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Greenburn Surface Mine: Proposed Carsgailoch Hill Extension

Cultural Heritage Assessment

12 Cultural Heritage

Introduction

- 12.1 This chapter summarises the effects on cultural heritage interests of the proposed development. Figure 12.1 depicts the proposed development area, together with the locations of cultural heritage sites and features identified by the study. A gazetteer containing descriptions of each of these is provided as Technical Appendix 12.1.
- 12.2 The proposed development would occupy an area of moderately sloping land between 260m and 360m AOD (above Ordnance Datum), with the most elevated part of the site at its northern end, towards Carsgailoch Hill. The site is bounded to the south and east by existing surface coal workings and to the north and west by rough pasture moorland and forestry plantations respectively.
- 12.3 The specific objectives of the cultural heritage study were to:
- Identify the cultural heritage baseline within the proposed development area and key receptors (whose settings may be affected);
 - Assess the proposed development site in terms of its archaeological and historic environment potential, within the context of relevant legislation and planning policy guidelines;
 - Consider the potential and predicted effects of the construction and operation of the development on the baseline cultural heritage resource; and
 - Propose measures, where appropriate, to mitigate any predicted significant adverse effects.
- 12.4 The chapter was undertaken by CFA Archaeology Ltd (CFA) and has been informed by data and comments provided by Historic Scotland and West of Scotland Archaeology Service (WoSAS).

Legislation & Policy Context

National Legislation and Policy

- 12.5 Scotland's historic environment contributes to the Scottish Government's strategic objectives and to the National Performance Framework¹. The Scottish Historic Environment Policy (SHEP)² document sets out Scottish Minister's policies for the historic environment, and provides policy direction for Historic Scotland and a framework that informs the day-to-day work of a range of organisations that have a role and interest in managing the historic environment. Scottish Ministers are determined to achieve three outcomes for Scotland's historic environment:
- That the historic environment is cared for, protected and enhanced for the benefit of our own and future generations.
 - To secure greater economic benefits from the historic environment.

- That the people of Scotland and visitors to our country value, understand and enjoy the historic environment.

- 12.6 Cultural heritage resources include sites with statutory and non-statutory designations, as defined in Scottish Planning Policy (SPP)³. Sites with statutory designations include:
- Scheduled Monuments.
 - Listed Buildings.
 - Conservation Areas.
- 12.7 Sites with non-statutory designations include:
- World Heritage Sites.
 - Gardens and Designed Landscapes.
 - Historic Battlefields.
 - Other Historic Environment Interests.
- 12.8 Those relevant to this study are other historic environment interests (which includes: other archaeological features and other buildings of historic or architectural importance). There are no Scheduled Monuments, no Listed Buildings, and no Conservation Areas within the assessment areas defined below (Section 1.4).
- 12.9 There is a range of other non-designated archaeological sites, monuments and areas of historic interest, including battlefields, historic landscapes, other gardens and designed landscapes, woodlands and routes such as drove roads that do not have statutory protection. Sites without statutory protection are curated by the local planning authority and SPP and PAN 2/2011⁴ provide national planning policy guidance and advice on the treatment of such resources.

SCOTTISH PLANNING POLICY

- 12.10 Scottish Planning Policy (para 123) notes that archaeological sites and monuments are an important, finite and non-renewable resource and should be protected and preserved in situ wherever feasible. It is a requirement of the policy that the presence and potential presence of archaeological assets should be considered by planning authorities when allocating sites in the development plan and when making decisions on planning applications. Where preservation in-situ is not possible planning authorities should, through the use of conditions or a legal agreement, ensure that developers undertake appropriate excavation, recording, analysis, publication and archiving before and/or during development.
- 12.11 SPP (para 239) notes that Scottish coal output is likely to continue to play a significant role in ensuring diverse and sustainable supplies of energy at competitive prices. Although development can raise significant environmental issues, extraction is necessary and important in

¹ The Scottish Government (2007) Scottish Budget Spending Review 2007, Edinburgh: The Scottish Government

² Historic Scotland (July 2009) Scottish Historic Environment Policy. Edinburgh: Historic Scotland.

³ The Scottish Government (2010) Scottish Planning Policy, Edinburgh: The Scottish Government

⁴ The Scottish Government (2011) Planning Advice Note (PAN), 2/2011: Planning and Archaeology, Edinburgh: The Scottish Government

the national interest. Paragraph 241 states that deposits of coal and related minerals capable of being extracted should not be sterilised unnecessarily. Development plans and development management decisions should aim to minimise any significant negative impacts from surface coal extraction on (amongst others) the built and natural heritage (para 242).

PLANNING ADVICE NOTE 2/2011

- 12.12 PAN 2/2011 advises that, in determining planning applications, planning authorities should take into account the relative importance of archaeological sites (para 5). It also notes that in determining planning applications that may impact on archaeological features or their setting, planning authorities may on occasion have to balance the benefits of development against the importance of archaeological features (para 6). The desirability of preserving a monument (whether scheduled or not) is a material consideration and the objective should be to assure the protection and enhancement of monuments by preservation in situ, in an appropriate setting. When preservation in situ is not possible, recording and/or excavation followed by analysis and publication of the results may be an acceptable alternative (para 14).
- 12.13 The PAN also notes that archaeological issues are often significant in minerals planning (para 9). It goes on to say that a steady supply of minerals is essential to [Scotland's] economic, infrastructure and community needs but the extraction of minerals can present a threat to archaeological remains. Because minerals can only be worked where they are found there may be less flexibility over the choice of location than for other forms of development. In considering the information necessary to make decisions on applications for extraction, and in designing programmes of mitigation when consent is granted, there is a need to pay particular attention to the affordability of archaeological requirements. Only sufficient information to characterise the archaeological content and potential of application areas should be required with applications. Phasing of post-consent mitigation programmes should be considered the norm, rather than seeking to have all mitigation work done before any winning of minerals commences.

Regional Policy

AYRSHIRE JOINT STRUCTURE PLAN “GROWING A SUSTAINABLE AYRSHIRE” (APPROVED NOVEMBER 2007)⁵

- 12.14 The Ayrshire Joint Structure Plan “*Growing A Sustainable Ayrshire*” (Approved November 2007) establishes the Ayrshire Councils’ framework that brings together the aspirations of communities with those of business and industry to provide a strategic land use context to the year 2025. The plan sets out a shared vision for progress to 2025 and seeks to achieve strong and vibrant communities, a sustainable and growing economy, a good quality of life and a healthy environment which together will make a positive contribution to the wellbeing of Ayrshire, the wider Glasgow City Region and Scotland as a whole.
- 12.15 One of the structure plans five key objectives aims to safeguard and enhance the quality of the environment. Paragraph 89 recognises that Ayrshire has an attractive, high quality environment and that historic and cultural heritage of the area provide an input to the sense of place and local distinctiveness.

⁵ Ayrshire Joint Structure Plan Committee (November 2009) Ayrshire Joint Structure Plan: Growing a Sustainable Ayrshire, Prestwick: Ayrshire Joint Structure Plan Committee

- 12.16 Paragraph 109 recognises that built heritage, including: conservation areas and historic settlements, historic and architecturally important buildings, scheduled ancient monuments, archaeological locations and landscapes, historic gardens and designed landscapes, provides a link between ourselves and the past and helps define our sense of place and belonging.

- 12.17 Policy ENV 6 *Protection of the Built Heritage* states that development proposals considered to have an adverse impact on: listed buildings of architectural and historic interest; designated conservation areas; historic gardens and designed landscapes; and archaeological locations and landscapes will not conform to the structure plan. Local Plans will prepare detailed policies to protect and enhance built heritage resources.

