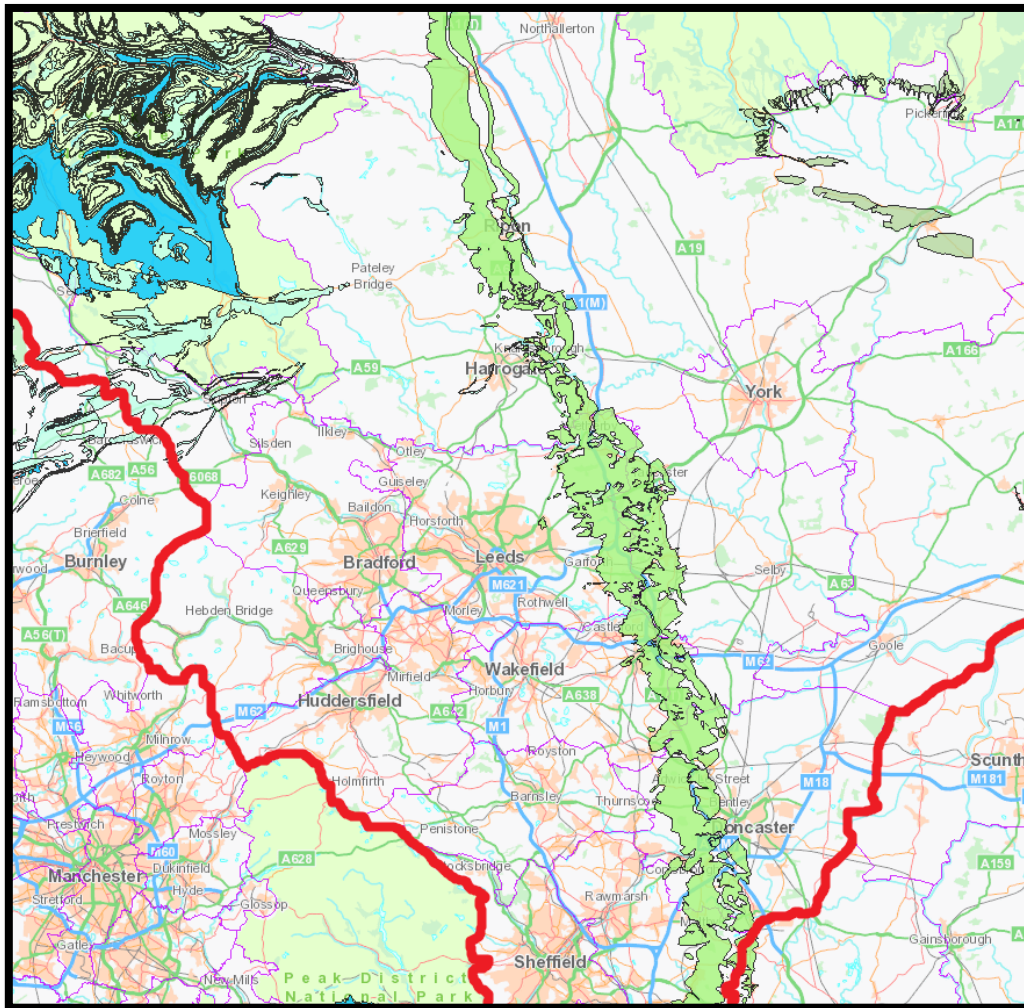




The Quarrying of Magnesian Limestone for Aggregate in the Yorkshire and Humber Region



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EXECUTIVE SUMMARY

Magnesian Limestone is the common name for a group of dolomitic limestones and dolomite, dating from the Permian Period, which run in a band up the centre of northern England from Nottingham to Sunderland. This report is concerned with the two Magnesian Limestone formations worked in the Yorkshire and Humber Region, which are now known as the Cadeby and Brotherton formations (previously known as Lower Magnesian Limestone and Upper Magnesian Limestone respectively).

The mapped extent of the Magnesian Limestone Resource in the Yorkshire and Humber Region includes 15 quarries located in the administrative areas of North Yorkshire County Council and the Unitary Authorities of Leeds, Wakefield, Doncaster and Rotherham. The table below provides data which has been collated on total Magnesian Limestone quarry aggregate reserves and sales for 2015 in the Yorkshire and Humber Region:

Note: All Figures in Millions of Tonnes Unless Otherwise Stated	Reserve (31.12.2015)	Annual Sales (2015)	Landbank
Lower Strength	20.0	1.4	14 Years 0 Months
Higher Strength	28.1	1.6	17 Years 4 Months
Total	48.1	3.2	15 Years 9 Months

This report has found that, within the Yorkshire and Humber Region, the majority of Magnesian Limestone production is for construction aggregates, with Magnesian Limestone aggregates supplying a significant proportion of the crushed rock aggregates consumed in both the Leeds and Sheffield City Regions. However industrial minerals, building stones and concrete building blocks are produced at specific quarries (See Table 1) with quarry fines also providing an important source of agricultural lime.

Evidence gathered through Local Aggregates Assessment indicates that the strategic importance of the supply of land won crushed rock aggregates is likely to increase further in the future. Due to the variability of the resource and the limitations of its suitability for certain high specification aggregate uses, it is acknowledged that Magnesian Limestone aggregates will only ever supply a part of the overall market for construction aggregates. However the further exploitation of remaining Magnesian Limestone resources for aggregates is likely to be an important element of meeting the demand for aggregates into the future, with industry already reporting an increase in demand and Minerals Planning Authorities in North Yorkshire and Leeds and planning for the release of substantial additional reserves.

