6 Geodiversity of Doncaster

6.1 Site of Special Scientific Importance (SSSI)

Four sites in Doncaster are listed as SSSIs (Figure 13):

- Ashfield Brick Pit, Conisbrough (CadebyFormation)
- Bilham Quarry (CadebyFormation)
- Cadeby Quarry (CadebyFormation)
- New Edlington Brick-clay Pit (Edlington Formation)

All four sites were cited under the Geological Conservation Review (GCR) process and the details are published in the Marine Permian of England GCR volume (Smith, 1995)

6.2 Regionally Important Geological/Geomorphological Sites (RIGS)

In 1997 the survey of geological sites in Doncaster by the South Yorkshire RIGS Group was essentially based on information gleaned from BGS Geological Memoirs and Maps, old Ordnance Survey maps and other relevant publications, largely provided by Doncaster Museum. The desktop research was undertaken by a small team of volunteers and enthusiastic amateurs, with the field work undertaken by a freelance geologist contracted on a fixed sum.

Based on criteria used to assess potential RIGS in Barnsley and Rotherham, RIGS in Doncaster were selected on the strength of:

- Representing a full cross-section of geological formations in the area
- Scientific value
- Education value
- Accessibility and aesthetic, recreation and amenity value
- Links with other biological, archaeological and architectural interests

Although several active hard rock and sand and gravel quarries were assessed as part of the 1997 field survey work, with some considered to merit RIGS status, the existing planning conditions and legislation, together with commercial interests of quarry operators deemed it necessary to omit certain sites from the RIGS selection process, even though on strict merit these would have been included in the final short list.

The increased protection now afforded to geological sites by PPS9 and the Local Development Framework and the realistic prospect of Geodiversity Action Plans, produced in conjunction with the private sector, has emphasised the need to devote professional expertise to the current project. With more time to assess each of the RIGS and related geological features, the 2007

Survey highlights the opportunity to reinforce geological links with current management plans, especially along the Don Gorge, where there is great potential to link to funding opportunities with English Heritage and Natural England, and along the Permian limestone escarpment.

The resurvey of sites was conducted during mid January to early March 2007. Site assessment data was collected using the UKRIG Site Assessment Form and entered into the UKRIGS GeoConservation Microsoft Access database. In practice, this database has proved very difficult to use, especially importing and exporting data and the translation into a user friendly report format. These database problems only came to light once the project was well underway, leaving no opportunity to introduce an alternative system.

It is therefore recommended that when undertaking future surveys of Sites of Scientific Interest within the borough, the compatibility of using this database alongside others used in Doncaster for Ecology, Archaeology and Architecture should be taken fully into account.

A summary of the 2007 survey is presented in Table 2 with sites plotted on (Figure 13). Of the 28 sites listed in 1997, 23 are recommended for continued designation as RIGS, while five sites are proposed for removal from the list. Six new sites were surveyed and are recommended for designation as RIGS, bringing the total RIGS in Doncaster to 29. For full details of the individual sites see individual site assessment reports in Appendix 1.

With respect to geological formations that are not well represented, difficulties still remain in that both the Permian marls and associated minerals, together with the soft Quaternary sediments, are extremely susceptible to natural weathering, quarrying operations and development and these are probably best recorded in addition to an archaeological or ecological survey that may be required as part of future works.

Table 2 Summary of Doncaster RIGS and potential RIGS site (D and DR in site number column respectively)

Site No	Site Name	Site type	NGR	Stratigraphy	Current site condition	Geodiversity value	Score	Add, Remove or Keep
D6	Denaby, Lane	Road cutting	[SK 489 995]	Mexborough Rock Pennine Middle Coal Measures Formation	Much of the section is overgrown and would be improved by selective clearance	Excellent geodiversity site (to be extended) for geology and a wide variety of landforms and fluvial geomorphology	9	Keep
D166	Doncaster Road	Disused quarry	[SK 492 998]	Mexborough Rock, Pennine Middle Coal Measures Formation	Partially overgrown	Moderately high, just because it is still the best exposure of Mexborough Rock recorded	7	Keep
D177	Wath Road Railway Cutting	Railway cutting	[SE 461 002]	Mexborough Rock, Pennine Middle Coal Measures Formation	Completely infilled	No geodiversity value as site now completely infilled	0	
DR2	Harlington Railway Cutting	Railway cutting	[SE 477 033]	Ackworth Rock, Pennine Middle Coal Measures Formation	Most of the eastern end is embankment. Western end more rocky but heavily vegetated	Limited. Very limited exposure of value to research and field mapping only	5	