Local Policy

EAST AYRSHIRE LOCAL PLAN (ADOPTED OCTOBER 2010)⁶

- 12.18 East Ayrshire Local Plan - Adopted October 2010 has a primary strategic aim ‘to promote sustainable development, to maximise the potential of East Ayrshire and to improve the quality of life of its residents’. This is achieved through specific aims, one of which is safeguarding and enhancing the quality of the built and natural environment. The following Local Plan policies are of specific relevance to this assessment:
- 12.19 Policy ENV1 states that The Council will seek to protect, preserve and enhance all built heritage resources requiring conservation, including Listed Buildings and Conservation Areas, together with their respective settings, Historic Gardens and Designed Landscapes, Scheduled Monuments and Archaeological and Industrial Archaeological Sites and Landscapes.
- 12.20 Policy ENV6 seeks to protect Scheduled Monuments and other identified nationally important archaeological resources. The policy states that these sites should be preserved in situ and in an appropriate setting. Developments which have an adverse effect on Scheduled Monuments or the integrity of their settings shall not be permitted unless there are exceptional circumstances. Other archaeological resources shall be preserved in situ wherever feasible. The Council will weigh the significance of any impacts on archaeological resources and their settings against other merits of the development proposals in the determination of planning applications. The developer may be required to supply a report of an archaeological evaluation prior to the determination of the planning application. Where the case for preservation does not prevail, the developer shall be required to make appropriate and satisfactory provision for archaeological excavation, recording, analysis and publication in advance of development.

EAST AYRSHIRE OPENCAST SUBJECT PLAN⁷

- 12.21 In accordance with the Town and Country Planning (Scotland) Act 1997 and associated legislation, East Ayrshire Council (EAC) produced an Opencast Subject Plan which sets out the strategy adopted by EAC with regard to opencast coal mining in the area. Aim 2 of the subject plan is to conserve and enhance the character, appearance and amenity of rural area, its landscape quality and areas of nature conservation and heritage interest. The aim is achieved through Policy MIN27 under which EAC will ensure that opencast coal proposals do not have unacceptable adverse impacts on the natural and built environment. In particular proposals will

⁶ East Ayrshire Council (2010) East Ayrshire Local Plan, Kilmarnock: East Ayrshire Council

⁷ East Ayrshire Council (2003) East Ayrshire Opencast Coal Subject Plan, Kilmarnock: East Ayrshire Council.

not be supported if they would have a permanent adverse impact or cause irreparable damage to heritage resources requiring conservation including Listed Buildings, Historic Gardens and Designed Landscapes, Scheduled Monuments, archaeological and industrial archaeological sites.

Issues Identified During Consultation

- 12.22 East Ayrshire Council (Development Planning and Regeneration) noted in its Scoping Opinion (16/11/2011) that whilst not a scheduled ancient monument, the covenanter's grave is of local historic significance and should be afforded protection through any proposed development. This issue is addressed in the text below.
- 12.23 WoSAS provided a Scoping Opinion (17/11/2011) which set out their expectations regarding the scope of the assessment. The approach recommended has been adopted by this study, which was carried out prior to receipt of the Scoping Opinion. WoSAS drew particular attention to the presence of a probable Bronze Age burial cairn (Fardenreoch Cairn), noting that it is included in Historic Scotland's Non-Statutory register (NSR) as a possible scheduling candidate. It was also noted that, although the NSR is no longer maintained, this does not detract from the fact that it is likely to be a very important site. The presence of a farmstead on the Linn Burn, a cairn (probably a marker cairn), a number of quarries, and the possible line of a Roman Road were also highlighted. WoSAS suggested that, in relation to the burial cairn, the ES would also need to include proposals to assess the potential for associated, buried deposits to survive; this most likely through trial trenching.
- 12.24 Historic Scotland provided its Scoping Opinion (26/11/2011) advising that with regard to the heritage sites within their remit (scheduled monuments and their settings; category A listed buildings and their settings; historic gardens and designed landscapes appearing in the Inventory) they are of the view that significant impacts are unlikely and that they would be content for the assessment to scope out historic environment features at the national level. (to be updated)

Assessment Methodology

Baseline Characterisation

STANDARDS

- 12.25 This study has been conducted in accordance with the Institute for Archaeologists Code of Conduct (IfA 2010)⁸ and Standard and Guidance for an Archaeological Desk-based Assessment (IfA 2009)⁹. The principal methods included archival and documentary research, consultation with interested parties, and reconnaissance field survey.

⁸Institute for Archaeologists (IfA) (2010) 'By-Laws: Code of Conduct', Reading: Institute for Archaeologists.

⁹Institute for Archaeologists (IfA) (2009) 'Standard and Guidance for an Archaeological Desk-based Assessment', Reading: Institute for Archaeologists.

PROPOSED DEVELOPMENT AREA

- 12.26 A desk-based assessment and a reconnaissance field survey have been conducted of the proposed development area defined by the red line boundary shown on Figure 12.1.
- 12.27 Up-to-date information was obtained from appropriate sources on the locations of cultural heritage sites with statutory protection and non-statutory designations either within or in the vicinity of the proposed development area.
- 12.28 Details of the locations and extents of Scheduled Monuments, Listed Buildings, Gardens and Designed Landscapes were downloaded from the Historic Scotland Spatial Data Warehouse¹⁰.
- 12.29 Information on known archaeological sites and features within the proposed development area was obtained from the West of Scotland Historic Environment Record (HER). The data was provided in digital format.
- 12.30 Information on the character and condition of known archaeological sites and features within the proposed development area was obtained from the National Monuments Record of Scotland (NMRS) maintained by the Royal Commission on the Ancient and Historic Monuments of Scotland (RCAHMS) and Historic Scotland, or from the HER records as appropriate.
- 12.31 Ordnance Survey maps and other early maps held by the Map Library of the National Library of Scotland were examined, to provide information on sites of potential archaeological significance and on historic land-use development.
- 12.32 An assessment was made of vertical aerial photograph collections held by the RCAHMS. Sorties dating from 1946 to 1988 were available for examination.
- 12.33 Bibliographic references were consulted to provide background and historical information.
- 12.34 The online Historic Land-Use Assessment for Scotland¹¹ (HLAMap), maintained by the RCAHMS, was consulted for information on the historic land use character of the proposed development area.
- 12.35 The Scottish Palaeoecological Database¹² (SPAD), which records the distribution of known palaeoecological sites across Scotland was consulted for information on recorded sites within or adjacent to the proposed development area.
- 12.36 A reconnaissance field survey was undertaken (21st September 2011) of the proposed development site. The aims of the survey were to:
- Assess the information previously obtained through the desk-based assessment;
 - Identify the extent and condition of any visible archaeological sites or historic environment features
 - Assess the topography and geomorphology of the proposed development site and determine the archaeological and palaeoenvironmental potential of the site.
- 12.37 The reconnaissance survey included targeted visits to those sites and features previously recorded, and those identified by the desk-based assessment, that were readily accessible within the commercial forestry and a walkover survey of the open moorland outwith the forestry.

¹⁰ <http://hsewsf.sedsh.gov.uk/gisdl.html>

¹¹ <http://www.rcahms.gov.uk>

¹² <http://xweb.geos.ed.ac.uk>

Identified sites were recorded on *pro-forma* monument recording forms and by digital photography, and their positions were logged using GPS equipment.

EXTERNAL RECEPTORS

12.38 Information was gathered on cultural heritage sites with statutory protection present within 2km of the proposed development area boundary, and also on non-designated sites of national importance (Non-Statutory Register sites) present within the same area. This limit was set on the assessment area taking into account the historical and current landscape of surface mines around the proposed development area and the presence of modern commercial forestry to the west. Only one site - Little Rigend Castle (WoSASPIN 8024) - was identified within this study area. There are no scheduled monuments, listed buildings, conservation areas, gardens and designed landscape or historic battlefields within 2km of the development site boundary and there are none within 2km of the whole Greenburn SCM site boundary (operational and extensions).

