

# Braidbar Quarry Housing Development

## Environmental Statement

### 8.0 CULTURAL HERITAGE

#### 8.1 Introduction

8.1.2 This chapter identifies known and potential archaeological features that may be affected by the proposed housing development at Braidbar Quarry, Giffnock, and outlines measures for avoiding or mitigating any impacts to cultural heritage features.

8.1.3 The key objectives of the assessment were to:

- identify known and potential sites of archaeological interest and assess their importance;
- identify and assess the significance of the impact of the proposed development on each site;
- assess the potential for impacts on any unknown archaeological remains;
- propose measures for avoiding, reducing or mitigating potential impacts; and
- highlight any residual impacts.

#### 8.2 Approach and Methods

##### Baseline Conditions

8.2.1 Jacobs have undertaken an investigation of the cultural heritage of the site and surrounding area, comprising a detailed desk-based assessment, followed by a walkover survey. The desk-based assessment followed guidelines set out in 'Standards and Guidance for Archaeological Desk Based Assessments' (Institute of Field Archaeologists 1994, revised 2001).

##### Desk-based Assessment

8.2.2 The desk-based assessment covered the Braidbar development site (16 acres), and approximately 1 km beyond the site boundary. Sites considered susceptible to visual impacts upon their setting were included in the assessment

8.2.3 For the purposes of this study, all readily available sources of information held by the relevant heritage bodies were consulted, as well as secondary documentary sources, some manuscript sources, historic maps and aerial photographs. Data on the historic environment was acquired from the following sources:

- West of Scotland Archaeological Services (WoSAS)
- Historic Scotland for information on Ancient Monuments, Listed Buildings, Designed Landscapes, Parks and Gardens and Historic Battlefields;
- the National Monuments Record of Scotland (NMRS);
- Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS);

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- Oblique Aerial Photographs held by the RCHAMS
- Early Maps held in the National Map Library of Scotland

8.2.4 A full list of the documents and historical maps consulted is provided in Section 8.7 (References).

#### Consultation

8.2.5 The following organisations were contacted to request information or comment on the archaeology and cultural heritage of the area:

- West of Scotland Archaeology Service (WoSAS): provided details of recently recorded sites in the area from their Sites and Monuments Record (SMR);

#### Field Survey

8.2.6 A walkover survey of the development area was undertaken on the 3<sup>rd</sup> of May 2007. This involved a visual assessment of the condition of the known archaeological sites identified through the desk-based assessment, and a survey of the area to identify any previously unrecorded sites. The survey also assessed areas where development may affect previously unknown buried archaeological remains.

8.2.7 Any areas identified as being of archaeological significance were described, measured and photographed. The locations of sites were recorded using a hand held Global Positioning System (GPS) with an accuracy of up to 15m. This provided additional information for recording the site locations, which were then plotted onto an OS map.

8.2.10 All archaeological sites have been assigned individual site numbers and are indicated in bold aid identification.

#### History and Development of the Giffnock Quarries

8.2.10 Giffnock has been well known for its quarries throughout the 19<sup>th</sup> and 20<sup>th</sup> centuries and the first recorded quarrying of sandstone was in 1835. In its heyday the area had several working quarries including Braidbar, New Braidbar, Williamwood, Giffnock and New Giffnock. The quarries produced two types of stone, 'liver rock' and 'Moor rock'. The Liver rock was the preferred material for not only the quarrymen but also stonemasons and sculptors due to its lack of stratification, which made it more less likely to split and easier to work. In contrast Moor rock was distinctly harder and more porous, and as a result was less valued as a building material.

8.2.10 The 1<sup>st</sup> edition OS maps (1857, Eastwood and Cathcart Parish, sheet XIII.14) show that the first quarries to be established in this area were Giffnock and Braidbar. The level of production was soon increased when in 1854 the Glasgow coal-mining firm of Baird and Stevenson took over the quarrying operations at Giffnock. In 1864 the Glasgow-East Kilbride railway was built, thus enabling the transportation of the quarried stone by rail to its required destinations.