DR3	Cadeby Waste Water Works	Disused quarry	[SE 512 004]	Dalton Rock. Pennine Upper Coal Measures Formation	Clean, clear rock faces. Shrubs and vegetation to lower rock face	Very good, on strength of rarity of Dalton Rock and possible associations with unconformable Permian rocks	8	Add
DR1	Denaby Woods - Mexborough Oxbow Lake	Geomorphological interest site	[SK 478 995]	Pennine Coal Measures Group	Areas of interest are in good condition but lie in and around areas that are rapidly developing	Very good. Faulting and folding, alluvial processes and geomorphology	9	Add
DR6	Barnburgh Cliff	Exposure	[SE 501 037]	Dalton Rock. Pennine Upper Coal Measures Formation Wetherby Member, Cadeby Formation	Very good. Plenty of good exposure	A good site to show reef formation and associated beds. fissures and related deposits, an unconformity and geomorphology	9	Add
D11	Hazel Lane Quarry	Active quarry	[SE 500 110]	Pennine Upper Coal Measures Formation Wetherby Member, Cadeby Formation	Plenty of exposed faces but quarry is being progressively landfilled	Good example of lithological variation in the Cadeby Formation but limited by planning permission and landfil	5	Keep

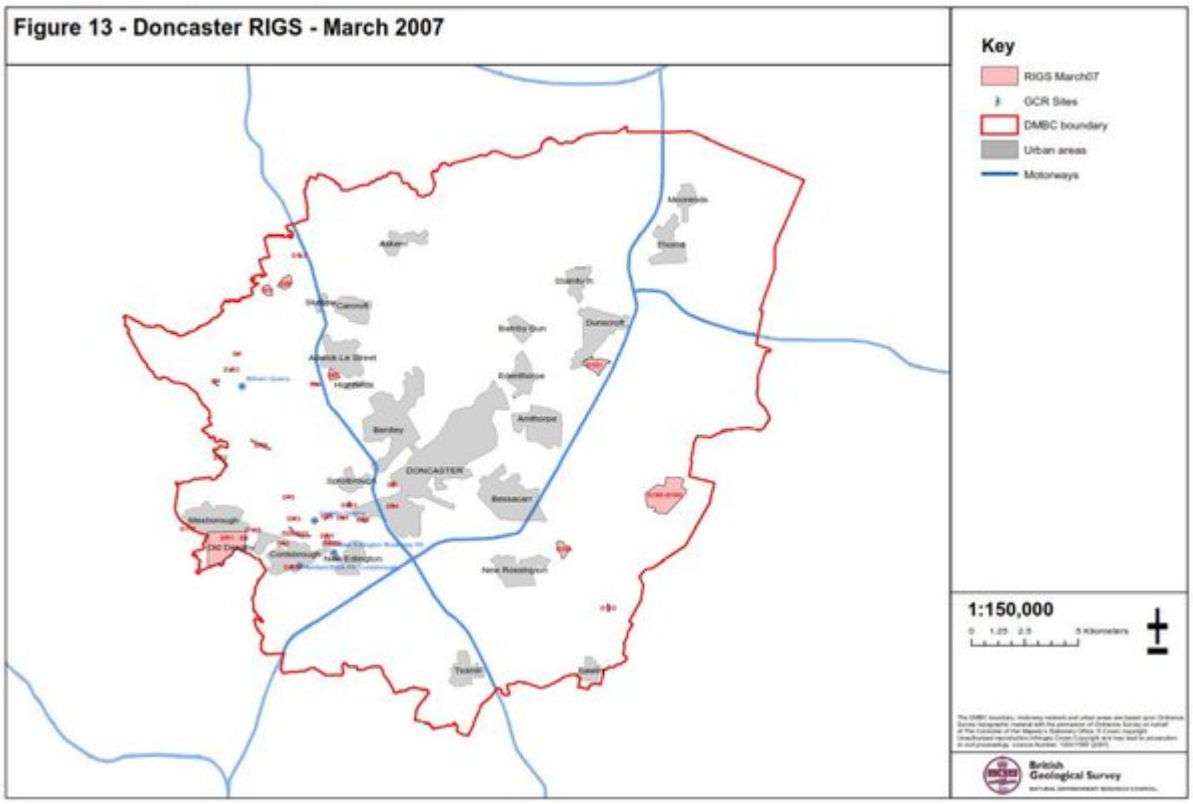
D4	Watchley Crags	Disused quarry	[SE 476 068]	Yellow Sands Formation Wetherby Member, Cadeby Formation	The exposures furthest away from Watchley Lane are very good but the nearest are being increasingly littered	A very good site, for the rarity value, lithological variety and histoical, industrial archaeological interests	8	Keep
D15	Mellon Park	Disused itiarry	[SE 509 014]	Yellow Sands Formation, Wetherby Member, Cadeby Formation	The limestone is in excellent condition. The Yellow Sands would benefit considerably from vegetation clearence	A good range of geological processes can be demonstrated. Very high aesthetic/landscape value	8	Keep
D133	Hooton Pagnell	Disused quarry	[SE 483 074]	Wetherby Member, Cadeby Formation	Vegetation and rubbish etc make access awkward but rock faces we largely free of vegetation and well exposed	A very good site, for the rarity value, lithological variety and historical/industrial archaeological interests	8	Keep
D13	North Cliff Quarry	Disused quarry	[SK 507 992]	Wetherby Member. Cadeby Formation	Requires extensive clearance to improve access to best exposures.	A very good site with variable lithology, excellent landscape value and proximity to several very notable historic buildings	9	Keep