Method of Assessment

12.39 The types of effect of the proposed development on cultural heritage interests have been assessed in the following categories:

- *Direct*, where there may be a physical effect on a site caused by the development. Direct effects tend to have permanent and irreversible adverse effects upon cultural heritage remains.
- *Indirect*, where the setting of a site may be affected.
- *Uncertain*, where there is a risk that the works may impinge on a site, for example where it is not clear where the location or boundaries of a site lie, what the current condition of a site is, or where the precise nature of development works is not known.

12.40 Effects have been assessed in terms of the magnitude of the predicted impact (see below), longevity (permanent/temporary; short-term, medium-term, long-term), reversibility, and nature (adverse/neutral/beneficial) of the resultant effect.

- Beneficial effects are those that contribute to the value of a receptor through enhancement of desirable characteristics or the introduction of new, positive attributes.
- Neutral effects occur where the development can be accommodated comfortably by the receiving environment while neither contributing to nor detracting from the value of the receptor.
- Adverse effects are those that detract from the value of a receptor through a reduction in or disruption of valuable characterising components or patterns, or the introduction of new inappropriate characteristics.

Significance Criteria

12.41 The assessment of value/sensitivity of archaeological and heritage assets reflects the relative weight which statute and policy attach to them

Table 12.1: Value/Sensitivity of Cultural Heritage Assets

Value/Sensitivity	Definition/criteria
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High	Sites of national or international importance, including: <ul style="list-style-type: none"> ▪ World Heritage Sites ▪ Scheduled Monuments and sites proposed for scheduling ▪ Undesignated archaeological sites and areas of probable national importance identified in the HER ▪ Category A Listed Buildings ▪ Gardens and Designed Landscapes (Inventory Sites) ▪ Historic Battlefields (Inventory Sites) ▪ Outstanding Conservation Areas
Medium	Sites of regional importance, including: <ul style="list-style-type: none"> ▪ Archaeological sites and areas of distinctive regional importance ▪ Archaeologically Sensitive Areas ▪ Category B Listed Buildings ▪ Conservation Areas
Low	Sites of Local Importance, including: <ul style="list-style-type: none"> ▪ Archaeological sites of local importance ▪ Category C(S) Listed Buildings ▪ Unlisted historic buildings and townscapes with local (vernacular) characteristics
Negligible	Sites of little or no importance, including: <ul style="list-style-type: none"> ▪ Sites of former archaeological features ▪ Unlisted buildings of minor historic or architectural interest ▪ Poorly preserved examples of particular types of feature

12.42 Magnitudes of impact are assessed in the categories of imperceptible, low, medium or high and are described in Table 12.2 below.

Table 12.2: Definitions of Magnitude of Impact

Level of magnitude	Definition
High	Major effects fundamentally changing the baseline condition of the receptor, leading to total or major alteration of character or setting.
Medium	Moderate effects changing the baseline condition of the receptor materially but not fundamentally, leading to partial alteration of character or setting.
Low	Minor detectable effects which do not alter the baseline condition of the receptor materially.
None	No impact.

12.43 Table 12.3 combines these criteria to provide an assessment of whether or not an effect is considered to be significant as required by the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011¹³.

Table 12.3: Matrix for assessing significance of direct effect

Magnitude of	Heritage Value/Sensitivity of Asset
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¹³ The Scottish Government (2011) Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2011, Edinburgh: The Stationery Office

Impact	High	Medium	Low	Negligible
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Imperceptible	Minor	Negligible	Negligible	Negligible

12.44 Moderate and major effects are considered to be significant in terms of the requirements of the EIA Regulations.

Baseline Conditions

Current Baseline

- 12.45 The desk-based assessment and field survey have identified twenty-three cultural heritage assets within the site and one potential receptor within 2km of the development site boundary. Figure 12.1 depicts the cultural heritage assets identified within the site. The one external receptor (Little Rigend Castle) lies around 3km southwest from the centre of the site. There are no other cultural heritage receptors, whose settings could be affected by the development, within 2km of the Greenburn SCM site boundary (operational and extensions).
- 12.46 The NMRS and HER provided records of four cultural heritage assets within the site (Map references 1-4). Examination of historic maps identified ten features (5-9, 11-13, 16 and 22) and examination of vertical aerial photographs confirmed the presence of three sites (10, 17 and 18). The southern part of the site had been the subject to a previous field survey in 2006¹⁴ which identified three cultural heritage features (14-15 and 18). The reconnaissance field survey carried out during the current phase of assessment identified five additional features (19-23).

Character of Cultural Heritage Baseline within the Proposed Development Area

- 12.47 Details of all cultural heritage assets identified within the site are provided in Appendix 12.1, their locations are shown on Figure 12.1, and they are discussed thematically below.

PREHISTORIC REMAINS

- 12.48 Fardenreoch Cairn (2), which may be the remains of a Bronze Age burial monument, is recorded in the HER as a non-statutory register (NSR) site code C (almost certainly of national importance). This attribution was given to the site as part of a desk-based project sponsored by Historic Scotland to identify sites of potential schedulable quality; the attribution of its importance was therefore determined, at the time of the project, without confirmation of its character and condition by a site visit.
- 12.49 Plate 1 (below) shows the present condition of the cairn, which appears to have been robbed of most, if not all of its stone content; perhaps to build the nearby dry-stone field dyke. The outline of a cairn some 16-17m in diameter can be made out on the ground, defined by slight turf mounds, and a slight arc of bank around the southwest arc. The cairn occupies a slight raised

knoll close to a deeply cut, un-named watercourse (on its east side) that runs from the plateau between Carsgailoch Hill and Carnivan Hill to join the River Nith southeast of the former Greenburn Farm.

- 12.50 Topsoil depth is not great in the immediate area, which has been improved and was used for cultivation or pasture during the 19th and 20th centuries, corresponding to the occupation of the former Fardenreoch Farm; therefore there is little probability that there is a significant buried component to the cairn. There may, however, be preserved burials or cremations either within the body of the cairn or as satellite features in the area surrounding it.
- 12.51 If the cairn was well-preserved and more intact it may be that it would conform to the criteria for scheduling. However, in its present condition the site does not warrant such statutory protection. It is, though, an important archaeological monument type and a rare surviving example in this part of Ayrshire and may still contain archaeological evidence of Bronze Age burial practices. The cairn is assessed as being of regional importance and of medium value/sensitivity.



Plate1: Fardenreoch Cairn from the South (1m scale at right)

ROMAN REMAINS

- 12.52 Lonie and Newall¹⁵ recorded the line of an alleged Roman road (4) traversing the site from northeast to southwest running along a terrace nick on the spur of the Carnivan Hill. No evidence of this supposed Roman road was recorded during the field survey, nor was any evidence for it

¹⁴ Greenburn Surface Mine: Dalgig Extension Environmental Statement (2006)

¹⁵ Lonie, W. and Newall, F (1974) 'Roman Road Surveys, the Clyde-Nith Cross Road', Discovery and Excavation in Scotland Edinburgh: Council for Scottish Archaeology

found during a previous field survey by the Ordnance Survey in 1980. It is considered unlikely that a Roman road followed this alignment, and the site is assessed to be of negligible value and sensitivity.

