

Hanson Aggregates Extension to Craig Yr Hesg Quarry, Pontypridd

Rhondda Cynon Taf Local Development Plan Candidate Site No. 411

Briefing Note

August 2008

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1.0 INTRODUCTION

- 1.1 Representations have been submitted by Hanson Aggregates in response to the emerging Rhondda Cynon Taf (RCT) Local Development Plan (LDP) in support of a potential extension to Craig Yr Hesg Quarry near Pontypridd. The potential extension area has been duly registered as a 'Candidate Site', which will be assessed as part of the LDP process, and will be considered as a potential allocation for future quarrying as part of the final version of the Development Plan. A plan illustrating the 'Candidate Site' is produced as Appendix 1.
- 1.2 In support of the 'Candidate Site' Hanson has provided additional information in the form of:
 - (i) A landscape and visual appraisal of the potential extension area (ref White Young Green, (May 2006 letter dated 6/9/06);
 - (ii) A geological prospecting report (ref Hanson Aggregates 3 October 2006; and
 - (iii) A blast vibration report (ref Vibrock 2004 letter dated 27 march 2008)
- In subsequent discussions, Officers of RCT have indicated that it would be helpful if Hanson could produce a 'Briefing Note', which draws upon national planning policy relating to supplies of high PSV aggregate, the importance of ensuring continuity of supply of such material, and other factors relevant to the Authority's consideration of the merits of the Candidate Site.
- 1.4 This report has been prepared to fulfil that request. It is further hoped that the report will be of assistance to the content of the 'Minerals Topic Paper' which it is understood will be prepared as part of the Local Development Plan documents which are scheduled to be published in draft in the Autumn of 2008.

2.0 PLANNING CONTEXT

2.1 Craig yr Hesg Quarry

2.1.1 The most recent planning permission for quarrying at Craig Yr Hesg was granted by the former Mid-Glamorgan County Council in August 1993, and involved an extension to the Quarry in a south / south-westerly direction. The development has proceeded in accordance with the anticipated development programme, but within certain operational constraints associated with limited space on the floor of the quarry. The planning permission imposes an end-date of December 2022 on the planning permission but, for reasons explained below, readily accessible reserves within the approved Quarry area will not be sufficient to allow production to continue to 2022.

Craig Yr Hesg Quarry

- 2.1.2 The Quarry is producing aggregate from a deposit of Pennant Sandstone, which has properties of skid resistance and abrasion which make it particularly suitable for road surfacing in situations where a high degree of skid resistance is needed to minimise the risk of skidding related accidents. These properties are measured as a 'polished stone value' (PSV), where aggregate with a PSV of over 60 is regarded as a high skid resistant aggregate. Aggregate with a PSV of over 65 is needed for particularly highly stressed sites such as certain sections of motorways, interchanges, airport runways etc.
- 2.1.3 Sandstone from Craig Yr Hesg quarry has a PSV of +68 to 70, making it one of the highest quality sources of skid resistant surfacing aggregates not only in South Wales, but the UK. There are no other quarries producing high PSV sandstone in RCT.
- 2.2 High Specification Aggregates: ODPM/Capita Symonds Study November 2004
- 2.2.1 In 1993, Travers Morgan Limited (now part of Capita Symonds Limited) published a report for the former DoE on the supply of, and demand for, High Specification Aggregates (HSA) for use in road surfacing materials throughout the UK. The Study was updated in 2004 which, inter alia, considered the available sources of HSA; their location in relation to key markets; the recent and likely future demand for HSA; and the sustainability issues associated with transportation of the aggregate.
- 2.2.2 The 2004 report noted that:
 - "High specification aggregates used for the construction of skid resistant road surfaces are relatively rare and highly specialised aggregates which can be obtained only in limited areas. They are of fundamental importance in underpinning both national and local policies on skid resistance and this, combined with their scarcity, mean that they are often transported long distances for use in areas which do not have indigenous sources of suitable material as is the case of much of Southern and Eastern England" (reference The Sustainable Use of High Specification Aggregates for Skid Resistant Road Surfacing in England': ODPM/Mineral Industry Research Organisation)
- 2.2.3 The Study reviewed specification requirements, and noted that the trend has been to increase the use of high PSV aggregate, particularly as a reflection of a growing fear of litigation in situations where accident investigations reveal inadequate skidding resistance. In terms of the quantities used, the Study noted that in the period 1992 2002, there had been a 130% increase in the demand for PSV +58 HSA in England, rising from 2.63 million tonnes in 1992 to 6.126 million tonnes in 2002. The quantity supplied by quarries in England was 3.795 million tonnes, with 2.331 million tonnes supplied to England from other parts of the UK (including Wales). The imports from the rest of the UK to England increased from 0.915 million tonnes in 1992 to 2.331 m tonnes in 2002, representing an increase of more than 150%.

