Pickan's Dyke, Dalmellington: Archaeological Investigation

Project Design

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Rathmell

Archaeology Ltd

Contents

Non-Technical Summary

1. This Project Design presents the details of a programme of works designed to evaluate the nature and extent of the archaeological deposits associated with Pickan's Dyke near Dalmellington, East Ayrshire, and to understand a diverse range of impacts which affect the site.

2. Targeted locations along the dyke will be investigated by hand excavated trenches. The aim will be to recover information on the monument's date and form as well as to record any physical disruption to the archaeological deposits. There may be a diverse range of causes for physical disruption including forestry operations (e.g. planting, tree growth & cropping), pre-forestry agriculture and pedestrian erosion. Such physical disruption may have impact the earthworks, which characterise the site, interior in differing ways.

3. Additional questions regarding the site's management may also be addressed during these works, in particular the impact of any burrowing animal activity on the upstanding remains.

4. A programme of communication and engagement with the local community will be undertaken to promote the role of Forestry Commission Scotland and to enable the importance of the medieval remains in Dalmellington to be recognised. This work will seek to place the monument in context and promote the recognition that the dyke is an important fragment of a landscape that includes Dalmellington Motte.

Introduction

5. This Project Design has been prepared for Forestry Commission Scotland in support of their management of Pickan's Dyke near Dalmellington, East Ayrshire within the national forest estate. The programme of sequential archaeological works proposed has been designed to clarify the nature, age and extent of any buried archaeological deposits in relation to Pickan's Dyke.

6. The Project Design presents a baseline of the known archaeological resource, the objectives of the project and the structure of the archaeological works to be undertaken. The identified structure of these works is appropriate to ensure that they meet the requirements of the Forestry Commission Archaeologist. This structure covers the detailed specification of on-site tasks with a suggestive consideration of the possible post-excavation and reporting tasks. Inevitably as on-site works proceed the character of the later stages of this Project Design will be subject to review and refinement.

7. The Forestry Commission Scotland Archaeologist has provided a Brief on the structure of the archaeological works required on this site. At each stage of implementing this Project Design the specific details of subsequent stages of these works must be agreed with the Forestry Commission Scotland Archaeologist, who will also monitor their implementation. One critical stage of review is recognised in advance: on conclusion of the on-site tasks, it will be necessary to determine the appropriate scale and remit of the post-excavation and reporting tasks.

Standards

8. This Project Design has been designed in accordance with current best archaeological practice and the appropriate national and regional standards and guidelines including:

   - Code of Conduct (Institute for Archaeologists 2000);
   - Standard and Guidance for Archaeological Excavation (Institute for Archaeologists 2001); and
   - Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials (Institute for Archaeologists 2001).

Terminology

9. The following key terms are recognised within this Project Design:

- The Client – Forestry Commission Scotland;
- The Archaeological Curator – Forestry Commission Scotland Archaeologist;
- The Archaeological Contractor - the Archaeological Company to be appointed by the client to implement any individual stage or element of the agreed Project Design

Background

10. Pickan's Dyke is an irregular linear earthwork (NGR: NS4821 0608 – NS4890 0597, RCAHMS Canmore ID 42563, WoSAS Pin: 7121) which still survives as upstanding remains to the east of Dalmellington. The Dyke runs roughly west to east following a ridge that leads to a flat hill area marked as Mains Hill, the ground is open hillside with approximately half of the monument lying within the estate of the Forestry Commission; the monument is covered by a mixture of grass, moss and reeds.

11. Measuring approximately 765m in length, with 325m of this within the forestry estate, the monument is a meandering linear monument, comprising a ditch and bank. Both bank and ditch are broken in at least one section where a 62m stretch appear to been excised. With the exception of this missing section, the monument appears to survive in varying degrees of preservation, with the bank remaining up to a height of 0.8m and the ditch to a depth of 0.4m. In addition to the missing section some erosion is present from foot traffic walking along the dyke.