MEDIEVAL OR LATER RURAL SETTLEMENT REMAINS

- 12.53 Two former farmsteads (**3** and **16**) have been identified within the site. A possible farmstead at Black Hill (**3**) was recorded by Lonie and Newall¹⁶ on the eastern bank of Linn Burn, including: a platform, probably to support a timber house; a semi-circular partially stone-lined scooped area; and a grave mound with associated rig and furrow located to the south and east. The site is of local archaeological interest and of low heritage value/sensitivity.
- 12.54 A second farmstead, The Linn (**16**), is depicted on the Ordnance Survey 1st Edition Map¹⁷, where it is shown as an isolated building with an associated enclosure, but by the 2nd Edition Ordnance Survey Map¹⁸ the building is shown to be unroofed. A previous field survey in 2006¹⁹ identified a number of low dry-stone walls which did not seem to correspond to the buildings as shown on the Ordnance Survey maps. The area is now occupied by a forestry plantation and it is likely that any remains of the farmstead will have been destroyed by pre-afforestation ploughing. The site is considered to be of no more than low heritage value/sensitivity.
- 12.55 Other archaeological remains relating to the agricultural past of the area include the remains of three sheepfolds (**11-13**). Three turf banks (**15, 17** and **18**) were recorded during the previous field survey in 2006; both largely destroyed by pre-afforestation ploughing. A number of other turf banks (**22**) enclosing areas of rig and furrow cultivation and a turf bank (**23**) on the summit of Carnivan Hill were also recorded during the field survey. These features are all considered to be of negligible heritage value/ sensitivity.

MISCELLANEOUS FEATURES

- 12.56 Towards the north western corner of the site is the Martyrs' Grave (**1**) where the graves of Covenanters Joseph Wilson, John Jamieson and John Humphrey, who were shot here in 1685, are marked by a square inscribed pillar. The inscription on the commemorative pillar states that it was erected in 1826. The commemorative pillar survives in good condition within a clearing in the forestry plantation. The Martyrs' Grave is considered to be of local historic environment interest and is of low heritage value/sensitivity.
- 12.57 Ten old quarries (**5-10** and **19-21**) are located within the site, recorded either from the First Edition Ordnance Survey Map or from field survey. These quarries are all considered to be of negligible heritage value/sensitivity.

Archaeological Potential of the Proposed Development Area

- 12.58 The presence of Fardenreoch Cairn (**2**) indicates that the site and the wider Nith Valley have been a focus for settlement from the prehistoric period onwards, although recorded prehistoric remains in the wider area are notably sparse.

¹⁶ Lonie ,W. and Newall, F (1974) 'Steading', Discovery and Excavation in Scotland, Edinburgh: Council for Scottish Archaeology

¹⁷ Ordnance Survey (1860) Ordnance Survey First Edition Six Inches to 1 Mile. Sheet XLI

¹⁸ Ordnance Survey (1896) Ordnance Survey Second Edition Six Inches to 1 Mile. Sheet XLI.11

¹⁹ Greenburn Surface Mine: Dalgig Extension Environmental Statement (2006)

- 12.59 Other remains recorded within the site relate to medieval or later agrarian activity and the HLA Map records the historic land-use character of the proposed development site as being moorland and rough grazing and 20th century forestry. Part of the eastern (open moorland) part of the site is currently semi-improved pasture; the extent of which is shown on Ordnance Survey 1st edition maps²⁰²¹. The western part of the development site is a commercial forestry plantation, dating from the 1970s. For the western part of the site, substantial damage to or destruction of any buried archaeological remains which may have been present is likely to have occurred during pre-afforestation deep ploughing; although Black Hill farmstead (**3**) and The Linn (**16**) do survive as denuded and dilapidated remains. Recorded archaeological remains within the wider area, with the exception of Fardenreoch Cairn (**2**), all relate to the improvement of the landscape during the post-medieval period.
- 12.60 Preliminary peat depth probing (see Figure 11.3) across the site indicates that there is an area of deep peat on the southwest side of Carnivan Hill, on what is a broad, boggy plateau. The preliminary data suggest that there may be peat in excess of 4m deep. This peat could well hold a record of past environmental and ecological changes going back as much as 4,000 years and is likely to provide valuable archaeological information on the local environment at the time when the cairn was constructed.
- 12.61 Overall, it is considered that there is a moderate potential for further prehistoric remains to be preserved in the eastern part of the site; both buried beneath the overlying peat and, especially in the immediate vicinity of Fardenreoch Cairn. The potential for well-preserved archaeological sites or features to survive as buried remains within the afforested area is considered to be low.

External Receptors

- 12.62 There are no Scheduled Monuments or Listed Buildings, nor any Conservation Areas, Gardens or Designed Landscapes, or Historic Battlefields within 2km of the proposed development site boundary whose settings would receive an adverse effect from this proposed development. There is one site, Little Rigend Castle (WoSASPIN 8024), circa 1.9km to the southeast of the site boundary, that is recorded in the HER a Non-Statutory Register (NSR) Site Code V (probably of national importance).

Future Baseline (Do Nothing)

- 12.63 If the proposed development was not to proceed there would be no change to the baseline condition of the sites and features within the development area. The current pasture and open moorland land-use and forestry exploitation would most probably continue, limiting the potential for disturbance to cultural heritage assets, and only natural decay would occur to the upstanding remains. Any buried remains present would remain largely unaffected. There would be no change to the setting of cultural heritage receptors assets in the wider landscape.

Potential Impacts

- 12.64 Surface mining would have direct, permanent and adverse impacts on all features of archaeological significance that may be present within the areas to be mined, since mining

²⁰ Ordnance Survey 1860 Ayr Sheet XLI.7

²¹ Ordnance Survey 1860 Ayr Sheet XLI.11

operations would lead to their complete removal. The nature of the proposed operations is such that preservation of archaeological or historic environment sites *in situ* in the area of the proposed excavation is not always a viable option. Other mining related activities, such as vehicle movements, soil and overburden storage and restoration landscaping also have the potential to cause direct, permanent and irreversible effects on cultural heritage sites and features not directly affected by the extraction process.

- 12.65 The presence of surface mining developments can also have indirect impacts on the settings of cultural heritage assets in the wider landscape. In particular, there is potential for developments to affect important views of and from Scheduled Monuments and Listed Buildings or views and vistas from, to or within Conservation Areas and Gardens and Designed Landscapes. There are no such sites within 2km of the site boundary therefore there is little potential for effects on the settings of such sites.

Potential operational impacts

DIRECT IMPACTS

- 12.66 As a result of the surface mining operations direct impacts will occur on the remains of a prehistoric (Bronze Age) burial cairn (2); the remains of two former small farmstead (3 and 16); two former sheepfolds (12 and 13); several enclosure or field boundary banks (15, 17, 18, 22 and 23); several former quarries (8, 10, 14 and 19-21); and an area of palaeoenvironmental potential on Carnivan Hill. These sites and features would be lost through topsoil removal and other groundworks.
- 12.67 The burial cairn (2) is of medium value / sensitivity and the high magnitude direct impact would result in an impact of major significance, which would be offset by an approved programme of mitigation as set out below (Mitigation during Operation).
- 12.68 The two farmsteads (3 and 16) are of low value / sensitivity and the high magnitude direct impact would result in impacts of minor significance, which would be offset by appropriate mitigation as set out below (para 12.80).
- 12.69 The remaining features are all of negligible low value / sensitivity and the high magnitude direct impact would result in impacts of minor significance, which would not require detailed mitigation.

INDIRECT IMPACTS (SETTINGS)

- 12.70 Little Rigend Castle (WoSASPIN 8024) is designated by in the West of Scotland Historic Environment Record as a Non-Statutory Register (NSR) Site Code V (probably of national importance). The castle is located 1.9km to the southeast of the development site boundary. It is located on the southern bank of the River Nith, the area to the north having previously been subject to surface mining and now forming part of the House of Water Scottish Coal site, which is currently in the restoration / aftercare stage. The NMRS and HER records that the remains consist of an amorphous earth and stone mound, up to 0.5m high, and that the site was partially excavated in 1978-9. It is also recorded that appreciation of the castle remains on the ground has been hindered by previous archaeological excavations which have led to a confused appearance to the remains, but that it is possible to make out a basic rectilinear form. The Ordnance Survey Name Book (1856) records that the site was formerly the baronial residence of

the Cathcart family and that it is shown on an estate plan of 1805, but that, when recorded, there were no remains except the rubbish left when the stones were removed for building purposes²².