1. INTRODUCTION

- 1.1. Magnesian Limestone is the common name for a group of dolomite and dolomitic limestones running in a 200 Kilometre long, generally 8 to 12 Kilometre wide, band up the centre of northern England from Nottingham to Sunderland dating from the Permian period. This report is concerned with the Magnesian Limestones which occur in the Yorkshire and Humber Region which comprise the Cadeby and Brotherton formations¹. These formations have historically been extensively quarried and continue to be an important source of construction aggregates, industrial minerals, building stones and agricultural lime.
- 1.2. Security of supply of aggregates derived from Magnesian Limestones is a particularly significant issue for South and West Yorkshire. This is because a significant proportion of the high volumes of construction aggregates consumed in the Leeds and Sheffield City Regions each year are supplied from Magnesian Limestone quarries. The BGS estimate that in 2014 50%-60% of the crushed rock aggregate consumed in South Yorkshire and 20%-30% of the crushed rock aggregate consumed in West Yorkshire was supplied from Doncaster (only Magnesian Limestone is currently worked for aggregate in Doncaster)².
- 1.3. The mapped extent of the Magnesian Limestone resource in Yorkshire extends through the jurisdictions of five separate Mineral Planning Authorities, comprising North Yorkshire, Leeds, Wakefield, Doncaster and Rotherham. A full appraisal of the resource cannot be covered by any individual Local Aggregate Assessment, partly due to commercial confidentiality issues. The consequence of this is that specific issues relating to the quarrying of Magnesian Limestone may not be adequately identified through individual Local Aggregate Assessments.
- 1.4. During inter-Minerals Planning Authority discussions, between representatives of North Yorkshire, Wakefield, Leeds, Bradford and Doncaster Councils, as part of the Duty to Cooperate, the deficiency of information on Magnesian Limestone Quarrying in the Yorkshire and Humber Region was identified as a concern. It was therefore agreed that a report would be produced to provide an assessment of the current extent and nature of Magnesian Limestone Quarrying in the Yorkshire and Humber Region.

¹ Field guide to the building limestones of the Upper Permian Cadeby formation (Magnesian limestone) of Yorkshire, English Stone Forum, 2005.

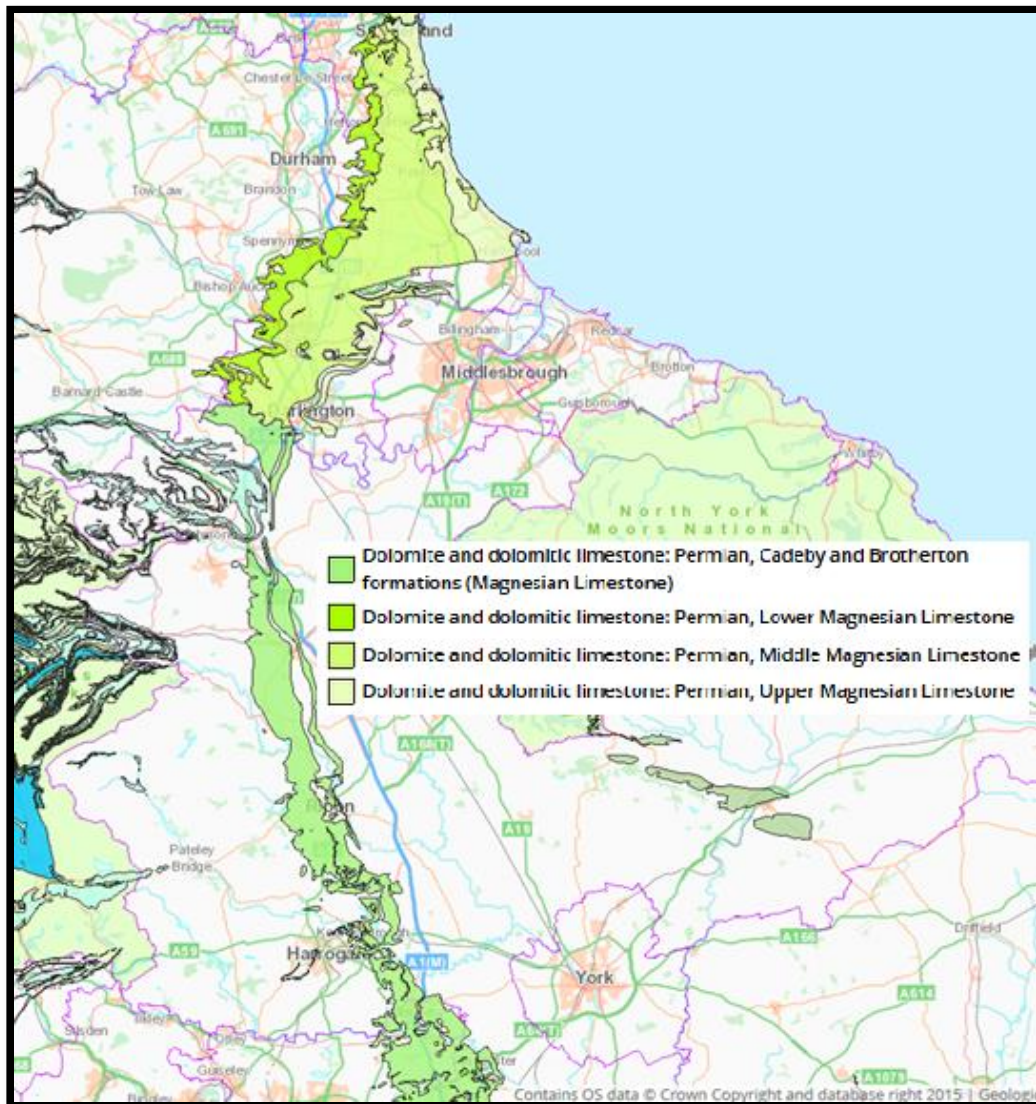
² British Geological Survey, 2016, AM2014 Consumption by sub-region summaries - crushed rock and sand and gravel

- 1.5. A first draft report was produced at the beginning of December 2016 and was generally well received by Industry and Mineral Planning Authority consultation respondents. However an industry body raised concerns about the clarity of definition of the scope and purpose of the report and the manner in which it dealt with the subject of industrial minerals. The current report has therefore been substantially revised based upon a clarified scope and focus – Magnesians Limestone Quarrying for Aggregates in the Yorkshire and Humber Region.
- 1.6. The Magnesians Limestone Resource in the Yorkshire and Humber Region includes only one site producing industrial minerals at a substantial scale, The Dolomite (Warmsworth) Quarry, operated by Sibelco in Doncaster. This report is intended to support relevant Local Aggregate Assessments and therefore it focuses on aggregate quarrying, rather than quarrying for industrial minerals. General planning issues relevant to industrial mineral quarrying are covered by the 2004 BGS publication 'Industrial Minerals: Issues for Planning' and more specific guidance on industrial dolomite is provided in the 2006 Minerals Planning Factsheet on Dolomite. These documents, or any updated versions thereof, should be referred to for guidance on planning issues relevant to the industrial dolomite quarrying.
- 1.7. This report has been produced through collaboration between North Yorkshire County Council and Mineral Planning Authorities in West and South Yorkshire, with the West Yorkshire Combined Authority taking the lead in data collation and the completion of the report. The information presented in this report is intended to provide part of the evidence base to inform minerals planning in supplement to the Local Aggregates Assessments which have been prepared by the relevant Minerals Planning Authorities.