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The 2nd edition OS (1898, Renfrewshire and Lanarkshire, sheet XIII.14) clearly illustrates that during this period that quarrying in this area was at its peak. Giffnock Quarry had expanded to double its size with the New Giffnock Quarry located on the eastern side of Kilmarnock Road. Braidbar quarry had also doubled in size with the southwestern section, extending to form Orchard Quarry. The establishment of the Glasgow-East Kilbride line included a single track, which extended to Braidbar Quarry and in doing so formed the northern boundary of Orchard Quarry. Also during this time, within the south-eastern area, the New Braidbar Quarry was established. Between the time that the 1<sup>st</sup> and 2<sup>nd</sup> edition OS maps were published it appears that Williamwood Quarry had a fairly short period of production as within some 41 years it had come into and gone out of production.

- 8.2.13 On the 3<sup>rd</sup> edition OS (1913, Renfrewshire and Lanarkshire, Sheet XIII.14) it can be seen that all of the quarries remained of similar size in plan to that marked previously. The 3<sup>rd</sup> edition map shows us a greater level of detail of the layout and terrain of the quarries. It can be seen that Within New Braidbar Quarry, tunnels had been formed within the core of the quarry. These tunnels were formed though the 'stoop and room' method of quarrying, where the excavation of the Liver rock formed walls and pillars, while the upper deposit of Moor rock formed roofs. Only Giffnock Quarry had during this period gone out of use in addition to Williamwood.
- 8.2.14 At the turn of the 20<sup>th</sup> century the main rivalry to the Giffnock Quarries was the red Triassic stone quarried in Locharbriggs near Dumfries, whose deep red colour was in greater demand. These two opposing sources of sandstone were earlier united in the construction of Kelvingrove Museum where the distinctive red sandstone was used to embellish the external faces of the Museum. The quarrying continued in Giffnock until the early 20<sup>th</sup> century when the remaining quarries (Giffnock, Braidbar, Orchard and New Braidbar) were finally consumed by a combination of flooding and the ever-increasing cost of stone extraction.
- 8.2.15 On the Revised OS map (1941, Renfrewshire and Lanarkshire, sheet XIII.14) it can be seen that probably in response to the downturn in quarrying due to the lack of demand for stone that the area in general is experiencing large-scale residential development. All of the afore mentioned quarries are now marked as disused and portions of Giffnock and Braidbar Quarries have been backfilled to accommodate some the post war housing boom. An oblique RAF WWII aerial photograph taken in the 1940's show Williamwood and New Braidbar Quarry as flooded while Orchard and Braidbar appear to have been backfilled and landscaped. During the intervening years the quarries were used as to dispose of waste from the Dixons Blazes steel foundries in the Gorbals as well as waste from coal mining. Between 1940 and 1970 the remaining 'open' quarries (Williamwood and New Braidbar) were backfilled and landscaped, in effect forming an isolated park among a densely developed area.
- 8.2.16 The stone produced from the Giffnock area was highly sought after and within Glasgow many well-known buildings were constructed from this material. The interior of Kelvingrove Museum is adorned with this sandstone and the older parts of Glasgow University were constructed from it. The renowned architect Alexander (Greek) Thomson used the sandstone in some of his villas such as nearby 'Holmwood' in Netherlee.

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While sandstone from these quarries was transported further afield to Belfast, the USA and South Africa. Some sources state that the stone was carried as ballast in trading ships to Australia and claim that Australian Government buildings are partially constructed from Giffnock stone.

### **8.3 Baseline Conditions**

- 8.3.1 Sites or features of potential cultural heritage significance situated within the site boundary are described in table 8.1, and those situated beyond the site boundary (generally within 1km) are described in Table 8.2. The locations of these features are shown in Figure 8/1.

#### **Known Archaeological Sites and Features within the Site Boundary**

- 8.3.2 A total of 2 archaeological sites were identified within the site boundary, these comprised of in-filled and landscaped quarries (sites **13**, and **19**) which extend into the proposed development area. Both sites have been assessed as being of local importance. A description and assessment of the importance of each site is presented in Table 8.1.

