	190000	200000	210000	2200
420000 —	British Geological Survey	Enterprise, Trade and Investment	MINERAL RESOURCES MAP OF NORTHERN IRELAND A key aspect of sustainable development is the conservation and safeguarding of non-renewable resources, such as	<b>BUILDING</b> A wide range
		www.detini.gov.uk	minerals. There is a need to ensure that these resources are not needlessly sterilised by other development thus leaving insufficient supplies for future generations. The purpose of the maps in this series, therefore, is to show the broad distribution of those mineral resources which may be of current or potential economic interest. The maps are intended to assist strategic decision making in respect of mineral extraction and the protection of important mineral resources against sterilisation. They bring together a wide range of information, much of which is scattered and not always available in a convenient form. The	of which give need for fine types depend durability, as
	COUNTY TYRO		maps have been produced by the collation and interpretation of mineral resource data principally held by the Geological Survey of Northern Ireland. The Geological Survey of Northern Ireland and counterpart The British Geological Survey have produced the maps via a commission from the Department of the Environment. This map, along with one for each of the five other counties (including	A wide varie equivalents ( building ston the thicker sa any direction
	Mineral Resource Map of Northern Mineral Resources		county boroughs), was completed in 2012 and a series of six digitally generated maps at a scale of 1:100 000 are available. The mineral resource data depicted on these maps are also available in a digital format for use within a Geographical Information System (GIS).	work. Igneous and
	Scale 1:100 000 Compiled by: R.A. Shaw, P.E.J. Pitfield, J.M. Mankelow, M.R. Cooper,	PAJ Lusty D.G. Cameron	<i>Mineral resources</i> Mineral resources are natural concentrations of minerals which might now, or in the foreseeable future, be of economic value. The assessment of mineral resources is, therefore, a dynamic process which must take into account a range of factors. These include geological reinterpretation as additional data becomes available, as well as the continually evolving demand	Rocks of the Racolpa Qua Sedimentary
	and K.A. Linley Project Leaders: J.M. Mankelow (BGS) and M.R. Cooper (GSNI) Digital Cartography: N.A. Spencer (BGS) Published 2012	· · · · · · · · · · · · · · · · · · ·	for minerals, or specific qualities of minerals, due to changing economic, technical and environmental factors. Consequently, the economic potential of mineral resources is not static, but changes with time. Generally, a mineral resource is known to exist within the boundaries outlined by geological mapping, which may be supplemented by more in depth geological data. Mineral Resource data depicted on the map shows the inferred extent of a	Currently, in Drumquin), v are primarily Other guarrie
	This map is one of a series of six maps comprising the Mineral Resourcement commissioned by the Department of the Environment (Northern Ireland		supplemented by more in depin geological data. Mineral Resource data depicted on the map shows the interfed extent of a mineral resource. Inferred resources are those defined from available geological information and assumed but not verified geological continuity. They have neither been evaluated by drilling or other sampling methods, nor had their technical properties characterised, on any systematic basis.	building ston have been re Devonian-ag
410000	BGS map reference: Mineral Resource Map of Northern Ireland - County Tyrone Shaw, R.A, Pitfield, P.E.J., Mankelow, J.M., Cooper, M.R., Lusty, P.A.J	I., Cameron, D.G. and	Limitations The mineral resource data presented are based on the best available information, but are not comprehensive and their quality is variable. The inferred boundaries shown are, therefore, approximate. Mineral resources defined on the map delineate the areas within which potentially workable minerals may occur. These areas are not of uniform potential and also	However, the Carboniferou dimension st colours. The
	Linley, K.A. OR/12/014		take no account of planning constraints that may limit their working. Much of Northern Ireland is covered by thick superficial deposits of peat and glacial till, neither of which is shown on the main map. This overburden would need to be removed prior to the working of many of the bedrock resources depicted. Peat, as a mineral resource, is included on an inset map. Till is not considered to be a resource although it may contain small sand and gravel deposits. The economic potential of specific sites	Dungannon. Sandstone a sandstones i
	SAND AND GRAVEL		can only be proved by a detailed evaluation programme. Such an investigation is an essential precursor to submitting a planning application for mineral working. Areas are shown on the map as having no mineral resource potential, but some isolated mineral workings may occur. The presence of these operations generally reflect very local or specific situations. The locations of extant or expired planning permissions for the extraction of mineral are shown. These have been supplied by	Various Carb stone. These Scraghy Qu Formation at
	Superficial deposits           Glaciofluvial and glacial deposits		the Department of the Environment. Due to the complex and historic nature of planning permissions, some digital outlines are not available and, therefore, may not be shown on the map. In addition, building stone quarries are also shown. Information on the location of building stone quarries was taken from the Natural Stone Database of Northern Ireland, developed by the Consarc Design Group and Queens University Belfast, supplemented by information from GSNI. Due to the historic nature of many building stone quarries, digital outlines of the planning permission are unavailable and, therefore, are not shown on the	Red sandsto of buildings a The Ulster W used elsewho
	SANDSTONE		map. While the compilers have tried to ensure that the site details are as accurate as possible, any map depicting the location of mines and quarries is a snapshot in time. Moving the extraction location as reserves become exhausted or a new extension starts production, and renaming of sites are regular occurrences, and in addition planning permission may cease to be extant.	