2. GEOGRAPHICAL CONTEXT

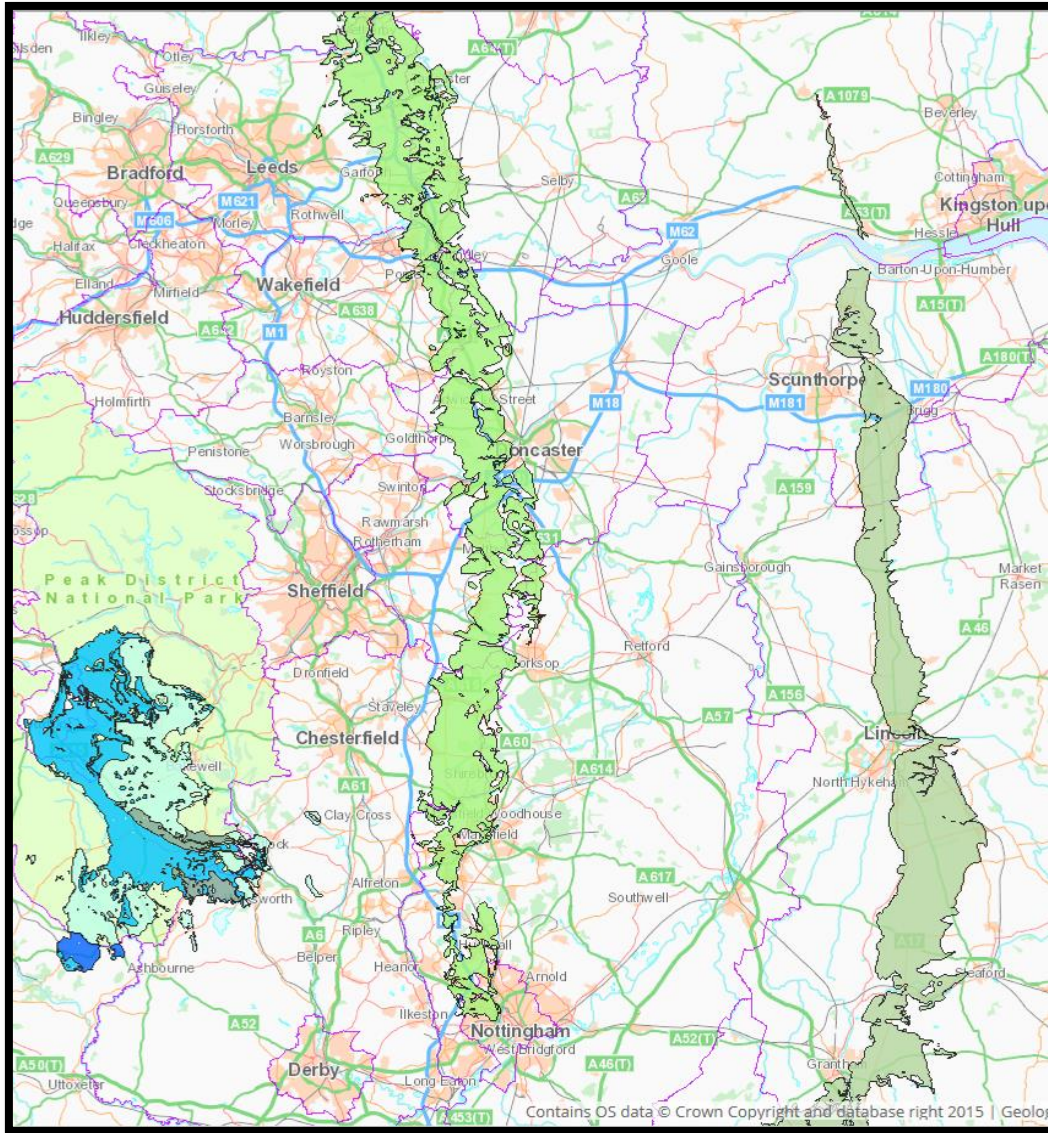
- 2.1. The mapped extent of the Magnesian Limestone resource within the Yorkshire and Humber Region (Cadeby and Brotherton Formations) comprises a long, narrow band running up through South and West Yorkshire, to the east of Sheffield, Wakefield and Leeds and to the west of Doncaster, before running up through North Yorkshire through Wharfedale, Karesborough and Ripon, finally terminating to the south-west of Darlington with the start of the Raisby and Ford limestone formations, which are also of Permian age.
- 2.2. The resource occurs mainly in the relatively sparsely settled area between the settlements listed above but runs under several smaller towns and villages. The Brotherton and Cadeby formations run parallel with, and in close proximity to, several major transport routes including the A1(M) and the M1. Figures 1 and 2 below illustrate the geographical context of the mapped extent of the resource area relative to roads and settlements.