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**Table 8.1: Archaeological Sites within the Site Boundary**

Site	Name / Parish	Description	NMRS, SMR & NGR No.	Legal status	Importance
13	Orchard Quarry	Noted in the 2nd edition OS (1898, sheet xiii.14) to south of Braidbar Quarry. Disused by revised OS (1941, sheet xiii.14).	NS 565 592	N/A	Local
19	New Braidbar Quarry	On 2nd edition OS (1898, sheet xiii.14) to north-west of Williamwood quarry, contains one rectangular structure in middle of quarry. Still in use by the 3rd edition OS map (1913, sheet xiii.14 and x.10) with noted underground tunnels. Marked as disused by the 1941 OS revision map (1941, sheet xiii.14).	NS 570 589	N/A	Local

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### **Archaeological Sites beyond the Site Boundary**

- 8.3.3 A total of 35 further areas/sites of potential cultural heritage significance were identified beyond the site boundary, comprising 5 regional, 23 local, and 7 of unknown importance (Figure 8/1). A brief description and assessment of importance is provided in Table 8.2.

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**Table 8.2: Identified Archaeological Sites Beyond the Site Boundary**

Site No.	Name / Parish	Description	NMRS, SMR No. & NGR	Legal status	Importance
1	Merrylee Polished Axe	Findspot - a large, polished stone axe, found in 1860 at Giffnock Quarries, near Pollokshaws. It is a rounded oval in section, with the edges ground flat and both ends alike.	NS 563 595 8304 NS55NE 2	N/A	Local
2	Giffnock/Quarry	Depicted in Roy (1747-55, sheet 05/6d). Prior to the quarry a small farm within an enclosed field system occupied this area. By the 1 <sup>st</sup> edition OS map (1857, sheet xiii) the quarry is marked with adjacent central range building (possibly farm noted by Roy) to the north-east. Still partially in use by the revised OS (1941, sheet xiii.14) surround by encroaching housing estates.	NS 562 595	N/A	Local
3	Merrylee Park Housing Estate	Residential development (owner-occupied) built by Mactaggart & Mickel from 1931 to 1961.	NS56SE 304 NS 5671 5981	N/A	Local
4	New Giffnock Quarry	Illustrated in the 2nd edition OS (1898, sheet xiii.14) as an extension to Giffnock Quarry. Marked as disused by the 3rd edition OS map (Renfrewshire and Lanarkshire, 1913, sheet xiii.14). Although reduced in size it is still marked on the revised OS (Renfrewshire, 1941, sheet xiii.14) surround by encroaching housing estates.	NS 563 594	N/A	Local
5	District Court House		NS55NE 277 NS 563 594	N/A	Local
6	Braidholm Road, Police Station	First illustrated on revised OS (Renfrewshire, 1941, sheet xiii.14)	NS55NE 276 NS 5636 5934	N/A	Local
7	Braidbar Quarry	First noted in the 1 <sup>st</sup> edition OS (1857, sheet xiii) with various associated buildings. Still in use by the 3rd Ed OS (1913, sheet xiii) and subsequently marked as disused by revised OS (1941, sheet xiii.14).	NS 567 593	N/A	Local
8	Bogton House	Depicted in Roy (1747-55, sheet 05/6d) as Bogton Castle, composed of a main square building with two additional outlying smaller buildings. In 1 <sup>st</sup> edition OS (1857, sheet xiii) depicted as a T-shaped house within a designed landscape. Demolished by the 3 <sup>rd</sup> edition OS map (1913, sheet xiii.14) and area developed into a housing estate.	NS 577 596	N/A	Unknown
9	Linn Park Housing Estate	Large scale residential development (owner-occupied) built by Mactaggart & Mickel from 1930 to 1931.	NS55NE 79 NS 5788 5932	N/A	Local
10	Netherlee town	Residential	NS55NE 99 NS 579 591	N/A	Local
11	Clarkston Road	Glasgow, Clarkston Road, general. Road stretches from mapsheet NS55NE to NS56SE	NS55NE 147 NS 579 591	N/A	Local
12	Braidbar	First recorded by Roy (1747-55, sheet 05/6d) comprising of three separate buildings within an enclosed field system. Subsequently illustrated on the 1 <sup>st</sup> to the revised edition of the Ordnance Survey (1957-1941) with slight additions being made during this period. By site visit (May 2007) all structures associated with this site have gone.	NS 568 592	N/A	Unknown
14	Giffnock Station	Opened 1/1/1866 (Busby Railway); probably rebuilt when line doubled 1881	NS55NE 187 NS 564 591	N/A	Local
15	Orchard Park Hotel/ nursing home	Built circa 1900. 2-storey and attic house with Arts and Crafts detailing. Built of yellow ashlar with asymmetrical elevations; single, mullioned and transomed windows. Octagonal turreted bay at SE has finialled, ogival leaded roof. This structure is noted on the 3 <sup>rd</sup> edition OS (1913, sheet xiii.14) to the immediate south of the Orchard site.	NS55NE 186 NS 562 589	C Listed HB No. 5133	Local