- 2.2.4 In terms of sources of supply, the Study identified 59 active quarries able to supply HSA, of which 23 sites lie in England, 13 in Wales, 9 in Scotland, and 14 in Northern Ireland. Extracts from the Capita Symonds report are produced as Appendix 2 to this Briefing Note, comprising a map (Figure 7.1) illustrating the location of the HSA quarries, and a table (Table 7.2) listing the sources of HSA in Wales. It will be noted that Craig yr Hesg Quarry is included in the Table as containing a typical PSV of 70, placing the Quarry in the top 5 in terms of PSV rating.
- 2.2.5 The locations of the quarries illustrated on Figure 7.1 highlights the fact that the quarries in South East Wales, including Craig yr Hesg, are the closest sources of high PSV aggregate to central Southern England, making them of strategic national importance in the supply of HSA.
- 2.2.6 The key recommendations of the Capita Symonds report were that:
 - (i) New reserves of HSA need to be permitted as a high priority if the future supply of HSA is to be maintained in accordance with anticipated demand.
 - (ii) HSA should be seen as a national, strategic resource, and "any parochial restriction on the future availability of such resources could have series consequences in terms of road safety and skidding-related accidents".
 - (iii) To facilitate the availability of supplies, MPAs should differentiate between resources of HSA and those for other, more general applications, with separate landbanks being maintained for each.

2.3 Minerals Planning Policy Wales (MPPW) December 2004

2.3.1 The importance of high PSV aggregate is highlighted in MPPW which notes that:

"Aggregates suitable for road surfacing construction and maintenance, where high specification aggregates are required for skid resistance, are of importance to the UK. The fundamental characteristics of these materials, which distinguish them form more general purpose aggregates, are their ability to meet the stringent specification required for road construction and repair. Research has been undertaken to identify sources of material that would be suitable for road surfacing, and significant resources occur in Wales. Although new road building has declined, Authorities should identify potential high specification aggregate resources and consider whether there is a need to protect these resources from sterilisation in UDP policies. The importance to the UK of these minerals should be taken into account when planning applications are being considered together with other policies in this quidance." (para 69)

2.3.2 MPPW also draws upon the above initial study undertaken by Travers Morgan on behalf of the DoE (1993) (referred to above), which recommended that:

"In view of the strategic importance of High Specification Aggregates in the maintenance of safety standards on Britain's most heavily traffic road, it is recommended that the materials are given special consideration in future minerals planning policies."