FIG 1: Magnesian Limestone Resource North Yorkshire/ North East



³ British Geological Survey, Geindex Onshore GIS System, 2016

FIG 2: Magnesian Limestone Resource Nottinghamshire, Derbyshire, South & West Yorks



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⁴ British Geological Survey, Geindex Onshore GIS System, 2016

3. USES OF MAGNESIAN LIMESTONE

- 3.1. The Magnesian Limestone resource in Yorkshire comprises 2 main strata, the Upper Magnesian Limestones, which are now known as the Brotherton Formation, and the Lower Magnesian Limestones, which are now known as the Cadeby Formation. The Cadeby Formation is ascribed the following lithological description by the BGS: Dolostone, grey to buff grey, commonly oolitic or granular, with subordinate mudstone, dolomitic siltstone and sandstone; with the Brotherton Formation described as: Limestone, dolomitic, grey with abundant Calcinema⁵. The suitability of a magnesian limestone quarry reserve for a particular purpose depends upon its strength and composition, which is variable throughout the Cadeby and Brotherton Formations.
- 3.2. Table 1 (page 11) identifies the main product of each of the 15 Magnesian Limestone Quarries which have been identified in the Yorkshire and Humber Region. Currently the primary use of Magnesian Limestone quarried in the Region is as a construction aggregate, with agricultural lime produced as a by-product. However four of the 15 quarries specialise in the use of Magnesian Limestone for non-aggregate purposes, including two Building Stone Quarries, one Industrial Dolomite Quarry and a quarry only working Magnesian Limestone for the purposes of producing pre-cast concrete building blocks.
- 3.3. Magnesian Limestone aggregates are generally found to be unsuitable to produce coated roadstone (asphalt) due to its insufficient resistance to polishing, with high specification road surfacing aggregate currently primarily supplied into West Yorkshire from quarries situated within the Yorkshire Dales National Park. However approximately 40% of the Magnesian Limestone quarries covered by this report are thought to be capable of producing aggregates of sufficient strength to be used as a road sub-base or as a concrete aggregate.
- 3.4. In terms of the uses of the lower strength aggregates produced at the other 60% of quarries, these are understood to include:
- Decorative chippings
 - Bedding for permeable paving
 - Pipe Bedding
 - Capping material
 - Chippings for footpaths, driveways & flat roofs
 - Aggregate for land drainage/ filter media
 - Bulk Fill
 - Aggregate for gabion baskets⁶

⁵ The BGS Lexicon of Named Rock Units, 2016.

⁶ Products listed on the websites of relevant Magnesian Limestone Quarries

- 3.5. In submissions made to support the 2008 planning application for the extension of Darrington Quarry it was contended that the Brotherton Formation is of a generally higher quality than the Cadeby formation in terms of its strength and durability and that therefore aggregates produced from this formation are generally more likely to be suitable for higher specification uses such as concrete aggregate or roadstone⁷.
- 3.6. However both Holme Hall Quarry (Doncaster) and Whitwell Quarry (Derbyshire), which work the Cadeby Formation, are known to produce high quality aggregates with sufficient strength to be used for both roadstone (sub-base) and for concrete. Therefore it is clear that there is significant variation in quality between different parts of the Cadeby Formation, with high strength aggregates apparently capable of being produced from both Brotherton Formation Quarries and Cadeby Formation Quarries.
- 3.7. Based upon an appraisal of available information on the characteristics and suitability-for-use of the reserves located at each of the 15 Magnesian Limestone Quarries in the Yorkshire and Humber Region, including from relevant planning application submission documents, the 6 quarries thought to be capable of producing higher strength aggregates suitable for roadstone and concrete manufacture are highlighted in green in Table 1 below.
- 3.8. Although Building Stone is not the focus of this report, it should also be noted that the Cadeby Formation has been extensively worked for building stone in the past. English Heritage's Strategic Stone Study observes that 'the pale yellow-white, fine to coarse-grained, bioclastic and ooidal, dolomitic limestones of this formation are particularly important sources of local building stone.' The study further advises that, as well as providing the stone which is the primary building material for many villages on and around the Magnesian Ridge outcrop, the quarries of the Tadcaster to Sherburn area have also provided stone for numerous buildings in the City of York including York Minster, and the City Walls.⁸
- 3.9. Given the variability of the resource, caution should be exercised in making any assumptions that aggregates derived from Magnesian Limestone can be a substitute for other types of aggregate, such as Carboniferous Limestones or sand and gravel, particularly for higher specification applications. However, equally, the importance of the continuation of secure and steady supplies of aggregate derived from Magnesian Limestone to supply the construction industries in West and South Yorkshire should not be underestimated⁹.

⁷ RPS, 2008, Environmental Statement Addendum, Darrington Quarry North of M62 Extension.

⁸ English Heritage, 2012, Strategic Stone Study, A Building Stone Atlas of North Yorkshire East and York

⁹ See both: BGS, 2016, Collation of the results of the 2014 Aggregate Minerals survey for England and Wales 2014, and, Local Aggregates Assessment for West Yorkshire 2016