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Site No.	Name / Parish	Description	NMRS, SMR No. & NGR	Legal status	Importance
16	Orchard	Illustrated in Roy (1747-55, sheet 05/6d), composed of two separate buildings within an enclosed field system. By the 1 <sup>st</sup> edition OS map (1857, sheet xiii) the site is depicted as having a central range of buildings, forming a courtyard. The main structure still depicted in 3 <sup>rd</sup> edition OS (1913, sheet xiii.14) though has been greatly encroached upon by housing estate. Demolished by the revised OS ( 1941, sheet xiii.14)	NS 565 592	N/A	Unknown
17	Maverton Buildings/Hall	Built circa 1905. Symmetrical wide 2-storey red ashlar facade with shops at ground. Shop fronts all contained beneath ground floor cornice.	NS55NE 184 & NS55NE 235 NS 562 589	C Listed HB No. 5133	Local
18	Giffnock town	Architect: Salmon & Gillespie	NS55NE 93 NS 569 590	N/A	Local
20	Mound	A square level mound about 2m high, 80m square top, just south of the remnants of Bogton Loch, suggests use for a house. Does not appear on consulted editions of OS.	S55NE 58 8346 NS 5721 5899	N/A	Local
21	Netherlee Parish Church	1933. Stewart and Paterson, architects. Gothic style. Red sandstone. Slated roof. Large traceried window at E end. Wide nave with low segmental-arched arcades at sides. Polygonal W end. Gallery at E end. Open timber ceiling	NS55NE 188 NS 5769 5897	B Listed HB No. 5166	Regional
22	MacClaren Place	Andrew Wilson of Glasgow, 1934-5. Long 3-storey tenement with shops at ground combining traditional Glasgow details with popular 1930's decorative details. A structure was first noted in this area in the 1 <sup>st</sup> edition OS (1857, sheet xiii) and it is continually altered until it is replaced in 1934-5.	NS55NE 203 – 210 NS 578 589	B Listed HB No. 5126	Regional
23	Williamwood House Lodge	Depicted in the 1 <sup>st</sup> edition OS (1857, sheet xiii) as a mirror image small structure at the entrance to Williamwood House. The two lodges remain depicted in the 3 <sup>rd</sup> edition OS map (1913, sheet xiii.14). By the revised edition OS map (1941, sheet xiii.14) the northern lodge has gone.	NS55NE 191.01 NS 577 587	N/A	Local
24	Beechgrove Park	Over 100 sherds of medieval pottery, including a strap handle and rim fragments, were found in the roots of a fallen tree at Netherlee Park in January 1985. The site is a steep-sided motte-like knoll	NS55NE 39 8325 NS 577 586	N/A	Local
25	Netherlee	Illustrated in Roy (1747-55, sheet 05/6d), composed of two rectangular structures close to the White Cart River. Depicted in the 1 <sup>st</sup> – 3 <sup>rd</sup> edition OS (1857, 1898, 1913 sheet xiii), as a U-shaped structure with associated out building and small formal garden. Demolished by the revised OS (1941, sheet xiii.14), replaced by housing estate.	NS 576 585	N/A	Local
26	House/Burials	The New Statistical Account (NSA, Cathcart, 1845) notes that the old castle of Lee or Williamwood stood near the place where a group of 42 "subterranean houses" were discovered in 1808. On clearing away the old castle foundations, the proprietor found many human bones "which were of almost superhuman magnitude."	NS55NE 3 8315 NS 573 587	N/A	Unknown
27	Williamwood House		NS55NE 191.00 NS 574 586	N/A	Local
28	Enclosure	Oval enclosure immediately south of the former garden wall of Williamwood House, It measures approximately 65m north-south by 45m transversely within a bank 3m to 4m broad and up to 1m high, there is a suggestion of an external ditch, 1.5m to 2m wide.	NS 55NE 27 8312 NS 573 585	N/A	Local
29	Williamwood Quarry	Williamwood Quarry; this site, in the angle between the railway and Bogton Burn, now forms a triangular area between ditch and burn 65m long, 50m at its widest; within it is a 30m broad tabular ridge. The ditch, extended to serve as a drain, is 50m long, cut 1.5m to 2m deep in rock and 2m wide. Quarry first noted on the 2nd edition OS (1898, sheet xiii.14) to south-east of New Braidbar quarry – and is noted as disused.	NS55NE 28 8313 NS 5705 5866	N/A	Local
30	Orchardhill Church of Scotland	Church & Halls; Gothic Revival; stone-built; tiled roof; squat tower with stair turret; c.1899; archt. H.E. Clifford. First noted on the 3 <sup>rd</sup> edition OS (1913, sheet xiii.14).	NS55NE 159 NS 563 587	B listed HB No. 5123	Regional