- 2.4 Minerals Technical Advice Note (Wales) 1: Aggregates (March 2004) (MTAN1)
- 2.4.1 MTAN1 notes that Wales generally has a plentiful supply of aggregate from rock resources, but that at a more detailed level it is:
 - "a fundamental objective to conserve natural resources for their intrinsic qualities particularly those in relatively short supply. These include resources suitable for use as road surfacing materials with high skid resistance." (ref para 31)
- 2.4.2 MTAN1 continues by noting that the conventional principle of seeking to minimise road transport of aggregate does not apply in all cases in that:

"certain aggregates have limited availability geologically, such as high quality aggregates for road construction that have the ability to provide particular levels of surface skidding resistance and durability. These are relatively plentiful in Wales but unavailable in some parts of the UK. The Pennant Sandstone outcrop in South Wales has been identified as one of the main prospects for development and the UK importance of the resource should be recognised by relevant planning authorities. Such material is a special case that may well justify transportation over long distances because of the national need for the provision of the specific type of material with limited availability." (para 42)

2.5 Regional Technical Statement

- 2.5.1 MTAN1 also makes reference to a Regional Technical Statement (RTS) which it encourages the South Wales Regional Aggregates Working Party (RAWP) (and North Wales RAWP) to prepare as means of ensuring that an adequate supply of primary aggregates can be maintained. The RTS is intended to provide a guide to decisions on future supply which are to be taken via the Local Development Plans produced by the respective unitary authorities. RCT is represented as a member of the South Wales RAWP, and a draft RTS was issued for consultation by the South Wales RAWP in November 2007.
- 2.5.2 The summary leaflet accompanying the RTS consultation document sets out similar principles in relation to high quality aggregate, noting that some compromise needs to be made in terms of the "proximity principle" i.e. exploiting resources that are close to where they are going to be used, in that:

"some aggregates have special qualities, such as high quality sandstone which is resistant to polishing from traffic, which are only found in limited locations far removed from established markets in South East England. Consequently, some long distance haulage is inevitable".

- 2.5.3 This theme is continued in the draft RTS which notes that "MTAN 1 recognises that parts of Wales are almost uniquely endowed with certain types of aggregates foremost of these being those specially suitable to the demanding HSA requirements of road surfacing...(para 3.82)....There is a particular need to assess the current sales and future demand in this specific sub-sector and to set this against permitted reserves in order to establish a customised landbank for those materials....(para 3.83).
- 2.5.4 The importance of supplies of high quality aggregate is further emphasised in the draft RTS which indicates that the advice in MTAN1 para 42 implies that:

"given suitable environmental safeguards, additional levels of extraction to meet this particular need, should actually be encouraged e.g. as a means of regenerating local economies" (RTS para 3.83)

2.5.5 The RTS recommendation for RCT is that:

"Early consideration should be given to the need to allocate additional reserves likely to be required in the latter part of the 15 year landbank period. In preparing LDPs consideration should be given to whether ... 'factors' give rise to any requirement for resource allocations...(and)....alternative...high quality sandstone resources need to be safeguarded..." (ref RTS page 90-91).

- 2.5.6 The 'factors' referred to include (i) the technical capability of one type of material to interchange for another, and (ii) whether adequate productive capacity can be maintained to meet the required supply.
- 2.5.7 In the case of sources of HSA (of which Craig Yr Hesg is the only source in RCT) it should be noted that: (i) the other resources of aggregate available in RCT cannot substitute for or interchange with the high PSV aggregate available at the Craig yr Hesg, and (ii), for reasons explained below, current permitted reserves will not be adequate to allow production to be maintained for the full duration of the Development Plan period. Additional resources will therefore need to be released to maintain supplies.
- 2.5.8 The RTS quantifies the significance of the material by identifying the scale of exports of sandstone from South Wales, with figures for 2005 confirming some 1.3 million tonnes exported from Powys to the West Midlands; some 0.36 million tonnes exported to the South West; and some 0.3 million tonnes exported to the South East of England. Exports to the South West and South East from RCT (0.114 million tonnes) and form Neath Port Talbot

(0.292 million tonnes) will have been largely accounted for by high PSV sandstone predominantly from Craig Yr Hesg Quarry in RCT, and from Gilfach and Cwm Nant Lleici in Neath Port Talbot (ref RTS 3.60). The total export of sandstone from South Wales in 2005 of 1.9 million tonnes (figures rounded) shows a substantial increase from 1.47 million tonnes in 2001; 1.09 million tonnes in 1997; and only 0.3 million tonnes in 1993. This further emphasises both the scarcity and importance of the high quality sandstone resource (ref RTS Table 16).