12. CFA Archaeology Ltd, as part of the baseline studies for an Environmental Statement, noted that:

> *'Pickan's Dyke is shown on the OS 1st edition map running from NS 4821 0608 to 4890 0598. Field survey located the eroded remains of this feature, which comprises an earth and stone bank up to 4m across and between 0.2-0.8m high. There is a ditch up to 2.5m wide and 0.4m deep on the S side of the bank. The bank fades out in peaty heather moorland on the top of Mains Hill' (CFA 2004).*

13. In preparation of this Project Design, a site visit was carried on the 1st June 2012; the line of the Dyke was followed from west to east. On the return journey it was noted that what appears to be a second linear earthwork was present to the north of the missing section of the Dyke. This earthwork (Figure 1b) appears similar to Pickan's Dyke but was situated to the immediate south of a dry stane dyke acting as a field boundary. Given its close proximity to the dry stane dyke, this bank is most likely a result of recent agricultural activity, possibly a forerunner of the dry stane dyke, though it is curious that it appears to match the missing section of Pickan's Dyke.

14. Also noted during the site visit was the presence of a 11kv overhead electricity line with one of the poles positioned in the middle of Pickan's Dyke (Figure 1a).

Figure 1a: General shot of Pickan's Dyke from the ESE

Figure 1b: Linear Earthwork from the NW

Designations and legal constraints

15. The monument is not a designated site and hence is not specifically protected. Where the monument lies within the national forest estate the responsibilities of informed management of the historic environment apply as detailed in the Scottish Historic Environment Policy.

Topography, Geology and Soils

16. The site occupies the lower western portion of a ridge running roughly northeast to southwest from the summit of Cockclay Hill. The easternmost portion of the site lies on a level area of the ridge marked as Mains Hill, in a prominent location overlooking a valley the present day town of Dalmellington sits in, as well as the River Doon Valley.

17. The underlying geology is sedimentary in character, composed of Lanark group Sandstones, overlain with superficial deposits of peat.

Historical and Archaeological

18. Early mapping shows that the study area to be open hillside, although field systems are depicted by the time Roy undertook his Military Survey of Scotland in the mid-eighteenth century (Figure 2a, 1752-55). However, the first depiction of Pickan's Dyke comes in the mid-nineteenth century on the six inch 1st edition Ordnance Survey map of the area (Figure 2b), which names it as Pickan's Dyke.

19. The break in the Dyke appears to be shown in the mid-nineteenth century, as there is a portion of the dyke on the map which shows no hachure unlike the rest of the depiction. While the 1st edition Ordnance Survey shows no evidence of fields in the study area the Camlarg Plantation appears to the immediate north of the Dyke. Further map progression shows little change until the recent times with the extension of the cemetery to the east side of the road with its boundary encroaching on the monument at its western end and new houses being built approximately 200m to the south. A fence running roughly southeast to northwest also cuts across the western portion of the monument.

20. Linear earthworks are well known in archaeology, being used for a variety of reasons such as defence and the division of land. In the case of land division, the larger variants were used for political boundaries and could range for hundreds of miles. Offa's Dyke is one such boundary, measuring about 177 miles, which was built between Mercia and Wales in the second half of the eighth century. Another example is the Scot's Dike which was only three and half miles long but in AD1552 marked the border between Scotland and England through the Debatable Lands of the West Marches.

21. The smaller variants were used for the marking of economic land boundaries, such as of estates, ecclesiastical ground and hunting forests, '*which were often treeless moors but subject to forest law*' (Barber 1999). They are usually built of stone, though have also been known to be constructed of turf with poles, hedges or stones on the top. The use of dykes for land division became more prevalent with the increase of Norman influence in Scotland (Lawes-Marty 1999). They also are mentioned in many medieval charters, were they are used to formalize the divide between land ownership and land use, though most often after a period of dispute (Lawes-Marty 1999).

22. Pickan's Dyke has been identified as a land boundary (Graham & Feachem 1956), which given its position running up a ridge is not unlikely. It appears that it would have encompassed two known nearby medieval sites. Dalmellington Motte (Figure 3a & 3b, Canmore Id: 42573) is a well preserved medieval motte, which is situated 260m to the south of the west end of Pickan's Dyke. The motte is circular in plan with a diameter of 18.5m on its level top with steeply sloping sides that lead down to a ditch with a counterscarp of 1.5m.