D5	Hooton Pagnel Vilage Pound	Natural exposure	[SE 486 081]	Wetherby Member, Cadeby Formation	Very good, but some cutting back of vegetation around the reef exposure is required on a regular basis	Outstanding example of the creation of an estate village using local buiding materials with a particularly good reef	9	Keep
D20–022	Cadeby Clif — Constitution Hill	Natural exposure	[SK 511 999]	Wetherby Member, Cadeby Formation Glaciofluvial Deposits	Several natural rock features well exposed. Old quarry requires clearance to facilitate access	A very good geodiversity site with a variety of lithological, geomorphological and historical interests	9	Keep
D112	Parknook Quarry	Active quarry	[SE 513 128]	Wetherby Member, Cadeby Formation	Commercial use of site and rock waste, rubbish and vegetation etc limit ease of access	Moderate geodiversity value. Some interesting geological features but mainly valuable as a potential source of building stone	7	Keep
D28	Pot Ridings Wood Railway Cutting	Railway cutting	[SE 526 003]	Wetherby and Sprotbrough Members. Hampole Beds, Cadeby Formation	Good exposures but access along the cutting was difficult at the time of the survey due to deep mud	Avery good insight into the importance of geology in determining the route of railway networks	9	Keep
DR5	Levitt Hagg Wood	Disused quarry	[SE 538 011]	Sprotbrough Member. Cadeby Formation	Overgrown but there are reasonable rock exposures to be seen	Possesses group value with other sites along the Don Gorge	7	Add
D94	Warmsworth Quarry	Active quarry	[SE 535 004]	Sprotbrough Member, Cadeby Formation	Very good	Unusual occurrence of brecciated dolostone	8	Keep

