the lower, more consolidated rock to have three distinct, intersecting vertical jointing systems which generally speaking are open. Thin horizontal shaley partings occur at approximately 2m intervals but are intersected by the same open vertical joints mentioned above. The origin of these vertical cleavage plains is open to speculation, but it is certain that freeze-thaw action in the immediate period following the Devensian Glaciation period caused the cleavage plains to open until they became fissures of up to 200mm wide, often collecting allochthanous argillaceous material which remains unconsolidated. The whole pattern is of a sandstone, current bedded in its upper reaches, but massive and blocky in its lower half. The maximum thickness where the full section is intact is in the order of 15 metres.

6.3 The initial site exploration involved boring a series of 7 boreholes across the prospective quarry area. Two of these, Nos 1 & 2, (see Appendix G) have been intersected by the current workings and the visual evidence from the excavations confirms the accuracy of the borehole logs. This increases the degree of certainty that the other boreholes can be regarded as representative.

6.4 These typically showed a sandy topsoil and sandy subsoil overburden totalling 0.6m, below which the upper part of the Grenoside Rock shoved itself as weathered and flaggy, becoming more massive and resistant as the depth increased. The absence of the coal and fireclay which overlay the Grenoside Rock in the sequence would indicate that this overburden is the result of the weathering of the Grenoside Rock itself.

6.5 One hole on the site was cored and showed that the basal 0.5 – 0.6m of the sandstone had degraded into a coarse grained, iron-stained, unconsolidated sand. The shales underlying the Grenoside Rock were penetrated to a depth of 2m. The thickness of these shales in the vicinity of the Quarry can be estimated by using the reduced level of the upper parting in the in the quarry and boreholes and the level of the lower parting found to the rear of the houses in Hillside. The estimate of the thickness of these impermeable shales is of the order 15-17m. The South West end of the first box cut reached the shales in a small area, and thus the borehole information was ratified. The blocky sandstone gave way to a heavily iron-stained yet unconsolidated sand. A small pit 1.5m x 0.8m x 1.2m deep was dug into the shale to ascertain the accuracy of the drainage interpretations. Seepage occurred through the basal sands to fill the pit after 2-3 days. There was no apparent seepage

of this water into the shales, but when the water level had risen to meet the sands, it rose no further. These facts were taken as indications that the water was draining into the first pit from the unconsolidated sands and draining away the same way when the pit became full. The picture of the drainage over the extent of the dip slope of the Grenoside Rock (on Geological Sheets as 'Thurlstone Common') is as below:-

6.6 Since the drainage through the Grenoside Sandstone is unimpeded it can be safely assumed that flow paths will be to the full dip. It may be that a phraetic zone exists in Grenoside Sandstone to the dip, after it has become overlain by the thin but impervious Grenoside Sandstone Coal, at 700ft AOD but the presence of the railway cutting at approximately 775 ft AOD and abandoned quarries approximately 720ft AOD and 820 AOD would represent discharge points if water ever did back up in the Grenoside Sandstone.

The significance of this is in relation to springs in the vicinity of the Quarry.

From the above information and by observations it can be inferred that:-

- Surface water will not stand but immediately drains through the sandy overburden and subsequently into the fissures of the open jointing pattern.
- Whereas the whole of the stratum is permeable, the fissurous nature means a rapid downward passage of surface water until the impermeable shales below are encountered.
- The lack of a matrix in the basal sands would indicate that the down-dip passage of water is occurring at this horizon and will be free flowing.

The full dip of the strata appears to be fairly consistent over the area with an azimuth 50 degrees i.e. slightly more east than north.

6.7 Abstractions

Previous correspondence with the Environment Agency largely centred on springs or issues from the Grenoside Sandstone that could be affected by the workings on Hillside Quarry.

The following points were established:-

1) The one licensed abstractor, Hoyland Fox, is no longer in Operation. The site has been developed for housing. The presence of the quarry had no relevance to their abstraction point, lying as it did at a lower horizon and up-dip.

6.8 In respect of Unlicensed Abstractions

No information was available from Barnsley MBC. The following are field observations.

6.9 Two springs are known utilised as stock drinks in the area, both on the north-west facing valley side.

6.10 One taps a spring emerging from vegetated scree at a point 250m south-west of the site, i.e. (up-dip). Presumably this water originates in the basal sands and tracks through the scree before emerging. The water from this source is then piped to dwellings on Hillside Lane.

6.11 Another spring, Spring 'A', which appears to be similarly used is situated 200m due north of the site, lower down the valley side. The source of this water may well be the Greenmoor rock, the next major sandstone down the series. This spring is intermittent in issue. It has in times past been conducted into a large stone trough, presumably to water stock. This trough is now silted up and overgrown.

6.12 *Other springs exist further to the west, but these are on the upthrow side of a large* fault, and the aquifer involved is the Green Moor rock - Grenoside Rock is absent in this area.

6.13 Typically for the dip slope of a Pennine escarpment, the surface contours follow the dip of the strata. To the dip the Grenoside Rock becomes overlain first by a fireclay and subsequently by a thin coal (Grenoside Rock Coal). This occurs approximately 1km directly down dip. The land form then starts to rise as the next scarp slope, typical of Coal Measures topography.

6.14 All observations and enquiries have failed to reveal any further unlicensed abstractions/utilisations in this area. Other than houses in Hornthwaite Hill Lane the area on this dip slope is devoid of habitation. Throughout the period of development of the quarry, regular tours of inspection have been made to assess any environmental impact the quarry activities may be having. The Spring 'A' is part of this route, and yet no changes have been noted. I.e. It seldom runs more than a trickle, the trough is still silted up, the water still soaks away.

6.15 Conclusions

- There is no surface drainage in the vicinity of the site.
- The unconsolidated basal sands of the Grenoside Rock appear to be the dominant drainage medium for the dip slope of this escarpment.
- The quarry has been demonstrated to have and should continue to have no impact on the overall hydrogeology of the area as long as excavations do not damage the integrity of the impermeable shales below the Grenoside Rock. Precipitation falls, the sandy nature of the soil and subsoil allow it to pass into the rock. The rock is both porous and fissured and readily allows the water to reach the bottom unconsolidated sands resting on the impermeable shale. These sands act as both a conductor and a filter bed. The quarry excavations do not attract water nor affect the underground flows. This has been demonstrated in practice.

- All dwellings in the area have currently, and for many years past, a full Town's Water service.

- None of the springs down-dip of the site Spring 'A'. Measuring along the line of strike it is approximately 170m North-West of being directly down-dip of the putative flow path of any water affected by the quarry.

7.0 PLANNING POLICIES

Introduction

7.1 This section of the statement considers the proposed development against the prevailing planning and other policy documents which the planning authority must consider and have regard to in determining this planning application.

7.2 Planning control is a positive instrument that seeks to examine and reconcile, as far as possible potentially conflicting claims over land use. Planning policies are an essential element of control and are developed at national, regional and local level.

7.3 Central Government provides a national framework for the operation of the planning system by formulating national policies and guidance. County Councils and Unitary Authorities are responsible for setting out general planning policies on matters of strategic importance, which are embodied in structure plans and Unitary Development Plans. Where appropriate, local plans are intended to provide detailed specific planning policies within the general framework within the relevant structure and UDP's.

National objectives for minerals planning

7.4 The Government's objectives for minerals planning reflect the requirement to contribute to the achievement of sustainable development, as required by Section 39 of the Planning and Compulsory Purchase Act 2004. These are:

- to ensure, so far as practicable, the prudent, efficient and sustainable use of minerals and recycling of suitable materials, thereby minimising the requirement for new primary extraction;
- to conserve mineral resources through appropriate domestic provision and timing of supply;
- to safeguard mineral resources as far as possible;
- to prevent or minimise production of mineral waste;
- to secure working practices which prevent or reduce as far as possible, impacts on the environment and human health arising from the extraction, processing, management or transportation of minerals;
- to protect internationally and nationally designated areas of landscape value and nature conservation importance from minerals development, other than in the exceptional circumstances detailed in paragraph 14 of this statement;

- to secure adequate and steady supplies of minerals needed by society and the economy within the limits set by the environment, assessed through sustainability appraisal, without irreversible damage;
- to maximise the benefits and minimise the impacts of minerals operations over their full life cycle;
- to promote the sustainable transport of minerals by rail, sea or inland waterways;
- to protect and seek to enhance the overall quality of the environment once extraction has ceased, through high standards of restoration, and to safeguard the long-term potential of land for a wide range of after-uses;
- to secure closer integration of minerals planning policy with national policy on sustainable construction and waste management and other applicable environmental protection legislation; and
- to encourage the use of high quality materials for the purposes for which they are most suitable.

Policies for building and roofing stone provision

Safeguarding of building and roofing stone resources

7.5 Regional planning bodies (RPBs) and the Mayor of London should set out policies in their Regional Spatial Strategies (RSSs) or the Spatial Development Strategy in London, for safeguarding nationally, regionally and locally significant building stone resources.

7.6 English Heritage and the industry are encouraged to make mineral planning authorities (MPAs) aware of important sources of building and roofing stone that they consider should be safeguarded from other forms of development through policies in their local development documents (LDDs). Safeguarding will be most appropriate where stone is believed to be of suitable quality, and is:

- scarce in terms of its technical properties and/or aesthetic characteristics; or
- has been identified as having characteristics which match those required for repair and preservation purposes, including those related to individual, or groups of, culturally important buildings.

7.7 Many important sources of building stone have been long disused, and would need a new planning application to be worked again. Important historic quarries should be safeguarded, as far as practicable, where it can be shown:

- That the quarry was the original source of stone used in the construction of a historic building or monument; or
- That the stone is technically compatible with material in the structure to be repaired; and
- That stone from the quarry is, or will be, required for restoration or conservation purposes in the absence of viable alternatives.

Supply of building and roofing stone for new building

7.8 MPAs and LPAs should liaise on and have regard to the local, regional and national need for certain building stones for new construction, within the context of the RSS, where their use is specified because of:

- proven durability;
- aesthetic or technical properties, particularly where new construction is to take place in the midst of older buildings constructed of a certain stone; and
- any design requirements set out in local design guides, planning policies and supplementary planning documents.

Planning considerations

7.9 MPAs and LPAs should take account, as appropriate, of:

- the fact that many, but by no means all, building and roofing stone quarries are significantly smaller than aggregate quarries in terms of scale of operation, and their levels of potential impacts such as noise, vehicle movements and dust, rate of working and scale of impact on people and the environment. Policies and planning conditions should be appropriate and proportionate to the scale of proposed operations;

- The scope for using, where appropriate, planning agreements to limit extraction to building or roofing stone purposes, rather than for other purposes such as aggregate production. This is particularly relevant where scarce types of stone, or stone used in the construction of a major historic building or monument, is available only from a single quarry or locality. To ensure sustainable use of resources, avoid in-quarry sterilisation of resources caused by the stockpiling of waste, and economic viability of the operation, it might be appropriate, in some cases, for modest aggregate production and processing of waste or overburden material to take place. The overriding purpose should nevertheless be to facilitate long-term availability of the building or roofing stone resource. If, however, aggregates production is a major part of the proposal then reference should be made to Annex 1 to MPS1;

- The suitability of stone extracted from a building stone quarry for use as a roofing material, stone extracted from a roofing stone quarry for use as blockstone, or where building and/or roofing stone resources are available from an aggregate quarry. In such cases the operator should be encouraged to identify and, where practicable, set aside such material until an appropriate use can be identified. If no immediate use can be identified, consideration should be given to the potential for stockpiling the material on an environmentally acceptable site, either on or in the ground, until needed;

7.10 *In Annex 3 of MPS 1 on the Provision of Building and Roofing Stone, the supply of dimension stone is discussed and it is accepted that the dimension stone quarried is restricted to the geological formation and occurrence. The introduction of the aggregates levy has reduced the amount of aggregate used by the construction industry and this has resulted in increased costs in winning block stone for dimension stone purposes.*

7.11 Local Policies

POLICY ES1

The council will refuse proposals for development which are likely to result in harm to the environment through excessive levels of pollution arising either within the site to be developed or occasioned elsewhere by the proposed development. The council will in particular resist development which is likely to result in housing, schools, hospitals or other sensitive land uses being subjected to excessive levels of air, noise or other pollution. Where development is permitted the council will seek to ensure that resulting pollution is avoided or minimised.

The proposed development will not result in any harm to the environment. As stated in the sections on Noise and Dust working will be suspended in times of adverse weather conditions. All best considered techniques and standards will be followed with regards to pollution. The site has been operating for the last 3 years without any incidences of air and noise pollution and these standards will be carried on to the new permission should it be granted.

POLICY GS7
Without prejudice and subject to the application of policies GS8, GS8a, GS8b, GS8c, GS8d, GS8e and GS9 in this plan, development within the green belt will not be permitted unless it maintains the openness of, and does not conflict with the purposes of including land in, the green belt

POLICY GS9

Development within the green belt, or conspicuous from it, should not by reason of its siting, materials or design result in significant harm to the visual amenity of the green belt

POLICY GS13

In areas designated as being of borough landscape value on the proposals map conservation and enhancement of the landscape will be extremely important considerations. subject to policy GS8, development will only be allowed if :
a) There is no loss of valuable landscape features

b) The nature, form and design of the development is sympathetic to the area
c) The overall character and appearance of the area is conserved and wherever possible enhanced.

The proposal would maintain openness and would not conflict with the purposes of including land within the green belt to accord with Policy GS7 and GS9. The nature of the proposed quarrying activity is low key and would be sympathetic to the surrounding character and appearance of the land. The proposal would also not lead to a loss in any landscape features and would therefore accord also with Policy GS13.

POLICY M1
When considering a proposal for mineral working, the council will, where appropriate, have due regard for the supply of and demand for the particular mineral to help meet the needs of society for minerals

All of the range of products provided by Hillside Quarry is in demand locally, particularly within the Peak District National Park and adjacent areas where they represent a continuing supply of traditional materials for either refurbishment or new build. The site provides a high quality sandstone block which can be used for a number of purposes such as building and roofing stone, flag and walling stone.

Environment
POLICY M9
The acceptability of proposals for mineral working including restoration will be assessed with regard to the following criteria :
a) The effect on local amenity (based on assessment of visual impact, dust, fumes, noise and other potential disturbance) taking into account screening and other protective measures which are available
b) The likely duration of the working
c) The proposed restoration of the site and its final use, appearance and landform
d) The effects on the natural and built environment.
e) The effect on any area of borough landscape value
f) The effect on water resources, including pollution and possible disturbance to surface drainage and groundwater levels. Planning permission will not be granted where there is significant and unavoidable damage to the environment resulting from any of the factors identified above.

Transportation of Minerals
POLICY M10
The following transportation criteria will be applied in the consideration of proposals for mineral workings :
a) The effect which traffic generated by the proposed working will have on road safety, property and the amenities of the people living in the vicinity of the development or along the transportation routes likely to be used.

b) Wherever possible, the use of rail, pipeline or conveyor facilities will be required in order to reduce disturbance caused by road traffic, account being taken of both the physical and economic aspects of providing these facilities.

Policy M14
The council will seek to avoid the sterilisation of known reserves of valuable minerals, by the identification of consultation areas wherever possible; by the working of minerals in advance of other forms of development, where this is environmentally acceptable; and by restricting other development where this is considered justified.

All of the range of products provided by Hillside Quarry is in demand locally, particularly within the Peak District National Park and adjacent areas where they represent a continuing supply of traditional materials for either refurbishment or new build. The site provides a high quality sandstone block which can be used for a number of purposes such as building and roofing stone, flag and walling stone.

Conclusions

The proposed development has been examined in the context of the current national and local planning framework and it has been demonstrated that the proposals would:

a) Not have any significant impacts upon the natural or built environment
b) Not have any detrimental effects upon any features of recognised importance which would provide grounds for a material planning objection;
c) Extend the working life of the quarry and prevent sterilisation of high quality dimension and roofing stone

8.0 *DUST*

Introduction

8.1 Any extraction of mineral by surface methods has the potential to cause dust arising as the mineral is subjected to breaking crushing sawing and loading. It is not intended to operate any crushers on site hence this source of dust had been obviated.

Current Regulations

8.2 The amount of dust that might cause a potential nuisance is extremely difficult to determine. Similarly, numerous attempts have been made at identifying a nuisance standard for dust, without success.

8.3 Currently, there are no statutory or recommended levels of dust deposition that may constitute an official nuisance. It is normally left to the Local Environmental Health Officer, under Part III Section 791(d) of the Environmental Protection Act, to determine, if, in his opinion, a statutory nuisance exists.

8.4 Planning permissions incorporate a number of conditions for the minimisation of dust emissions, and these were generally based on the principle of the Best Practical Environmental Option appropriate for the site under consideration.

8.5 The three main factors, which potentially affect the sensitivity of the site with regard to dust, are:

- The distance of inhabited areas from site activities
- The location of the inhabited areas relative to the prevailing winds
- The density of habitation

8.6 The most critical element in the consideration of the potential for a dust nuisance to be caused is the direction of the prevailing winds. The general prevailing winds in the U.K are South-Westerlies (blowing from Southwest to the Northeast). To determine the sensitivity of the surrounding area, the location of residential areas to the site activities has to be examined.

8.7 The operator shall appoint a responsible person for dealing with environmental issues on the site. That person will keep a daily log of the weather conditions, including the direction of the prevailing wind. This log will include any complaints received, with a record of any investigations carried out and changes to the working practices on that day. The log will be available for inspection on the site.

8.8 The following shall be implemented:

- All unsurfaced roads to be dampened when necessary
- Vehicles used for the movement of materials on the site, where appropriate, shall be fitted with exhausts pointed away from the ground
- A speed restriction shall be imposed on the site of 15mph.

8.9 In the event that the wind is blowing towards any sensitive properties, the responsible person shall satisfy himself that the control measures are adequate. If the control measures are insufficient to prevent dust blow from the operations to the sensitive locations, the operations shall cease until the conditions improve.

8.10 A water bowser will be used to suppress any unacceptable levels of dust during soiling operations. In the event that weather conditions mean that the suppression of dust by these methods is not successful, operations on the site will be suspended until weather conditions improve to permit resumption.

Prevention of Dirt and Mud Deposits on the Highway

Haul Roads

8.11 The Quarry site is small. In total the area to be quarried is less than 0.8 of a hectare and in fact no more than 0.5 of a hectare will be open at any one time. The rest either being virgin rock or restored/partially restored ground. In this circumstance the haul roads should never exceed one hundred metres for any purpose at any time. Consequently the potential to raise dust on haul roads is limited and secondly should *be easily controlled by slaking with water either by hand held hose pipe or by bowser* as appropriate. Such a bowser had all ready been sourced by Grenoside Rock Developments.

The Access Road

8.12 The other potential source of dust would be the traffic along the access road from the gate at NGR 229 028 to the base of the quarry at NGR 228 027, a distance of approximately two hundred and fifty metres, where vehicles would be loaded. This has been prepared using material from the quarry site overly by scalping as such the generation of dust can be easily controlled by slaking with the bowser.

8.13 A rumble grid has been constructed in the OUT lane of the entrance to prevent mud being carried onto the highway. This is in conjunction with a surface water drain to ensure that there is no surface run-off.

8.14 The systems in operation have proved to be successful in controlling and preventing deposits of mud on the highway with no complaints being made throughout the duration of the previous application.

8.15 In addition the operator shall appoint a responsible person for dealing with environmental issues on site. He will keep a daily log of weather conditions, including the direction of the prevailing wind with a brief description of its type i.e. gentle, breeze, moderate, strong or gale force. This log will include any complaints received, with a record of any investigations carried out and changes to the working practices on that day. The log will be available for inspection at the site.

8.16 In particularly dry conditions the haul road into the site may need to be dampened to ensure that dust emissions are minimised so that dust is not carried onto the main road network.

8.17 A dust action plan has been produced and has been appended to this statement which covers this section on dust in greater detail.

9.0 TRAFFIC AND IMPACT UPON THE HIGHWAY INFRASTRUCTURE

The Haulage Route

9.1 *The proposed haulage route is highlighted in green on the accompanying section of* O.S. 1:25000 map: HSQ2005/010 "Traffic Flow Plan"

9.2 All our considerations of the haulage route for the quarry have generally excluded Hill Side and Hornthwaite Hill Road. In other words, the commitment would be to a route involving Cross Lane. Cross Lane is straight and virtually level, but has a narrow metalled paving. Grenoside Rock Developments offer to metal the four informal passing places along this road should it be deemed necessary. The arguments regarding Hartcliffe Nick have been covered in early correspondence, which included the traffic survey conducted February 2003. Basically, our contention is that the current level of traffic, the size of vehicles which we would anticipate hauling the quarry products and the generally low level of tonnage per annum would not represent any significant detriment to the highways system.

9.3 The site plan indicates a haul road from the quarry excavations to the public highway at the junction of Hill Side, Hornthwaite Hill Road and Cross Lane. This is the traditional entrance to the parcels of land running along the top of the escarpment.

10.0 NOISE

Minerals Policy Statement (MPS2)

10.1 Where appropriate, planning conditions should be used to ensure that minerals operations are carried out in such a way that the noise emissions are minimised at source, and thereby controlled to acceptable levels.

10.2 The layout and plant location, the sequencing of operations and the hours of working can have significant effect on the levels of noise emissions and their impact on sensitive receptors.

10.3 Planning conditions may be used to apply absolute controls on noise emissions with limits normally being set at particular noise sensitive properties. This enables the effect of noise to be related most directly to its impact on local people.