23. Dame Helen's Castle (Canmore Id: 42574) which is situated 520m to the southwest of the east end of Pickan's Dyke, is thought to have been a towerhouse located on a motte. Remains of a building were visible in the 1800s though no remains are now evident.

Figure 2a: Roy's Military Survey of Scotland (1752-55)

Figure 2b: 1st edition Ordnance Survey (1868-70)

Figure 3a: Dalmellington Motte

Figure 3b: View of Dalmellington Motte from Pickan's Dyke taking from the NE

Impact Assessment

24. The underlying archaeological remains at Pickan's Dyke have been impacted by a range of different agencies in recent times. Its incorporation within a forestry plantation has meant that buried deposits may have been subject to damage both from the initial planting (potentially including ploughing), and from the subsequent growth of the coniferous trees planted upon it. In addition, the site has been subject to erosion from the passage of walkers, who have established a footprint along a portion of the monument.

25. The potential for adverse impacts on archaeological monuments from forestry has long been recognised. During the mid 1950s the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS) instigated the Marginal Land Survey to record important monuments prior to their loss or damage through landuse change.

26. The onset of mechanised afforestation during the 1960s and 1970s led to archaeologists highlighting the unmitigated impact on our Historic Environment (Jackson 1978, Proudfoot 1989 and Barber 1997). As currently understood, the character of the tree planting over this particular site suggests that it was not planted by these more destructive ploughing techniques.

27. Work has been conducted to explore the differing character of the relationship between forestry and the historic environment (Yarnell 1993 and Crow 2004). While poorly managed afforestation can have serious adverse impacts, other forestry and woodland regimes can create relatively benign environments which serve to protect monuments in the longer term. The upstanding remains at Pickan's Dyke suggest that it was managed under this more benign pattern, with the earthworks still upstanding to a substantial height and the main missing section having been lost prior to the mid-nineteenth century.

28. The Forestry Commission has established sound guidance for handling archaeological sites within forestry. This has either been delivered through targeted technical advice (Forests and Archaeology Guidelines), through planting design guidance encompassing archaeological and historical sites (Forest Design Planning) or through strategy documents (Scottish Forestry Strategy). Much of this guidance promotes the clearing of significant monuments as well as public access to, and interpretation of, such monuments. The proposed works at Pickan's Dyke provide an excellent opportunity to examine the consequences on a narrow, linear monument where the physical characteristics (and pre-forestry condition) of the monument may vary along its length.

Objectives

29. The character and scope of the archaeological resource has been established through analogy with monuments of similar form and extent which have previously been investigated elsewhere in mainland Scotland and beyond. It is, however, apparent that this particular class of monument varies greatly in character, with numerous variants evident depending on the intended function of the linear earthwork.

30. The overall objectives of these works are as follows:

    a. to excavate a sufficient portion of the archaeological monument to allow the recovery of artefactual, palaeo-environmental and structural evidence, assisting in our interpretation and understanding of the site in order to more confidently establish its date, function, and form;

    b. to determine the consequence to the archaeological resource from the use of the ground within a commercial forestry operation, covering both positive and negative aspects, while considering the future consequences of typical management; and

    c. to disseminate the findings of these works in the appropriate manner.

31. More specific objectives which apply to assessing the character of the monument are:

d. to explore the relationship between the monument and the local topography, hydrology and drift geology. This will include the characterisation of the wider landscape, both at the time of its main phase of use, and in the period immediately preceding it;

e. to elucidate whether the monument as we view it today is the product of a single coherent build, or a sequential build, and if the latter, to identify and interpret each separate phase of occupation or rebuilding as appropriate;

f. to improve our understanding of its structural elements;

g. to recover palaeo-environmental and artefactual evidence which may clarify the nature and function of activities undertaken within and immediately adjacent to the monument. In particular, evidence will be sought for the structured deposition of material within the ditch;

h. to consider the evidence for the process of abandonment of the monument;

i. determine whether the monument has subsequently been reused;

j. to establish where this particular archaeological resource fits in with Medieval land use occurring within the immediate locale, and throughout the wider area of Ayrshire and the Southwest of Scotland.