Table 1 – Details of Magnesian Limestone Quarries in the Yorks & Humber Region

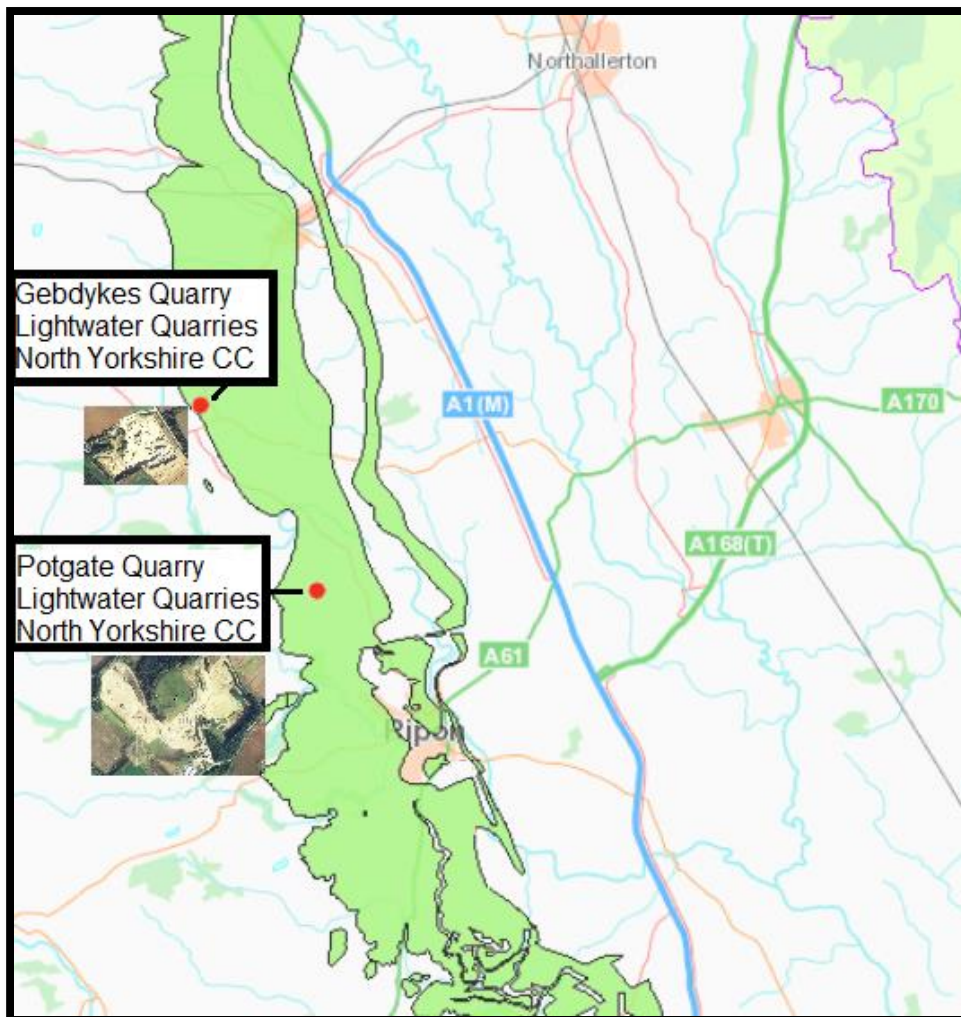
	No.	Quarry Name	OPERATOR	Grid Ref.	AREA (ha)	Formation	PRIMARY PRODUCT
NORTH YORKSHIRE	1	Gebdykes Quarry	Lightwater Quarries	SE238823	10	Cadeby	Aggregate
	2	Potgate Quarry	Lightwater Quarries	SE277758	20	Cadeby	Aggregate
	3	Jackdaw Crag Quarry	Darrington Quarries	SE464414	15	Cadeby	Aggregate
	4	Newthorpe Quarry	Lunness	SE459321	5	Cadeby	Aggregate
	5	Brotherton (Foxcliffe) Quarry	Darrington Quarries	SE491265	15	Brotherton	Aggregate
	6	Went Edge Quarry	Wentvalley Aggregates	SE500172	5	Cadeby	Aggregate
	7	Barnsdale Bar Quarry	Darrington Quarries	SE514145	35	Cadeby	Aggregate
LEEDS	8	Highmoor Quarry	Tadcaster Building Limestone Co.	SE450425	3	Cadeby	Building Stone
WAKEFIELD	9	Plasmor Quarry	Plasmor Ltd.	SE502227	3	Brotherton	Concrete Blocks
	10	Darrington Quarry	Darrington Quarries	SE500220	11	Brotherton	Aggregate
DONCASTER	11	Cadeby Quarry	Cadeby Stone	SE524007	30	Cadeby	Building Stone
	12	The Dolomite (Warmsworth) Quarry	Sibelco UK	SE538004	25	Cadeby	Industrial Minerals
	13	Stainton (Glen) Quarry	Marshalls Mono Ltd	SK546947	30	Cadeby	Aggregate
	14	Holme Hall Quarry	Breedon Group	SK549945	60	Cadeby	Aggregate
ROTHERHAM	15	Harrycroft Quarry	Tarmac	SK527827	20	Cadeby	Aggregate

Note: Green shading identifies quarries that produce higher strength aggregates suitable for use as roadstone (sub-base) or for concrete manufacture.

4. MAGNESIAN LIMESTONE QUARRIES

- 4.1. The mapped extent of the Magnesian Limestone Resource in the Yorkshire and Humber Region includes 15 main quarries as shown in Table 1. Darrington Quarries, owned by FCC Environmental, operate the highest number of sites. Lightwater Quarries, Breedon Group and Tarmac also operate Magnesian Limestone Quarries in the Yorkshire and Humber Region, but with Tarmac having more extensive workings in Derbyshire to the south, most notably the very large Whitwell Quarry.
- 4.2. The resource is relatively extensively quarried throughout its mapped area but with the northern area typified by possessing a larger number of more distributed smaller quarries and the southern area generally possessing a smaller number of larger sites. Holme Hall Quarry, located south of Doncaster and operated by Breedon Group, is the largest Magnesian Limestone Quarry in the Yorkshire and Humber Region. Figures 3, 4, 5 and 6 below and Table 1 above identify the location and operators of the main Magnesian Limestone quarries in the Region:

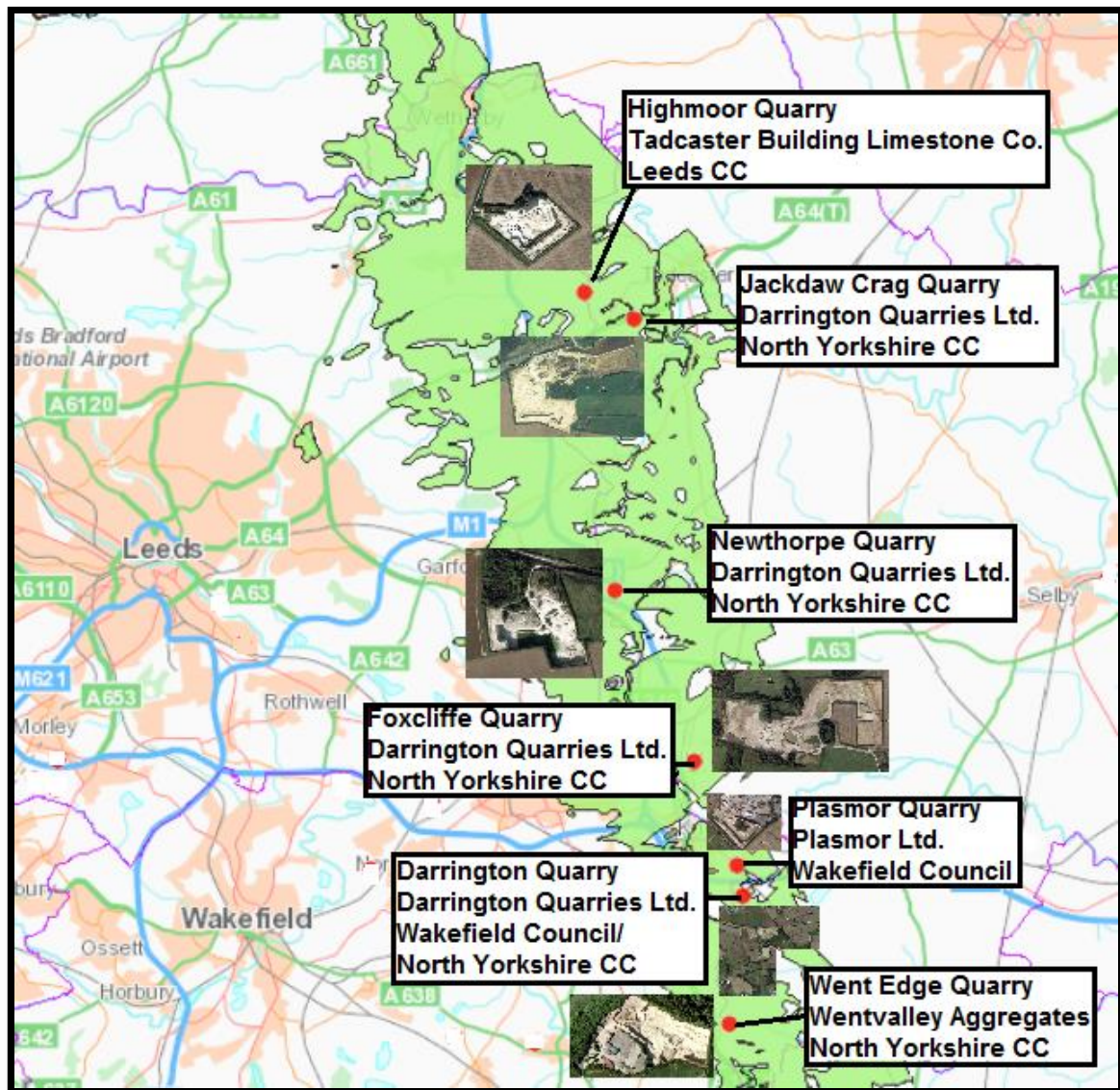
FIG3 Magnesian Limestone Quarries: North Yorkshire



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¹⁰ Resource Map Source: British Geological Survey, Geindex Onshore GIS System, 2016; Quarry Aerial Photograph Source: Google Maps, 2016

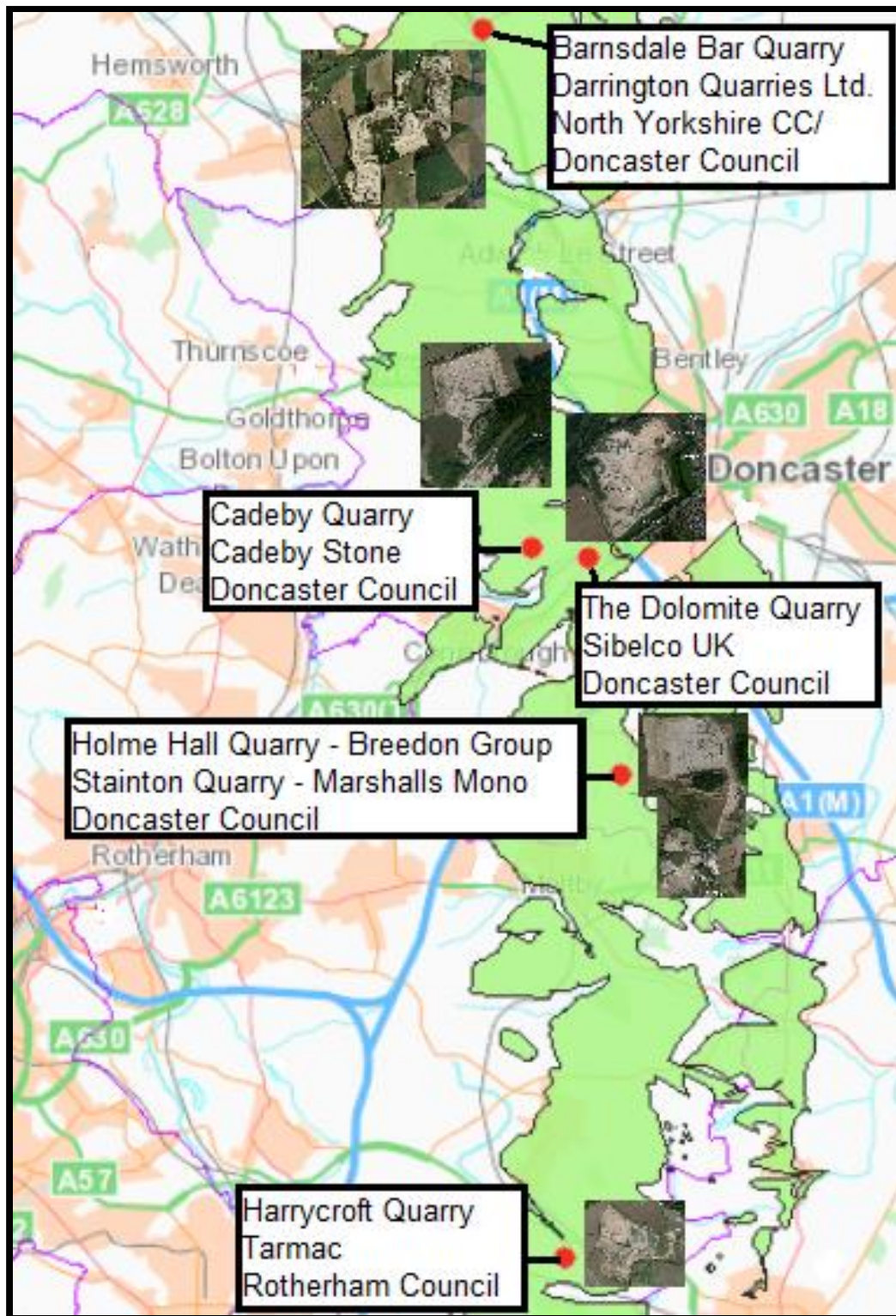
FIG4 Magnesian Limestone Quarries Leeds, North Yorkshire CC & Wakefield