10.4 In some circumstances, however it might be more appropriate to set the limits at the site boundary or some other point. Subject to a maximum of 55dB(A) Laeq, MPA's should aim to establish a noise limit at the noise sensitive property that does not exceed the background level by more than 10dB(A).

10.5 It is recognised, however, that this will in many circumstances be difficult to achieve without imposing unreasonable burdens on the mineral operators. In such cases the limit set should be as near that level as practicable during normal working hours (07.00 – 19.00) and should not exceed 55dB(A) Laeq.

10.6 All mineral operations will have some particularly noisy short-term activities that cannot meet the limits set for normal operations. Examples include soil stripping, the construction and removal of soil storage mounds and the construction of new permanent landforms. However, these activities can bring longer term environmental benefits.

10.7 Increased temporary daytime noise limits of up to 70dB(A) Laeq, for periods of up to 8 weeks per year at specified noise sensitive properties should be considered to facilitate essential site preparation and restoration work where it is clear that this will bring longer term environmental benefits to the site.

10.8 Where work is likely to take longer than 8 weeks, a lower limit over a longer period should be considered.

10.9 Operators should seek ways of minimising noisier activities and the noise emissions from them when designing the layout and sequencing of temporary operations and should liaise with local residents prior to such operations taking place.

10.10 Where possible, workings should be arranged so that earlier operations provide screening for noise sensitive properties from noise generated by subsequent activities. This could influence both the direction of working and the placement of overburden and soil mounds on the site perimeter.

Noise Monitoring

10.11 This is to be read in conjunction with the noise report, produced by SD Garritt Ltd, dated March 2006 which was submitted with the previous application (see Appendix A), Ref No B/05/0459/PU. The purpose of this section is to ensure that disturbance due to noise and vibration arising from the quarrying works at Hillside Quarry is kept to an acceptable level and is in accordance with the previous planning permission.

General Requirements for Noise and Control

10.12 Compliance with BS 5228 'Noise Control on Construction and Open Sites' is expected as a minimum standard. In all instances where alternative working methods exist the minimisation of noise and vibration shall be a prime consideration in the choice of technique and equipment used.

10.13 Construction noise generated during the development phase is assessed using the methodology of BS 5228 - Part 1:1997 '*Noise and Vibration Control on Construction and Open Sites*' which contains guidance on the prediction of noise levels at sensitive receptors from the operation of fixed and mobile noise sources found on construction and other open sites.

10.14 The applicant, Grenoside Rock Developments Ltd will be held responsible for ensuring that all plant and equipment, including any which may be on hire, is well maintained, properly silenced and used in accordance with the manufacturer's instructions as required by the above British Standard.

Good Site Practice

10.15 Good site practice and noise management can considerably reduce the noise impact from construction site activities on nearby sensitive receptors. The following measures will be followed by the applicant:

- Only well maintained plant will be operated on site and will be serviced regularly during the restoration works
- Machines and plant that maybe in intermittent use will be shut down between periods.
- Silencers or mufflers will be utilised and will be properly maintained during the remediation works.
- Mobile plant will be sited as far away from sensitive receptors as possible.
- Material screening bunds will be constructed in the second year of the restoration scheme and these will also act as noise attenuation bunds

Noise Monitoring Protocol

10.16 Noise monitoring shall be undertaken at locations identified in the Noise Consultancy Statement dated 20th May 2008. This statement is to be read in conjunction with the

noise report, produced by SD Garritt Ltd, dated March 2006 which was submitted with the previous application, Ref No B/05/0459/PU. Noise monitoring shall be undertaken by the applicant every six months at each specified monitoring location. Results of the noise monitoring will be recorded and available for inspection by the local planning authority.

10.17 The monitoring equipment shall comply with BS EN 60804 Type 2 specification, as required by BS 5228: "Noise and Vibration Control on Construction and Open Sites": Part 1:1997. All noise monitoring equipment shall be calibrated before and after use. It shall be in good working order at all times and a certificate of calibration shall be available with the equipment for the purpose of inspection.

10.18 The readings shall be taken in a free-field location, approximately 1.2 to 1.5 metres above local ground level. Measurements shall be made in accordance with good acoustic practice, care being taken to avoid the effects of local acoustic screening and acoustic reflections.

10.19 All operators of noise monitoring equipment shall be trained and competent to undertake the measurements.

10.20 Prevailing weather conditions (including wind direction and speed, air temperature, incidence of precipitation and degree of cloud cover) shall be recorded with each set of monitoring results.

11.0 CONCLUSIONS OF THE PROPOSAL

11.1 The proposal is in accordance with Government Policy on the provision of dimension stone in England and Wales, as it will provide a sought after type of stone particularly for the Peak District National Park and surrounding areas. The operation also meets the sustainability criteria as it will meet the demand for building stone from an existing quarry in accordance with Annex 3 of MPS 1 on the importance of safeguarding and maintaining the supply of building stone. Dimension stone reserves will be preserved elsewhere until this reserve is exhausted.

11.2 Minerals can only be worked where they naturally occur and there is still a large quantity of good stone reserves remaining at the site. This is a sought after, high quality resource, characteristic of buildings in the area. If the application is unsuccessful and the quarry would have to close, then this quality stone will be lost forever.

11.3 In terms of sustainability, locally produced minerals are preferable to minerals imported from other areas, both national and internationally.

11.4 Policy ENV4 of the Regional Spacial Strategy for Yorkshire and Humber to 2026 is indicative of the importance placed on mineral reserves and seeks to safeguard mineral deposits in the region from sterilisation.

11.5 This is also apparent in Policy M14 of the UDP on safeguarding mineral resources and making provision for mineral extraction so far as is environmentally practical. Policy M14 also indicates a preference for extensions to existing mineral workings rather than opening new workings and avoiding the sterilisation of valuable mineral reserves.

11.6 It is clearly demonstrated by the photographs and landscape assessment that the long and medium views into the quarry working will be mitigated by the profile of the existing landscape and the existing screening measures that are place to reduce the visual impact.

11.7 The landscape characteristics of the area will be undisturbed by the stone quarrying as the area has been quarried in the past and the restoration will provide an area filled in with a delph and scree which is not dissimilar from the quarried areas along the escarpment from Hill Side to Hartcliff Brow.

11.8 The quarry has been demonstrated to have and should continue to have no impact on the overall hydrogeology of the area as long as excavations do not damage the integrity of the impermeable shales below the Grenoside Rock. Precipitation falls, the sandy nature of the soil and subsoil allow it to pass into the rock. The rock is both porous and fissured and readily allows the water to reach the bottom unconsolidated sands resting on the impermeable shale. These sands act as both a conductor and a filter bed. The quarry excavations do not attract water nor affect the underground flows. This has been demonstrated in practice.

11.9 All of the range of products provided by Hillside Quarry is in demand locally, particularly within the Peak District National Park and adjacent areas where they represent a continuing supply of traditional materials for either refurbishment or new build. The site provides a high quality sandstone block which can be used for a number of purposes such as building and roofing stone, flag and walling stone

Fennell Green and Bates
September 2009

APPENDIX A

NOISE REPORT 2006

S. & D. Garritt Ltd.

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REPORT

of

NOISE IMPACT ASSESSMENT

at

PROPOSED MINERAL EXTRACTION, HILL SIDE QUARRY, THURLSTONE, PENISTONE, SOUTH YORKS S30.

Date of report: 17th March 2006

Prepared for: Fennel, Green & Bates,
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1.0 Summary and Conclusions

A planning application is being submitted for mineral extraction at Hill Side Quarry, Thurlstone, Penistone. The operations will involve the use of a new technical development for stone cutting, traditional methods of stone extraction, also the conventional use of mobile earthmoving plant on the site and the export of material by road lorries. There are existing dwellings located near the boundaries of the site.

The objective of this report is to predict the sound levels from the site operations as affecting dwellings and to assess them against the acceptance standards normally adopted for this type of sound source. The assessment makes use of the sound levels measured at similar plant items to those proposed for use at Hill Side Quarry.

1.1 It is predicted that the sound levels at the nearest dwellings caused by *the proposed activities at the quarry will be: (dBA L_{eq} 1-hour):*

Abbot Birks	29 dBA
Hill Side Lane	44 dBA
Hornthwaite Hill Road	36 dBA
Sike House	28 dBA
Bella Vista	32 dBA

1.2 Background sound levels have been measured at these receptors during weekdays and on a Saturday morning, being the periods when activities are proposed at the quarry. The predicted sound levels are below the background levels at all times and locations except at Hill Side Lane.

1.3 At Hill Side Lane the quarry sound is predicted 4-5 dB above the background.

1.4 The sound sources causing the exceedance above the background at Hill Side Lane are an excavator and a power pack only. The new technology used for stone cutting is predicted below the background sound level at all receptors

1.5 The predicted sound levels are generally well below the nominal limit of 55 dBA L_{eq} (1-hour) set by MPG11. However this nominal limit may be considered inappropriate because of the low background levels at all receptors.

2.0 Noise Assessment Criteria

This report adopt the guidance of the following documents.

2.1 PPG 24: 'Planning and Noise'

Guidance to local authorities on the considerations of noise affecting dwellings was issued in 1994 as Planning Policy Guidance 24: 'Planning and Noise'. Annex 3 deals with noise from specific types of source as affecting dwellings:

- Paragraph 19 of Annex 3 covers noise from industrial developments and calls for a complaints assessment to BS 4142.
- Paragraph 19 specifically mentions noise from surface mineral workings and suggests using the guidance of MPG 11.

2.2 BS 4142: 1997

BS 4142 provides a method by which complaints or their potential can be assessed at dwellings. The method is to measure outdoor sound levels at dwellings during emission of the site noise, measure the background level at the same location in the absence of the noise, and apply a correction factor to the measured levels for some specific factors which affect its acceptability (eg. hiss, whine, bangs, thumps, etc.). The corrected measured level is then compared with the background. From the comparison of levels it is concluded that:

- complaints are likely if the rating level exceeds the background by about 10 dBA or more,
- a difference about 5 dBA is described as 'of marginal significance',
- at differences below 5 dBA the lower the value the less likelihood there is of complaint.

At the time of submission of this report BS 4142 is currently under review. Its replacement has not been finalised to the extent where it can be used as an alternative in this application. Some authorities are regarding BS 4142 as being suspended whereas in our experience others are not. For this reason and since it remains the reference given in PPG24, an assessment is given by the method of BS 4142.

2.3 MPG 11

Minerals Planning Guidance 11 is aimed specifically at noise from surface workings of minerals and landfill. It describes limits on the sound levels reaching dwellings from these long term activities. MPG 11 uses the noise prediction method of BS 5228 to which it adds some further considerations applicable to large outdoor sites - sound attenuation of large expanses of soft ground, sound reflections off quarry faces and climatic effects on sound transmission over large distances.

The general guidance of MPG11 is that "the daytime nominal limit at noise-sensitive properties used at dwellings should normally be 55 dB LA_{eq} 1-hour". Daytime is defined as 07.00 to 19.00 hours.

MPG11 then provides a rider to this general guidance by stating that a lower daytime limit might be appropriate in quieter rural areas if a limit set at 55 dB LA_{eq} would exceed the existing background levels by more than 10 dBA. By this statement MPG11 accepts that the assessment method of BS 4142 must override the general recommendation of a 55 dBA limit.

MPG11 recognises that it is often necessary to raise noise limits to allow temporary but exceptionally noisy phases in a development. Examples include baffle mound construction, soil stripping, removal of spoil heaps and construction of new permanent landforms. A limit of 70 dB LA_{eq} is suggested for periods of up to 8 weeks per year.

2.4 BS 5228: Part 1: 1997

BS 5228: Part 1: 1997 provides a comprehensive method of predicting the noise emission from the plant and machinery used on open sites. It provides typical base data for over 300 items of plant in common usage and a full method of translating their sound energy over outdoor distances to dwellings.

3.0 Background Sound Levels

Background sound levels have been measured at dwellings at the following five positions representing different directions from the quarry boundary, as shown on the attached plan.

1. Abbot Birks (west)
2. Hill Side Lane (north)
3. Hornthwaite Hill Road (northeast)
4. Sike House (southeast)
5. Bella Vista (southwest).

Background measurements were taken during the afternoon of Wednesday 8th February 2006 from 14.00 to 16.00, morning of Friday 10th February from 10.00 to 12.00 and on Saturday 11th February from 8.00 am to 9.30 am. This gives a representative sample of background sound levels at times when the site operations are proposed. A Bruel & Kjaer precision sound level meter type 2260 was used on all occasions.

The dominant sound source at all receptors during all of the survey periods was distant road traffic, with the exception of position 1 where sound from a distant industrial source was audible.

Position & Time	**Ambient LA_{eq}**	**Background LA_{90}**
1. Abbot Birks		
Morning	45.1	44.2
Afternoon	47.3	45.0
Saturday	43.2	39.0
2. Hill Side Lane		
Morning	47.4	40.2
Afternoon	42.6	39.8
Saturday	46.8	38.8
3. Hornthwaite Hill Road		
Morning	49.6	41.4
Afternoon	54.0	41.0
Saturday	45.3	38.8
4. Sike House		
Morning	46.3	37.0
Afternoon	40.0	35.4
Saturday	47.7	38.2
5. Bella Vista		
Morning	40.3	37.4
Afternoon	37.8	34.4
Saturday	43.1	37.0

4.0 Proposed Site Operations

Operations at the site will consist of:

(a) the removal of topsoil and subsoil to be stored as a screening bund along the northern site, using a diesel-powered excavator,

(b) extraction of stone using traditional methods of extraction and new technology high pressure water equipment for cutting stone,

(c) use of a hydraulic post crane to load the stone,

(d) use of the same excavator as (a) to handle waste material from the cutting operation,

(e) removal of stone from the site by road-going lorries.

The period of noise assessment during the daytime is one hour. In order to assess the worst-case situation it is assumed that during the one-hour assessment period the stone cutter and hydraulic crane will be operating with 100% utilisation and that there will be two lorry movements in and out of the site. The excavator will have a utilisation of 10 hours per week so that in a one-hour assessment period it is assumed that it will be used for 10 minutes.

5.0 Plant Sound Levels

New Technology Stone Cutting

Base data on the sound levels generated by the cutting equipment has been supplied by the client in the form of the results of onsite tests carried out by the Ministry of Defence, which the MoD has released. This is attached as an Appendix to this report. A silencer option is available and it is understood that this will be fitted, resulting in an average sound pressure level of 84 dBA at 4m distance

Excavator

The proposed excavator is described by the client as a New Holland Ford NH95 Digger with a sound power level of 104 dBA.

Hydraulic Crane & Power Pack

The crane will be driven by a power pack which will also be used to power the stone cutter. The crane alone is described as having a sound pressure level of 60-65 dBA in its near field. The main sound

generation from the crane will be from the power pack. Two options are described for the power pack - a portable unit with a sound pressure level of 95-98 dBA at 1m distance and an attenuated unit with sound pressure level of 85-88 dBA at 1m. There is also an electricity generator which has a sound pressure level of 70-72 dBA at 1m distance.

Lorries

The sound power level of a 35 tonne lorry is given in BS 5228 as being 105 dBA. The calculation of lorry noise when passing along a site access road, as received at a distant receptor, is given by the 'haul road formula' of BS 5228 and is shown in the Appendix to this report.

The sound sources and power levels are summarised below:

Machine	Model & Manufacturer	Number Used	Sound Power/ Pressure Level
Stone cutter	Rokjet	1	84 dBA @ 4m
Excavator	NH95	1	104 dBA SWL
Crane	Not given	1	65 dBA @ 1m
Power Pack	Not given	1	88 dBA @ 1m
Generator	Not given	1	72 dBA @ 1m
Lorries	Not given	2 per hour	105 dBA SWL

6.0 Predicted Sound Levels at Dwellings

6.1 Source Location

There is an existing earth bund along the north boundary of the quarry and this will be extended along the whole north boundary of the site. The height of the completed bund will be 4m which will be sufficient to completely shield all sound sources from dwellings on Hill Side Lane. As extraction proceeds the sound sources will be progressively below the rim of the quarry and will thereby be shielded from all other receptors. The haul road used by lorries will be partly shielded by the quarry rim but will be mainly exposed to all receptors. For the purpose of sound estimation it is assumed that the haul road is completely exposed.

6.2 Barrier and Ground Absorption Attenuation

The sound attenuation achieved by an outdoor barrier depends on the 'path difference' between the actual sound path from the source to the receptor up and over the barrier, and that of the straight line path if it had existed as a direct open view between the two points.

The screening of a noise source by a barrier such as an earth bund depends on the simple geometry of the source location, the receptor location and the barrier position and height. Research work by Maekawa quantified the sound reduction achieved by outdoor barriers and forms the recognised basis of such predictions. For the convenience of usage and of illustration, Maekawa's formulae and method have been summarised by other technical authors into graphical methods, which are easier to use. The graphical method shown in *Woods Practical Guide to Noise Control* is used in this report to predict the sound reduction achieved by the earth bund along the north boundary of the quarry.

The methods of predicting sound attenuation from a barrier all need analysis of the sound frequencies of the source. Where this is not available a convenient and well proven estimate is given in BS 5228 which predicts a sound reduction of at least 10 dBA if the sound source is completely hidden from view. In this application we do not have sound frequency analyses for sources other than the stone cutter, and so an accurate prediction cannot be made for the other sources. The proposed bund height of 4m will be very significant, especially as the additional depth to the floor of the quarry will add to its effective height. It is estimated that attenuation of at least 15 dBA will be achieved to the dwellings on Hill Side Lane which will receive the full benefit of the bund height. A 10 dBA reduction is assumed in other directions which will be shielded by the quarry rim

Sound attenuation is provided by 'soft' ground surfaces, eg. arable land, grassland, heath, etc. The attenuation depends on distance, on the average height of the sound path above the ground and on the type of vegetation. Quantitative guidance is adopted from the Department of Transport document 'Calculation of Road Traffic Noise' (CRTN) which provides ground absorption figures based on results where the ground cover provides minimum absorption. Some areas of this site will have long rough grass, bushes, trees and generally more absorptive vegetation than is allowed for in the CRTN data. This gives the worst-case sound predictions at dwellings and provides a conservative tolerance margin. Ground absorption applies only where there is no screening attenuation from the bund or quarry rim.

6.3 Distances from Dwellings

The distances from the dwellings to the nearest edge of the quarry and the centre of the haul road are:

Dwelling	Quarry	Haul Road
1. Abbot Birks	280m	420m
2. Hill Side Lane	50m	100m
3. Hornthwaite Hill Road	340m	270m
4. Sike House	900m	970m
5. Bella Vista	560m	820m

6.4 Sound Predictions

The sound pressure and power levels of the mobile plant items as listed in section 5.0 have been translated over the appropriate distances to dwellings by the method of BS 5228. The screening attenuation of the quarry face and baffle mounds have been applied and the attenuation caused by ground absorption has been applied to activities at surface level where appropriate.

The calculations are given in the Appendix and the resulting sound predictions are:

Dwelling	Sources in Quarry	Lorries on Haul Road	All Site Sources
1. Abbot Birks	29 dBA	16 dBA	**29 dBA**
2. Hill Side Lane	44 dBA	31 dBA	**44 dBA**
3. Hornthwaite Hill Rd	36 dBA	19 dBA	**36 dBA**
4. Sike House	28 dBA	12 dBA	**28 dBA**
5. Bella Vista	32 dBA	13 dBA	**32 dBA**

7.0 Impact Assessment

7.1 Rating to BS 4142

Acoustic Feature
The sound measurements from the MoD show a relatively broadband sound spectrum with no tonal characteristics for the stone cutter. Since this is the new sound source to be introduced at the quarry and the main area of concern it is believed that a correction factor is not applicable to the sound levels. The rating levels thereby equal the overal sound levels shown in 6.4.

Comparison of the rating levels with the measured background levels at each receptor position shows:

Dwelling	Rating Level dB	Background Level LA_{90}	Comparison v. Background
1. Abbot Birks			
Morning	29	44	15 dB below
Afternoon	29	45	16 dB below
Saturday	29	39	10 dB below
2. Hill Side Lane			
Morning	44	40	4 dB above
Afternoon	44	40	4 dB above
Saturday	44	39	5 dB above
3. Hornthwaite Hill Rd			
Morning	36	41	5 dB below
Afternoon	36	41	5 dB below
Saturday	36	39	3 dB below
4. Sike House			
Morning	28	37	9 dB below
Afternoon	28	35	6 dB below
Saturday	28	38	10 dB below
5. Bella Vista			
Morning	32	37	5 dB below
Afternoon	32	34	2 dB below
Saturday	32	37	5 dB below

The comparison between the predicted sound levels from the quarry and the existing background levels shows:

- The predicted levels from all site operations are predicted below the background levels at all times and locations except at Hill Side Lane.

- At Hill Side Lane the sound from the quarry is predicted 4 dB above the background during weekdays and 5 dB above background on Saturday mornings.

- If BS 4142 is used as a rating method then the quarry sound levels are predicted 'of marginal significance' at Hill Side Lane only. Complaints are unlikely from any other location.

- Examination of the sound levels from the various sources at the quarry (quantified in the Appendix) shows that the exceedances above the background at Hill Side Lane are predicted from the excavator and the hydraulic power pack, not from the new cutting equipment. The new cutting equipment alone is predicted to cause sound levels lower than the background at all times at all locations including Hill Side Lane.

7.2 Noise Limit of MPG11

The nominal limit of MPG11 is 55 dB LA_{eq} 1-hour at dwellings, provided this would not exceed the existing background levels by more than 10 dBA. In this application a 55 dBA limit would exceed the background by 10 dBA or more at all receptors.