- 12.71 Taking into account that both historical and ongoing open-cast mining in the area has substantially altered the setting of Little Rigend Castle, and that the proposed development lies around 2km to the northeast of the remains, it is considered that the development would have an impact of negligible significance upon the setting of this site.

Mitigation

- 12.72 Government policy (set out in PAN 2/2011) is to protect and preserve archaeological sites and monuments, and their settings, in situ wherever feasible (para 4). Where preservation *in situ* is not possible, planning authorities are advised to consider applying conditions to planning consents to ensure that an appropriate level of excavation, recording, analysis, publication and archiving is carried out before and/or during development.
- 12.73 Mitigation can include avoidance or reduction of impacts through design measures or offset measures (preservation by record) in accordance with planning conditions. PAN2/2011 recommends that, in the case of mineral extraction proposals, phasing of post-consent mitigation programmes should be considered the norm, rather than seeking to have all mitigation work done before extraction commences. The following mitigation strategy is proposed in line with this planning policy.

Mitigation by Design

- 12.74 The extraction plan for the western part of the site has been designed such that the Martyrs' Grave (1) has been excluded from the proposed development.
- 12.75 The available coal reserve is such that in order to fully exploit the resource the preservation in situ of the denuded remains of Fardenreoch Cairn (2) within an appropriate setting would not be practicable. In order to attain that end, a significant portion of the eastern part of the development site would need to be excluded from the extraction plan and the watercourse alignment and the present moorland landscape retained.
- 12.76 Most of the features identified by the study (small post medieval farm buildings, field boundary banks and quarries) are not of a level of importance that warrants their preservation in situ and so there is no requirement for their avoidance.

Mitigation during Operation

- 12.77 All mitigation proposals would be agreed in advance through discussion with WoSAS, presented for approval by the planning authority in a Written Scheme of Investigation (WSI), and carried out in accordance with phased extraction programme. The WSI would make provision for appropriate post-excavation analyses and dissemination of the results of the mitigation works, as well as for archiving of the project materials and records upon completion.

²² Ordnance Survey (Name Book) Object Name Books of the Ordnance Survey Page(s): Book No.49, 42

12.78 All work would be conducted to the relevant Institute for Archaeologists Standard and Guidance Documents (Archaeological Field Evaluation, Archaeological Excavation, and Archaeological Watching Brief).

PRESERVATION IN-SITU

12.79 The Martyrs' Grave Memorial **(1)** will be preserved in situ and excluded from the extraction area. The area, within the redline site boundary but outwith the extraction area, will not be used for spoil or overburden storage and that location will be marked as out-of-bounds to vehicular traffic, except for achieving restoration objectives.

12.80 The remains of a rectangular enclosure with a large bank extending from its south side **(23)**, on Carnivan Hill, would be marked out for avoidance prior to operations commencing in that area. If it is not possible to preserve the whole of the bank, an appropriate level of archaeological evaluation will be undertaken.

ARCHAEOLOGICAL EVALUATION AND EXCAVATION

12.81 The Bronze Age burial cairn **(2)** will be the subject of a detailed programme of excavation, recording and analysis, commensurate with its archaeological value, that will include the following aspects:

- Full archaeological excavation of the remains of the body of the cairn, including recording of the extent of the cairn and its construction.
- Any burials or cremations will be removed and safely stored for later post excavation analysis; after which time they retained with the rest of the site archive.
- Any artefacts recovered will be removed, reported according to normal treasure trove procedures and stored for later post excavation analysis; after which time they retained with the rest of the site archive.
- The area around the excavated cairn will be subject to an archaeologically controlled topsoil strip extending to cover the summit of the low knoll upon which the cairn stands (approximately 40m northeast-southwest by 60m northwest-southeast and parallel to the steep edge of the watercourse). The purpose will be to identify any areas of activity around the cairn, such as hearths, ritual deposits or secondary burials. Any features identified will be fully excavated.
- A palaeoenvironmental study will be undertaken which will involve the archaeological recovery of two replicate cores from the deepest area of peat on Carnivan Hill. The cores will be subject to an appropriate and phased programme of analysis, the details of which will be set out in the WSI.

12.82 Prior to the commencement of mining operations the two small farmsteads **(3 and 16)** would be the subject of evaluation trial trenching which will be carried out in order to determine the nature and character of the remains and to recover any artefacts that may inform the function and use of the buildings and attached enclosures. In particular, the alleged grave mound at Black Hill farmstead **(3)** will be investigated. If a burial is uncovered, any human remains will be removed and dealt with according to best practice, including reburial following any post excavation analysis that may be required.

12.83 Following on from the archaeological excavations outlined above it may be considered appropriate to carry out further archaeological evaluation within the development site. An appropriate scope such for any such requirement would be agreed with WoSAS acting on behalf of EAC.

12.84 No archaeological mitigation is required in respect of the other sites identified by the study. These include two former sheepfolds **(12 and 13)**; several enclosure or field boundary banks **(15, 17, 18, 22 and 23)**; several former quarries **(8, 10, 14 and 19-21)** which are of post medieval date and of little or no intrinsic archaeological value; investigation of these features would yield no useful information. The alleged Roman road **(4)** is considered to be an erroneous record for which there is no substantiating evidence. The route is claimed to run from Wiston (in the east) to Patna (in the west) but there are no records of any Roman period sites at either location. An Ordnance Survey visit in 1980 failed to find any evidence of the alleged route on Carsgailoch Hill and the field survey carried out in September 2011 also found no evidence to support the earlier claims.

POST EXCAVATION ANALYSIS AND REPORTING

12.85 A programme of post-excavation analysis and reporting will be undertaken following the stages of evaluation and excavation and recording outlined above. The scope of the post excavation requirement will be commensurate with the relative importance of the archaeological findings for each of the sites investigated. The post-excavation phase will include the publication of the results of the excavations and the findings in an appropriate academic forum.

Assessment of Residual Impacts

12.86 Predicted direct impacts on cultural heritage assets have been identified by the study and mitigation measures are proposed in order to offset those effects. Taking the proposed mitigation into account, the residual impact of the proposed development would be the loss of some physical elements of the current historic landscape, offset by the recovery of archaeological information and preservation by record of the excavated features and the publication of the findings.

Operation

12.87 Following the completion of the programme of mitigation outlined above the residual direct impacts on the historic environment would be the loss of the former Bronze Age burial cairn **(2)** and the remains of two small former post medieval farmsteads **(3 and 16)**. The recovery and dissemination of the recovered archaeological information would mean that, overall the impact on the cultural heritage would be of minor significance.

Summary

12.88 The cultural heritage assessment has been carried out within the context of national, regional and local planning policy including SHEP, SPP, PAN2/2011 at the national level and Ayrshire Joint Structure Plan and East Ayrshire Local Plan at regional and local level. The relevant policies are set out above in paragraphs 12.5 - 12.20. Reference has also been made to the East Ayrshire Opencast Subject Plan (see para 12.21 above). The study which included desk-

based research and field survey was conducted in accordance with the Institute for Archaeologists Code of Conduct (IfA 2010) and Standard and Guidance for an Archaeological Desk-based Assessment (IfA 2009).

- 12.89 The study has identified 23 sites and features of cultural heritage and historic environment interest including the remains of a Bronze Age burial cairn, remains of two small farmsteads and other minor features of post-medieval date, mostly related to agricultural activities. A possible Roman road is discounted as being an erroneous identification unsupported by convincing evidence.
- 12.90 There would be direct impacts on the remains of the Bronze Age cairn, the two farmsteads and other minor features arising from the extension of the surface mining operations. Appropriate mitigation measures have been presented that would offset the loss of the affected features; this work will include a proper and detailed investigation of the remains of the burial cairn and an area around it and a study investigating the environment within which the cairn came to be built. The results of the study will be published in an appropriate forum following the conclusion of the post excavation analysis of the findings of the mitigation work.
- 12.91 Taking into account the mitigation work proposed, the loss of the remains of the cairn would be adequately offset and would conform to the requirements of national, regional and local planning policies. The residual impact on cultural heritage interests would be of minor significance.