32. The more specific objectives with regard to the impact of afforestation and related forestry operations on the monument are:

k. to establish the impact of tree planting and subsequent growth on the buried sediments and upstanding fabric;

l. the extent of the erosion occurring as a result of increased foot traffic following the establishment of an formal walkers' path near the monument;

m. the consequence of renewed vegetation growth upon the archaeological resource, in particular any impacts from natural tree regeneration or the spread of bracken;

n. to understand what archaeological importance can be given to the ground that would typically be within a buffer to protect the visible monument; and

o. to establish the extent of any areas which are subject to active erosion, in particular as a result of burrowing animal activities.

33. These objectives are to be achieved through the programme of works detailed within this Project Design.

Strategy

34. A programme of works that satisfy and meet the requirements of the Forestry Commission Scotland Archaeologist will be undertaken. This will include:

Stage 1

a. limited excavation carried out in carefully selected areas of the monument and also in its immediate vicinity, thus allowing the surviving archaeological remains to be properly characterised;

b. develop community engagement with schools as well as hosting an open day for the local community to visit the monument and explore its significance; and

c. the production of a preliminary site report which integrates the findings of the works through a Data Structure Report, detailing the nature, form and extent of the archaeological features recorded.

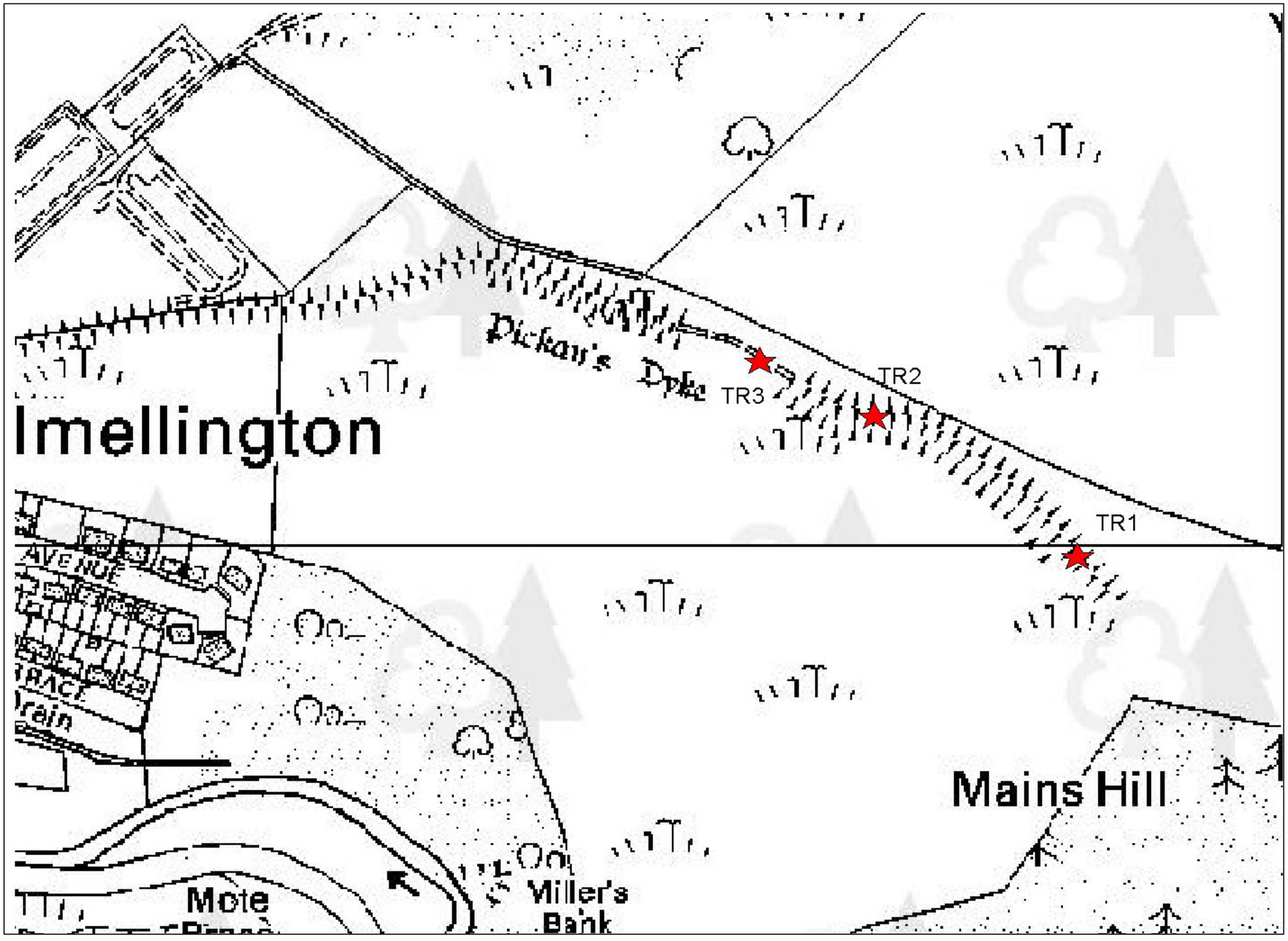

Figure 3: Location of work areas

35. The hiatus between stages will enable agreement to be reached with regards to establishing the detailed structure of the post-excavation works, which are broadly characterised below:

Stage 2

a. a programme of post-excavation analysis of significant material recovered resulting in an appropriate level of publication; and

b. the declaration of finds through the Treasure Trove process and the deposition of the project archive with RCAHMS Collections to ensure the long-term preservation of the archaeological information obtained during the on-site works.

Timetable

36. The programme of works is structured to be deliverable by the end of September 2012; a proposed structure for this work is detailed below.

Table 1: Timetable for Stage 1 works

Week	Task
1-2	Circulate Risk Assessment, notify curators and confirm access with FCS
3-4	Stage 1a: Undertake excavations on-site
4	Stage 1b: Undertake community engagement