It is predicted that the sound levels from the site will be well within the nominal limit recommended by MPG11 at all times and at all locations. However the MPG11 limit may be considered inappropriate because of the low existing background levels at all receptors.

APPENDIX TO REPORT

SOUND LEVEL CALCULATIONS

A. Screening Effect on Stone Cutter

The earth bund along the northern boundary of the quarry will be maintained at a height of 4m. For the purpose of calculation a nominal depth of the sound source below the rim of the quarry is taken at 3m. The geometry of the source / barrier / dwelling positions for the dwellings which will be protected by the bund will be:

Dwelling	Angle Turned By Sound	Effective Barrier Height
1. Abbot Birks	25°	7m
2. Hill Side Lane	30°	5m

The *Woods* method needs a comparison to be made between the effective barrier height (h_e) and the wavelength of sound emitted by the source, in each musical octave across the audible range. The table below shows this relationship for the geometry of this application.

Frequency (Hz)	63	125	250	500	1k	2k	4k	8k
1. Abbot Birks:								
he / wavelength	1.3	2.5	5.0	10	20	40	80	160
2. Hill Side Road:								
he / wavelength	0.9	1.8	3.6	7.1	14	28	57	114

From the values of 'h_e / wavelength' in the above table and the values of 'angle turned by sound' the sound reductions achieved by the barrier can be read off the graph from *Woods*. These are:

Frequency (Hz)	63	125	250	500	1k	2k	4k	8k
1. Abbot Birks:								
Sound attenuation dB	12	15	18	21	22	22	22	22
2. Hill Side Road:								
Sound attenuation dB	11	13	16	19	22	22	22	22

The sound levels emitted by the stone cutter are given by the MoD in each one-third octave of sound frequencies. These are added to give octave results and are shown below with the attenuations from the bund subtracted to the two receptors.

Sound pressure levels, dBA Leq

Frequency (Hz)	63	125	250	500	1k	2k	4k	8k
MoD data	57	62	70	80	84	86	79	72
Less bund loss to (1)	45	47	52	59	62	64	57	50
Less bund loss to (2)	46	49	54	61	62	64	57	50

The overall sound level represented by the above spectra is 68 dBA in both cases, indicating that the bund will reduce the stone cutter sound from 92 to 68 dBA (results at operator's ear position), a **screening reduction of 24 dBA**.

B. Sources in Quarry

The sound pressure levels of the various plant items working onsite, or their sound power levels, are given in the table of section 5.0. Where sound pressure levels have been measured the additional outdoor decays over the respective distances to dwellings are given by the equation:

Decay = 20 log (distance to dwelling / distance used in onsite test)

Where sound power levels (SWL) are quoted the corresponding sound pressure level (SPL) at dwellings is given in BS 5288 by the equation:

SPL = SWL - 20 log (distance) - 8 dBA

The proposed utilisation of plant during a typical one-hour period of assessment is 100% for all equipment except the excavator which is assumed to be used for 10 minutes per hour.

Distance losses, screening sound reductions and ground absorption are subtracted from the sound pressure levels or sound power levels for the sound sources in the table below, using the above equations, the source data from 5.0 and the distances shown in 6.3.

Dwelling	Stone Cutter	Excavator	Crane	Power Pack	Generator
1. Abbot Birks (280m)					
SPL / SWL	84 (4m)	104 SWL	65 (1m)	88 (1m)	72 (1m)
Utilisation loss	0	8	0	0	0
Distance loss	37	57	49	49	49
Screening	24	15	15	15	15
Ground absorption	0	0	0	0	0
SPL at dwelling	**23**	**24**	**1**	**24**	**8**
Sum of above sources at dwelling	**28.5 dBA**				
2. Hill Side Lane (50m)					
SPL / SWL	84 (4m)	104 SWL	65 (1m)	88 (1m)	72 (1m)
Utilisation loss	0	8	0	0	0
Distance loss	22	42	34	34	34
Screening	24	15	15	15	15
Ground absorption	0	0	0	0	0
SPL at dwelling	**38**	**39**	**16**	**39**	**23**
Sum of above sources at dwelling	**43.6 dBA**				
3. Hornthwaite Hill Road (340m)					
SPL / SWL	84 (4m)	104 SWL	65 (1m)	88 (1m)	72 (1m)
Utilisation loss	0	8	0	0	0
Distance loss	39	59	51	51	51
Screening	10	10	10	10	10
Ground absorption	0	0	0	0	0
SPL at dwelling	**35**	**27**	**4**	**27**	**11**
Sum of above sources at dwelling	**36.2 dBA**				
4. Sike House (900m)					
SPL / SWL	84 (4m)	104 SWL	65 (1m)	88 (1m)	72 (1m)
Utilisation loss	0	8	0	0	0
Distance loss	47	67	59	59	59
Screening	10	10	10	10	10
Ground absorption	0	0	0	0	0
SPL at dwelling	**27**	**19**	**0**	**19**	**3**
Sum of above sources at dwelling	**28.2 dBA**				
5. Bella Vista (560m)					
SPL / SWL	84 (4m)	104 SWL	65 (1m)	88 (1m)	72 (1m)
Utilisation loss	0	8	0	0	0
Distance loss	43	63	55	55	55
Screening	10	10	10	10	10
Ground absorption	0	0	0	0	0
SPL at dwelling	**31**	**23**	**0**	**23**	**7**
Sum of above sources at dwelling	**32.2 dBA**				

C. Lorries on Haul Road

The haul road formula of BS 5228 is used:

$LA_{eq} = L_{WA} - 33 + 10 \log Q - 10 \log V - 10 \log d$

As a starting point for the predictions it is assumed that in an assessment hour two lorries may visit the site, ie. two movements in and out, Q will be 4 per hour. An average speed V of 15 mph (24 kph) is assumed on the site road.

Distance d is the distance from dwellings to the centre of the haul road.

A correction is made for the angle of view = 10 log (angle$^{\circ}$ / 180) as given in MPG11 paragraph 23.

A correction is made for soft ground attenuation in accordance with paragraph 19 of MPG11.

Sound power level of 105 dBA L_{WA} is used from BS 5228.

Sound Levels At Dwellings

LA_{eq} = 105 - 33 + 10 log 4 - 10 log 24 - 10 log d + 10 log (angle/180)
less ground attenuation

= 104 - 33 + 6 - 13.8 - 10 log d + 10 log (angle/180)
less ground attenuation

= 63 - 10 log d + 10 log (angle/180) - (ground attenuation)

expressed as dBA L_{eq} (1-hour).

Dwelling	10 log d	10 log angle/180	Ground Attenuation	SPL at Dwelling
1. Abbot Birks	26.2	-11	10	16
2. Hill Side Lane	20.0	- 4.8	7	31
3. Hornthwaite Hill Rd	24.3	-12.6	7	19
4. Sike House	29.9	-11	10	12
5. Bella Vista	29.1	-11	10	13

APPENDIX B

ADDITIONAL NOISE INFORMATION

the NOISE consultancy
planning specialists

Noise from Quarrying Operations

at Hill Side Quarry, Thurlstone, Sheffield

Date of report

11 March 2009

Report reference

B/AMS/137a/09

the NOISE consultancy ltd • planning specialists
Jean Wood House • Dover Lane • Holmfirth • West Yorkshire HD9 2RB • tel/fax: 01484 681121
email: info@thenoiseconsultancy.co.uk

Registered in England No 5116526

1 Summary

1.1 Planning consent has been granted for a mineral extraction at Hill Side Quarry Thurlstone, Penistone (ref B/05/0549). Planning condition 6 of the planning approval requires monitoring of noise levels to be carried out in accordance with an agreed scheme.

1.2 In March 2009 The Noise Consultancy was commissioned to carry out this noise monitoring. The monitoring was carried out on 6th March 2009 and the readings obtained demonstrate compliance with the planning consent.

2 Noise Monitoring

2.1 Noise monitoring was carried out with regard to the guidance provided by Minerals Policy Statement 2: Controlling and Mitigating the Environmental Effects of Minerals Extraction in England, Annex 2: Noise dated March 2005. (This standard supersedes MPG11 referred to in the initial report).

2.2 Monitoring was carried out in accordance with the approved noise monitoring scheme produced by S & D Garritt Ltd dated 17 March 2006. Monitoring was carried out on 6 March 2009 at the five locations identified in The Noise Consultancy Ltd statement dated 20th May 2008. The monitoring locations were as follows:

Position	Address	Grid Reference	Description
1	Abbots Birks Farm, Hill Side Lane	225027	At base of telegraph pole no.6 on roadside opposite gable end to Abbots Birks Farm
2	Hill Side Lane	227028	On the verge of Hill Side Lane beside telegraph pole no.1 midway between Hill Side House and The Old Farmhouse
3	Hornthwaite Hill Road	229030	On the verge of Hornthwaite Hill Road adjacent to BT telegraph pole no.443 between Syke View and the junction of Hornthwaite Hill Road and Cross Lane.
4	Sike House, Sike Lane	236025	On the public bridleway,adjacent to the stone step stile located in the drystone wall in the corner of the field to the west of Sike House.
5	Bella Vista, Hartcliff Road	227020	On the track leading to Bella Vista where the public footpath turns north off the track adjacent to the public footpath sign.

2.3 Monitoring was carried out some 20m from position 4 in the field to the rear of Sike House as there was significant noise from water flowing in a land drain along the footpath at the monitoring position.

2.4 Monitoring was carried out during normal operation of the quarry with the large Samsung excavator operating towards the top of the quarry throughout the monitoring period.

2.5 The measurements were carried out using two precision sound level meters, a Bruel & Kjaer 2231 meter (serial no. 1437165) and a Casella CEL500 Series sound level meter (serial no. 034172). The Bruel & Kjaer 2231 meter was fitted with a Bruel & Kjaer type 4155 ½ inch condenser microphone (serial no. 1452948) and the Casella CEL500 Series meter was fitted with a CEL type 250 ½ inch condenser microphone (serial no. 3004). Each microphone was fitted with a windshield.

2.6 The meters were calibrated prior to and upon completion of the noise survey using a Cirrus type 511E acoustic calibrator (serial No. 033871) which had itself been calibrated to traceable national and international standards in the last 12 months. No calibration drifts were found to have occurred.

2.7 At each monitoring location the microphone was 1.5m above ground level and monitoring was carried out under free field conditions. The two meters were programmed to monitor over 15 minute periods throughout the measurement period. Each meter was moved between several of the monitoring locations during the monitoring period and was attended by a member of The Noise Consultancy Ltd. The pause button was used on the sound level meters to exclude extraneous noise such as vehicle passbys on the road and light aircraft which were not attributable to the quarrying operation.

2.8 The weather conditions were ideal for noise monitoring. Throughout the monitoring period the temperature was 3°C, there was a light easterly wind, it was bright and sunny with no rain.

2.9 The noise sources throughout the monitoring period included road traffic, agricultural activities, light aircraft, livestock and birdsong.

2.10 A description of the noise monitored is presented below with the full tabulated set of data included at Appendix I.

Monitoring Address	Ambient Leq	Background LA_{90}	Description of noise sources
1 Abbot Birks	44	34	Noise from road traffic on Manchester Road, activities on the housing development site in Thurlstone , cockerels and occasional dog barking. Noise from activities at the quarry was not audible.
2 Hillside Lane	48	39/40	Noise from rod traffic on Manchester Road, activities on the housing development site in Thurlstone. Noise from activities at the quarry was not audible
3 Hornthwaite Hill Road	48	37/38	Noise from rod traffic on Manchester Road, activities on the housing development site in Thurlstone. Noise from quarry operations audible but no more intrusive than other noise sources.
4. Sike House	39/40	32	Noise of distant road traffic and occasional light air craft , sheep and birdsong. Occasional clatter of excavator bucket at quarry was just audible.
5 Bella Vista	39/40	32	Noise from farm activities at Bella Vista, sheep birdsong and light air craft. Noise from road traffic on Hartcliffe Road Noise from activities at the quarry was not audible

3 Conclusions

3.1 The noise levels on site whilst the quarry was operating were comparable to the levels measured in the same locations before the quarry was operating. The noise levels before the quarry was operating are provided in the report by S & D Garritt Ltd dated 17th March 2006 and are summarised at Appendix II.

3.2 On site observations revealed that quarrying operations were not audible at four of the monitoring locations and were just audible at Sike House. The measured noise levels fall well within the levels predicted in the initial report and meet the acceptance standards contained in MPS2.

Appendix I

Monitoring results 6th March 2009

Time	Position	dBA L_{eq}	dBA L_{90}	dBA L_{10}
9.45 –10.00	1	44	34	45
10.00-10.15	1	44	34	45
10.20-10.35	2	48	40	47
10.35-10.50	2	48	39	47
10.55-11.10	3	48	38	47
11.10-11.25	3	48	37	47
10.50-11.05	4	39	44	32
11.05-11.20	4	40	44	32
10.00-10.15	5	43	44	37
10.15-10.30	5	46	45	35
10.30-10.45	5	39	41	32

Appendix II

Monitoring results February 2006

Monitoring Address	Ambient dBA Leq	Background dBA L_{90}
1 Abbot Birks	43-47	39-45
2 Hillside Lane	43-47	39-40
3 Hornthwaite Hill Road	45-54	39-41
4 Sike House	40-48	35-38
5 Bella Vista	38-43	34-37

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20 May 2008

Planning Permission B/05/0549
Extraction of Sandstone and Low Level Restoration Hillside,Thurlstone

Measurement position locations referred to in approved noise monitoring scheme by S & D Garritt Ltd dated 17th March 2006 which identified the said monitoring positions on a location plan included in the report.

Position	Address	Grid Reference	Description
1	Abbots Birks Farm, Hill Side Lane	225027	At base of telegraph pole no.6 on roadside opposite gable end to Abbots Birks Farm
2	Hill Side Lane	227028	On the verge of Hill Side Lane beside telegraph pole no.1 midway between Hill Side House and The Old Farmhouse
3	Hornthwaite Hill Road	229030	On the verge of Hornthwaite Hill Road adjacent to BT telegraph pole no.443 between Syke View and the junction of Hornthwaite Hill Road and Cross Lane.
4	Sike House, Sike Lane	236025	On the public bridleway,adjacent to the stone step stile located in the drystone wall in the corner of the field to the west of Sike House.
5	Bella Vista, Hartcliff Road	227020	On the track leading to Bella Vista where the public footpath turns north off the track adjacent to the public footpath sign.

APPENDIX C

VISUAL IMPACT ASSESSMENT

1 HILLSIDE QUARRY VISUAL APPRAISAL.

1.0 Introduction.

1.1 In July 2007 planning permission was granted for re-opening and extension of Hillside Quarry. The permission granted was for quarrying of the site for 3 years. A planning permission is now in preparation to extend the working life of the quarry to 10 years.

1.2 Details of the proposals for the revised application can be found elsewhere within the documents but essentially the extent of the quarry, the numbers of vehicles entering and leaving the quarry, the soil storage and restoration proposals will remain as the previous permission.

1.3 A visual appraisal was completed as part of the original approved application but this has been re-appraised and updated here to form part of the current application.

2.0 Landscape character

2.1 The site lies within an area typical of the Yorkshire Southern Pennine Fringe and is identified as Ingbirchworth Upland Farming in Barnsley Council's Landscape Character Assessment. The key characteristics identified for this area, described below, are strongly representative of the study area.

- ***Stepped landform*** *rising to 367m at Whitley Edge*
- ***Fields of pasture*** *comprising medium geometric field units strongly defined by distinctive stone walls.*
- ***Beech plantations*** *stand out on the skyline, sometimes enclosed by stone walls*
- ***Unimproved pasture with scrub*** *on steeper slopes*
- ***Scattered farmsteads*** *of sandstone, quarried from the local area.*
- ***Villages of Thurlstone and Millhouse Green*** *on the character area border with the valley of the River Don, both with links to the former fulling mills along the river.*
- ***Windfarm*** *at Spicer Hill is visually prominent on the skyline.*
- ***Single lane rural roads*** *criss-cross the open countryside, bounded by stone walls.*
- ***Disused industrial quarries, shafts and mines*** *indicate the importance of the area for the extraction of coal and stone.*
- ***Man made reservoirs*** *at Broadstone, Ingbirchworth, Royd Moor and Scout Dike.*
- ***Panoramic views*** *over adjacent river valleys and towards the open moorland of the Peak District National Park.*

2.2 Hillside quarry lies on the pastoral plateau topped ridge immediately above the southern valley side of the River Don. The village of Thurlstone is located in the valley bottom below. A steep, scarp slope of unimproved grassland, scrub and heather lies immediately below the plateau area before falling more gently towards the valley bottom. The quarry lies on the northern edge of a ridge running from Hartcliff Hill north-eastwards dropping towards Thurlstone. This level topped ridge forms the southern limit of the River Don valley sides in this vicinity.

3.0 Visibility

3.1 General

3.1.1 As the site sits relatively high on the southern shoulder of the Don valley side, it is visible from the upper parts of the opposite (northern) side of the Don valley but also, due to the stepped topography, from more distant viewpoints from the northern edges of the Scout Dyke valley. (Ingbirchworth, Scout Dyke reservoir, Hoylandswain and the A629). However, the role of the quarry in views from these distant northerly viewpoints is very minor, with the quarry almost indistinguishable in the broad views towards the Pennine landscape to the south.

3.1.2 From the east and south the rising plateau area and Hartcliff Hill prevent views of the quarry.

3.1.3 Closer views of the site are available from the upper parts of Millhouse Green and Thurlstone, as well as the western edges of Penistone. In some cases the quarry sits on the skyline of views from the lower, valley viewpoints.

3.2 Analysis of viewpoints.

Individual views of the site have been assessed, with a description of the present view, followed by an analysis of impact firstly during the quarrying works, then, secondly after restoration. A photograph representing each viewpoint is presented at the end of this report with a plan indicating the position of each viewpoint.

3.2.1 View One. From Shore Hall on Shore Hall Lane.

Shore Hall is a residential and farming property typical of several in the vicinity lying below Hillside quarry on the lower northern slopes of the Don valley. The lower valley pastoral landscape is crossed by the woodland associated with an old railway line, now the Trans-Pennine Trail. Above this, the land slopes steeply upwards and the northern boundary of the quarry is visible on the skyline above a steep scrubby slope.

The current soil mound along the northern boundary is visible on the skyline but its colour and texture renders it almost indistinguishable from the scrub slope below. On completion and restoration of the quarry the impact on this view will be ***neutral***. The quarry working will not impact on this view as the works will be below the level of the skyline, however, soil moving vehicles will be visible and prominent on the skyline for a very short period of time when the soil is re-spread for the restoration. As this will be for such a short time period the impact during the works is still assessed as ***neutral.***

3.2.2 *View Two. From Bullace Grange and Farm*

Bullace Grange is a large farm situated on the floodplain of the River Don valley. This view is also representative of views from the A628 to the west of Millhouse Green. The northern boundary of the quarry is visible on the skyline of the steep slope rising above the woodland of the Trans Pennine Trail. As for View One, the soil mound along this boundary is visible but almost indistinguishable from the steep scrub slope below.

Throughout the working phase of the quarry this soil bund will remain in place, only being reduced in the early phases of restoration. As the bund is a very small part of the overall slope, the change will have little impact on the view, although during soil spreading soil moving vehicles will be visible on the skyline. The impact is assessed as ***neutral*** on completion and during the works.

3.2.3 *View Three. From Copperas Close, Millhouse Green.*

Copperas Close is representative of housing on the lower, northern slopes of the Don valley in Millhouse Green. From here the southern valley slopes can be seen above the housing with the quarry on the skyline above the irregularly surfaced fields, small pockets of woodland and the upper scrub slope. The current overburden and stone storage mounds are visible above the northern boundary soil bund and at times earthmoving plant is also visible. However, as the quarry working moves into its next phase, all stone, overburden and vehicles will be moved into the initial quarry void and will thus not be visible for the majority of the 10 year working of the quarry. The quarry is no more disruptive to the view than the telecoms mast and Water Authority apparatus and a horse related container that are also prominent on the upper slope, with all contributing towards a rather cluttered character. Views from this part of Millhouse Green are often obstructed by housing, trees and woodland, leaving only small glimpses of the upper slopes of the southern valley sides.