3.0 CURRENT CIRCUMSTANCES AT CRAIG YR HESG

- 3.1 The operation at Craig Yr Hesg is geared towards producing single size chippings which are used either within the on-site coated roadstone plant, or are marketed off-site as 'dry aggregate' for use in the manufacture of coated roadstone at plants elsewhere. Sales of the quality high PSV aggregate remain strong, with output from the Quarry averaging some 400,000 tonnes per annum, and such output volumes are anticipated to continue. The products are marketed over a relatively wide geographical area, where it has been used in all major highways projects in the South East of England, and where it is currently being used for all major construction projects involved in the 2012 Olympics. More locally, the material has been used on recent projects at the Porth By Pass, and the Newport Southern Distributor Road, and Hanson are hoping to be awarded the contract to supply material to the Church Village By Pass construction project.
- 3.2 A by-product of the processing of the stone is the generation of 'fine aggregate' which has historically been marketed as a general construction fill material. However, as a consequence partly of competition from recycled aggregate in that particular low specification sector of the market, and the introduction of the aggregate levy (tax), there has been an accumulation of relatively large stockpiles of fine aggregate at the Quarry. This in turn is causing certain operational problems in terms of space to accommodate the stockpiles whilst retaining safe access to existing planned reserves.
- 3.3 Subject to that operational constraint, quarrying is continuing within the area approved in the August 1993 planning permission, and the quarry is now approaching the full lateral limits approved as part of that permission. The remaining reserves are thus largely confined to the base of the quarry, and beneath existing haul roads and benches. The approximate total reserve remaining to be worked at the Quarry is some 7.8 million tonnes at 1/1/2008.
- 3.4 However, within that overall reserve figure, only some 1.75 m tonnes are unconstrained and available for quarrying. The remainder is either sterilised by the fine aggregate stockpiles, or lies beneath and within existing haul road ramps. In that context, if the remaining reserve is fully quarried in accordance with the approved scheme, then it will be necessary to work the

various existing faces and benches back to their final positions, and remove the haul roads on the benches as part of these works. The effect of such operations would be to preclude access into an extension area, since the required internal access roads would no longer be available. This would not be in the interests of sustainable minerals planning since the consequence would be the sterilisation of a much needed high quality resource.

- 3.5 The Quarry is therefore approaching a 'critical stage' in terms of its medium term future, notwithstanding the extent of total current reserves since those reserves, in part, represent reserves which are not actually available for quarrying in a way which would allow a later extension into proven, but as yet un-permitted reserves to the north west of the Quarry. The readily accessible reserve of 1.75 m tonnes will only be sufficient to allow the Quarry to maintain production at current rates for approximately 4 years.
- 3.6 In these circumstances, Hanson consider that it would be appropriate for RCT to allocate land for an extension to the quarry as part of the LDP given that (i) the existing accessible reserves will not be sufficient to allow continuity of production for the full plan period; (ii) the identification and release of reserves at an extension would facilitate a more logical and sustainable approach to maximising the availability of high quality reserves; and (iii) the approach would avoid what might otherwise be an unnecessary sterilisation of much needed high quality reserves within an extension area.