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¹¹ Resource Map Source: British Geological Survey, Geindex Onshore GIS System, 2016; Quarry Aerial Photograph Source: Google Maps, 2016

FIG5 Magnesian Limestone Quarries Doncaster and Rotherham



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¹² Resource Map Source: British Geological Survey, Geindex Onshore GIS System, 2016; Quarry Aerial Photograph Source: Google Maps, 2016

5. RESERVES AND SALES

- 5.1. One of the main purposes of this report is to provide baseline data on the extent of reserves and magnitude of sales for Magnesian Limestone Quarries in the Yorkshire and Humber Region. However, as discussed in preceding sections, the characteristics and quality of the Magnesian Limestone resource, and the uses to which quarried Magnesian Limestone reserves are put, varies significantly throughout the Region.
- 5.2. Certain quarries work Magnesian Limestone Reserves primarily for lower specification aggregate uses such as fill material, path chippings and pipe bedding, other sites produce high strength aggregates utilised as a road sub-base and concreting aggregate and other sites primarily utilise reserves for non-aggregate purposes, such as to produce Building Stones or as an industrial mineral.
- 5.3. As this report is primarily concerned with the use of Magnesian Limestone as an aggregate the reserves and sales data which has been produced omits the two quarries known to primarily produce Building Stone. However it should be noted that the planning permission for minerals extraction at Cadeby Quarry in Doncaster, which currently operates as a Building Stone Quarry and possess substantial remaining reserves, also allows for the production of aggregates and therefore there is the potential for aggregates to be produced from this site in the future.
- 5.4. The only Magnesian Limestone Quarry in the Yorkshire and Humber Region which produces Industrial Minerals, Warmsworth Quarry operated by Sibelco, has also been omitted from the landbank calculation. This is because the National Planning Policy Framework requires Minerals Planning Authorities to plan for the provision of a stock of permitted reserves of on a site by site basis, according to the level of plant investment required, for industrial mineral quarries.
- 5.5. Table 2 below provides information on quarry reserves and sales relevant to primary aggregate Magnesian Limestone Quarries in the Yorkshire and Humber Region. To attempt to address, to some extent, the variability of the resource and the products which it is capable of producing, total reserves and sales have been divided into 'Lower Strength' and 'Higher Strength' categories.
- 5.6. The term 'Higher Strength' should be taken to mean those reserves/ sales which relate to aggregate suitable for use as road sub-base material and as a concrete aggregate, with the term 'Lower Strength' indicating that the relevant reserves/ sales would not meet the specifications for these more demanding applications. The methodology for attributing reserves as either lower or higher strength is based upon the assumption that approximately 80% of the reserves/ sales associated with the sites highlighted in green in table 1 comprise higher strength aggregate suitable for use as a sub-base/ concrete aggregate.

- 5.7. The estimate that 80% of sales and reserves at the sites highlighted in green in table 1 are capable of producing higher strength aggregates is based upon an analysis of the detailed mineral survey return for one of the sites producing high-strength aggregate. It is recognised that the actual proportion of reserves which are suitable to produce high-strength aggregate will vary between quarries; therefore a relatively low degree of confidence can be placed upon this estimate and it is intended to be broadly indicative only.
- 5.8. It is intended to produce a refined estimate of the proportion of magnesian limestone sales/ reserves which can be used for high-strength applications in subsequent updated reports by gaining access to a greater number of detailed quarry survey returns. Additionally it is also planned to collect data on sales of magnesian limestone aggregates for use as agricultural lime, to inform the first update of the report in four years' time. Very limited information is currently available on the importance of magnesian limestone as a source of agricultural lime and further research in this area could complement the work in this area being undertaken by Durham County Council¹³.

Table 2 – Y&H Region Magnesian Limestone Reserves & Sales 2015

Note: All Figures in Millions of Tonnes Unless Otherwise Stated	Reserve (31.12.2015)	Annual Sales (2015)	Landbank
Lower Strength	20.0	1.4	14 Years 0 Months
Higher Strength	28.1	1.6	17 Years 4 Months
Total	48.1	3.2	15 Years 9 Months

¹³ See the Joint Local Aggregate Assessment for County Durham, Northumberland and Tyne and Wear (2016) and Minerals and Waste Technical Paper, which can be found at: <http://durhamcc-consult.limehouse.co.uk/portal/planning/cdpev/>

6. PLANNING FOR FUTURE SUPPLY

- 6.1. The Magnesian Limestone resource which extends through the Yorkshire and Humber Region is covered by the administrative areas of five separate Minerals Planning Authorities, North Yorkshire County Council, and the Unitary Authorities of Leeds, Wakefield, Doncaster and Rotherham. Each of these planning authorities have adopted differing approaches to planning for the future supply of Magnesian Limestone. This underlines the fact that a one size fits all approach to minerals planning for Magnesian Limestone is not appropriate, given the variability of the resource and quarrying industry throughout its extent.
- 6.2. In their emerging joint Local Plan, North Yorkshire County Council, the City of York Council and the North York Moors National Park Authority are looking to maintain a separate landbank for Magnesian Limestone. The November 2016 Publication Draft Minerals and Waste Joint Plan explains that this separate landbank is needed as Magnesian Limestone quarrying is a well-established element of the overall supply of crushed rock in the Joint Plan area, and the maintenance of an adequate Magnesian Limestone landbank could help to maintain an appropriate distribution of supply of crushed rock as well as facilitating the availability of aggregates suitable for a range of end uses, to complement supply from other sources¹⁴.
- 6.3. The draft Joint Plan identifies that a further 8.1 million tonnes of reserves of Magnesian Limestone need to be released in North Yorkshire in order to meet requirements over the period 1 January 2016 to 31 December 2030, based on permitted reserves at the end of 2015. Sites considered suitable for allocation are estimated to contain 14.5 million tonnes of potential reserves and therefore would also make a significant contribution towards maintaining an adequate landbank of Magnesian Limestone beyond 31 December 2030. A proposed site allocation for retaining the limestone aggregate processing plant at Darrington Quarry/ Cridling Stubbs and related infrastructure has been submitted and is also considered suitable for allocation.
- 6.4. Leeds City Council have also made provision for an expansion of Magnesian Limestone Quarrying within the Leeds District, during their Plan Period, by identifying 2 preferred areas for future Magnesian Limestone Quarrying within their adopted Leeds Natural Resource & Waste Local Plan (2013). These preferred areas relate to a potential extension to Highmoor Quarry and a potential new quarry at Hook Moor, Micklefield.