Throughout the working phase of the quarry the impact on this view is assessed as ***minor, adverse*** and after restoration as ***neutral.***

3.2.4 *View Four. From 'Knuckle of the Hill', off Royd Lane.*

This is a dwelling on the southern Don Valley side, off Royd Lane, as it rises above Millhouse Green. The elevation and openness results in a wider view with the northern edge of the quarry located on the skyline. At present the stone and overburden mounds beyond the northern soil bund form an irregularity in the smooth skyline although this is not a strong disruption as it is only a small part of a much longer line as the plateau dips from Hartcliff Hill north-eastwards. The woodland around the small village of Hillside below the quarry and that on the scarp slope to the east also help to mitigate against the disruption caused by the quarry. As the quarrying works progress, the overburden and soil mounds will be moved into the initial void and for the majority of the 10 year working life neither the quarry faces or associated workings and storage will be visible from this viewpoint. Throughout the working phase of the quarry the impact on this view is assessed as ***minor, adverse*** and after restoration as ***neutral.***

3.2.5 *View Five. From upper Royd Lane*

As Royd Lane rises to a level above the height of the quarry (approx 45m higher at its highest), views into the quarry are obtained and it is likely that the tops of the south facing faces will be visible. However from this elevation the quarry is not on the skyline, thus its visual prominence is reduced. The pastoral plateau area above the quarry is also visible and the relative importance of the quarry in this wide view is thus much reduced. The colours of the quarry will stand out against the smooth green fields of the landscape but it is more similar in colour, and to a lesser extent texture, to the scrub areas of the steeper slopes below the quarry and the edges of the plateau area in general. Throughout the working phase of the quarry the impact on this view is assessed as ***minor, adverse*** and after restoration as ***neutral.***

3.2.6 *View Six. From track along 'Royd Edge'*

Royd Lane runs at the base of an escarpment , or 'edge', that drops steeply from the ridge that forms the limit of northern Don valley side. A track runs directly along the top of this 'edge' affording good, long views to both the north and south. The quarry is part of the wide view to the south, situated on the plateau/escarpment boundary of the ridge that forms the southern side of the river Don valley that can clearly be seen dipping eastwards towards Thurlstone from Hartcliffe Hill in the west. The view also encompasses the plateau area above the quarry and distant hills beyond the immediate valley landform. Whilst the quarry will form a discordant element of this view, due to its relative elevation and its different colour to the majority of the pastoral landscape, it is only a small part of a very wide view. The scale of the quarry is not out of keeping with the landscape, occupying only the space of a single field and in a landscape where small quarries have been part of the landscape character for many

years. Throughout the working phase of the quarry the impact on this view is assessed as ***minor, adverse*** and after restoration as ***neutral.***

3.2.7 *View Seven. From Westfield Close, Thurlstone.*

This view is from the recreation ground at the rear of Westfield Close, representing the occasional glimpsed views of the site from this housing area. Most potential views from this part of Thurlstone are obstructed by buildings and woodland. The quarry sits just below the skyline with the large farm buildings of Bella Vista prominent on the skyline itself. It is difficult to isolate the quarry in the view as it forms a single feature amongst a range of disparate features of the telecoms mast, Water Authority apparatus, scattered dwellings and horse related structures. Woodland, scrub and heather slopes also form significant features in the view. As this viewpoint is higher than the quarry (by approx 15m) views into it will be possible and the tops of the north facing faces will be visible as the work progresses. However the quarry will not stand out amongst the wide range of disparate features. Throughout the working phase of the quarry the impact on this view is assessed as ***minor, adverse*** and after restoration as ***neutral.***

3.2.8 *View Eight. From Sandringham Close, Thurlstone.*

This view represents views from housing on the upper, northern edge of Thurlstone. Many are obstructed by buildings or trees but there are some open views across the valley that include a long sweep of the escarpment and plateau of the southern valley side. The quarry forms a part of this view but its importance within it is reduced by its proximity to other non-pastoral features, (telecoms mast, water authority apparatus, horse related structures, woodland and heather scrub), and its position below the skyline. Views into the quarry will be obtained including the tops of the north and east facing faces. Throughout the working phase of the quarry the impact on this view is assessed as ***minor, adverse*** and after restoration as ***neutral.***

3.2.9 *View Nine. From the A629 near Hoylandswain.*

The A629 runs in an elevated position along the north-eastern edge of the Scout Dyke valley then south-eastwards along the eastern edge of the Don valley. The photograph is taken from close to its roundabout junction with the A628 that forms a main route into Penistone and to the west. From much of the A629 a wide view is obtained looking westwards over Penistone along the Don valley. The quarry forms only a very small part of this view and is generally more than 3.5km distant, but at this viewpoint the quarry is visible on the skyline of the end of the Hartcliffe Hill ridge as it descends towards Penistone. This lends it slightly greater prominence in the view than if it was seen against a wider hillside. However the scale and shape of the quarry are similar to that of the surrounding fields and at this time of year the colour is

similar the those fields where a hay crop has been taken thus the impact of the quarry on the view is slight. The impact of Bella Vista farm on the skyline, and the telecoms mast, water authority apparatus and plastic covered fields around the quarry all have a greater, or similar, negative impact on the view. After restoration the replacement of the stone colour with more subdued greens and browns will have a slight positive impact on the view. Throughout the working phase of the quarry the impact on this view is assessed as ***minor, adverse*** and after restoration as ***neutral.***

3.2.10 *View Ten. From Rud Broom Lane, behind Bluebell Avenue, Penistone.*

The quarry forms part of the view from housing on the western edge of Penistone, although this view is restricted to the upper storey windows of housing along the western edge of the estate. As for the previous view, the quarry lies on the skyline of the Hartcliff Hill ridge thus the irregularities and colours of the quarry form a quite prominent, discordant feature on the generally harmonious view of the rectangular fields of the plateau area. However the scale of the quarry is still in keeping with the scale of the fields and its location against the buildings and apparatus of the Water Authority compound and other small dwellings with surrounding woodland lessens its negative impact on the view. Throughout the working phase of the quarry the impact on this view is assessed as ***minor, adverse*** and after restoration as ***neutral.***

3.2.11 *View Eleven. From new housing, The Pastures, at Millhouse Green.*

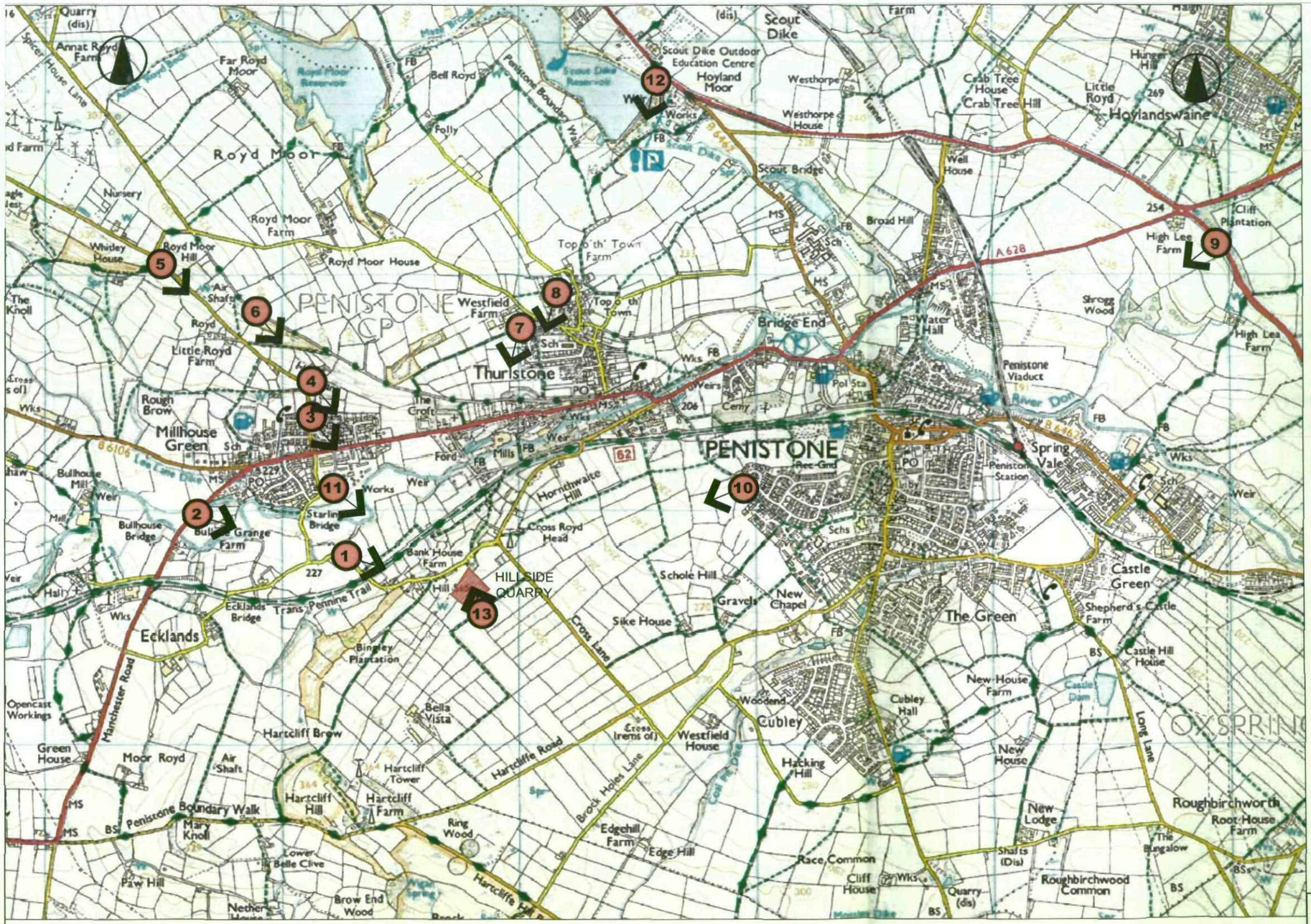
A large development of new housing is presently under construction on low lying valley bottom land on the southern edge of Millhouse Green. There will be some views of the quarry from this housing but most are obscured by the mature riverside and lower slope trees. Where views are available looking up towards the quarry the northern boundary soil bund is visible on the skyline along with some irregular, grass covered mounding from previous quarrying on this site. More prominent on the skyline are the telecoms mast and horse related container. There will be no views into the quarry itself due to the lower elevation of the housing. Throughout the working phase of the quarry the impact on this view is assessed as ***neutral*** and after restoration also as ***neutral.***

3.2.12 *View twelve. From Scout Dyke reservoir, parking area.*

A distant view, (2.5km), of the quarry is obtained from the visitor parking area at Scout Dyke reservoir above the strong foreground woodland of the dam embankment. However the quarry is difficult to distinguish as it forms a relatively small part of the view and is seen against the patchwork of rectangular fields on the plateau area below Harthill. Harthill Tower, with associated woodland, and the large farm of Bella Vista situated on the skyline form a much more prominent part of the view, rendering the visual importance of the quarry very low. Throughout the working

phase of the quarry the impact on this view is assessed as ***minor, adverse*** and after restoration as ***neutral.***

View thirteen. From public footpath running to the south of the quarry.
A footpath runs along the field boundary that runs parallel with the southern quarry boundary, one field away. Close views of the site will be afforded from this footpath, although most of the works will be below ground level and thus not seen. The *proposed 2m high soil bund along* the boundary will screen any surface clutter and works, but will also curtail some of the wider views across the valley. From the upper, western, half of the footpath the long views across the valley will only be slightly affected only but as the footpath drops towards Cross Lane the soil mound will become more prominent in the view and curtail the long views to a greater extent. Movement of plant used in re=spreading the soil will cause very short term, but severe disruption to the view. Throughout the working phase of the quarry the impact on this view is assessed overall as ***slight adverse*** and after restoration as ***neutral.***



REFERENCE

4 Key to photographic viewpoints

Hillside Quarry

0 1000m

cf landscape design

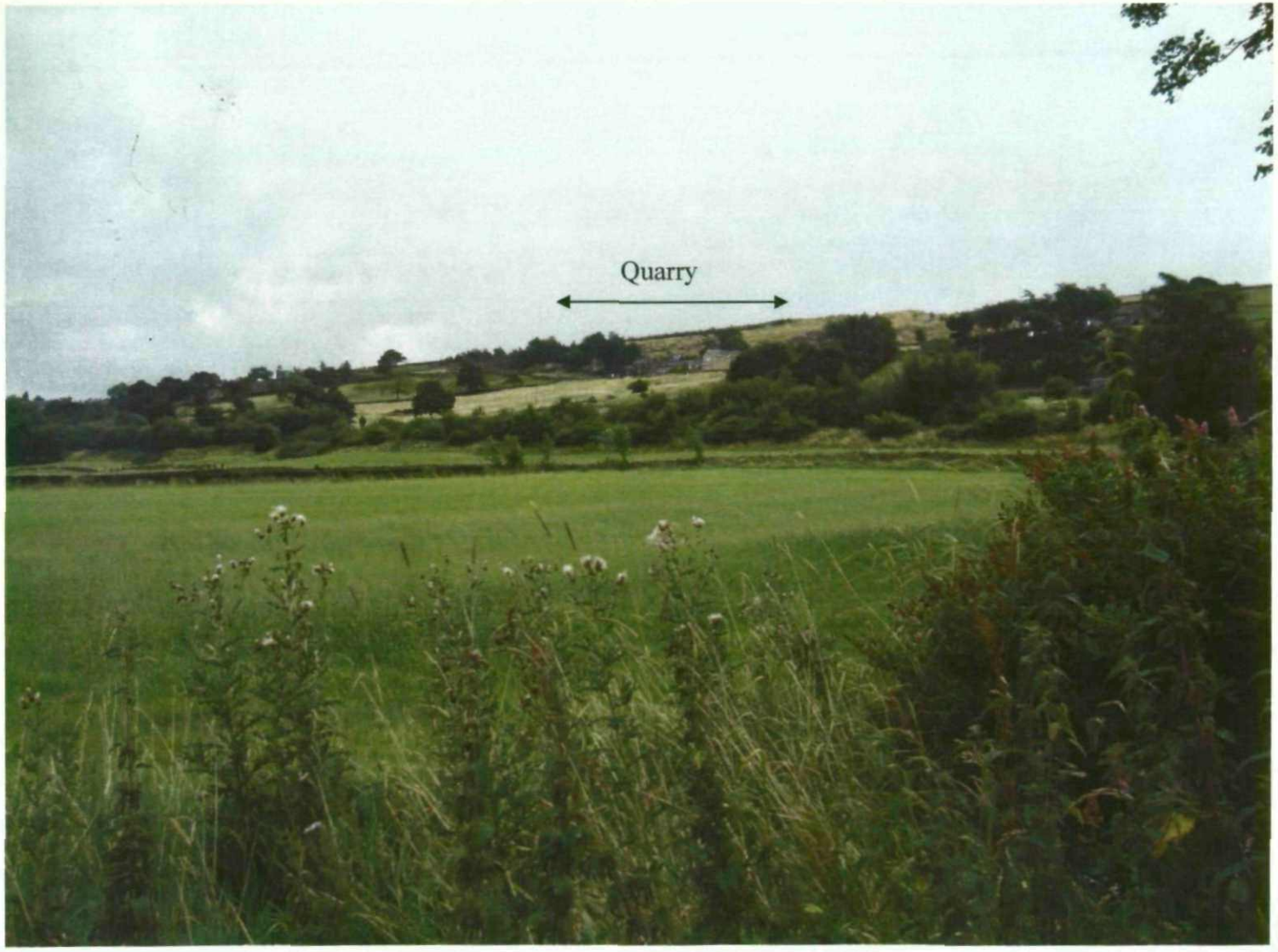
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project: HILLSIDE QUARRY, THIRLSTONE.

drawing title: KEY TO PHOTOGRAPHIC VIEWPOINTS

scale	date	drawing no
As shown @ A3	Sept 09	CF/HS/173/1

View One. From Shore Hall on shore Hall Lane.



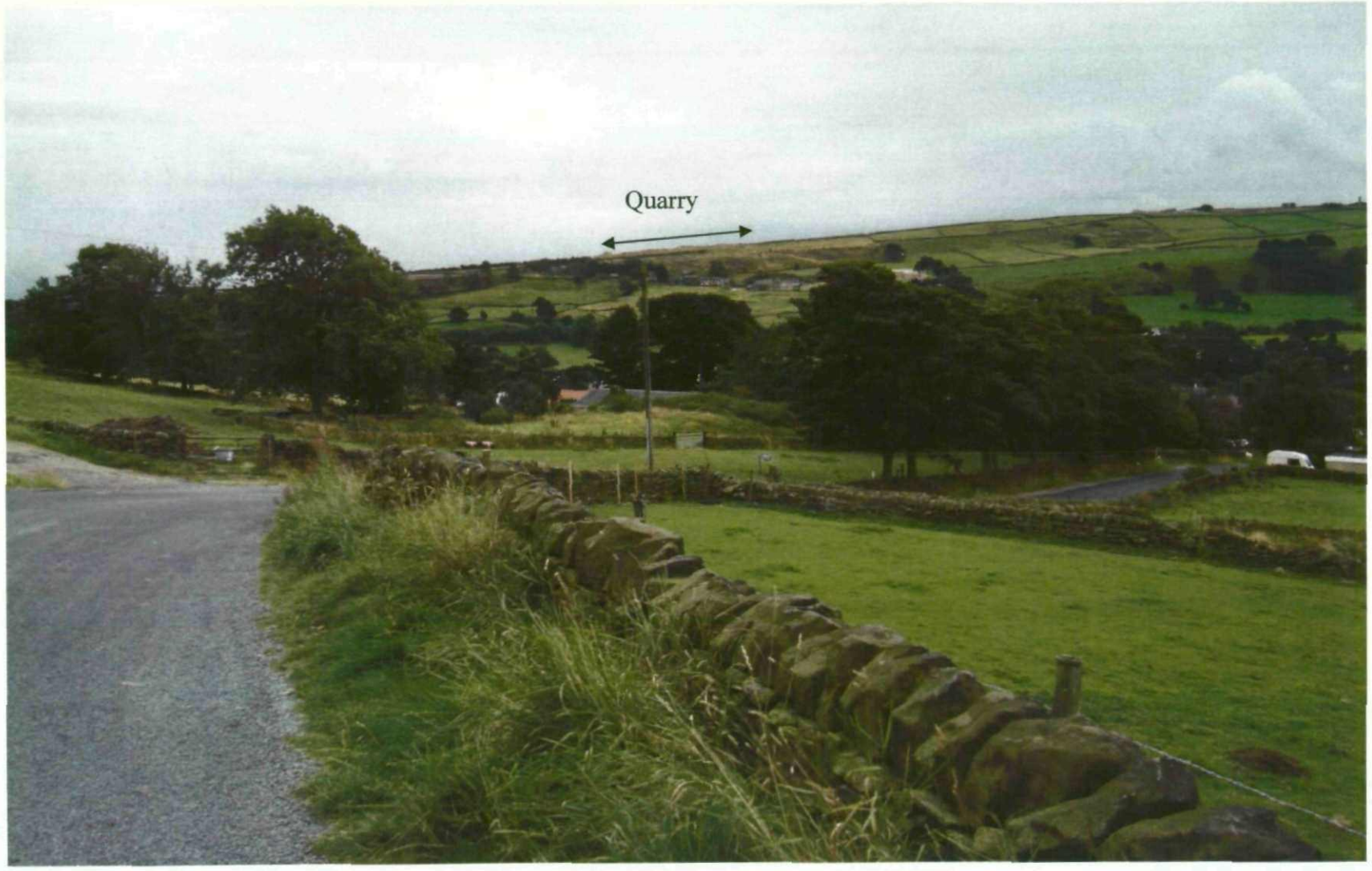
View Two. From Bullace Grange and Farm



View Three. From Copperas Close, Millhouse Green



View Four. From 'Knuckle of the Hill', off Royd Lane



View Five. From upper Royd Lane



View Six. From track along 'Royd Edge'



View Seven. From Westfield Close, Thurlstone.

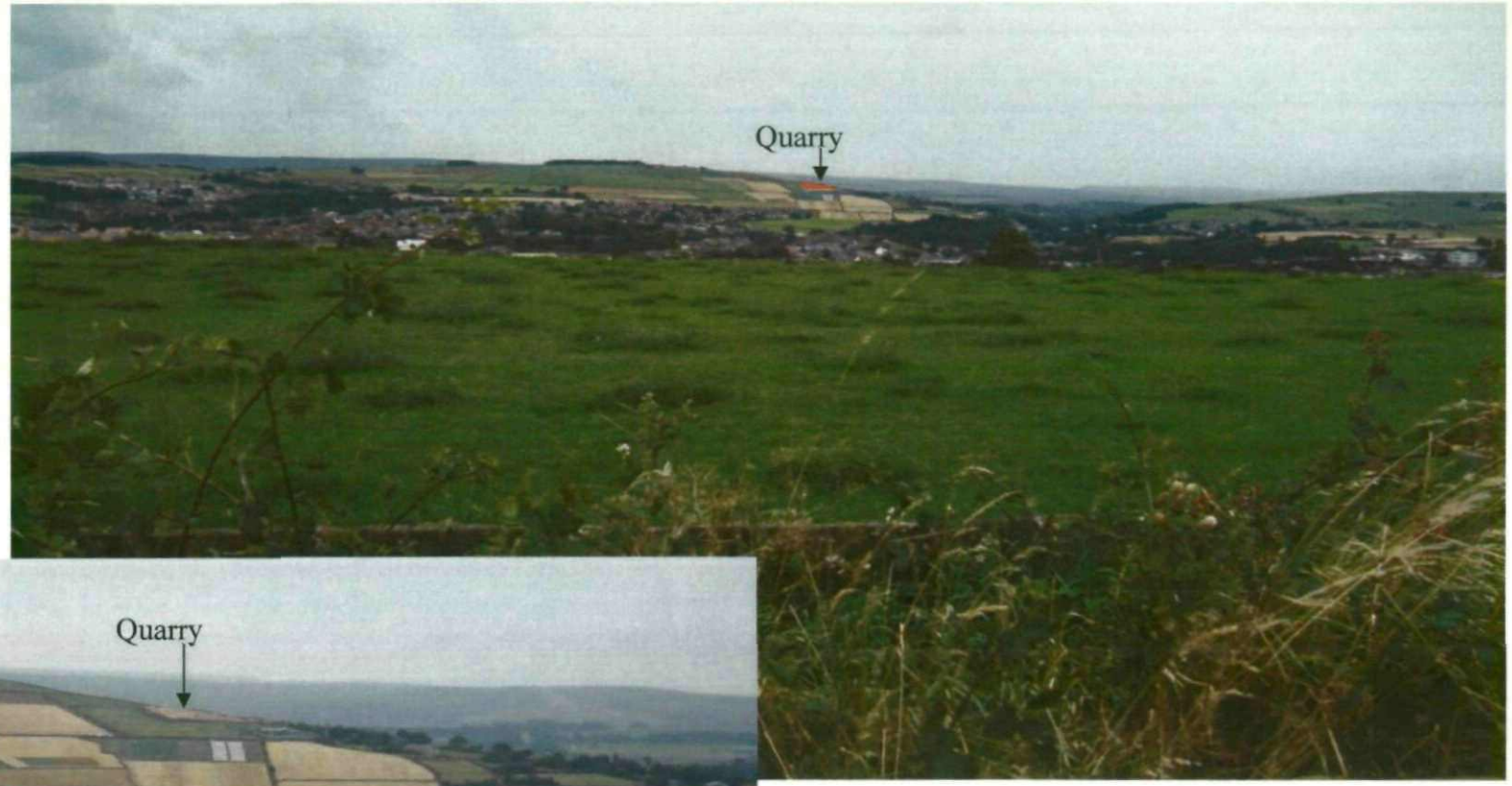


View Eight. From Sandringham Close, Thurlstone.