4.0 THE NEED FOR AN EXTENSION TO CRAIG YR HESG DURING THE LDP PERIOD

- 4.1 It is apparent from the above that operational quarrying considerations will make it necessary for Hanson to seek planning permission for an extension to the Quarry in the relatively short term. As part of the overall planning process, and in advance of the submission of such an application, Hanson are keen to participate fully in the LDP making process, and to assist RCT in the identification of a suitable site for quarrying which might be allocated as part of the LDP.
- 4.2 It is noted that Minerals Policy SP15 of the Draft Preferred Strategy (January 2007) sets a commitment to maintaining a 20 year landbank of permitted aggregate reserves, to protect future resources, and to more generally safeguard resources of high quality rock. This policy builds upon the advice set out in MTAN1 which confirms that development plans should include an assessment of the current landbank in terms of how many years of mineral extraction the landbank will provide, and then if appropriate, allocate additional land for the working of aggregates as an "extended landbank" (ref para 45).
- 4.3 The most up to date statistics on permitted reserves and landbanks is contained in the draft RTS, based upon the results of the 2005 aggregates monitoring survey. However, the RTS expresses caution in the interpretation of the landbank figures, particularly in terms of the

suitability of an overall resource to meet the demand for high specification aggregates (RTS para 3.99). Subject to that caveat, the overall reserve of rock in RCT is quoted as 12 million tonnes at the end of 2005 (i.e. including both sandstone and limestone). This equates to a landbank of some 17 years at the end of 2005, based upon average production in RCT of some 700,000 tonnes per annum in the period 2002 – 2005. That landbank will have reduced to approximately 14 years by the end of 2008, in the absence of a release of any additional reserves in the intervening period.

- 4.4 The overall figures therefore confirm that additional reserves will need to be released to satisfy the Draft Minerals Policy SP15 to maintain a landbank of 20 years. Broadly similar advice on landbanks is set out in MTAN1, which acknowledges that:
 - "for the purpose of commercial stability, the aggregate industry requires a proven and viable landbank. This must be adequate but not excessive. A minimum 10 year landbank of crushed rock should therefore be maintained during the entire Plan period of each Development Plan Where landbanks already provide for more than 20 years of aggregate extraction, new allocations in development plans will not be necessary, and mineral planning authorities should consider whether there is justification for further extensions to existing sites or new extraction sites as these should not permitted save in rare and exceptional circumstances. This may be justified, for example, where supply of an aggregate of a particular speicifcation is clearly demonstrated". (para 49)
- 4.5 In terms of the forthcoming RCT LDP, this advice translates into a requirement for providing a minimum landbank to cover the period until 10 years after the end of the Plan period in 2021. Thus an overall 25 year landbank period is required to cover the 15 year Plan period (2005 2021) plus a minimum 10 year period beyond 2021.
- 4.6 The circumstances within RCT are therefore that (i) the current landbank is below the generalised upper limit of 20 years; (ii) additional reserves will need to be released to 'top up' the landbank to comply with advice in MTAN1 regarding the maintenance of a landbank at the end of the Plan period; and (iiii) the current arithmetic landbank shortages are reinforced by the practical supply imperative of maintaining "commercial stability" of a "particular (high) specification" product such as that at Craig yr Hesg (ref MTAN1 para 49).

5.0 OPTIONS FOR AN EXTENSION TO CRAIG YR HESG QUARRY

Prior to submitting the 'Candidate Site' Hanson reviewed the options for securing additional reserves as an extension to the Quarry. The potential for an extension in a southerly direction is constrained by landscape/visual impact considerations, where there would be potential to break the prominent skyline of the ridge overlooking the Taf Valley and Pontypridd Town at Coed Craig Yr Hesg. Moreover, the Section 106 Agreement completed in 1993 included the

relinquishment of parts of the historical planning permissions for quarrying south of the original Quarry with the specific objective of protecting that ridgeline. The Section 106 Agreement also included requirements for landscaping works to the north and south west of the Quarry which now imposes constraints on extensions in those directions. The restrictions are reinforced by landscape considerations which limit the potential for the Quarry to extend in a south-westerly direction, where the land falls away steeply towards Darren Du Road. Options for extensions to the north are further constrained by landform and adjoining land uses, most notably the residential area at Glyn Coch and related uses, including the rugby field at Coed y Lan Road.