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Site No.	Name / Parish	Description	NMRS, SMR No. & NGR	Legal status	Importance
31	Giffnock and Newlands Synagogue		NS55NE 237 NS 561 587	N/A	Local
32	Rhuallan House	Built probably in 1880's. 2-storey and attic villa with Scots renaissance detailing, conical-roofed turreted bay at SW. Stugged ashlar with polished dressings and narrow window margins, elaborate strap work pediments; single, mullioned and/or transomed windows with plate glass sashes.	NS55NE 185 NS 561 584	B Listed HB No. 5121	Regional
33	Newmains Brick and Tile Works	Noted on the 1 <sup>st</sup> edition OS map (1857, sheet xiii), demolished by 2 <sup>nd</sup> edition OS (1898, sheet xiii.14).	NS 562 584	N/A	Unknown
34	Coin Hoard	A hoard of coins, brooches etc was discovered in the spring of 1879 at Giffnock. They were subsequently sold and scattered, the brooches going to Ireland. However, a total of 466 coins were recovered by the Exchequer; they were mainly English pennies of Edwards I, II and III, but included 3 pennies of Alexander III and 8 foreign coins. Also forwarded to the Exchequer were four pieces of a jar in which the hoard had been hidden, and a piece of a ring. Thirty silver coins and a piece of the jar were donated to the NMAS (Acc No: ME 42).	NS 569 588 8326	N/A	Local
35	Stone Axe	A stone axe from Giffnock in Glasgow Art Galleries and Museum. No axe from Giffnock is now in Glasgow Art Galleries and Museum, though may have been returned to private hands. There is a stone axe from Giffnock in the NMAS (Acc. No: AF 426). Information from NMAS MS list.	NS 569 589	N/A	Local
36	Birkenshaw Tile Works	Noted on the 1 <sup>st</sup> edition OS map (1857, sheet xiii), demolished by 2 <sup>nd</sup> edition OS (1898, sheet iii.14).	NS 564 583	N/A	Unknown
37	Lanarkshire and Ayrshire railway line	Noted on the 3 <sup>rd</sup> edition OS (Renfrewshire and Lanarkshire, 1913, sheet xiii.14).	NS 568 583 - 575 596	N/A	Regional
38	Williamwood Tile Works	Demolished 1920	NS55NE 155 47223 NS 5720 5816	N/A	Unknown

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### Predicted Impacts (Direct)

8.3.4 The significance of predicted direct impacts (i.e. physical disturbance) was determined taking into account the sensitivity of the archaeological resource affected, and the magnitude of the impact.