5-8	Stage 1c: Undertake artefact assessments, draft Data Structure Report and circulate
9-10	Respond to any amendments

37. To enable effective schools engagement (see Stage 1b) we recommend that the schools are contacted to notify them of the works before the end of term (28th June). Further we recommend the on-site work is delivered at least a week after the return of schools from the summer holidays (returning 16th August). This would enable school visits and the open day to be undertaken during Scottish Archaeology Month (September 2012) enabling better promotion of the event.

Stage 1a: Field Methodology

38. The Field Methodology presented below has been designed as a coherent methodology to support the Objectives and Strategy detailed above. There is a presumption within this methodology that all works will be undertaken as a single event.

Hand Excavation

39. A series of three targeted hand excavation areas (Figure 3) will examine the character of the monument and the consequence of the previous and ongoing disruption to its fabric (see *Strategy*).

40. Each of these excavation areas has a specific task (see Table 2).

Table 2: Excavation Area Targets

Area	Task	Size
1	To section the bank and ditch at the eastern end of the monument to examine (i) its composition and construction method, (ii) whether the bank overlies a buried palaesol and (iii) the character of the ditch fills.	8m by 2m

2	To section the bank and ditch near the middle of the monument within the FCS Estate, where it appears in a better state of preservation, in a manner comparable and strategy to Area 1.	8m by 2m
3	To sample the line of the dyke in the missing section of the monument to establish if this area contains any residual evidence for the bank and ditch.	8m by 2m

41. In each excavation area, work will commence with the removal of turf and topsoil by hand; spoil will be bunded adjacent to the excavation area with turf stacked separately. Typically the depth of the topsoil removed is anticipated to be between 150 and 300mm in depth. However, this depth cannot be prescribed in advance as it is the exposure of the interface between the topsoil and the first significant archaeological horizon /or the underlying drift geology that will be sought. Where it can be achieved with little disruption to the surrounding sediments, tree boles will be removed as they are met; otherwise they will be left *in-situ.*

42. The resulting surfaces will be swept by metal detector prior to being hand cleaned to define the archaeological features or deposits. An initial composite plan of each excavation area will be prepared at the first significant archaeological horizon, enabling the quantity of potential significant archaeology to be assessed.