The only practical option for an extension is therefore to the north-west of the existing Quarry, which is the land which is promoted as the 'Candidate Site'.

6.0 DEVELOPMENT PLAN MINERAL ALLOCATIONS: CRAIG YR HESG QUARRY EXTENSION

6.1 The advice set out in MPPW is that policies and proposals in development plans should make clear where mineral extraction should, or is most likely to take place (para 14). It continues by noting that this approach brings a high degree of certainty to all, and the proposals, which should be clearly defined on a proposals map, should take the form of:

"Specific sites where mineral resources of commercial significance exist and where any planning applications which come forward for those sites are likely to be acceptable in planning terms;

Preferred areas which will be areas of know resources with some commercial potential, and where planning permission might reasonably be anticipated; or,

Areas of search where it is likely that some sites will be appropriate for mineral extraction, depending on economic and / or environmental circumstances. Areas of search will define broad areas that are believed to contain mineral resources of commercial significance but whose extent is uncertain. Within these areas, it is likely that appropriate mitigation measures can overcome all environmental effects. Within areas of search, planning permissions could be granted to meet a shortfall in supply should specific sites, preferred areas or extensions to existing sites identified in the Plan, not come forward. It will not usually be appropriate for an authority to identify only areas of search in a Plan: full justification for adopting such an approach would be needed". (para 14)

- 6.2 MPPW further advises that to "reduce the impact of mineral extraction and related operations ... extensions to existing mineral workings are often more generally acceptable than new greenfield sites". (para 41)
- In considering the merits of identifying specific sites, preferred areas, or areas of search, the conventional approach of Mineral Local Plans produced elsewhere has to be to define 'specific sites' where there is sufficient knowledge of the mineral resource and potential environmental effects of extraction at the time of formulating the MLP. This allows the boundaries of the site to be defined with precision and confidence that a forthcoming planning application can be devised to be fully consistent with those boundaries. At the opposite end of the spectrum, 'areas of search' are conventionally defined to cover very broad areas, when knowledge of the mineral reserve is more uncertain, and where the nature and extent of a possible mineral operation is thus similarly difficult to accurately define. A 'preferred area' approach occupies the middle ground, where there is knowledge of the mineral resource, but where the precise boundaries and nature of a mineral operation, and thus the environmental effects of such an operation, need to be considered in more detail at the planning application and EIA stage. As a consequence, 'preferred areas' tend to be defined with less prescriptive boundaries.
- In relation to the 'Candidate Site' promoted at Craig Yr Hesg, in the event that RCT are minded to allocate the area for future quarrying, then it is respectfully suggested that the most appropriate allocation would be as a 'preferred area". This could quite properly identify land to the north-west of Craig Yr Hesg as a suitable area for an extension, based upon a proven resource, but where the precise boundaries would need to be defined at the planning application stage. Preliminary work has been undertaken which identifies, in landscape/visual terms a possible limit of extraction within such an extension area (ref White Young Green May 2006). This has been reinforced by a blast vibration study which has confirmed the ability to develop the quarry into the extension area in a way which complies with conventional blast vibration limits (ref Vibrock Report 2004, and MTAN1 para 83). Hanson are similarly confident that operations within the extension area could be designed to comply with conventional noise limits (ref MTAN1 para 88), and in a way which minimises dust emissions (MTAN1 para 73).
- 6.5 These issues and specific proposal will however be considered in detail as part of an EIA accompanying a planning application, and mitigation measures, which might inform the precise boundaries of an extension area, will be informed by that process. This will include attention to the provision of a "buffer zone" to the closest properties at Glyn Coch, and the guidance set out in MTAN1 regarding the need for a buffer zone of 200m "unless there are clear and justifiable reasons for reducing the distance" (MTAN1 para 71). Those reasons could include the provision of visual screening, and an ability to comply with blast vibration