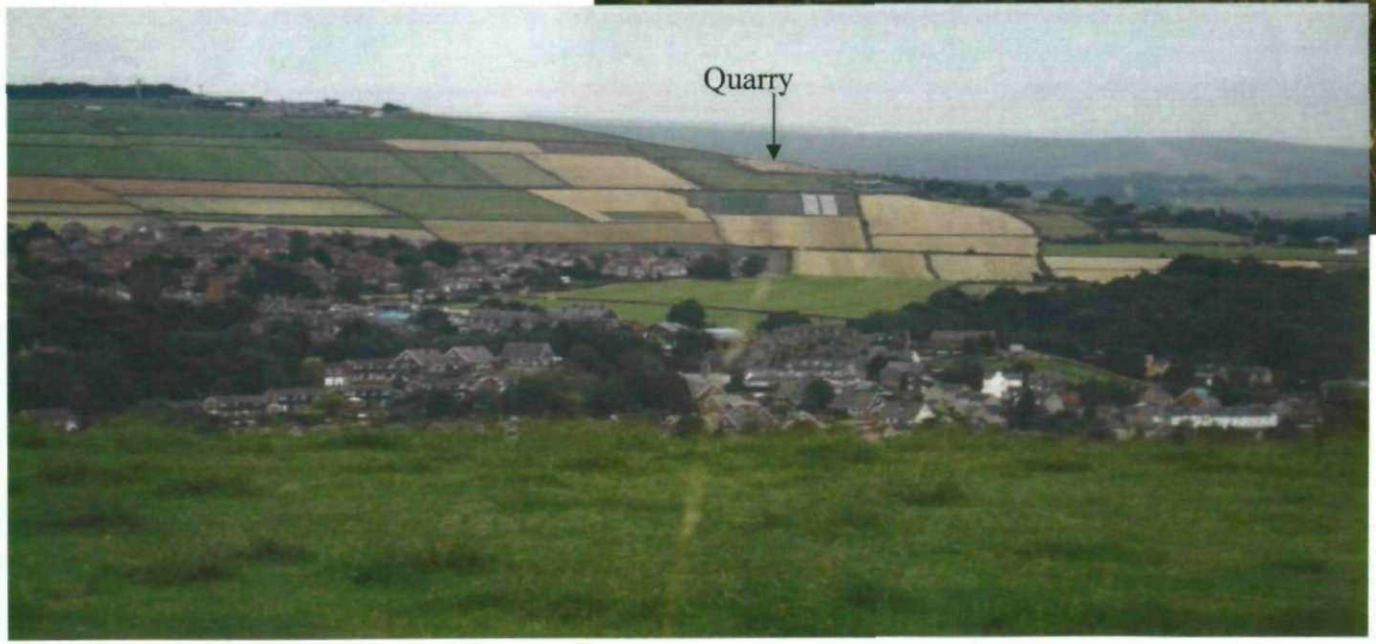


View Nine. From the A629 near Hoylandswain

Actual view



Enlargement



View Ten. From Rud Broom Lane, behind Bluebell Avenue, Penistone



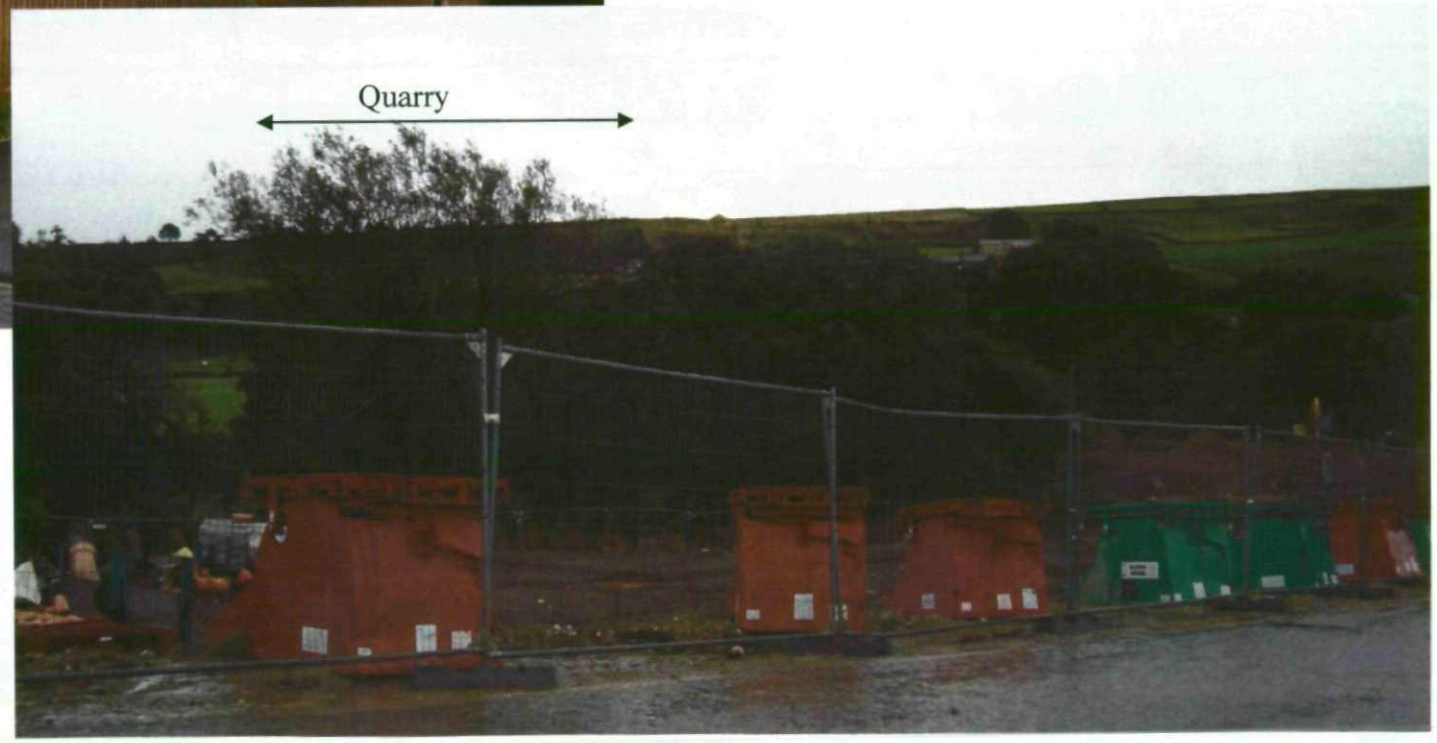
10 A. From Rud Broom Lane



10 B. View from Bluebell Ave

View Eleven. From 'The Pastures', Millhouse Green.





View Twelve. From Scout Dyke reservoir, car park.



View Thirteen. From public footpath to south of quarry.



Current view



Projected view of southern boundary soil mound.

APPENDIX D

DUST ACTION PLAN

HILLSIDE QUARRY, THURLSTONE

Dust Action Plan for the quarrying operations

For

Grenoside Rock Developments Ltd

September 2009

Prepared by:

FGB Fennell, Green & Bates
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2.0 Concerns About Dust

3.0 Public Perception

4.0 Current Regulations

5.0 Description of the Site and Dust Generating Activities

6.0 Site Sensitivity

7.0 Practical Actions

8.0 Conclusions and Recommendations

DUST ACTION PLAN FOR THE QUARRYING OPERATIONS AT HILLSIDE QUARRY, THURLSTONE FOR GRENOSIDE ROCK DEVELOPMENTS LTD

1 Introduction

This report is provided to accompany a planning application to continue quarrying operations at Hillside Quarry, Thurlstone. The site had previously been granted planning permission for 3 years for the extraction of dimension stone and this dust report will accompany an application to extend workings for a further 10 years.

The extraction of mineral by surface methods and the deposit of waste has the potential to cause dust arisings as the mineral is subjected to breaking, crushing and loading and the waste is deposited and pushed out in layers. The proposed method of cutting the stone is with a rockjet that applies water under high pressure with a silica sand to cut the stone and then the water flows to the base of the quarry. The silica sand will dry and this together with the indigenous sand caused by the quarrying has the potential to cause dust when dry.

The hauling of mineral and waste over the quarry haul roads also has the potential for dust as the material on the haul roads is crushed into a fine powder.

The mineral at Hillside is overlain with topsoil and a grey mottled brown boulder clay with inter-bedded sandstone and a thin shale bed. The clay will have a moisture content of about 13% and will have the potential to break down into finer particles of dust if it is dry and traffic runs on the clay in dry periods of weather.

For certain quarry processes, dust emissions are controlled under Part I of the Environmental Protection Act (EPA) 1990 and its successor, the Pollution Prevention and Control Act 1999 and the Pollution Prevention and Control (England and Wales) Regulations 2000 (the PPC Regulations). Enforcement action to control dust when it amounts to a nuisance can be taken under Part III of the EPA 1990. However, the Government expects operators to make proposals that are environmentally acceptable from the outset rather than relying on retrospective action, and MPAs should take due account of this in their decisions on individual applications. MPAs and operators should liaise with the relevant pollution control bodies (i.e. the Environment Agency and Local Authority (LA) Environmental Health Departments) in considering and making decisions on individual applications.

This report considers the potential of the operations at Hillside Quarry to generate dust together with the associated nuisance impacts that may occur to sensitive properties and locations as a result of such emissions to air.

The operations would only affect air quality under the following conditions:

- If dusts are released to atmosphere from the site in sufficiently high concentrations; and:-
- If there is insufficient atmospheric dispersion to dilute dust emissions to a concentration that does not have a nuisance or health effect.

If these conditions occur in an area where sensitive receptors (such as residential properties, schools, hospitals etc) are located, then the receptors may experience a nuisance or adverse health effects.

Therefore, the significance and resultant impacts of dust emissions to air from the operations are dependent upon the significance of the emissions, the prevailing meteorological conditions for that location, and the proximity of sensitive locations to the emission sources. The potential for these to occur and give rise to health impacts and/or nuisance is assessed.

2 Concerns about Dust

Dust forms an inherent part of the environment, being dispersed from a variety of natural and anthropogenic sources by wind and water. Therefore, the meteorological conditions in any locality are of paramount importance when considering the potential for dust dispersal - the most significant cause of dust emission from surface operations being wind blow.

Fugitive dust emissions from surface operations, of the same type as the operations that will occur at Hillside Quarry, are generally a localised phenomenon and comprise of dust particles in the size range of 0.1 µm to 100 µm, typically averaging 70 µm, and they are produced through the action of crushing and abrasive forces on materials. These larger dust fractions consequently have relatively large settling velocities, resulting in them being deposited over relatively short distances.

Airborne particles cover a wide range of particle sizes and types (e.g. wind blown dust, sea salt aerosols, biological material and secondary particles). In the UK and more recently in Europe, air quality standards and guidelines are related to particles of less than 10 µm in aerodynamic diameter, referred to as PM_{10}. These particles are representative of the large proportion of airborne particulate matter and may have a potential impact on health. Particles of less than $PM_{2.5}$ are referred to as the fine fraction and are capable of reaching the deepest part of the lung. Particles between $PM_{2.5}$ and PM_{10} are termed the course fraction and are normally deposited in the upper airway. Generally particles generated from combustion processes and the condensation of vapours fall within the fine fraction ($PM_{2.5}$) whereas those particles generated from mechanical break up of solids and liquids are within the coarse fraction ($PM_{2.5}$ and above)

Impacts of air pollution from construction and demolition sites on the environment

There are a number of sources of dust and emissions from construction activities that can release a range of particles. This document refers to the following particles in a standard format throughout:

Dust - defined as all particulate matter up to 75 µm in diameter (according to BS6069) and comprising both suspended and deposited dust

PM10 - a mass fraction of airborne particles with an aerodynamic diameter of 10 microns or less. It is comprised of *coarse* particles (2.5-10 µm in diameter), which are primarily from non-combustion sources and *fine* particles (less than 2.5 µm), which includes combustion processes or are formed in the atmosphere through the chemical reaction of primary emissions of gases.

Particulate matter includes a wide range of sizes and types of particles and will vary in composition from place to place and time to time.

Most dust particles are too big to be inhaled but can cause eye, nose and throat irritation and lead to deposition on cars, windows and property. PM10 is of more concern to human health as the particles can enter the lungs, causing breathing and respiratory problems, with long-term health effects dominated by cardiovascular rather than respiratory problems3. The PM10 size fraction is associated with a range of effects on health including respiratory and cardiovascular systems (ie asthma) and mortality (deaths brought forward). Particles can also carry adhered carcinogenic compounds into the lungs. The most vulnerable people are the elderly, the very young and those with existing heart and lung conditions.

The detrimental health impacts of PM10 are not confined to the construction site. These particles can travel further than coarser dust and so can affect the health of people living and working in the surrounding area of the site.

Dust Nuisance

The nuisance effects of dust emissions are related to both emissions of large and fine particles. Deposition of these particles onto surfaces, such as windows and cars, causes soiling that, if sufficiently great, can be considered to be a nuisance. In addition, occasional clouds of dust can cause a visual and sensory nuisance.

Potential Health Effects from Dust

A report by the Quality of Urban Air Review Group (QUARG) provides a discussion on the potential health effects of airborne particles by reference to a detailed review of this issue undertaken by the Department of Health's Committee on the Medical Effects of Air Pollutants (COMEAP). It has been well established that people with pre-existing respiratory and/or cardiac disease are more susceptible to acute health effects from exposure to airborne particles.

There is no convincing evidence that healthy individuals will be significantly affected by ambient levels of particles occurring in the UK. Furthermore, with regard to the health effects from specific types of particles, the QUARG report states:
'It is unlikely, however, that coarse, wind-blown particles have a significant effect upon health'.

This conclusion is backed up by research undertaken by the former British Coal Opencast at opencast coal sites in South Wales. This research indicated that levels of PM_{10} are much the same upwind and downwind of their study sites i.e. that relatively little dust in this size range is produced by this type of development. In addition, work undertaken at Derlwyn Opencast Coal Site over a period of six years which included continuous monitoring of respirable dust using a wide range of the best available instrumentation and techniques concluded that, although some dust had been generated at Derlwyn it was *'barely detectable'* and the possibility of any effect on the health of the local population was *'likely to be remote'*. Although this operation is not an opencast coal mine, the research demonstrates that the impact of surface mineral workings, which this operation can be compared to, can be minimal with appropriate mitigation measures and effective management.

The amount of dust generated by each activity depends on the size of particles and, crucially, upon their moisture content. Dust emissions are greatest when there is a plentiful supply of small dry particles.

3 Public Perception

Dust effects on people have been identified as arising from increases in airborne dust concentrations, and deposition levels. Dust deposition on windows, the outside of houses and cars are the most frequently mentioned reasons for concern. The perception of dust from surface soiling is determined by a number of factors:

- deposition on a surface which is usually expected to remain free from dust;
- the colour contrast between the deposited dust and the surface upon which it settles;
- the nature of the illumination of the surface – 'dinginess';
- the presence of a nearby clean 'reference' surface against which comparisons may be made;
- the identity of the area and the composition of the local community;
- social factors, such as lifestyle and patterns of working;
- the personal experiences and expectations of the observer; and
- adverse publicity influencing the expectations of the observer.

The rate of deposition and therefore the time taken for dust deposition to become visible also influences the perception of dust. Rates of deposition vary widely with emissions, variations in wind speed and direction, and also variations in the background dust concentration. These background levels will determine the reaction of

local people to any additional dust from specific mineral sources, together with the following two factors:

- the frequency of dust deposition incidents – a community may be prepared to tolerate an incident once a month, but not repeated incidents at frequencies of one or twice a week,
  and;
- the area affected by deposition – the larger the emissions, the larger the area affected and thus the greater the probability of activating a complaint.

4 Current Regulations

As previously stated, the amount of dust that might cause a potential nuisance is extremely difficult to determine. Similarly, numerous attempts have been made at identifying a nuisance standard for dust, without success. A number of non-statutory standards are used as a guide for the assessment of nuisance, including the concept of dinginess developed by Carey (1959), Shillito (1978), and Beaman and Kingsbury (1984).

Minerals Policy Statement 2 (MPS2) *Controlling and Mitigating the Environmental Effects of Minerals Extraction in England* is a statement of the policy considerations in relation to dust from mineral workings and associated operations, and how they should be dealt with in local development frameworks and in considering individual applications. Appendices briefly outline information on the nature of dust, give examples of methods of reducing and controlling dust, and outline good practice in dust assessment. The Government expects Mineral Planning Authorities (MPAs) in England to have regard to this Annex alongside the policies contained in the MPS2 overarching document.

An additional requirement of MPS 2 is the detailed monitoring of PM_{10} concentrations if the following conditions are realised:

- Mineral extraction occurs within 1km of a community;
- It is considered likely that the AQS objective for PM_{10} will be exceeded; and
- Mineral extraction process has a significant impact on PM_{10} concentrations.

This requirement to monitor PM_{10} is particularly onerous especially since MPS 2 states that:

'Smaller particles (less than 10 μm) which make up a small proportion of dust emitted from most workings.'

Furthermore, and as documented by MPS 2, a Department of Health (DoH) and (former) DETR report on the impact of particles from opencast coalmines concluded that:

'Opencast coalmining was associated with a small increase in the mean concentration of airborne particles measured as PM_{10} in areas close to opencast sites.'

Currently, there are no statutory or recommended levels of dust deposition that may constitute an official nuisance. It is normally left to the local Environment Health Officer, under Part III Section 791(d) of the Environmental Protection Act, to determine if, in his opinion, a statutory nuisance exists.

5 Description of the Site

The site, which lies on the northern flank of a plateau of Grenoside Rock above the River Dearne on an area of land known as Hartcliffe, forms the northern half of the watershed for surface water run off to the north and east at the contact of the stone with the underlying mudstone. The site falls gently to the north/north east and there are a number of springs that flow around the site that drain into the streams that feed into the River Dearne near Thurlstone and Penistone on the north and west side of the site.

The quarry is currently operational for sandstone extraction and a number of products are produced and cut on site such as flagstones, roofing slates, window sills and gateposts.

The proposals are to continue working the stone to the southern boundary and work in an easterly direction towards Phases 2 and 3 to provide building stone and extract aggregate as a by-product from the Grenoside and Greenmoor beds for sale.

6 Assessment of Potential Dust Generating Activities

The amount of dust generated and emitted from a surface operation and its impact varies with respect to:-

a. The type of working
b. The character and composition of the surrounding area
c. Climate and topography
d. The excavation of mineral for capping and engineering
e. The crushing of waste stone to aggregate for drainage
f. The tipping of mineral waste
g. The hauling of mineral from the site prior to waste deposition
h. The haulage of waste material from the reception area by dump trucks
i. The tipping of the waste material in the quarry void
j. The spreading of the waste by small dozers/front end loaders

The proposed operations at Hillside Quarry have been examined for the particular site and they are as follows:-

i. The excavation of stone from the quarry face to the processing area
ii. The removal of overburden to the waste tip and its tipping and levelling out

iii. The cutting and dressing of stone for flag and blockstone production
iv. The cleaning of the stone beds, the excavation and loading of any intervening shale and mudstone into dumpers by a front end loader or excavator and the transport of the mudstone to the backfilling area
v. The excavation of the clay and loading into tipper trucks for transport to the waste area
vi. The tipping of mineral waste and the levelling out with a bulldozer or similar piece of plant.

All of the above activities will continue through the life of the site and will have a potential to cause dust emissions.

The excavation of the stone and haulage to the processing area is not thought to have a high potential to cause dust. The area will be small and the vehicles travel fairly slowly along the haul roads, which will be regularly maintained.

The potential for dust generation is a function of the speed of vehicles, the degradability of the surface and the wind speed, which in this case is thought to be minimal.

The greatest cause for a high potential of dust generation is the dressing of stone with stihl saws situated outside. The process will need to be placed in an area in the base of the quarry with a regular supply of water to reduce dust. The dressing area should be in the base of the quarry near to the extraction area to egress the quarry working from the haul road. The process area is placed to the north west of the site near the end of the haul road.

The dressing of stone is to be moved into an area situated below the general surface level, therefore dust generation will be mitigated by the protection offered by the faces and water spraying collected from a sump. The strata dips to the north east and a sump can be maintained in the underlying mudstone to collect all the waters and settle before re-use.

The most effective way of minimising emissions of dust out of the site is to place the processing area on a lower level than the surrounding properties. The process is then offered some protection from the elements by being shielded by the quarry faces or the screening bunds. Any dust generated will generally travel in the direction of the wind horizontally and will coat the quarry face rather than travel outside the site.