43. Should no potentially significant archaeological features be identified in a coherent area, then this ground will be reinstated. Where potentially significant archaeological features are identified the archaeological team will then proceed to excavate them to the agreed methodology (see below) with hand sieving of these contexts to maximise artefact recovery. On conclusion of the recording the excavation area will be reinstated, including the original ground surface.

44. The excavation sampling strategy will maintain the levels which have been agreed with the Forestry Commission Scotland Archaeologist through the Project Design:

    a. all funerary contexts will be fully excavated and all relationships recorded;

    b. intersections of potentially significant ditches and gullies will have all relationships defined, investigated and recorded through 100% excavation (all terminals will be excavated). Some 50% (by length) of stretches of such features will be excavated to determine their character over the exposed course, this being achieved by a sequence of slots;

    c. where possible, sufficient artefact assemblages will be recovered to assist in dating the stratigraphic sequence and for obtaining ample ceramic and lithic groups for comparison with other sites;

    d. all potentially significant pits or post-holes will, as a minimum, be half-sectioned and some 25% by number fully excavated;

    e. for other types of feature such as working hollows, quarry pits, etc the basic requirement will be that all relationships are ascertained. Further investigation will be a matter of on-site judgement, but will seek to establish as a minimum their extent, date and function; and

    f. for layers, an on-site decision will be made with regards to the limits of their excavation. The factors governing this judgement will include the possibility that such layers mask earlier remains, as well as addressing the need to understand function and depositional processes, and the requirement to recover sufficient artefacts to date the deposit and meet the project aims.

45. The presumption is that all excavation works detailed above will be undertaken by hand.

However, in limited circumstances excavation plant may be used to assist the excavation methodology, in particular where:

- deep archaeological strata can only be safely investigated by stepping or battering a localised trench; and
- where sterile/natural layers are encountered that mask archaeologically significant strata.

46. The specific use of excavation plant within the archaeological monument will be confirmed and agreed prior to use with Forestry Commission Scotland Archaeologist.

Targeted Prospective Survey

47. In addition to those works which focus upon the monument itself, we will undertake a systematic prospective survey of the surrounding 4ha of ground, regardless of vegetative cover. Where possible, the survey team will reconnoitre the target area walking in a regular grid pattern to ensure the close visual inspection of the ground to enable the identification of additional upstanding archaeological monuments. In those areas which are densely afforested, some flexibility in the layout of the grid pattern may be necessary.

Recording and Sampling Systems

48. The recording system will be based on the Museum of London's *Archaeological Site Manual* (1994). All recording will be in keeping with the recording system which will, at minimum, detail that:

- all contexts, small finds and environmental samples will be given unique numbers;
- small finds will be individually bagged and then located by context, while unstratified finds will be located to 25m grid squares; and
- and all recording of contexts, samples and activities will be undertaken on *pro forma* record sheets.

49. A Harris matrix will be maintained during site works and updated before inclusion in the relevant preliminary site report.

50. Detailed plans of archaeological areas will be recorded with sufficient accuracy to depict general areas at 1:50. Additionally 1:20 plans of all the individual features will be prepared and sections drawn at 1:10. Spot heights and those of individual features will be recorded relative to Ordnance Datum. Representative measured sections of the side of the excavation area will be prepared.

51. A photographic record (35mm SLR colour print and SLR colour digital, >7 megapixel resolution) will be maintained during the course of the fieldwork. Each image of an archaeological detail will include an appropriate scale, north arrow and header board. The topic of images will include:

- the site prior to commencement of fieldwork;
- the site during work, showing specific stages of fieldwork;
- the layout of archaeological features within each area;
- individual features and, where appropriate, their sections; and
- groups of features where their relationship is important.