	Sandstone with potential for high specification ag	ggregate	The map is intended for general consideration of mineral issues and not as a source of detailed information on specific sites. The map should not be used to determine individual planning applications or in taking other decisions on the acquisition or use of a particular piece of land, although they may give useful background information which sets a specific proposal within context.	
400000	CONGLOMERATE		Copyright Topographic data is Crown Copyright and is reproduced with the permission of Land & Property Services under delegated authority from the Controller of Her Majesty's Stationery Office © Crown copyright and database rights, EMOU206.1 (2012).	
	Conglomerate		Environmental designation data is based on Crown Copyright and is reproduced with the permission of Land & Property under delegated authority from the Controller of Her Majesty's Stationery Office © Crown copyright and database rights, EMOU206.2. Northern Ireland Environment Agency Copyright 2012.	
	IGNEOUS AND META-IGNEOUS ROCKS Dolerites, lamprophyres, and their metamorphic		Mineral planning permission data and areas of constraint on mineral developments are reproduced with the permission of the Planning and Local Government Group, Northern Ireland Department of the Environment. Copyright 2012. The locations of building stone quarries from the Natural Stone Database of Northern Ireland are reproduced with permission	
	(meta-dolerites and meta-gabbros) suitable for h Other igneous and meta-igneous rocks (basalts, granites, volcanogenic and meta-volcanic rocks)	andesites, rhyolites,	of the Consarc Design Group. Copyright 2012 Stone Database. Geological Map © Crown Copyright 2012. All rights reserved. This publication has been produced by the British Geological Survey and Geological Survey of Northern Ireland for the	
	META-SEDIMENTARY ROCKS		Department of the Environment (Northern Ireland). The publication (excluding logos) may be reproduced free of charge in any format or medium for research, private study or circulation within an organisation. This is subject to it being reproduced accurately and not in a misleading context. The material must be acknowledged and the title of the publication specified.	
	Psammites and quartzites			
	LIMESTONE High purity limestone (>97% CaCO <sub>3</sub> ) - Ulster Wh	ite Limestone		
390000 —	Limestone - Carboniferous			
	Other limestone			
	DOLOMITE		Cruede	Print Print Bian Garage + 1
	SILICA SAND		record CROSS HILL Path Court or Furt Courts	
	Silica sand		ARDNAERMICH Forest	Bigs Directors Directors Directors
	Lignite (coincident with Lough Neagh Clay)		A Construction of the second s	
380000	Shallow coal (coincident with fireclay)		Burnise MulliyAA 10 10 10 10 10 10 10 10 10 10	
	CLAY Lough Neagh Clay (coincident with lignite)			ta based o 250 000 sca
	Brick clay		An Antonia A	apping
	Fireclay (coincident with shallow coal)		Treesmine Treesm	The Carical
	MINERAL WORKINGS (as at 23.03.12) Greencastle (Sag) Extent of valid (e (name, mineral of	extant) planning permission		J
		planning permission		
370000	Building stone quarries (including historical)			
370000	Mineral commodity Cla Clay and shale Ign Igneous/meta Lst Limestone Met Meta-sedimer Pea Peat San Sand	-igneous rocks ntary rocks	CRUSHED ROCK AGGREGATES Crushed rock aggregates are a key component of construction materials such as concrete and asphalt where aggregate adds low-cost reinforcement to these composite materials. Loose aggregates are also used as a stable foundation or road/rail base with predictable, uniform properties.	
	Sag Sand and gravel Sst Sandstone		A wide variety of hard rocks are suitable for use as aggregates including igneous, sedimentary and their metamorphic equivalents (igneous or sedimentary rocks which have subsequently been altered by heat and/or pressure). Their technical suitability for different applications depends upon physical characteristics, such as crushing strength and resistance to impact and abrasion.	
	METALLIC MINERAL OCCURRENCES     Symbol indicates elemental occurrence		High specification aggregates (HSA) are needed to produce skid-resistant road surfacing. They must have a high resistance to polishing. This is expressed as a 'Polished Stone Value' (PSV) of 58 or higher. HSA materials must also meet strict specifications for resistance to abrasion, fragmentation and weathering, as well as compositional restrictions. For less demanding applications such as constructional fill and drainage media, a wider variety of rocks with lower specifications are	
	Au Gold Ag S	Element Silver Copper	acceptable. This text box describes resources of crushed rock aggregate in County Tyrone derived from igneous rocks, sedimentary rocks such as sandstones, together with their metamorphic equivalents. Limestones, which are also an important source of	
	FeIronMoINiNickelPbIPGEPlatinum Group ElementsSbA	Molybdenum Lead Antimony	crushed rock aggregate in Co. Tyrone, are described in a separate text box. <i>Igneous and meta-igneous rocks</i> County Tyrone has abundant resources of igneous and meta-igneous rocks suitable for crushed rock aggregate. It currently	
	Zn Zinc ENVIRONMENTAL DESIGNATIONS (as at 2	23.03.12)	accounts for approximately 15 per cent of total Northern Ireland production. Older rocks of the Tyrone Igneous Complex, in the north central part of the county, are suitable for HSA, together with igneous rocks of similar age found around Strabane. High specification aggregates are also available from some older basic intrusions within the metamorphic basement which forms the Sperrin Mountains.	