Any intervening mudstone beds will be loaded at the working horizon and the excavator will gather the mudstone and load it into a dumper where it will be taken to the backfilling area. The operation will seek not to crush the mudstone and clay to powder but load it as lump stone. The mudstone will need to be handled on site efficiently to reduce the degradation of the mudstone and other clay like materials.

As the stone is worked, a carpet of stone material will be left to cover the clays so as not to crush the clay prior to it being lifted. Prior to the mudstone being lifted, the last bed of sandstone will be removed that formed the running road.

The stone will be worked for flag rock, slates, walling and rockery with the smaller rag and mare used for rockery, dry stone walling.

The main cause of dust is the degradation of the running road at the base of the stone beds. This area will be regularly sprayed in periods of dry weather and cleaned up and graded on a regular basis.

Backfilling with mineral could have the potential to create dust, but the material usually has some moisture content that improves the workability and compaction. It is only in periods of dry weather that the surface can turn to dust as it is crushed by traffic. The site will be wetted and the wastes capped with moist clays and shale.

All of the above activities continue to have the potential for dust generation. The potential for dust to be generated by operations (i), (vi) and (vii) is a function of the degradability of the surface of the haul road materials and dryness, wind speed and the speed of the vehicles using the haul roads.

The potential for dust generation from operations (ii), (iii), (iv), (v) and (viii) is a function of the nature of the material and wind speed.

The excavation of mineral will be by a 360 degree hydraulic excavator and the lifting of the top rock, mudstone and other interburden will have a potential to create dust. The potential for dust generation will be low as the material is loaded straight from the face into a dumper to take it to a stockpile, overburden heap or for capping and engineering. The stone and clays will be wetted in periods of dry weather to mitigate dust emissions.

The tipping of mineral waste will be in the exhausted workings or in the backfilled areas to cover the imported waste so that the potential to generate dust will be low. The mineral and imported waste will be dumped in piles and pushed out by a slow moving dozer or a front end loader to layer the waste and provide compaction. The coarser waste fraction will be tipped at the base of the site and finer material will be tipped to cover the coarse waste. The area will be levelled up and covered with some clay material to seal the imported waste material.

The spreading of the material, either by dozer or front end loader, involves the slow movement of these items of plant and therefore vehicle speed is not a significant factor when considering the potential for a dust nuisance being caused.

7 Practical Actions

- The operator shall appoint a responsible person for dealing with environmental issues on the site. The Site Manager will keep a daily log of the weather conditions, including the direction of the prevailing wind with a brief description of its type, i.e. gentle, breeze, moderate, strong or gale force. This log will include any complaints received, with a record of any investigations carried out and changes to the working practices on that day. The log will be available for inspection on the site

- In the event that the wind is blowing towards any sensitive properties, the responsible person, identified above, shall satisfy himself that the control measures are adequate. If the control measures are insufficient to prevent dust blow from the operations to the sensitive locations, the operations shall cease until the weather conditions improve.

- All vehicles leaving the site will pass over the rumble grid at the bottom of the access road prior to joining the main road network.

- The haul road shall be dampened when necessary and the road outside the site entrance will be dampened and brushed using the sweeper which is situated at the site if there is evidence of mud and debris leaving the site.

- Upward pointing exhausts will be used on all mobile plant which is used on site.

- Speed restrictions of 15mph will be enforced on all vehicles moving on site and on the haul road.

- Any complaints of dust nuisance will be recorded and if these continue to occur, dust monitoring will be undertaken at the sensitive locations using directional dust deposition gauges. This will be undertaken by the Site Manager.

- Use agreed wet cleaning methods or mechanical road sweepers on all roads during periods of dry weather.

- The operator will ensure that a water bowser is kept on site whenever plant is operational and will ensure that all high activity areas such as haul roads can be dampened when necessary.

- Clean road edges and pavements using agreed wet cleaning methods such as manual sweeping.

- Where stockpiles are stored they must be kept wet and suitably profiled to minimise dust emissions, according to weather conditions. Long term stockpiles will be grass seeded or covered with tarpaulin if necessary.

8 Conclusions and Recommendations

The area surrounding the site generally comprises of scattered residential and farm dwellings to the south and south west, towards Hartcliffe and houses on the valley side below the old Manchester to Sheffield Railway, that is now the Trans Pennine Trail, and Thurlstone to the Northeast and open land elsewhere.

The quarrying and filling operations at the site are dependant on the requirement of the works. If best practice is considered and the quarrying operations are suspended during adverse weather conditions, then the potential contribution to the current level of dust in the atmosphere, as a result of the activities on site is minimal.

It is recommended that any water make from the site is stored and used in periods of dry weather to suppress any potential for dust. There is water supply at the site for the wheel cleaning facility and recycling area. These areas can be damped down in periods of dry weather.

If dust does become a problem then dust monitoring can take place using a number of methods one of which is a directional dust deposition gauge on a pole which will be fixed permanently in the ground on the perimeter of the site.

The houses near to the quarry are situated on the valley side to the north and there is the old railway cutting and trees between the two locations and the houses are at a lower level than the quarry. It is unlikely the houses will be affected by dust blow from the medium coarse to coarse particles on the quarry as the houses are more than 100 metres away.

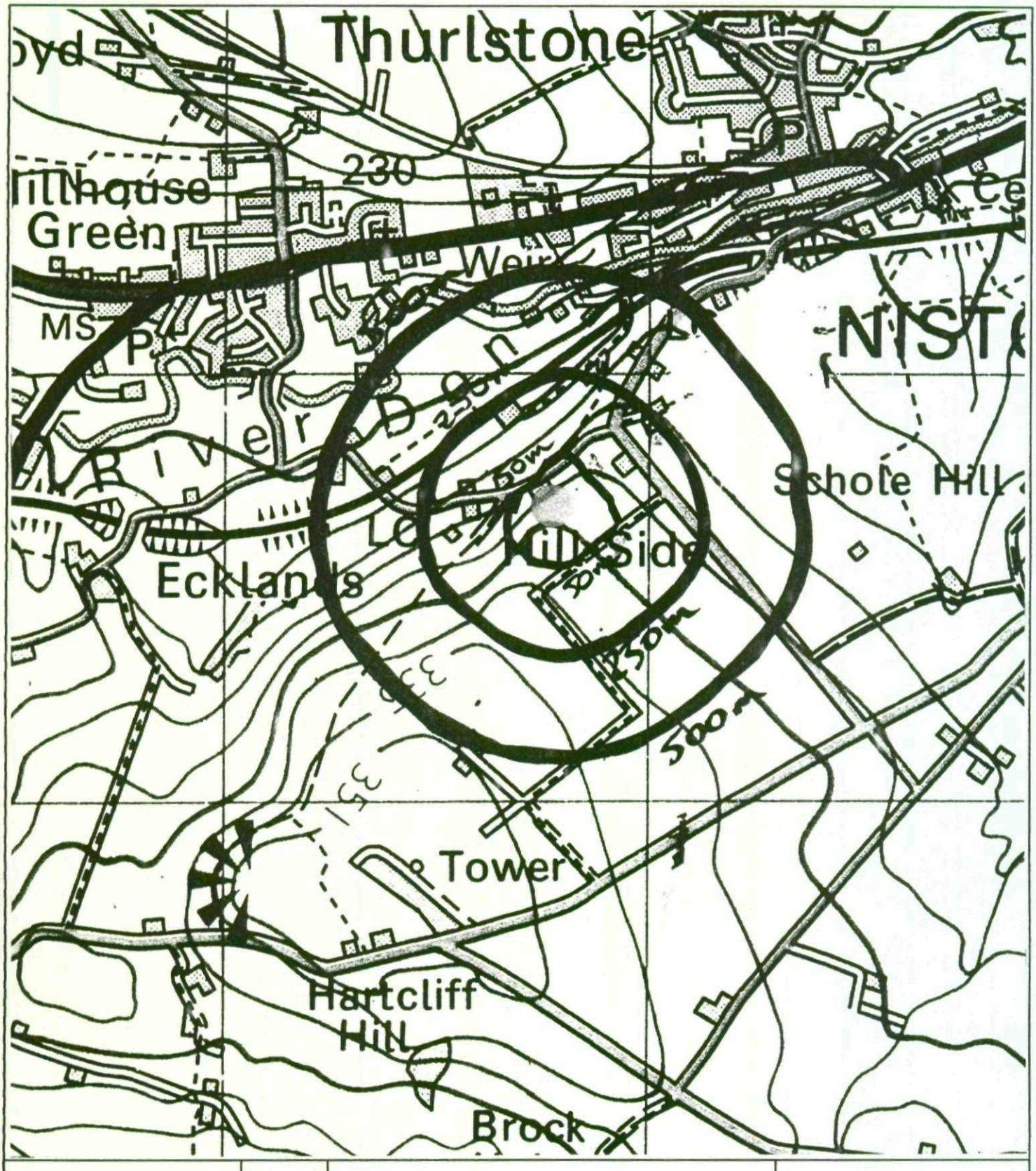
Fennell Green & Bates
September 2009

References

The control of dust and emissions from construction and demolition, Best Practice Guide (November 2006)

Minerals Policy Statement 2 – Controlling and Mitigating the Environmental Effects of Mineral Extraction in England (March 2005)

Planning Policy Statement 23 – Planning & Pollution Control (2004)



Influential Dust Zones

Date 10/2005	Scale 1:12500	
Hillside Quarry Thurlestone Penistone	FENNELL GREEN & BATES 25 SMYTH STREET WAKEFIELD	Article No./Reference drawn by SW

APPENDIX E

RESTORATION REPORT

HILLSIDE QUARRY – RESTORATION PROPOSALS

1 Aims and objectives

1.1 Hillside Quarry lies on the crest of an escarpment that forms part of the southern valley side to the River Don, flowing through a broad valley bottom at this point. The site is on the edge of the plateau area, above the escarpment; the plateau area being known as Greenside Common. The steep escarpment slope below the site supports unimproved grassland with areas of heath and developing birch and beech scrub. The plateau area, within which the quarry is located, is divided into regular fields by straight stone walls, used for sheep grazing.

1.2 Within English Nature's "The Natural Areas Map of England" this site has a typical National Vegetation Classification of Coal Measures MG5 wetland.

1.3 Barnsley District Council's Landscape Character Assessment identifies this area as Landscape Character Zone F2, Penistone Upland Farmland. Of the Key Characteristics identified for this zone the following are of relevance to the site and its restoration proposals

- *Stepped landform*
- *Unimproved pasture with scrub on steeper slopes*
- *Disused industrial quarries, shafts and mines indicate historical importance of area for the extraction of coal and stone.*

1.4 Quarrying has been undertaken on a small scale throughout this area with many of the quarries of the last century being left to natural colonisation. Waste from the quarry was left on the quarry floor and against the sides of the excavation forming scree slopes beneath the vertical rock faces. Over time, mosses, ferns, grasses, shrubs and trees have developed starting on the level areas and in pockets and benches on the rock faces, and eventually covering everything except the most sheer, smooth rock faces. These areas of naturally re-vegetated quarries form occasional breaks in the smoother pasture landscape or, more commonly, in the steeper escarpments that support unimproved pasture with heath and scrub vegetation. Such quarries are known locally as 'Delphs'. Although not a quarry, the disused railway running along the base of the escarpment slope below the site shows typically re-vegetated rock slopes, within it's cuttings. (For example at Hornthwaite Bridge approximately 700m from the site.) Vegetation here is dense with beech, birch and goat willow forming a good tree cover and with bramble, broom, thorn, heather, ferns and various woodland grasses forming a shrub and ground layer.

CF LANDSCAPE DESIGN Oakleigh, Healey Road, Ossett, West Yorkshire WF5 8LN. tel 01924 281164

1.5 As a low level restoration is the only practical option for this site the restoration proposals intend to re-create a delph feature, of rock faces, scree slopes and irregular ground with an intricate mix of trees, shrubs, damp loving vegetation, grasses and other ground flora. This would tie in with the overall landscape character of the area of upland farming with occasional woodland and scrub on steep slopes, incorporating occasional disused quarries as features. In time it would increase the woodland cover in the landscape counteracting the declining tree cover identified Barnsley BC's Landscape Character Assessment for this area, and provide shelter for wildlife.

1.6 Views from across the valley would show glimpses of a small woodland area above the heath and grass scrub slopes of the escarpment, fully in keeping with the pattern of woodland on this escarpment. In the immediate vicinity of the area the site will be virtually unseen until the trees mature, when a woodland, a typical feature of the steep slopes and skylines of this area, will be formed. Ecologically it will form an oasis of varied, sheltered habitats between the relatively uniform pasture of the plateau area and the heath and grassland slopes of the escarpment.

1.7 Whilst natural delphs are the result solely of natural re-generation, it is recognised that the long term nature of re-generation will necessitate a helping hand to speed up the process. Measures to establish grass, shrubs and trees are included in the restoration proposals along with creating conditions conducive to natural regeneration.

1.8 The aims of the restoration can be summarized as follows.

- To recreate a delph feature of distinctive quarry landform with an intricate mix of trees, shrubs, ferns, damp loving vegetation, grasses and other groundflora.
- To encourage natural regeneration
- To provide shelter and a variety of habitats to encourage wildlife

2 Working method and soils management

2.1 The quarry will be worked in a series of 4 progressive box cuts working out from the existing void. The first phase will create an elongated cut in a north-easterly direction, then working across the site towards the south eastern boundary. By operating the quarry in this manner distant views into the site from higher ground to the north west will reveal only the upper part of the quarry face.

2.2 Borehole information suggests that approximately 60 cm of soil exists across the area to be worked. Of this about 20cm is topsoil and 40cm subsoil, although the horizons are not distinct. Therefore it is estimated that 1600m^3 topsoil and 3200m^3 subsoil will

be available for restoration of the quarry. In addition there are areas of unconsolidated sandstone present between the rock strata, which, together with other similar waste material from the quarrying process, will be used to form the final restoration contours.

2.3 Topsoil and subsoil will be stripped separately, only when weather conditions are suitable and the soil is dry and friable. Where stored separately, topsoil shall not be stored in mounds exceeding 2m height, however some of the soils storage bunds will be formed using subsoils overlain with a maximum 40cm depth of topsoil.

2.4 Topsoils and subsoils from phase 1 will be stripped and stored separately in a long low bund around the north-east, south-east and south western boundaries. The bund will be a maximum of 1.5m high with 1 in 1.5 slopes. This bund will help to screen any potential views of the workings of the quarry from users of the bridleway running to the south of the site, whilst the 1.5m height will also allow for some longer views across the valley to be retained. This mound will be seeded with a fescue –bent grass seed mix to provide a green aspect for the duration of the quarry working.

2.5 Soils stripped from phase 2 will be stored in separate topsoil and subsoil bunds in the north-eastern corner of the phase 1 void.

2.6 Soils stripped from phases 3 and 4 will be stored on the quarry floor. Subsoil will be used to form the base of the soil bund with topsoil spread over the top to a depth of 40cm.

2.7 As work progresses across the quarry, waste materials will be mounded up against the quarry faces working toward the final restoration levels. At the end of each phase, low level restoration of the quarry to a delph profile and vegetation will be possible, with the stored soils used to cover the quarry floor before seeding and to create pockets of soil on benches for tree and shrub planting. However, as this is a small site of low visibility from the surrounding area, it is proposed to undertake the restoration at the end of all the quarry working, identifying rock faces to keep or to break up, placing and spreading wastes then soils, in a single operation.

3 Restoration details

3.1 Landform

As quarrying is completed rock faces will be left, particularly on the east and north sides of the quarry. An assessment will be made of the most valuable faces in terms of visual attraction; breaks, faults and benches for the establishment of vegetation; and safety. A decision will be made on which faces to retain and which to break up or

cover up for safety, ecological or visual reasons. Quarry wastes will be piled up against the lower slopes of the rock faces and across the quarry floor. Wastes of larger grading and from the cutting of the rock faces above will be selected to form scree slopes whilst the more finely graded material will be used on the quarry floor. Where feasible, benches will be created in the wastes to provide level areas for the placing of soils to establish pockets of trees and shrubs. The quarry floor will slope generally towards the north-east but will be graded roughly to create a series of humps and hollows to trap water and establish varied microhabitats. It is anticipated that water will drain naturally from the quarry through the fissured, blocky sandstone.

3.2 Soil spreading

3.2.1 Subsoils will be spread to 400mm depth over the quarry floor and slopes of less than 1 in 3, and on the larger benches within the rock face or those created within the scree slopes. On areas accessible to machinery the subsoil will be ripped using a winged tine subsoiler to 300mm depth at 500mm centres. Large stone (above 150mm in size) arising shall be collected and placed in piles at the edges of the quarry bottom.

3.2.2 Topsoils shall be spread to 200mm depth over the subsoil then ripped to 300mm depth. Stones arising above 100mm in size will be collected and placed in piles at the edges of the quarry bottom.

3.2.3 On benches inaccessible to machinery soils shall be placed and cultivated by hand.

3.3 Grass establishment

3.3.1 To provide interim vegetation of the site before the natural regeneration of trees and shrubs becomes effective, grass will be established on the quarry floor and the lower or more gentle slopes. Slopes steeper than 1 in 3 (the scree slopes) will be left to naturally regenerate entirely. The establishment of a grass sward will provide a quick 'greening' effect and introduce desirable wildflower and heath species whilst suppressing the opportunities for noxious and undesirable species (thistle, ragwort, Japanese knotweed), to become established. For three years the seeded area will be managed as a wildflower meadow but thereafter left largely unmown to allow naturally regenerating trees and shrubs to develop.

3.3.2 As the site is classified as mesotrophic (neutral) grassland , MG5 grassland within the National Vegetation Classification, this will be used as a basis for the seed mix. However on the slopes of the escarpment below the quarry, heather (calluna vulgaris) is becoming established forming a grass-heath community. Heather is also common locally on the railway cutting rock faces at Hornthwaite Bridge. By including a small proportion of heather seeds within the grass seed mix these heath species will become established on suitable pockets of soil or quarry waste materials. To ensure

local provenance a seed mix sourced from Pye Flatts SSSI comprising grasses and wildflowers mixed with heathland stock will be used in the following proportions.

95% Pye Flatts seed mix

2.5% Calluna vulgaris - heather

2.5% Erica cinerea – bell heather

3.3.3 Final cultivation and seeding will take place in the first September following the cessation of quarrying. The restored soil will be cultivated to form a firm, fine seedbed then the seed mix will be sown at 3-5gms per m^2.

3.3.4 To ensure thorough establishment, throughout the first summer's growth once the grass sward has reached 75-100mm in height it will be cut to 50mm height. Cutting will be raked up and removed from site or left in piles at the edge of the quarry floor to provide a invertebrate habitats.

For the following 2 years the grass will be mown in September only, after all flowers have set seed. Resultant cuttings will be raked up and removed from site or left in grass heaps as above to prevent build up of fertility in the soil.

Thereafter the area of the annual September cut will be gradually reduced to allow for natural regeneration and growth of tree and shrub seedlings. Eventually the area will be umown except for maintaining an access into the area.

3.4 Trees and shrubs

3.4.1 To assist in natural regeneration, trees and shrubs will be planted in small groups on benches on the rock face and scree slopes and at the base of the scree slopes on the quarry floor. It is anticipated that seed and suckers from these planted trees will spread across the site gradually taking hold in nooks and crannies in the rocks and scree as well as across the quarry floor.

3.4.2 The following trees and shrub mix reflecting species present in the locality shall be used.

%age	SPECIES	Common name	Size in cm/form
	Trees		
2.5	Alnus glutinosa*	Alder	40-60/BR transplant
15	Betula pendula	Birch	40-60/BR transplant
15	Fagus sylvatica	Beech	40-60/BR transplant
5	Fraxinus excelsior	Ash	40-60/BR transplant
5	Salix caprea	Goat willow	60-80/BR
	Shrubs		
20	Crataegus monogyna	Hawthorn	40-60/BR transplant
15	Cytisus scoparia	Broom	60-80/BR
5	Calluna vulgaris	Heather	30-40/2L pot
7.5	Prunus spinosa	Blackthorn	40-60/BR
10	Rubus fruticosus	Bramble	40-60/BR

*Alder to be planted at low point on quarry floor only.

3.4.3 All will be pit planted into a 300 x 300 x 300mm pit, backfilled with soil excavated from the pit mixed with 50gms of slow release fertiliser. To protect against rabbits all trees will be planted with clear spiral rabbit guards, 60cm high x 38mm diam supported by a stout cane. All shrub species will be planted with 150mm diam netlon mesh shrub guards supported by 2 stout canes.

CF LANDSCAPE DESIGN Oakleigh, Healey Road, Ossett, West Yorkshire WF5 8LN. tel 01924 281164

HILLSIDE QUARRY RESTORATION

AFTERCARE PLAN

1.0 Aims

1.1 To encourage natural regeneration of trees, shrubs, herbaceous flora, mosses and lichens.

1.2 To develop a diversity of habitats

1.3 To ensure growth and survival of planted trees and shrubs

1.4 To ensure a non-competitive grass and wildflower grassland on the quarry floor in the initial 3 years.

1.5 To prevent the growth of undesirable species.

2.0 Timescale

2.1 A 10 year aftercare period is described, although there may be some management operations that will be carried out on an occasional basis in perpetuity. Anticipated aftercare operations for the first 10 years are outlined below, however at the start of each year an assessment will be made of the vegetation, both introduced and naturally regenerated, to decide on specific management operations for the following year. This will provide the opportunity to identify any natural regeneration, for example, developing wet grassland, dry heath areas, areas of tree or shrub sapling growth, and decide on whether and how these are to be encouraged and managed.