Appendix 12.1: Gazetteer of Sites and Features

Site No	Site Name / Site Type	Status	Easting	Northing	NMRS / SMR	Source	Description	Value/Sensitivity
1	Martyr's Grave, Carsgailoch		25471	61466	NS51SW 6 / 8028	NMRS; SMR	<p>The graves of Joseph Wilson, John Jamieson and John Humphrey, Covenanters shot here in 1685, are marked by a square, stone, inscribed pillar 1.5m high¹. This stone apparently dates to 1826 (according to the inscription) and post-dates a previous small customary memorial stone erected by Robert Paterson who is remembered by Sir Walter Scott in his novel Old Mortality'. The current memorial stone is enclosed by iron railings. The Martyrs' Grave is depicted on the First Edition 6inch Ordnance Survey map² and all subsequent editions.</p> <p>Field survey found the inscribed pillar surviving in good condition and as described. It is located within a small clearing surrounded on all sides by modern forestry plantation. A sined path leads to the monument from the forest road. An inscription on the front of the stone reads: <i>HERE LIE JOSEPH WILSON, JOHN JAMIESON AND JOHN HUMPHREY who were shot by a party of highlanders for their adherence to the word of God and the Covenanted work of Reformation 1685.</i> The inscription on the rear of the stone reads: <i>ERECTED After a Sermon preached here in 1826, by the REVD. A. M. ROGERSON, DARVEL from Rev. VII, 14. These are they which came out of great tribulation, and have washed their robes and made them white in the blood of the lamb. REPAIRED after a sermon preached here by the REV. DR. McALLISTER of Pittsburg U.S.A.</i></p>	Low
2	Fardenreoch Cairn	NSR code C	25607	61464	NS51SE 5 / 8018	NMRS; SMR	<p>A heavily robbed burial cairn is situated on a low rise above an unnamed stream at about 305m OD. Entirely turf-covered, it measures 17.0m in over all diameter and where best preserved around the north and east survives to a height of 0.8m.</p> <p>The cairn was originally recorded by Lonie and Newall³ (1974) as a heavily-built round turf enclosure, but a visit by OS in 1981 noted that the cairn is largely effaced around the south and west sides, and therefore the 'bank' and 'entrance' effects are purely fortuitous.</p> <p>Field survey recorded that the cairn is very poorly preserved and may have been robbed of all of its stone content (a nearby drystone wall may have been built using material from the cairn). The remains occupy a slight dry knoll on the west side of a watercourse and is generally as described above (17m dia and up to 0.8m max height).</p> <p>Although cited as a site of potential schedulable quality (NSR code C) the site is poorly preserved and appears to have been entirely robbed of its stone content.</p>	Medium
3	Black Hill possible farmstead, rig and furrow		2546	6139	NS51SW 3 / 8025	NMRS; SMR	<p>The NMRS/SMR state that Lonie and Newall⁴ recorded the site of a steading on the eastern bank of Linn Burn, above a Drove Ford, and in a loop of the stream, associated with rig and furrow to the south and east, bounded on the north by the alleged Roman road, refurbished as a heavy turf head-dyke. A raised platform, probably to support a timber house, 12.3m x 6.1m with sunken floor at the northern end. To the western end is a semi-circular scooped area, partly stone lined. A grave mound 3.6m x 2m lies 20m to north.</p>	Low
4	Wiston to Patna Roman Road		25499 to 25080	61430 to 61499	NS51SW 8 / 12387 and NS51SW 11 / 12386	NMRS; SMR	<p>Lonie and Newall⁵ recorded the line of an alleged Roman road. They suggest that the road runs to a terrace nick on the spur of the Carnivan at NS 563 149, south of Cargailloch from NS 555 146 to NS 553 145, reduced to 6m by an accompanying hollow way 7m wide and continues southeast.</p> <p>A visit by the Ordnance Survey (1980) noted that there was no evidence for a Roman road in this area, and that the conjectured line of the road runs across undulating</p>	Negligible

¹ Campbell, T (1996) Standing witnesses: an illustrated guide to the Scottish Covenanters, Edinburgh: Saltire Society. pp. 31, 62-64, 196; Lawson, R (1887) Covenanters of Ayrshire.

² Ordnance Survey (1860) Ordnance Survey First Edition Six Inches to 1 Mile. Sheet XLI

³ Lonie, W. and Newall, F (1974) 'Round enclosure', Discovery and Excavation in Scotland, Edinburgh: Council for Scottish Archaeology

⁴ Lonie, W. and Newall, F (1974) 'Steading', Discovery and Excavation in Scotland, Edinburgh: Council for Scottish Archaeology

⁵ Lonie, W. and Newall, F (1974) 'Roman Road Surveys, the Clyde-Nith Cross Road', Edinburgh: Discovery and Excavation in Scotland

Site No	Site Name / Site Type	Status	Easting	Northing	NMRS / SMR	Source	Description	Value/Sensitivity
							moorland which is now coved by a deep layer of peat. Part of the route was also recorded to have been deep ploughed and planted with forestry. Field survey did not identify any trace of a road on the alignment reported by Lonie and Newall.	
5	Whinstone Quarry		255142	615212		Maps	An irregularly shaped quarry is depicted and annotated 'Old Quarries (Whinstone)' on the Ordnance Survey 1st Edition map (1860) ⁶ . Field survey identified a large, roughly circular quarry, approximately 30m across and at least 3m deep entirely surrounded by mature forestry.	Negligible
6	Whinstone Quarry		254850	614792		Maps	An irregular shaped quarry is depicted and annotated 'Old Quarries (Whinstone)' on the Ordnance Survey 1st Edition map (1860) ⁷ . The site was not visited during the field survey due to its inaccessible location within the forestry plantation.	Negligible
7	Whinstone Quarry		254882	614748		Maps	An irregular shaped quarry is depicted and annotated 'Old Quarries (Whinstone)' on the Ordnance Survey 1st Edition map (1860) ⁸ . The site was not visited during the field survey due to its inaccessible location within the forestry plantation.	Negligible
8	Whinstone Quarry		255081	614539		Maps	An irregular shaped quarry is depicted and annotated 'Old Quarries (Whinstone)' on the Ordnance Survey 1 st Edition map (1860) ⁹ . The site was not visited during the field survey due to its inaccessible location within the forestry plantation.	Negligible
9	Quarry		255920	614735		Maps	An irregular shaped excavated feature is shown adjacent to a burn on the Ordnance Survey 1 st Edition map (1860) ¹⁰ . Field survey identified the quarry (20m long and 6m wide) surviving in good/fair condition and cut into the bank on the southwest side of the burn.	Negligible
10	Quarry		255404	615040		Aerial Photographs	A possible square quarry scoop is visible on aerial photographs from 1959 (58/2712) and 1988 (ASS/621/88). Field survey identified a large semi-circular quarry scoop at this location it was approximately 20m wide and 2m deep.	Negligible
11	Sheepfold		254533	614633		Maps	A rectangular sheepfold with a small compartment on its south-western side is shown on the Ordnance survey 1896 ¹¹ and 1909 ¹² maps attached to the southeastern side of an enclosure wall around Pappet Hill. It is first annotated as 'sheep ree' and later as 'sheep fold'. It is not shown on subsequent maps.	Negligible
12	Sheepfold		256015	614573		Maps	A rectangular sheepfold consisting of three compartments is shown on the Ordnance survey 1896 ¹³ and 1909 ¹⁴ maps attached to the northern side of a field boundary to the south of Carnivan Hill. It is first annotated as 'sheep ree' and later as 'sheep fold'. It is not shown on subsequent maps. No remains of the sheepfold were found during the reconnaissance field survey.	Negligible