Craig Yr Hesg Quarry

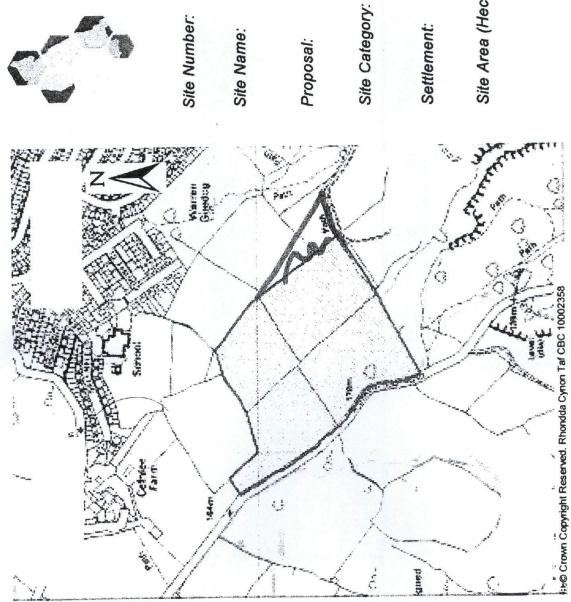
and noise limits referred to elsewhere in MTAN1. However, the need to address the extent of a 'buffer zone' is a further reason for favouring the principle of a 'preferred area' allocation at the Candidate Site.

7.0 SUMMARY AND CONCLUSIONS

- 7.1 Hanson Aggregates has promoted a Candidate Site as a potential area for an extension to Craig Yr Hesg Quarry. The Quarry produces high quality sandstone which is in demand throughout South Wales and the South West and South East of England as a premium material for road surfacing. There are limited sources of such quality material in the UK, and the product is therefore subject to substantial and increasing demand. It is afforded 'special status' in national planning policy in terms of the importance of maintaining future supplies.
- 7.2 Craig Yr Hesg Quarry will require access to additional reserves within the time period of the RCT LDP (to 2021). An area has been identified which has proven reserves of a similar quality to those present at the existing quarry, and where Hanson are confident that, at the detailed design / EIA stage, a scheme could be formulated to allow the extension development to proceed in a way which minimises environmental and amenity disturbance.
- 7.3 This 'Briefing Note' has been prepared to assist RCT in their consideration of the Candidate Site and its potential to be identified as an allocation for future quarrying within the LDP. Hanson have suggested that in the event of the site being allocated, then it should be defined as a 'preferred area' based upon the advice set out in MPPW.

APPENDIX 1

Craig yr Hesg Quarry: Candidate Site





Rhondda Cynon Taf Local Development Plan (2006-2021)

CANDIDATE SITES REGISTER

Site Number:

Site Name:

Land adjacent to Graig-yr-hesg Quarry

Proposal:

Quarry extension

Non-Strategic

Settlement:

Glyncoch

9.1 Site Area (Hect):

APPENDIX 2

High Specification Aggregates: Capita Symonds 2004

Figure 7.1

Location of HSA Sources in the UK



Figure 7.1: The Location of Category (1) HSA Sources in the UK

Table 7.2

HSA Sources in Wales

The Sustainable Use of High Specification Aggregates for Skid Resistant Road Surfacing in England