3.0 Summary of aftercare operations

3.1 Planted trees and shrubs

In the first 5 years planted trees and shrubs will be maintained by keeping an area weed free around the base of each plant, firming, maintaining rabbit guards, pruning shrub species and replacing failures. It is anticipated that the frequency of maintenance operations on the trees will decrease as the trees become established and a closed canopy prevents competitive weed growth. Plant failures will be replaced to achieve 100% of the original stocking rate in the first year after planting, with this reducing to 75% in the third year. Thereafter an annual decision will be taken on how many failures to replace based on the success of the young plants in achieving pockets of shrubby growth.

3.2 Grassland

The grass and wildflower seeding will be managed to create a wildflower sward across the quarry floor and the gentler slopes in the years before the natural regenerated trees and shrubs become established. In the first year the grass will be cut twice to encourage good root growth and a reasonably dense sward. For the following 2 years the grass will be mown in September only, once all the wildflowers

have set seed. Cuttings will be removed form site to prevent the build up of fertility and consequently more aggressive grass species. (This will be in the form of a hay crop taken from site, or cuttings raked up and left in grass piles at the base of the scree slopes to provide habitats for amphibians and invertebrates.) From the fourth and subsequent years the grass will receive an annual cut that will slowly reduce in area as more areas are left unmown to accommodate natural regeneration. Eventually only an access route into the quarry will be mown. Mowing will be used to retain and manage some areas of developing habitats. For example developing wet grassland may be mown once a year to prevent further succession into carr woodland, or areas of shrubby regeneration may be managed as scrub by mowing (or strimming) every 3-5 years.

3.3 Naturally regenerated vegetation

It is anticipated that the bare scree area, nooks and crannies within the rock face and eventually the valley bottom will be colonised naturally by trees, shrubs, mosses and lichens. To a large extent this will be allowed to happen without management, to achieve the objective delph vegetation. However there may be some desirable management operations to guide the process, and to encourage a variety of habitats to develop, on the way to the climax vegetation. The necessity for the following operations will be assessed on an annual basis.

- Pegging out areas of sapling growth to be retained, to prevent mowing.
- Strimming of selected areas of tree and shrub growth on a 3-5year basis to maintain as scrub habitat.
- Strimming of tall grass areas on a bi-ennial basis to maintain a tall grass (ruderal) habitat.
- Thinning of pioneer species, birch, goat willow, to encourage the development of climax species, beech.
- Strimming of selected areas of wet grassland on an annual or bi-annual basis to retain a wet grassland habitat preventing tree growth and the development of wet woodland.
- Coppicing of selected areas of woodland on a 7-10 year cycle to develop open areas and glades for renewed colonisation by herbaceous plants, shrubs and trees.

3.4 Control of undesirable species

Noxious weeds (identified under the Weeds Act 1959) will be controlled by means of spot treatment using a translocated herbicide timed to have greatest effect on the particular species.

Rabbits will be prevented from damaging planted trees by the use of spiral rabbit guards. If rabbit populations prove problematic, some areas of naturally recolonising plants may be fenced temporarily until established to prevent rabbit grazing.

4.0 Aftercare Programme

VEGETATION TYPE	PRESCRIPTION
YEAR ONE	
Planted trees and shrubs	Apply herbicide 3x per year to maintain an area 600mm in diam weed free at base of plants. Firm after winter frosts and wind. Maintain in upright position. Replace all failures
Grass and wildflower sward	Spot treat noxious weeds Mow at the end of June and early September. Remove cuttings from site or rake up into grass piles at base of scree slopes.
YEAR TWO	
Planted trees and shrubs	Apply herbicide 3x per year to maintain an area 600mm in diam weed free at base of plants. Firm after winter frosts and wind. Maintain in upright position. Replace failures to achieve 85% of original stock
Grass and wildflower sward	Spot treat noxious weeds. Mow in early September. Remove cuttings from site or rake up into grass piles at base of scree slopes.
YEAR THREE	
Planted trees and shrubs	Apply herbicide 3x per year to maintain an area 600mm in diam weed free at base of plants. Firm after winter frosts and wind. Maintain in upright position. Replace failures to achieve 75% of original stock Prune shrubby species.
Grass and wildflower sward	Spot treat noxious weeds. Mow in early September. Remove cuttings from site or rake up into grass piles at base of scree slopes.
YEAR FOUR	
Planted trees and shrubs	Apply herbicide 3x per year to maintain an area 600mm in diam weed free at base of plants. Firm after winter frosts and wind. Maintain in upright position. Replace failures to achieve 75% of original stock
Grass and wildflower sward	Spot treat noxious weeds. Mow in early September. Remove cuttings from site or rake up into grass piles at base of scree slopes.
Areas of natural regeneration	Peg out areas of seedlingsand/or distinctive ground flora to prevent mowing. Rabbit fence areas of re-colonisation if rabbits are grazing heavily.

YEAR FIVE	
Planted trees and shrubs	Apply herbicide 3x per year to maintain an area 600mm in diam weed free at base of plants. Firm after winter frosts and wind. Maintain in upright position. Remove rabbit guards from established plants.
Grass and wildflower sward	Spot treat noxious weeds. Mow in early September, excluding area of natural colonisation pegged out. Remove cuttings from site or rake up into grass piles at base of scree slopes.
Areas of natural regeneration	Peg out areas of seedlings, or distinctive ground flora to prevent mowing. Amend line of rabbit fence around areas of re-colonisation if necessary.
YEAR SIX	
Planted trees and shrubs	For plants replaced in years 2-5 only: Apply herbicide 3x per year to maintain an area 600mm in diam weed free at base of plants Firm after winter frosts and wind. Maintain in upright position. Remove rabbit guards from established plants.
Grass and wildflower sward	Spot treat noxious weeds. Mow in early September, access track into quarry only Remove cuttings from site or rake up into grass piles at base of scree slopes.
Areas of natural regeneration	Amend line of rabbit fence around areas of re-colonisation if necessary.
YEAR SEVEN	
Planted trees and shrubs	For plants replaced in years 3-5 only: Apply herbicide 3x per year to maintain an area 600mm in diam weed free at base of plants Firm after winter frosts and wind. Maintain in upright position. Remove rabbit guards from established plants.
Grass and wildflower sward	Mow access track into quarry in early September.
Areas of natural regeneration	Amend line of rabbit fence around areas of re-colonisation if necessary.
YEAR EIGHT	
Planted trees and shrubs	For plants replaced in years 4-5 only: Apply herbicide 3x per year to maintain an area 600mm in diam weed free at base of plants Firm after winter frosts and wind. Maintain in upright position. Remove rabbit guards from established plants.
Grass and wildflower sward	Mow access track into quarry in early September.
Areas of natural regeneration	As necessary, following annual assessment: Amend line of rabbit fence around areas of re-colonisation Thin areas of pioneer seedlings. Strim selected areas of wet grassland or heathland in September, to stall tree growth and thereafter bi-ennually.

YEAR NINE	
Planted trees and shrubs	For plants replaced in years 5 only: Apply herbicide 3x per year to maintain an area 600mm in diam weed free at base of plants Firm after winter frosts and wind. Maintain in upright position. Remove rabbit guards from established plants.
Grass and wildflower sward	Mow access track into quarry in early September.
Areas of natural regeneration	As necessary following annual assessment: Amend line of rabbit fence around areas of re-colonisation Thin areas of pioneer seedlings in favour of climax species. Strim selected areas of trees and shrubs to maintain a scrub habitat. (and thereafter on a 3-5 year basis) Strim selected tall grass areas (and thereafter on a bi-ennial basis)
YEAR TEN	
Grass and wildflower sward	Mow access track into quarry in early September.
Areas of natural regeneration	As necessary following annual assessment: Amend or remove rabbit fencing Strim selected areas of wet grassland or heathland in September, to stall tree growth and thereafter bi-ennually. Coppice area of woodland to provide open glade areas, (and thereafter on a 7-10 year basis)

Covered Reservoir

Mast

Farm

BM
269.8m

HILL LANE

Section B

Section C

Section A

Hill Side

Access Track

T2

ROCK FACES

IRREGULAR QUARRY FLOOR, SLOPING GENERALLY TO NORTH-EASTERN CORNER.

SCREE SLOPES

Bridleway

Well

Section A

Section B

Section C

ROCK FACES

Track

TREE AND SHRUB PLANTING ON BENCHES AND AT BASE OF SCREE SLOPES.

REFERENCE

Tree and shrub planting. Pit planted into soils on benches and at base of slopes.

Grass-wildflower seed mix. Sown on to level areas and slopes of 1 in 3 or less.

Proposed contours. Note: positon of rock faces, benches and scree slopes indicative only, actual position and sizes dependant on final rock cuts and detailed geology.

NOTE:
FOR SECTIONS SEE DWG NOS GRD/HQ/172/2 AND 3

cf landscape design

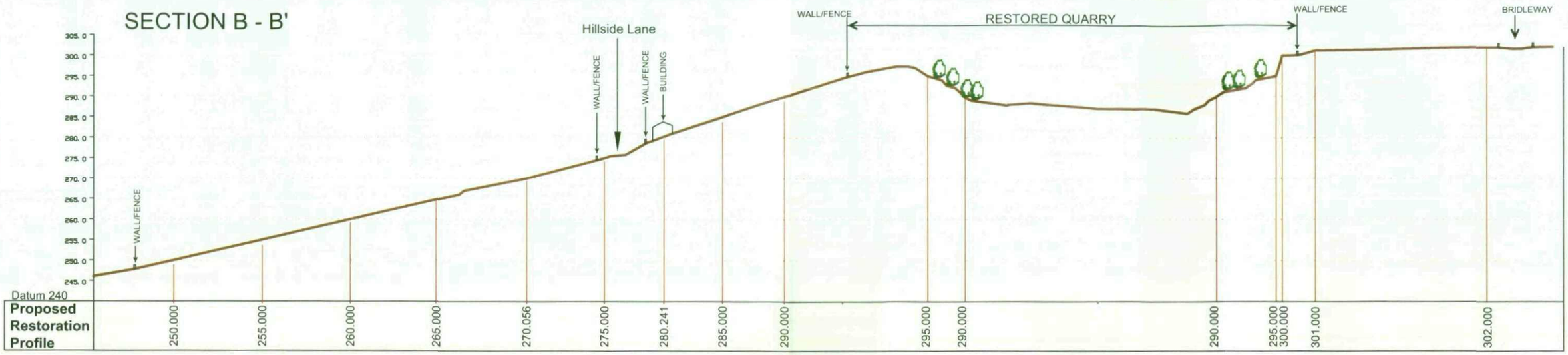
Oakleigh, Healey Road, Ossett, West Yorkshire WF5 8LN
Tel 01924 281164. Mob 07966 515360. e-mail catriona@landarch.demon.co.uk

project
PROPOSED QUARRY AT HILLSIDE, THURLSTONE

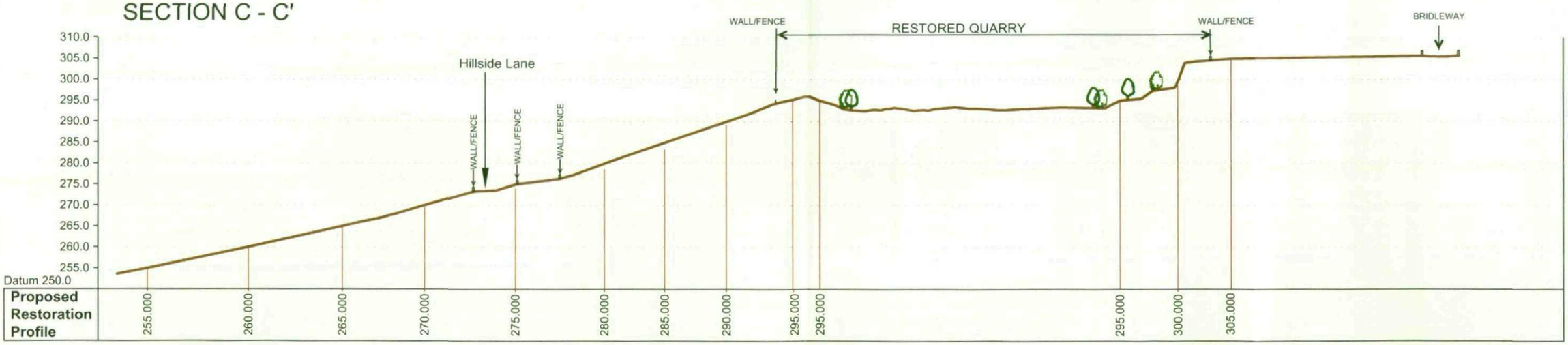
drawing title
RESTORATION PROPOSALS

scale	date	drawing no
1:1000	MARCH 06	GRD/HQ/172/1

SECTION B - B'



SECTION C - C'



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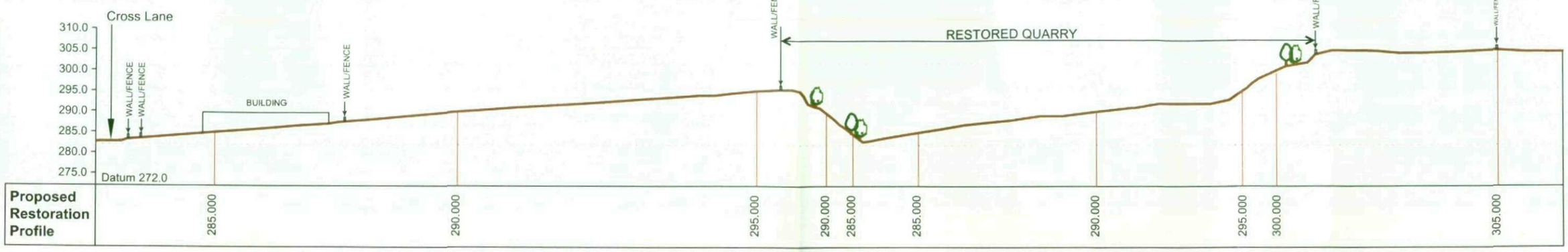
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PROPOSED QUARRY AT HILLSIDE, THURLSTONE

drawing title
CROSS-SECTIONS BB AND CC THROUGH RESTORATION PROFILE

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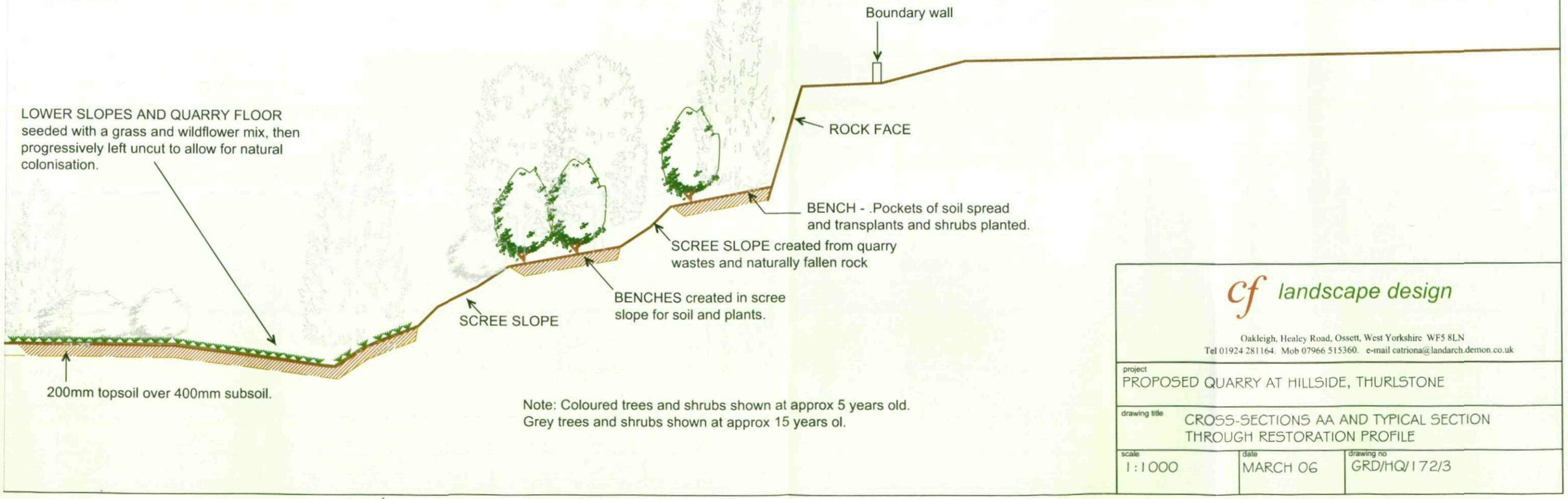
SECTION A - A'

Scale 1:1000



TYPICAL SECTION THROUGH QUARRY SIDES

Scale 1:200



Note: Coloured trees and shrubs shown at approx 5 years old.
Grey trees and shrubs shown at approx 15 years ol.

Cf landscape design

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project: PROPOSED QUARRY AT HILLSIDE, THURLSTONE		
drawing title: CROSS-SECTIONS AA AND TYPICAL SECTION THROUGH RESTORATION PROFILE		
scale: 1:1000	date: MARCH 06	drawing no: GRD/HQ/172/3