¹⁴ North Yorkshire County Council, the City of York Council and the North York Moors National Park Authority Minerals and Waste joint plan

- 6.5. In their adopted Site Specific Policies Local Plan Wakefield Council have safeguarded a substantial area of Magnesian Limestone resources around Darrington Quarry and Plasmor Quarry to the north and south of the M62. No specific site allocations for future Magnesian Limestone Quarrying were made. However a 45 hectare extension to Darrington Quarry was approved in January 2011, covering part of the safeguarded area north of the M62. The working scheme submitted with this application proposed phased working and restoration over an 18 year period.
- 6.6. The Local Plan preparation process is at an earlier stage in relation to both Doncaster and Rotherham. However recently published site selection methodology and minerals evidence base documents indicate that the Local Plans for these areas are likely to both safeguard Magnesian Limestone Resources and include Areas of Search for future extraction. The Doncaster Site Selection Methodologies Consultation – November 2015 indicates that 7 minerals site allocations have been proposed as part of their ‘call-for-sites’ but gives no indication of the extent or suitability of these sites or the proportion which relate to Magnesian Limestone.
- 6.7. Magnesian Limestone quarrying in Rotherham is currently confined to one inactive site, Harrycroft Quarry, planning permission for the working of which has expired. However a Planning Application to vary the conditions attached to the current consent has been submitted to Rotherham Metropolitan Borough Council by the operator of the site, Tarmac, which would have the effect of allowing the quarry to re-open and operate for a further 15 year period. The estimated remaining reserve for this site, as indicated in the planning application, is approximately 2.55 million tonnes which is proposed to be recovered at a typical rate of 200,000 tonnes per annum. The application has yet to be determined by the Council.

7. SUMMARY AND CONCLUSIONS

- 7.1. Magnesian Limestone quarrying with the Yorkshire and Humber Region clearly makes an economically important contribution to the supply of minerals within the Region. This importance relates both to the contribution Magnesian Limestone quarries make to the general supply of aggregates, with total quarry output at 3.2 million tonnes in 2015, but also the importance of Magnesian Limestone as a source of building stones, industrial minerals and agricultural lime.
- 7.2. The variability of the resource and its suitability for more demanding aggregate uses is recognised; however it is clear that a substantial proportion of Magnesian Limestone Quarries are capable of producing high quality aggregates suitable for use as a road sub-base or as a concrete aggregate. Evidence gathered through this reports indicates that at least 50% of currently permitted Magnesian Limestone reserves are likely to be capable of meeting specifications for these more demanding aggregate uses.
- 7.3. Securing adequate and steady supplies of Magnesian Limestone aggregates into the future is a particularly important economic issue for the Leeds and Sheffield City Regions, with BGS data indicating that 50%-60% of the crushed rock aggregates consumed in South Yorkshire and 20%-30% of the crushed rock aggregates consumed in West Yorkshire in 2014 were supplied from Magnesian Limestone Quarries in Doncaster¹⁵.
- 7.4. Evidence gathered through Local Aggregates Assessment indicates that the strategic importance of the supply of land won crushed rock aggregates is likely to increase further in the future. This is partly as a consequence of the depletion of existing established sources of sand and gravel supply and partly due to the potential very significant increase in demand for aggregates which would result from the scale of house building planned within relevant aggregate supply areas, particularly West and South Yorkshire¹⁶.
- 7.5. This potential increase in aggregate demand may partly be met by alternative sources of supply, including marine aggregate (sand) dredged from the North Sea, but is likely to also require further exploitation of existing sources of supply and potential increases in the substitution of sand and gravel with crushed rock aggregates for certain applications¹⁷.

¹⁵ See both: BGS, 2016, Collation of the results of the 2014 Aggregate Minerals survey for England and Wales 2014, and, Local Aggregates Assessment for West Yorkshire 2016

¹⁶ See sections 1.6 and 4.5 of Local Aggregate Assessment for West Yorkshire 2016.

¹⁷ See section 4.3 of Local Aggregate Assessment for West Yorkshire 2016.

- 7.6. It is recognised that Magnesian Limestone will only ever supply part of the construction aggregate market, with a significant proportion of the resource only suitable for lower specification uses. However it is clear from the information presented within this report that Magnesian Limestone is an important element of overall aggregate supply and the recent proposal to re-open the currently mothballed Harrycroft Quarry in Rotherham indicates that demand for Magnesian Limestone aggregates is already increasing.
- 7.7. It should be borne in mind that the commissioning of new quarries can take a protracted period of time, with the overall time period between the commencement of preparation of a planning application to the commencement of quarrying normally exceeding 3 years¹⁸. Therefore advanced planning for the release of additional reserves may be required where the data trajectory indicates that reserves may fall below acceptable levels some years in the future.
- 7.8. Notwithstanding the relatively health condition of the overall level of Magnesian Limestone Reserves which the statistics set out in Table 2 imply, it is clear that the release of further reserves may be required to meet potential increases in demand, supply specific markets or to allow adequate landbanks to be maintained into the future. This is borne out by both North Yorkshire County Council and Leeds City Council actively planning for the release of additional Magnesian Limestone Reserves within their respective administrative areas through their Local Plans.
- 7.9. The objective of this report was primarily to provide baseline data on the current extent of the Magnesian Limestone Aggregate Quarrying industry in the Yorkshire and Humber Region, as well as including other useful information on the nature of this industry. It is intended to produce further reports at four yearly intervals to allow quarry reserve and output trends to be detected and potential security of supply issues relevant to the quarrying of Magnesian Limestone to be identified at as early a stage as possible.

¹⁸ See: Mineral Products Association, AMPS 2016, 5th Annual Mineral Planning Survey Report