FASTING NORTHING Figs. No. AAV AAV	Quarry	StroMenro			(leasens)	Test certificates seen by CSL	ficates CSL		Test certificates seen by CSL	ates CSL	ja je	Test certificates seen by CSL	ficates	Typical	Test certificates seen by CSL	ficates CSL	Typical	Test certificates seen by CSL	ficates CSL
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Craig-yr- 307900 191900 70 69.6 9° 6.91 34 17 17 17 17 1 0.9 0.97 10 8 Hesg Criggion 329000 314500 62 61.5 51 4.6 4.31 16 14 12.2 5 0.7 0.84 8 6 Gelligaer 311600 199500 69.1 47 9.3 7.72 28 19 1 0.9 1.47 17 9 Hafod Fach 322300 199500 71 70 52 8.6 7.8 25 25 2 1.47 17 9 8 Bulch Fos 205500 199900 71 70 52 8.6 7.9 6 25 25 25 25 1.47 17 9 8 Dolyhir 324500 25500 65 65.7 24 4.66 78 14 14 14	anson	Builth	305500	252000	61	61.1	10	5.6	6.39	7			0	1.2	0.9	1	10	3.8	4
Criggion 329000 314500 62 61.5 51 4.6 4.31 16 14 12.2 5 0.7 0.84 8 6 Gelligaer 311600 199500 69 69.1 47 9.3 7.72 28 19 19 1.47 11 9 Hartod Fach 322300 196500 68 69.9 38 8 8.5 25 - 0 1.5 1.4 1 9 Bwich Fos 275200 199900 71 70 52 8.6 7.86 25 23 25.5 2 0.94 14 2 Dolyhir 324500 256500 66 65.9 37 4.7 5.29 25 15.3 3 0.7 1.4 8 Gore 325800 258300 65 65.7 24 4.66 28 14 14 1 1 0.7 0.86 9 9 <	anson	Craig-yr- Hesg	307900	191900	70	9.69	8	6	6.91	34	17	17	1	6.0	0.97	10	œ	5.9	4
Gelligaer 311600 199500 69.1 47 9.3 7.72 28 19 19 1 0.9 1.47 11 9 Hafod Fach 322300 196500 68 69.9 38 8 8.5 25 - - 0 1.5 1.4 9 8 Gilfach 275200 199900 71 70 52 8.6 7.86 25 23 25.5 2 0.9 1.4 9 8 Bwich Fos 276500 199900 71 70 52 86 7.9 6 25 25 1 1.5 1.4 2 Bwich Fos 286999 202591 69 69.7 45 4.7 5.29 21 22 15.3 1 1.3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	anson ggregates	Criggion	329000	314500	62	61.5	51	4.6	4.31	16	14	12.2	5	0.7	0.84	80	9	4.3	9
1.5 1.4 9 8 0.9 0.94 74 2 1.5 1.34 77 20 0.7 0.73 14 8 0.7 0.86 12 8 0.7 0.57 9 5	anson ggregates	Gelligaer	311600	199500	69	69.1	47	9.3	7.72	28	19	19	1	6.0	1.47	11	6	o	1
0.9 0.94 14 2 1.5 1.34 17 20 0.7 0.73 14 8 0.7 0.86 12 8	afarge ggregates	Hafod Fach		196500	89	6.69	38	80	8.5	25		'	0	1.5	1.4	6	80	•	0
1.5 1.34 17 20 1 0.7 0.73 14 8 1 0.7 0.86 12 8 1 0.7 0.57 9 5	MC ggregates	Gilfach	275200	199900	17	02	52	8.6	7.86	25	23	25.5	2	6.0	0.94	14	2	8.7	4
0.7 0.73 14 8 0.7 0.86 12 8 0.7 0.57 9 5	arnells	Bwich Fos	286999	202591	69	69.7	15	&	7.9	9	25	25	-	1.5	1.34	17	20	18.5	80
0.7 0.86 12 8	armac	Dolyhir	324500	258500	99	62.9	33*	4.7	5.29	21	22	15.3	3	0.7	0.73	14	œ	4.4	5
0.7 0.57 9 5	armac	Gore	325800	259300	65	65.7	24*	4	4.66	28	14	4	-	7.0	0.86	12	60	6.2	9
	armac	Minffordd	259500	339000	62	61.7	34	4.4	4.66		13	13	1	0.7	0.57	6/	2	5.1	6

Note 2: Figures marked $(\buildrel{^*})$ exclude pre-1994 test data that no longer reflect current production

Note 3: (-) indicates that no data for that site was able to be obtained from the quarry operator or other sources

Continued ...

Capita Symonds Ltd - November 2004