360000 —	International nature conservation designations (SACs, SPAs and RAMSAR sites)		Resources of other igneous rocks suitable for use as general purpose aggregate are well distributed across Co. Tyrone. In the east of the county, the resource predominantly comprises the basalts and associated intrusions of the Antrim Lava Group. Further west, granites, dolerites and gabbros of the Tyrone Igneous Complex are quarried in a number of locations for general purpose aggregate. Volcanic rocks from the same complex are quarried in the Omagh area.	
	National nature conservation designations (ASSIs and NNRs)		Sedimentary and meta-sedimentary rocks Good quality HSA resources occur from east to west across Co. Tyrone in the form of Carboniferous-age gritty sandstones and conglomerates. These materials have PSV values in excess of 60 and are quarried for both aggregate and building stone at a range of locations from Cookstown to west of Omagh. Older sandstones and metamorphosed sandstones	
	<ul> <li>Area of Outstanding Natural Beauty: Sperrin (paint)</li> <li>+ Scheduled Monument</li> </ul>	rt)	(psammites), mostly from the Precambrian-age basement rocks of the Sperrin Mountains are, or have been worked for both HSA and general purpose aggregate.	
	MINERAL CONSTRAINT (as at 23.03.12)		SUPERFICIAL SAND AND GRAVEL Sand and gravel are defined on the basis of particle size rather than composition. In current commercial practice, following	
	Area of Constraint on Mineral Developments		the introduction of the European standards in 2004 (BS EN 12620), the term 'gravel' (or more correctly 'coarse aggregate') is used for general and concrete applications to define particles between 4 and 80 mm. The term 'sand' (or more correctly 'fine aggregate') is used for material that is finer than 4 mm, but coarser than 0.063 mm. For use in asphalt, 2 mm is the break point between coarse and fine aggregate. Most sand and gravel is composed of particles that are durable and rich in silica (guartz, guartzite and flint).	
	ADMINISTRATIVE AREAS		The principal uses of sand are as a fine aggregate in concrete, mortar and asphalt and the main use of gravel is as coarse aggregate in concrete. Substantial quantities of sand and gravel may also be used for constructional fill.	
350000 —	WARNING: Please be aware that the printed colours may differ due to the settings	of the plotter used.	The variability of sand and gravel deposits together with their possible concealment within or beneath till (boulder clay), means that it is difficult to infer their location and the likely extent of potentially workable resources. Most workable deposits of sand and gravel formed at the end of the last ice age. They lie on top of the bedrock geology and are generally concentrated in the river valleys where they were deposited directly by ice at the margins of glaciers (glacial) or	
			by meltwater flowing from the ice margin (glaciofluvial). Glacial ice-contact deposits tend to be poorly-sorted and of inconsistent quality and thickness. Glaciofluvial deposits are generally well-sorted and more predictable in terms of quality and quantity. County Tyrone is the main producer of sand and gravel in Northern Ireland, accounting for over 55 per cent of the total	
			Glaciofluvial sand and gravel deposits are the second most important source of aggregate in Northern Ireland after crushed	SILICA S
			rock and are the principal source of aggregates in Co. Tyrone. Within glaciofluvial sand and gravels, proglacial outwash, sheet and deltaic-related deposits are the most economically important. These are relatively thick (up to 30-40 metres) and general higher quality. Currently there are over 30 active sand	Silica (indust as constructi wide range o sport and ho
			and gravel operations in this type of deposit across Co. Tyrone. Workings within glaciofluvial sheet and glaciolacustrine deltaic deposits are not as common, although it is likely that these deposit types will be worked in future. <i>Glacial ice-contact deposits</i>	sandstones. such as chro sphericity to than constru- silica sand.
			Formed by melt-water deposition beneath or adjacent to glaciers, these deposits are generally poorly-sorted and of inconsistent quality and thickness. Glaciofluvial ice-contact deposits are less extensive than the outwash and sheet deposits and are mostly located in the north-west of Co. Tyrone, localised within valleys in the lower catchment of the River Foyle. About 30 active and ceased sand and gravel and sand-only operations are recorded in this area.	West of Coo (Fe <sub>2</sub> O <sub>3</sub> ) conte might be of s
	190000	200000	210000	2200