52. All finds (artefacts and ecofacts) identified during the on-site works will be collected and processed. Trenches will be scanned with metal detectors and key contexts will be sieved (weather permitting) to maximise artefact recovery. Finds will normally be recovered by context; rare or unusual small finds will be recorded individually with three-dimensional

co-ordinates recorded. Finds will be appropriately packaged and stored under optimum conditions, as detailed in the RESCUE/UKIC publication First Aid for Finds (Watkinson and Neal 1998).

53. Archaeological deposits will be sampled systematically for retrieval and assessment of the preservation conditions and potential for analysis of biological remains. All investigated features believed to represent significant archaeology will be sampled along with a selection of natural features and topsoil to provide control samples. Bulk soil samples, of a minimum of 10 litres but up to a target size 30 litres where sufficient sediment is available, will be taken for wet sieving and flotation.

54. Specific interfaces or deposits will be subject to purposive sampling where relevant. For instance, recovering of kubiena samples for soil mircomorphology across critical interfaces such as palaeosols sealed by banks or primary ditch fills.

Treatment of Human Remains

55. Should the potential archaeological features investigated by these works include funerary deposits (i.e. human skeletal material) then all works on that area will be halted, and both the local constabulary and the Forestry Commission Scotland Archaeologist notified.

56. The removal of a body from the grave is not considered theft; rather Scots common law recognises the offence of *crimen violati sepulchre* (violation of sepulchre). In essence, the crime is the disturbance of the corpse without permission. Care must be taken to ensure that no works are undertaken which conflict with this law.

57. Where agreed by all parties, the lifting of human skeletal remains will be kept to a minimum with a preference for retaining all material in the ground. The archaeological contractor will comply with all reasonable requests of interested parties as to the method of removal, re-interment or disposal of the remains or associated items. Every effort will be made, at all times, not to cause offence to any interested parties.

Stage 1b: Community Engagement

58. The monument stands within ground that is already open access, it is envisaged that the excavations will be visited both within, and outwith, working hours throughout the period of the on-site works. Informal communication of the progress of works will be made with visitors and the existing company Facebook page will be used to communicate images and findings from the works as they progress.

Local schools

59. Particular effort will be made to provide the opportunity for the local schools, Bellsbank Primary School and Dalmellington Primary School, to visit the excavations by making them aware of the archaeological works. Specifically each school will be written to informing them of the fieldwork schedule and inviting the school to visit during the project.

60. This initial communication needs to be made comfortably before the end of term (28th June) to enable schools to plan effectively. Information must be provided to enable pre-visit work to be undertaken with any class explaining the basics of archaeology and medieval Scotland. We also recommend that P5 to P7 are targeted as the most suitable age range engaging with archaeology.

61. To enable schools to secure parental consents and to integrate any visit into the class project work the fieldwork should be conducted comfortably into next term. With the return of East Ayrshire Schools on the 16th August we support scheduling the fieldwork to fall in late August to early September 2012.

62. An archaeologist would be made available for each organised school visit to attend the school in advance of the visit to discuss and explain the nature of archaeology, then to take the pupils around the excavations and immediate landscape. The visit should be aimed at explaining how archaeology uses the traces of past human activity to understand how people lived in the past with the current work used to explore why it is

important to preserve monuments for future generations.

Open Day – Scottish Archaeology Month

63. An organised open day at the site will take place on a day in the second week of excavation; the sympathetic scheduling with the school year places the second week of excavations within early September which enables the works to be linked to the Scottish Archaeology Month (SAM). The excavations can therefore be advertised through SAM.

64. Throughout the open day an archaeologist will be available to take interested members of public on a tour around the trenches, explaining the background of the monument and the purpose of the excavations as well as showing any artefacts recovered and answering any questions.