⁶ Ordnance Survey (1860) Ordnance Survey First Edition Six Inches to 1 Mile. Sheet XLI

⁷ Ordnance Survey (1860) Ordnance Survey First Edition Six Inches to 1 Mile. Sheet XLI

⁸ Ordnance Survey (1860) Ordnance Survey First Edition Six Inches to 1 Mile. Sheet XLI

⁹ Ordnance Survey (1860) Ordnance Survey First Edition Six Inches to 1 Mile. Sheet XLI

¹⁰ Ordnance Survey (1860) Ordnance Survey First Edition Six Inches to 1 Mile. Sheet XLI

¹¹ Ordnance Survey (1896) Ordnance Survey Second Edition Six Inches to 1 Mile. Sheet XLI.7

¹² Ordnance Survey (1909) Ordnance Survey Six Inches to 1 Mile. Sheet XLII.7

¹³ Ordnance Survey (1896) Ordnance Survey Second Edition Six Inches to 1 Mile. Sheet XLI.7

¹⁴ Ordnance Survey (1909) Ordnance Survey Six Inches to 1 Mile. Sheet XLII.7

Site No	Site Name / Site Type	Status	Easting	Northing	NMRS / SMR	Source	Description	Value/Sensitivity
13	Sheepfold		254965	613167		Maps	A rectangular sheepfold is shown on the Ordnance survey 1896 ¹⁵ and 1909 ¹⁶ maps attached to the northern side of a field boundary to the south of Black Hill. It has become a double compartment structure by the time of the 1909 edition. It is first annotated as 'sheep ree' and later as 'sheep fold'. It is not shown on subsequent maps or visible on modern aerial photographs.	Negligible
14	Quarry		25489	61366		2006 Field Survey	A grassed over former quarry, 10m by 15m and 2m deep, lies on the west side of the Linn Burn on the southern side of the modern forestry track ¹⁷ .	Negligible
15	Field bank		25487	61371		2006 Field Survey	The remains of a linear turf dyke 2m wide by 0.5m high and approximately 15m long and in fair condition are visible in a clearing within the modern commercial forestry along the Linn Burn. The dyke has a ditch on its upslope side, which may have been enhanced during forestry ploughing to provide drainage. No trace of the dyke was visible continuing into the woodland and it appears to have been destroyed by pre-afforestation ploughing ¹⁸ .	Low
16	The Linn, building and enclosure		25500	61366		Maps; Aerial Photographs; 2006 Field Survey	A former isolated building with associated enclosure (16) is shown roofed on the Ordnance Survey 1st ¹⁹ edition map and named as The Linn, but is shown as unroofed on the 2nd edition map ²⁰ . A building is visible at this location on aerial photographs and was identified by the 2006 field survey. The remains are poorly preserved as low, drystone walls that appear to have been partly rebuilt to form a square enclosure with an entrance in the north-east corner. The remains as presently visible do not certainly correspond to the building depicted on the Ordnance Survey 1st and 2nd edition maps. No trace was detected of a garden enclosure formerly present to the south of the building.	Low
17	Enclosure		25506	61351		Aerial Photographs; 2006 Field Survey	Vertical aerial photographs (106G/Scot/UK90/4046-47) show a series of curvilinear enclosure banks on the eastern side of Linn Burn. Three possible sections are visible extending over an area approximately 350m north to south by 240m east to west. A possible remnant of this enclosure dyke approximately 2m wide by 1m high and 40m long was identified during the 2006 field survey alongside and straddling the Linn burn (NS 5506 1351) ²¹ .	Low
18	Enclosure		2553	6132		Aerial Photographs; 2006 Field Survey	Vertical aerial photographs (106G/Scot/UK90/4046-47) show a curvilinear enclosure bank on the south side of the Linn Burn extending over an area approximately 300m north-east to south-west and 200m south-east to north-west. The 2006 field survey ²² identified a drainage gully approximately 1.2m wide and 0.7m deep emerging from the forestry at NS 5538 1322 with a bank approximately 2m wide and 0.3m high along its southern side. The bank curves to the west, following the line of a modern drystone field boundary wall. The bank is visible as far as NS 5527 13180 where the gully alone continues north-west into the woodland.	Low
19	Quarry		256336	614957		Field Survey	Field survey identified an area of quarrying in an elevated position overlooking the surrounding moorland. The quarry survives in fair condition, measuring 6m in diameter and the worked face is 1.5m high.	Negligible
20	Quarry		255979	615091		Field Survey	Field survey identified a semi-circular quarry excavated into the hillside. The quarry measures approximately 11m x 5m and the worked face is approximately 3m high.	Negligible
21	Quarry		256338	614085		Field Survey	Field survey identified a semi-circular quarry excavated into the hillside. The quarry measures approximately 9m in diameter, and the worked face is approximately 2m high.	Negligible

¹⁵ Ordnance Survey (1896) Ordnance Survey Second Edition Six Inches to 1 Mile. Sheet XLI.7

¹⁶ Ordnance Survey (1909) Ordnance Survey Six Inches to 1 Mile. Sheet XLII.7

¹⁷ Greenburn Surface Mine: Dalgig Extension Environmental Statement (2006)

¹⁸ Greenburn Surface Mine: Dalgig Extension Environmental Statement (2006)

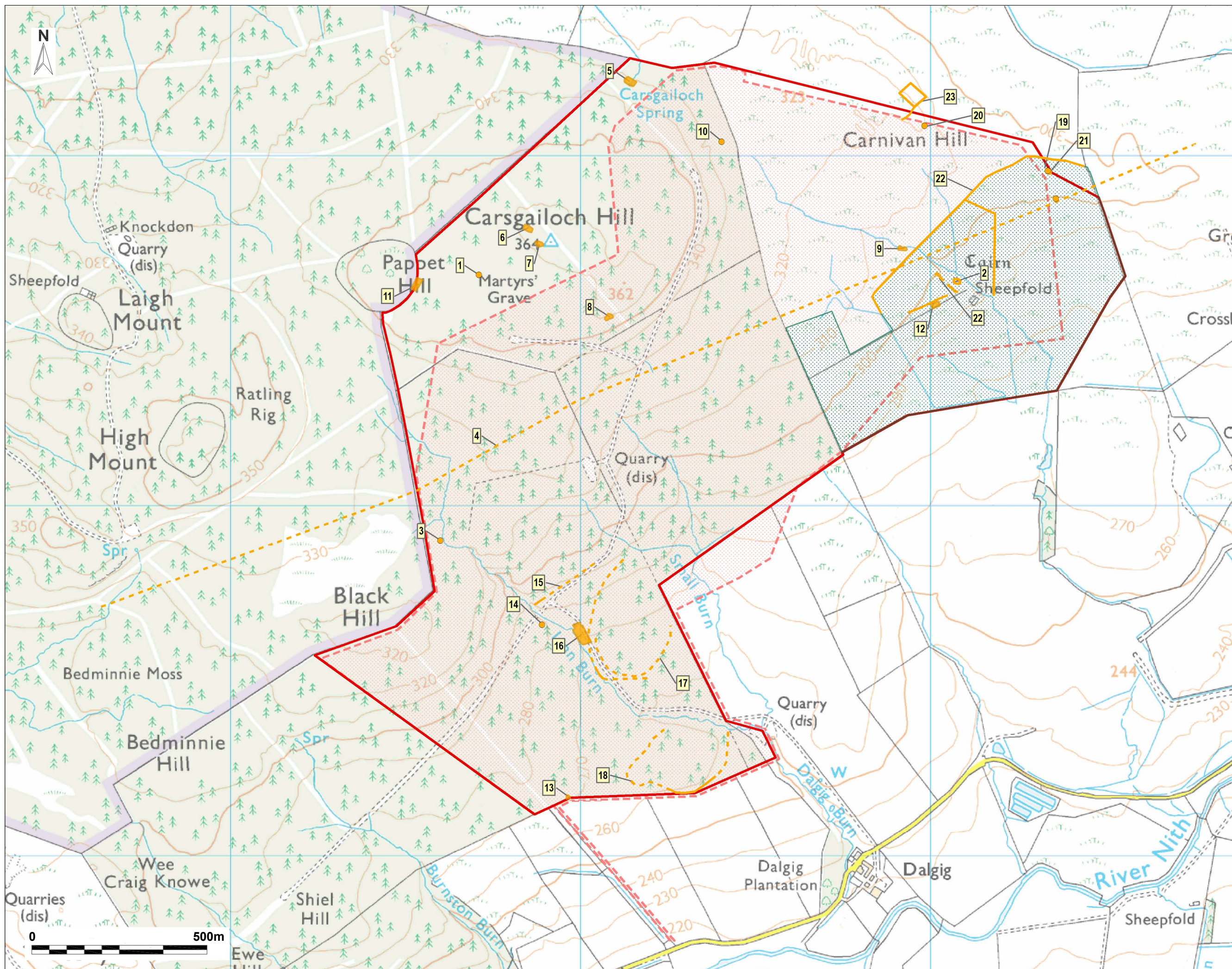
¹⁹ Ordnance Survey (1860) Ordnance Survey First Edition Six Inches to 1 Mile. Sheet XLI