APPENDIX F

PHOTO DOCUMENT

HILLSIDE QUARRY – THURLSTONE
Photo document to accompany planning application



Photo 1 – Showing entrance into the site



Photo 2 – Showing hard surfaced area and rumble grid wheel cleaner



Photo 3 – Showing vehicle route for all goods vehicles at site access



Photo 4 – Shows dry stone wall at site entrance



Photo 5 – Wall at site entrance built from stone from the quarry



Photo 6 – Road sweeper employed at site



Photo 7 – Demonstration objects produced at the quarry



Photo 8 – Parallel punched face walling stone



Photo 9 – Flagstone



Photo 10 - Flagstones

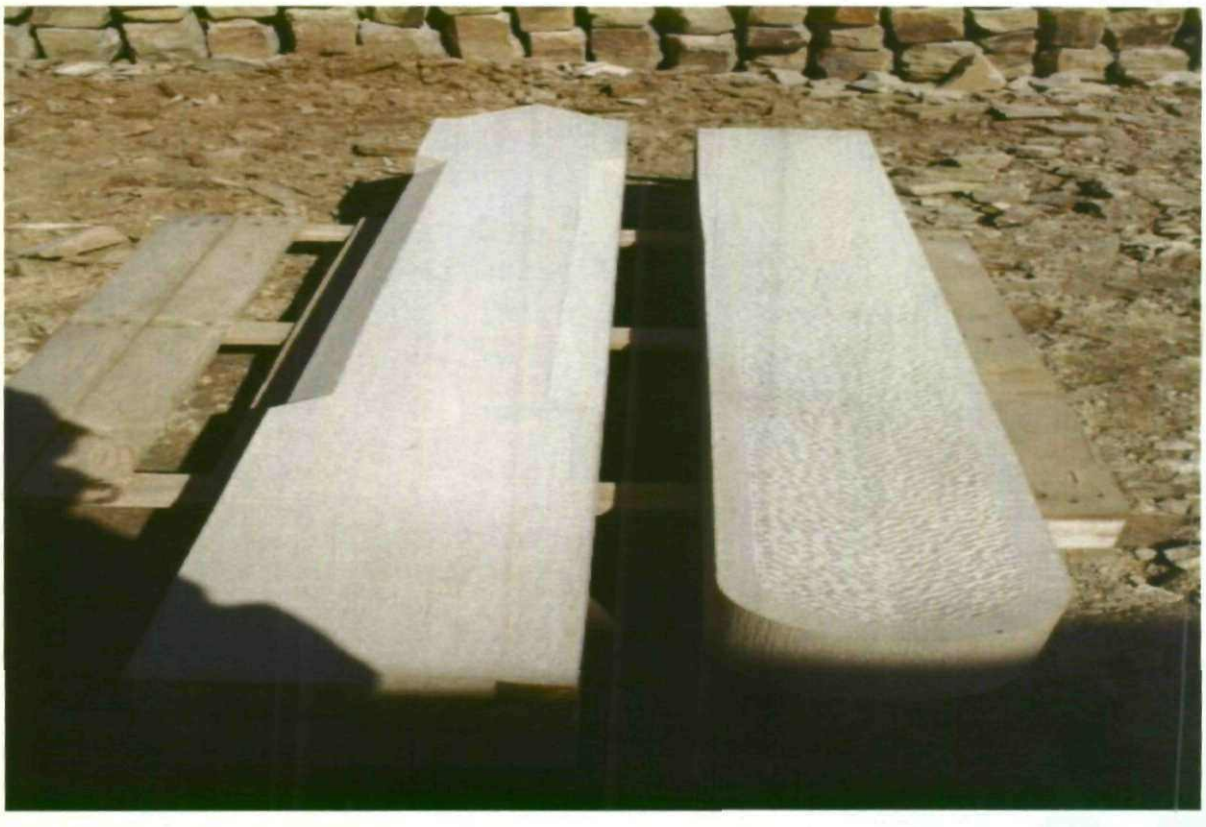


Photo 11 – Gateposts

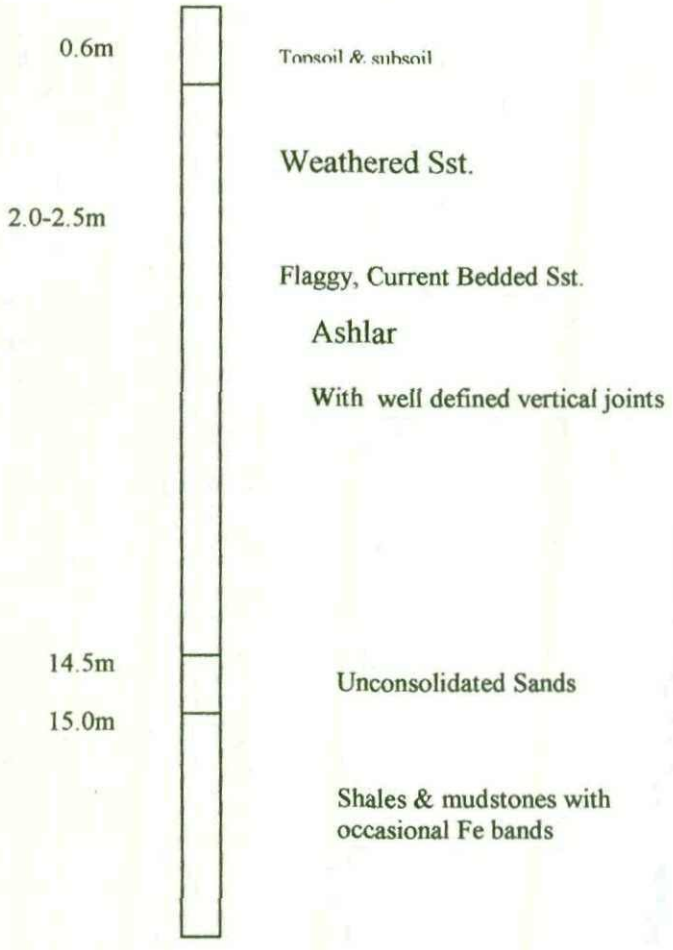


Photo 12 – Walling and Coping stones

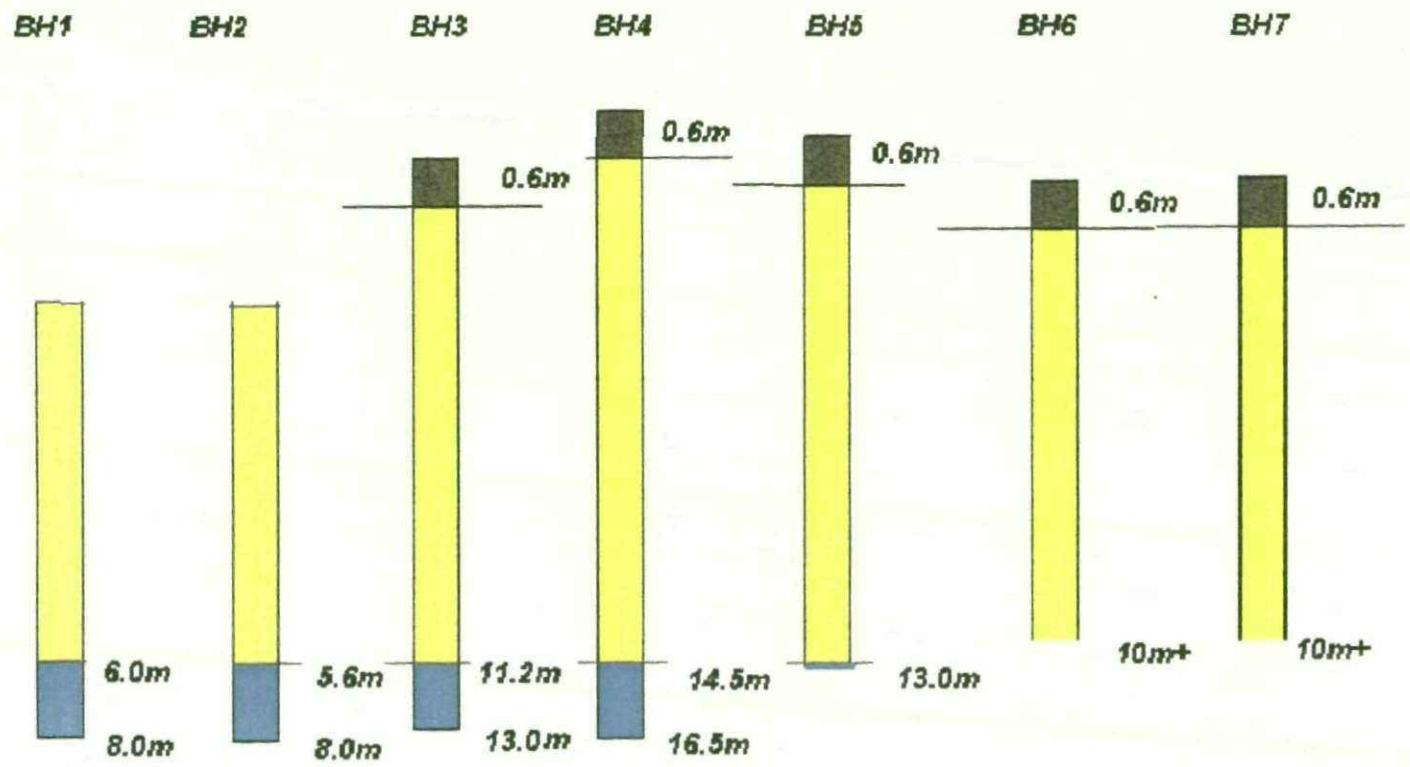
APPENDIX G

BOREHOLE SECTIONS

2.4.



Representative section of bore holes



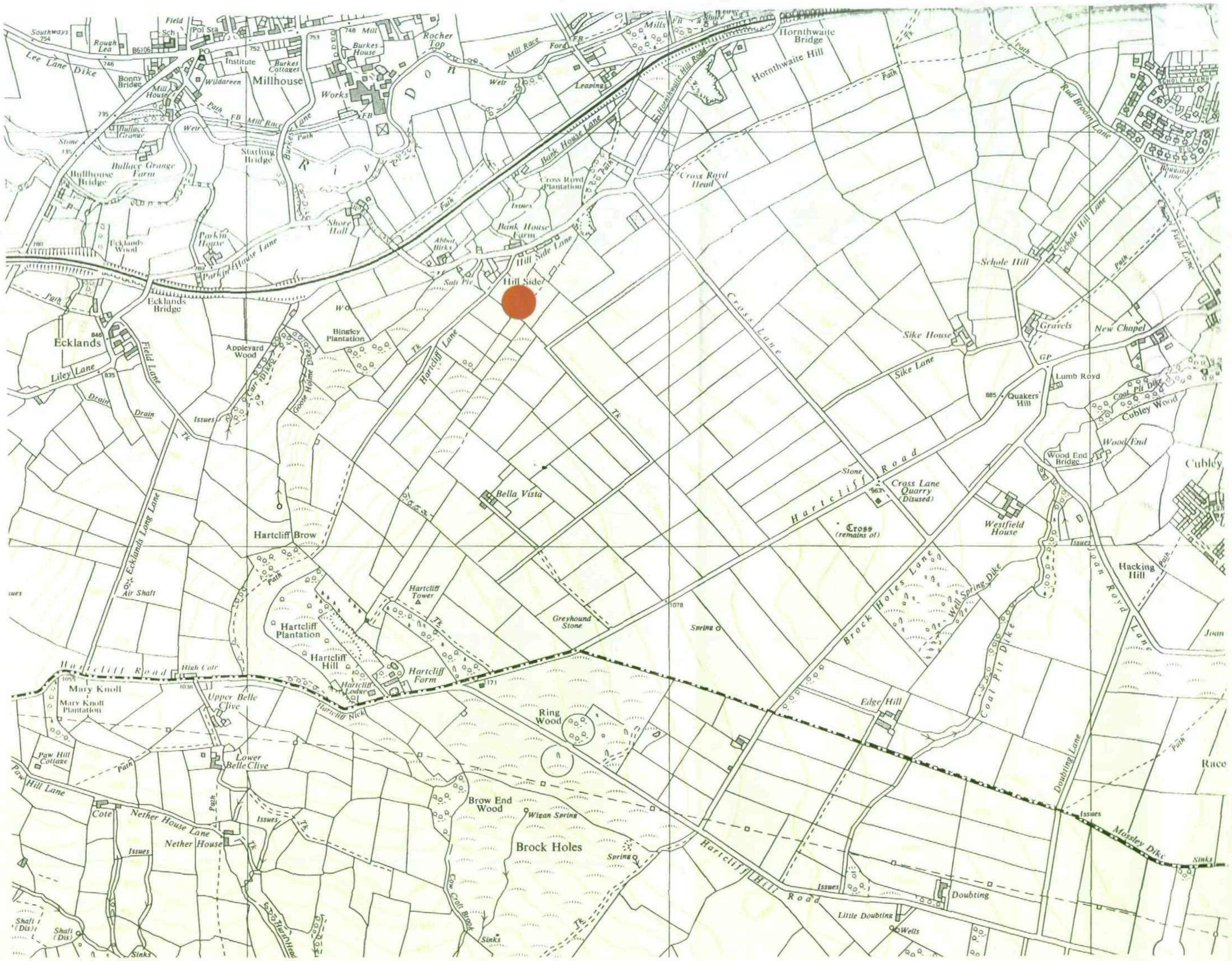
RESULTS OF BOREHOLES
DRILLTECH (NORTHERN)
11-02-02

APPENDIX H

PLANS

GRD/HQ/LOC-01 – LOCATION PLAN 1:10000
GRD/HQ/LOC-02 – PLANNING & OWNERSHIP PLAN
GRD/HQ/GEO-03 – GEOLOGICAL PLAN
GRD/HQ/TRA-04 – TRAFFIC PLAN

GRD/HQ/0709-01 – EXISTING SITE LAYOUT
GRD/HQ/0709-02 – PHASE 1 EXTRACTION
GRD/HQ/0709-03 - PHASE 2 EXTRACTION
GRD/HQ/0709-04 - PHASE 3 EXTRACTION
GRD/HQ/0709-05 - PHASE 4 EXTRACTION



REVISIONS

	Date	Description	By

Legend:



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Client

Grenoside Rock Developments

Job Title

HILLSIDE QUARRY

Project Title

Planning Application

Scale	Date	Drawn by	Checked
1:10560	Sept 09	SW	

Dwg. title

Location Plan

DWG No.	Job no	Rev
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PLOT SIZE: A3. PLOT SCALE: 1:TYPE SCALE HERE



REVISIONS

	Date	Description	By

Legend:

- Planning Permissions Area
- Land Under Control of Applicant
- Top of Bank
- Top of Quarry face
- Bottom of Bank
- Road
- Track
- Verge
- Fence Type 1
- Fence Type 2
- Fence Type 3
- Gate
- Boundary/Hedge/Ditch/Pond
- Overhead Electricity Cable
- Building
- 1m Contour Interval
- Ordnance Survey Backcloth
- BM Bore/Initial/Test Pit
- OSB Ordnance Survey Bench Mark
- Summer Cricket Station
- Electricity Pylon
- TP Telegraph Pole
- LP Lamp post
- MH Man Hole
- ST Stop Tap (Gas/Water/Telecoms)
- WL Water Level
- Tree (broadleaved)

N

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Job Title
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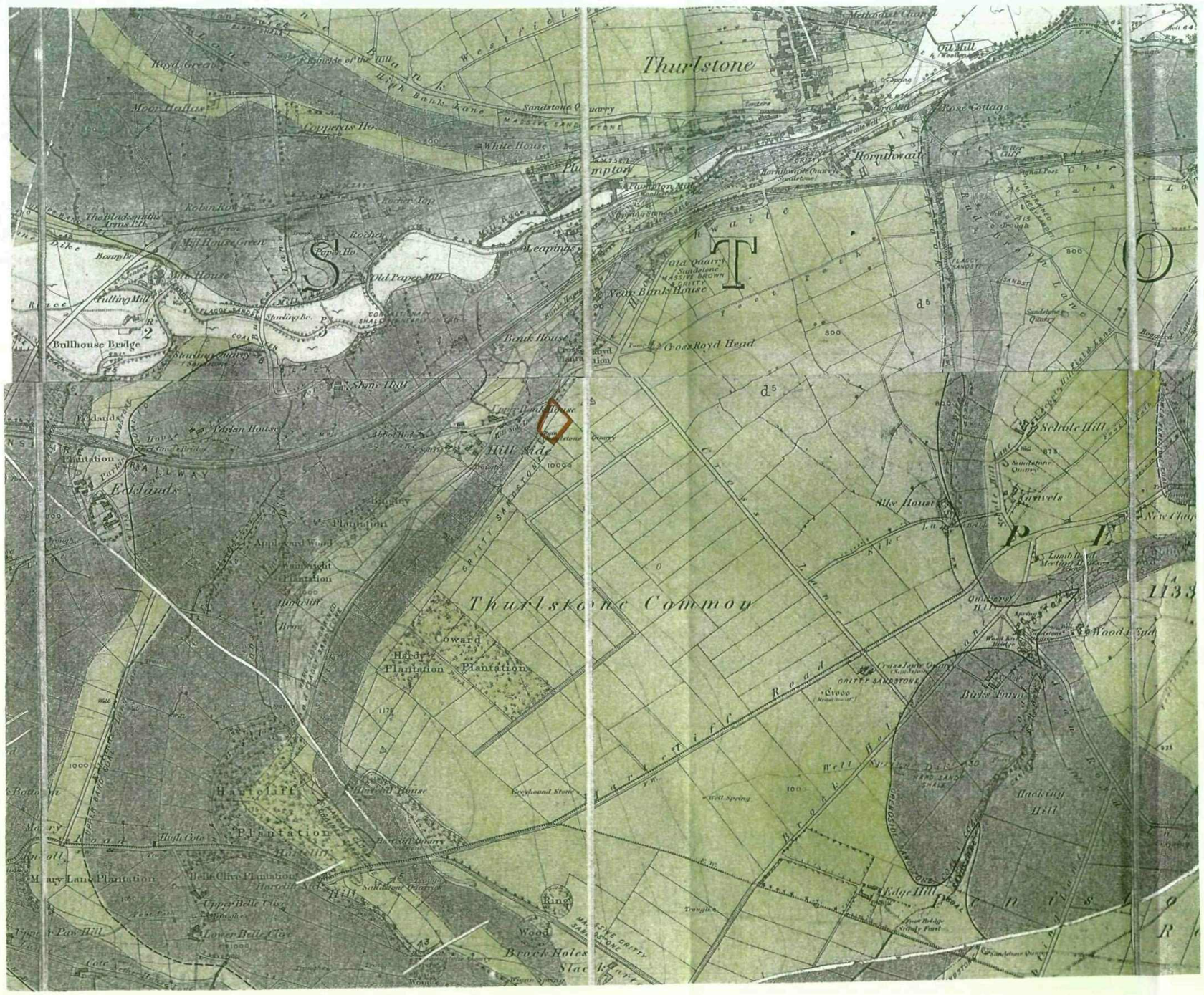
Project Title
Planning Application

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Ownership and Planning Area

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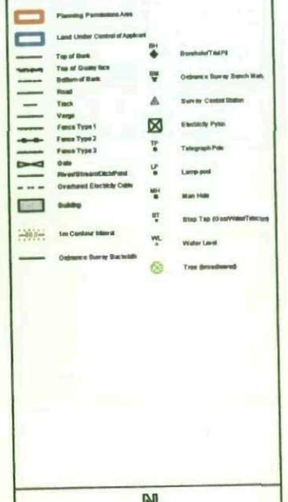
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Grenoside Rock Developments

Job Title
HILLSIDE QUARRY

Project Title
Planning Application

Scale	Date	Drawn by	Checked
1:10560	Sept 09	SW	

Dwg. title
Geology Plan

DWG No.	Job. no.	Rev
GRD/HQ/GEO-3	00	00

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Date	Description	By

Legend:

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Client
Grenoside Rock Developments

Job Title
HILLSIDE QUARRY

Project Title
Planning Application

Scale	Date	Drawn by	Checked
1:50000	Sept 09	SW	

Dwg. title
Traffic Plan

DWG No.	Job no.	Rev.
GRD/HQ/TRA-4	00	00

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REVISIONS

Date	Description	By

Legend

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- Land Under Control of Applicant
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- Top of Quarry face
- Bottom of Bank
- Road
- Track
- Verge
- Fence Type 1
- Fence Type 2
- Fence Type 3
- Gate
- River/Stream/Ditch/Pond
- Overhead Electricity Cable
- Building
- 1m Contour Interval
- Ordnance Survey Backcloth
- BH Borehole/Trial Pit
- BM Ordnance Survey Bench Mark
- Survey Control Station
- Electricity Pylon
- TP Telegraph Pole
- LP Lamp post
- MH Main Hole
- ST Stop Tap (Gas/Water/Electric)
- WL Water Level
- Tree (broadleaved)

N

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Client
Grenoside Rock Developments

Job Title
HILLSIDE QUARRY

Project Title
Planning Application

Scale	Date	Drawn by	Checked
1:1250	July 09	SW	

Dwg title
Site Layout 8th July 2009

DWG No.	Job. No.	Rev.
GRD/HQ/0709	01	00

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REVISIONS

	Date	Description	By
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Legend

- Planning Permissions Area
- Land Under Control of Applicant
- Top of Bank
- Top of Quarry face
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- Road
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- Verge
- Fence Type 1
- Fence Type 2
- Fence Type 3
- Gate
- River/Stream/Ditch/Pond
- Overhead Electricity Cable
- Building
- 1m Contour Interval
- Ordnance Survey Backcloth
- Borehole/Test Pit
- Ordnance Survey Bench Mark
- Survey Control Station
- Electricity Pylon
- Telegraph Pole
- Lamp-post
- Main Hole
- Stop Tap (Gas/Water/Electric)
- Water Level
- Tree (broad/decid)

N

FGB Fennell, Green & Bates

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Wakefield
West Yorkshire
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Client: ***Grenoside Rock Developments***

Job Title: HILLSIDE QUARRY

Project Title: Planning Application

Scale	Date	Drawn By	Checked
1:1250	July 09	SW	

Dwg. title: Phase 1 Extraction

DWG No.	Job. no.	Rev.
GRD/HQ/0709	02	00

PLOT SIZE: A3. PLOT SCALE: 1: TYPE SCALE HERE



REVISIONS

Date	Description	By

Legend

N

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Client
Grenoside Rock Developments

Job Title
HILLSIDE QUARRY

Project Title
Planning Application

Scale	Date	Drawn by	Checked
1:1250	July 09	SW	

Dwg. title
Phase 2 Extraction

DWG No.	Job. No.	Rev.
GRD/HQ/0709	03	00

PLOT SIZE: A3. PLOT SCALE: 1: TYPE SCALE HERE

Spoil Heap from Phases 1, 2 & 3
Fill volume : 27,500m³

Amenity and Mineral
Processing Area : 849m²

Phase 4 Material to be Extracted
as Spoil Heap is being removed and
backfilled against quarry faces.

BASE

BASE OF BLOCKSTONE

HAUL ROAD 1:10 SLOPE 6m WIDTH

281.44
282.86
283.03
284.16
283.5
282.26
285.47
284.89
284.02
286.61
286.70
285.59
288.39
294.06
295.12
294.28
295.68
296.87
296.62
295.51
293.15
295.90
291.92
296.10
293.79
294.05
296.21
295.46
285.67
301.67
293.66
295.48
287.96
300.49
293.11
290.26
301.00
304.93
305.03
305.91
306.82
310.08
307.59
311.33
312.16

REVISIONS

	Date	Description	By
A			
B			
C			
D			
E			

Legend

- Planning Permission Area
- Land Under Control of Applicant
- Top of Bank
- Top of Quarry face
- Bottom of Bank
- Road
- Track
- Verge
- Fence Type 1
- Fence Type 2
- Fence Type 3
- Gate
- River/Stream/Ditch/Pond
- Overhead Electricity Cable
- Building
- 1m Contour Interval
- Ordnance Survey Bankstab
- Borehole/Test Pit
- Ordnance Survey Bench Mark
- Survey Control Station
- Electricity Pylon
- Telegraph Pole
- Lamp-post
- Man Hole
- Stop Tap (Gas/Water/Electric)
- Water Level
- Tree (Broadleaved)

N

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Client
Grenoside Rock Developments

Job Title
HILLSIDE QUARRY

Project Title
Planning Application

Scale	Date	Drawn by	Checked
1:1250	July 09	SW	

Dwg. title
Phase 3 Extraction

DWG No.	Job. No.	Rev.
GRD/HQ/0709	04	00

PLOT SIZE: A3. PLOT SCALE: 1: TYPE SCALE HERE



REVISIONS

	Date	Description	By

Legend

- Planning Permission Area
- Land Under Control of Applicant
- Top of Bank
- Top of Quarry face
- Bottom of Bank
- Road
- Track
- Verge
- Fence Type 1
- Fence Type 2
- Fence Type 3
- Gate
- River/Stream/Ditch/Pond
- Overhead Electricity Cable
- Building
- 1m Contour Interval
- Ordnance Survey Backdrop
- Bm — Borehole/Trial Pit
- BM — Ordnance Survey Bench Mark
- Survey Control Station
- Electricity Pylon
- TP — Telegraph Pole
- LP — Lamp post
- MH — Man Hole
- ST — Stop Tap (Gas/Water/Electric)
- WL — Water Level
- Tree (broadleaved)

N

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Client: ***Grenoside Rock Developments***

Job Title: HILLSIDE QUARRY

Project Title: Planning Application

Scale	Date	Drawn by	Checked
1:1250	July 09	SW	

Dwg. title: Phase 4 Extraction and Low Level Restoration using onsite materials

DWG No.	Job. no.	Rev.
GRD/HQ/0709	05	00

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