D78	Warmsworth Park	Disused quarry	[SE 544 030]	Sprotbrough Member, Cadeby Formation	Very good but needs to be cleaned regularly	A wide range of geological processes can be demonstrated especially in conjunction with other nearby sites	9	Keep
DR4	Nearcliff Wood Quarries	Disused quarry	[SK 527 995]	Cadeby Formation	Some rubbish. Fires and other debris associated with redundant quarries but acceptable for scientific visits	Extremely important in at least both a regional and national context for the use and exploitation of a natural resource	10	Add
D300	Conisbrough Caves East	Caves	[SK 523 992]	Cadeby Formation	Some of cave entrances have been covered by landfill	Caves are of specialist speleological interest but associated breccias, rifts and slump structures are very interesting	8	Keep
D301	Conisbrough Caves West	Caves	[SK 515 996]	Cadeby Formation	D/K	Entrances to both caves were not found and no geodiversity value could therefore be assigned	0	Remove
D302	Conisbrough Caves South	Caves	[SK 511 985]	Cadeby Formation	Full of rubbish and damaged by fire. Well is maintained	Speleological research potential. Spring line associated with fault. Historic associations	8	Keep

D303	Levitt Hagg Hole	Caves	[SE 538 009]	Cadeby Formation	Not found	The grid reference for the cave entrance appears to coincide with the restored Levitt Hagg Landfill Site and was not found	0	Remove
D61	New Edington Brick Pit	Disused pit	[SK 534 986]	Edlington Formation Till	Gypsum and marl not visible tree at survey. Till has limited exposures that are susceptble to vegetation growth	Main value relates to rare occurrence of gypsum in a landscape dominated by human activity. waste tips and industry	5	Keep
D31	Leys Hill Bridge	Railway cutting	[SE 523 067]	Edlington Formation	Largely overgrown and obscured by grass, hawthorns and osiers	Limited value except use as a marker for the position of the Edlington Formation	5	Keep
D51	Hexthorpe Flaps — The Dell	Disused quarry	[SE 558 020]	Brotherton Formation Till	Very good. Only periodic removal of plant growth from rock faces required	A good introduction to magnesian limestone in situ and various man made features using stone. Landscape/rockery stone for ornamemtal garden features	7	Keep
D87	Brodsworth Quarry	Disused quarry	[SE 530 070]	Brotherton Formation	Misidentified site	None	0	Remove
D99	Skelbrooke Quarry	Disused quarry	[SE 505 114]	Brotherton Formation	Landfilled	None	0	Remove

D44	Cedar Road Adventure Playground	Disused quarry	[SE 558 010]	Nottingham Castle Formation Til and it deposits	Some clearance of faces and rubbish required. Boundary fences need attention due to undermining/erosion of gravels	Good accessible introduction to a variety of lithologies and associations with quarrying and construction	6	Keep
D101	Dunsvile Quarry	Active quarry	[SE 655 075]	Sherwood Sandstone Group Older River Gravel (River Terrace Deposits)	Exposures noted in the 1997 survey are obliterated but there is potential for further exposure with good management	A good site to demonstrate a wide variety of sedimentary processes	7	Keep
D102	Common Lane Quarry	Disused quarry	[SK 567 962]	Sherwood Sandstone Group Glaciofluvial deposits	Good condition. Clean and clear quarry faces. Sand and gravel also well exposed.	Remote location but one of few exposures of Sherwood Sandstone not under threat, with Glaciofiuvial deposits	7	Keep
D190–192	Buxton Common	Disused quarry	[SE 685 015]	Sherwood Sandstone Group Older River Gravel (River Terrace Deposits)	Sandstone exposures clear and visible but Older River Gravels are increasingly becoming overgrown	Links well with blodiversity interests. but lithologies not easNy studied due to access difficulties	7	Keep
D109	Hurst Plantation Quarry	Disused quarry	[SK 640 990]	Glaciofluvial deposits	Plenty of exposure, but needs improvement of pathways and access to exposures if land is to be properly managed	Limited lithologies and interest, other than sedimentology but a good expossure of Angian sand and gravel	7	Keep



(Figure 13) Doncaster RIGS — March 2007.