#### Sensitivity

8.3.5 The general sensitivity of cultural heritage receptors was assessed on a scale of 'National', 'Regional', 'Local' or 'Unknown' importance using the baseline data.

8.3.6 The assessment of sensitivity was based partly on professional judgment and experience. However, for archaeological sites, it also took into account the Secretary of State's non-statutory criteria for the designation of SAMs published by the Department of the Environment as Annex 4 to Planning Policy Guidance Note 16 (PPG16): 'Archaeology and Planning' (ODPM, 1990). These criteria are 'Period', 'Rarity', 'Documentation', 'Group Value', 'Survival/Condition', 'Fragility/Vulnerability', 'Diversity' and 'Potential'. All SAMs are assumed to be of national importance.

8.3.7 The general assessment of cultural heritage and archaeology was undertaken in accordance with the following documents:

- National Planning Policy Guidelines (NPPG) 5: Archaeology and Planning (Scottish Office, 1994);
- NPPG18: Planning and the Historic Environment (Scottish Office, 1999);
- Planning Advice Note (PAN) 42: Archaeology - The Planning Process and Scheduled Monument Procedures (Scottish Office, 1994);
- Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997; and
- Standard and Guidance on Archaeological Desk-Based Assessments (Institute of Field Archaeologists, 1999).

8.3.8 The criteria used to define cultural heritage sensitivity are outlined in Table 8.3 below:

**Table 8.3: Cultural Heritage Sensitivity / Importance Criteria**

Sensitivity	Criteria
National	<ul style="list-style-type: none"><li>• Scheduled Ancient Monument (SAM);</li><li>• Category A Listed buildings; or</li><li>• Some unclassified archaeological sites.</li></ul>
Regional	<ul style="list-style-type: none"><li>• Archaeological Sites of Regional Importance;</li><li>• Category B Listed Buildings; or</li><li>• Some archaeological sites.</li></ul>
Local	<ul style="list-style-type: none"><li>• Archaeological Sites of Local Interest;</li><li>• Some Category C(s) Listed Buildings; or</li><li>• Some archaeological sites.</li></ul>
Unknown	<ul style="list-style-type: none"><li>• Archaeological sites whose nature, location, extent or survival is insufficiently understood to allow proper assessment.</li></ul>

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- 8.3.9 The criteria used to outline the magnitude of impact are outlined in Table 8.4 below.

**Table 8.4: Magnitude of Direct Impacts on Cultural Heritage**

Magnitude	Criteria
Very Severe	Disturbance to over 75% of the known or estimated area of the site
Severe	Disturbance to between 50% and 75% of the known or estimated area of the site
Medium	Disturbance to between 25% and 50% of the known or estimated area of the site
Negligible	Disturbance of up to 25% of the known or estimated area of the site

### Significance

- 8.3.10 The significance of direct impacts was then determined in accordance with a matrix of sensitivity (importance) and magnitude, as shown in Table 8.5.

**Table 8.5: Significance of Direct Impacts on Cultural Heritage**

Magnitude of Impact \ Sensitivity	Very Severe	Severe	Medium	Negligible
National	Substantial	Substantial	Moderate	Slight
Regional	Substantial	Moderate	Slight	Negligible
Local	Moderate	Slight	Slight	Negligible

- 8.3.11 The assessment of significance of the potential impact was adjusted as appropriate to take into account the relative importance of the specific parts of the site which would be affected. For instance, an impact which is of 'very severe' magnitude in terms of the area of the site affected may nevertheless only affect peripheral features, while a 'medium' magnitude impact may affect the core of a site. Other qualitative factors taken into account include potential severance of linked features, nature of the severed linkage, the amount of stratigraphy which would be disrupted, and the overall effect on the historic integrity of the site.