²⁰ Ordnance Survey (1896) Ordnance Survey Second Edition Six Inches to 1 Mile. Sheet XLI.11

²¹ Greenburn Surface Mine: Dalgig Extension Environmental Statement (2006)

²² Greenburn Surface Mine: Dalgig Extension Environmental Statement (2006)

Site No	Site Name / Site Type	Status	Easting	Northing	NMRS / SMR	Source	Description	Value/Sensitivity
22	Field banks, rig and furrow		256019	614583		Field Survey	Field survey identified the remnants of a number of field banks approximately 2m wide and 1.5m high. These banks partially enclose an area of former rig and furrow (centred at 256019 614619) which is identifiable on aerial photographs but which could not be distinguished on the ground. Further rig and furrow is identifiable to the south-east, but no enclosing banks could be identified in this area. A further long field bank is located to the north 256440 614970 to 255846 614583	Negligible
23	Enclosure; Field bank		255917 to 256046	615103 to 615221		Maps; Field Survey	<p>The Ordnance Survey 1st Edition map (1860) depicts a rectangular enclosure on Carnivan Hill.</p> <p>Field survey identified a curvilinear bank approximately 2m wide and 1.5m high to the west of the summit of Carnivan Hill which extends from the southeast side of the enclosure shown on the Ordnance Survey map.</p>	Negligible



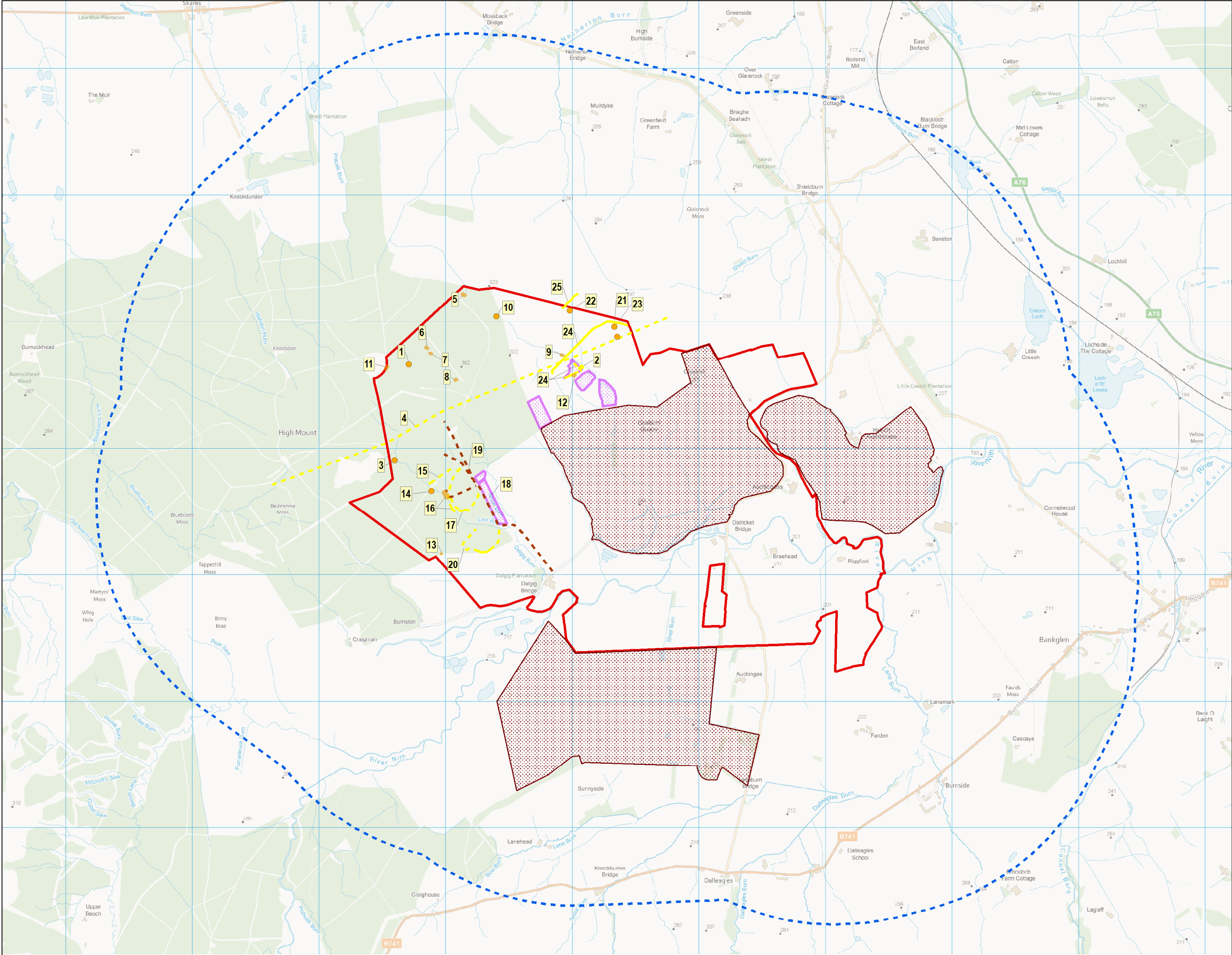
- Legend
- Site Boundary
 - Limit of Excavation
 - Cultural Heritage Site (point)
 - Cultural Heritage Site (linear) Extant
 - - - Cultural Heritage Site (linear) Former
 - Cultural Heritage Site (area)
 - Former Cultivated Ground (rig and furrow)

Title Figure 12.1
Cultural Heritage:
Constraints

Site Carsgailoch Hill

Client	Kier Mining
Project No.	UK1217192
Issue	1
Date	December 2011
Drawn by	SW





- Key:**
- Cultural Heritage Site (point)
 - Cultural Heritage Site (linear) Extent
 - Cultural Heritage Site (linear) Former
 - Track
 - Cultural Heritage Site (area)
 - Rig and Furrow
 - Open Cast Mining

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Fig. No: 12.2 Revision:

Title:
ABCD

Project:
ABCD

Scale at A3:
1:27,000

Client:
ABCD

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