### **Indirect Impacts**

- 8.3.12 As with direct impacts, the significance of indirect impacts (i.e. on setting) was determined taking into account the sensitivity of the archaeological resource affected, and the magnitude of impact.
- 8.3.13 Many archaeological sites or features are not visible, or barely visible, from ground level, and therefore irrespective of their importance such sites will usually not be vulnerable to visual impacts. A process of selection was therefore undertaken prior to selecting sites for visual impact assessment, using the following criteria:
- the sites are visible above ground level; *and*
  - the sites are either directly accessible to the public, or are visually prominent from a publicly accessible point at distance; *and*

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- the nature of the sites is such that the aesthetic quality of their setting may be considered a contributory factor in assessing the overall site importance; *or*
- the site is a SAM, or a Listed Building (other than a milestone or milepost as these are particularly small-scale features).

#### Sensitivity

- 8.3.14 The sensitivity of cultural heritage sites to visual impacts on their setting was separately assessed according to a methodology outlined in Table 8.6 below. A preliminary selection process was undertaken to identify sites that may be vulnerable to visual impacts. The sensitivity of these sites was then assessed as 'High', 'Medium', 'Low' or 'Not sensitive'.

**Table 8.6: Sensitivity of Cultural Heritage Sites to Impacts on Setting**

<b>Sensitivity</b>	<b>Description</b>
High	<ul style="list-style-type: none"><li>• sites of National importance that are visually prominent; or</li><li>• sites of Regional importance whose visual setting contributes significantly to their importance and which are visually prominent.</li></ul>
Medium	<ul style="list-style-type: none"><li>• sites of National importance that are visible above ground, but are not visually prominent;</li><li>• sites of Regional importance that are visually prominent; or</li><li>• sites of Local importance whose visual setting contributes significantly to their importance and which are visually prominent.</li></ul>
Low	<ul style="list-style-type: none"><li>• other sites of Local or Regional importance that are visible above ground but are not visually prominent and whose visual setting does not contribute to their importance.</li></ul>
Not sensitive	<ul style="list-style-type: none"><li>• any sites that are not visible above ground.</li></ul>

#### Magnitude

- 8.3.15 The magnitude of visual impacts on the setting of cultural heritage sites was assessed according to established principles and criteria set out in published guidance (Guidelines for Landscape and Visual Impact Assessment (LI/IEMA, 2002)). These criteria were also used in the assessment of overall visual impacts, and are described in more detail in Chapter 7 (Landscape and Visual impact). The application of the criteria leads to a definition of the magnitude of impact for each viewpoint on a four-point scale of 'Dominant', 'Prominent', 'Present' or 'Negligible'.

#### Significance

- 8.3.16 The overall significance of visual impacts was then assessed by taking into account the sensitivity of the receptor and the magnitude of the impact, as shown in Table 8.7. For each site, the viewpoint taken into consideration was the one with the greatest magnitude of impact.

**Table 8.7: Significance of Impacts on Cultural Heritage Setting**

<b>Magnitude of Impact</b> <b>Sensitivity</b>	<b>Dominant</b>	<b>Prominent</b>	<b>Present</b>	<b>Negligible</b>
<b>High</b>	Substantial	Substantial	Moderate	Slight
<b>Medium</b>	Substantial	Moderate	Slight	Negligible
<b>Low</b>	Moderate	Slight	Slight	Negligible

## 8.4 Predicted Impacts

8.4.1 The main types of potential impact on the cultural heritage resource are:

- **Direct:** Physical damage to sites, whether recorded or as yet undiscovered, usually permanent/irreversible and occurring during construction e.g. during topsoil stripping, excavation, machine movement and placement of temporary soil/construction material storage, during construction, access routes, buried services, compounds (temporary or permanent) or borrow-pits, bunds, planting etc.
- **Indirect:** Principal indirect impacts are likely to be visual intrusion affecting the setting of cultural heritage sites. However, other possible indirect impacts include preventing public access, disturbance from vibration, dewatering or changes in hydrology. These indirect impacts may occur during the construction or operational phases.

### **Construction Impacts (Direct and Indirect)**

8.4.2 There are a range of archaeological sites within or next to the site boundary. These include Listed Buildings, sandstone quarries, industrial remains, and religious sites.

8.4.3 Potential construction impacts on 2 areas/sites of local cultural heritage importance have been identified, as outlined in Table 8.8.

**Table 8.8: Predicted Construction Impacts on Cultural Heritage**

<b>Site No.</b>	<b>Nature of Impact</b>	<b>Site importance</b>	<b>Impact Magnitude</b>	<b>Impact Significance</b>
13, 19	No Impact	Local	None	None

### Summary of Potential Construction Impacts

8.4.4 Within the bounds of the development, the quarries (sites **13** and **19**) would be subject to physical impact through the construction phase however this is not considered to be of significance due to the obviously heavily disturbed and modern nature of the quarries.

8.4.5 In addition, there is always a potential for impacts on unknown archaeological remains that have not yet been identified. The presence,

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magnitude and significance of these impacts cannot at present be confirmed or assessed.

#### **Operational Impacts (Indirect: on setting)**

- 8.4.6 The 37 sites identified in the desk-based assessment were considered in accordance with the visual impact criteria described in Section 8.2 (Approach and Methods). It is considered that none of the sites will be subject to visual impact due to the extent and nature of the proposed development (large residential housing estates).

### **8.5 Mitigation**

- 8.5.1 Outlined below are proposed measures designed to avoid, reduce or mitigate the potential impact the construction of the residential development may have on the archaeological resource.
- 8.5.2 The suggested mitigation is based on professional judgment regarding the sensitivity of the site, and the magnitude and significance of the impact.

#### **Mitigation of Direct Impacts**

- 8.5.3 The preferred mitigation for archaeological sites is to preserve *in situ*. When this is not possible, monitoring, recording and archaeological excavation should be undertaken as appropriate. Due to the extensive areas of quarrying (sites **13**, **19**) within the development area, any avoidance of these sites has not been possible.
- 8.5.4 Detailed design of any mitigation measures, if required will take place in consultation with WoSAS after determination of the planning application. These measures may consist of archaeological monitoring and recording;

**Table 8.9: Archaeological Guidance Mitigation Measures**

Site No.	Description	Site importance	Impact significance	Guidance Mitigation
13	Orchard Quarry	Local	Negligible	<b>Construction Phase: None</b>
19	New Braidbar Quarry	Local	Negligible	<b>Construction Phase: None</b>

#### **Mitigation of Impacts on Unknown Archaeology**

- 8.5.5 There is a risk that unknown archaeological remains may be disturbed during the construction phase, however no previously unrecorded features or areas with particular potential for archaeology were noted during the site walkover. There is also the possibility that unrecorded industrial remains may exist over previously undisturbed areas of the site. Although the location of recorded industrial sites is well known due to the comprehensive OS mapping available, the possibility remains that unknown or previously unrecognized industrial sites may exist.

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### Mitigation of Visual Impacts

8.5.7 No sites of cultural heritage were identified as potentially being subject to visual impact. Potential mitigation measures for visual impacts typically consist of three options, or combinations of them:

- design measures to reduce the visual dominance of the development;
- tree and shrub planting to reduce the visual dominance of the development by screening views from sensitive receptors; and
- provision of earthwork features to reduce the visual dominance of the development by obscuring views from sensitive receptors.

8.5.8 As no sites are subject to visual impact, there are no mitigation works required in relation to the cultural heritage associated with the development.

### 8.6 Residual Impacts

8.6.1 The direct impacts on the known archaeological remains are at the most of negligible significance, and it is considered that they can be mitigated by archaeological recording works.

8.6.2 It has not been possible to identify any appropriate and feasible mitigation measures in respect of the visual impact described above. The residual significance of the visual impacts is therefore unchanged from the assessments set out above

### 8.7 References

#### Documentary sources

- |                               |  |
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