65. However, the key advertised event will be an organised walking tour encompassing Pickan's Dyke (inc. excavations), Motte and Dame Helen's Castle site. The walk will explore the medieval origins of Dalmellington and the later medieval tower house, placing all three monuments in context and encouraging the visitors to appreciate the inter-related nature of these monuments.

66. We would plan to operate this open day in conjunction with the Forestry Ranger to enable them to take advantage of the event to more broadly promote the role and function of Forestry Commission Scotland.

Volunteering

67. Should Forestry Commission Scotland wish, we are happy to support three volunteering places each day on-site. These can be advertised through SAM and the company social networking site (Facebook).

Stage 1c: Initial Reporting

Assessment of Artefacts

68. All artefacts recovered will be cleaned, bagged and boxed in accordance with the guidelines set out in UKIC's Conservation Guidelines No 2. The preliminary reporting will incorporate the listing and categorisation of the artefacts recovered, with the artefacts assessed by an appropriate specialist. In addition any artefacts assessed as unstable will be subject to immediate stabilisation work by conservators to ensure their safe retention.

Preliminary site reporting

69. The preliminary reporting of the on-site works will be as follows:

- A Data Structure Report presenting the results of the on-site archaeological works and incorporating a detailed assessment of the materials recovered. In addition an accompanying narrative will explain the character of the archaeology investigated and compare this to comparable archaeology within south-west Scotland;
- Recommendations for further analysis and publication of any significant archaeology encountered will be presented as a Post-Excavation Research Design;
- DES entry and OASIS form including grey literature upload; and
- Preparation of the project archive including notification of finds to the Treasure Trove Unit.

70. The Data Structure Report, detailing the findings of the archaeological works, will be prepared on the completion of the on-site phase of works and will consist of:

- a title page detailing site address, site code and accession number, NGR, author/originating body, client's name and address;

- a non-technical summary of the findings;
- a description of the topography and geology of the area;
- a description of the methodologies used during the works;
- a description of the findings of the works;
- site and trench location plans and plans of each of the trenches/areas showing the archaeological features exposed (to include aOD levels);
- sections of the selected archaeological features (to include aOD levels);
- interpretation of the archaeological features exposed and their context;
- examination of the impact form tree planting, forestry operations and subsequent public access;
- specialist assessment of the artefacts from the site; and
- photographs, which will include general site images and detailed views of key archaeological features.

71. A full draft of the Data Structure Report will be circulated to the Forestry Commission Scotland Archaeologist and West of Scotland Archaeology Service for comment. Copies of the finalised Data Structure Report will be sent to the client for approval and then to the West of Scotland Archaeology Service in both paper and digital form.

Stage 2: Analysis and Publication Methodology

72. A Post-Excavation Research Design will be prepared in conjunction with the Data Structure Report. This will identify the recommended analyses for the recovered material and propose a structure for the publication and dissemination of results. Until the on-site works are complete the exact nature and size of any post-excavation works will be unknown. Where archaeologically significant material is recovered then this will be a significant stage of works.

73. To some degree the examination will be led by the nature of the materials recovered. However any work is likely to focus on artefact analysis, palaeo-environmental analysis, radiometric dating and stratigraphic interpretation.

74. *Artefact Analysis* - all artefacts recovered will be cleaned, bagged and boxed in accordance with the guidelines set out in UKIC's Conservation Guidelines No 2. The main material groups will then be appraised by a relevant specialist to provide comment on the date, character and condition of the material recovered.

75. *Palaeo-environmental Analysis* - a sub-sample of the bulk soil samples recovered will be flotation sieved in a Siraf style flotation tank. Floating material will be recovered using a 250 µm sieve and retent material in a 1mm mesh. Retents will be sorted for artefacts and palaeoenvironmental finds while flots will be scanned using a low powered binocular microscope. An assessment will then be prepared that include: statements on abundance, diversity and state of preservation of the material recovered; discussion of material; and recommendations for specialist analysis. A programme of subsequent specialist analysis may then be undertaken on a selected subset of the material that offers the best potential for: characterising agricultural processes; determining domestic processes undertaken within settlement areas; characterising depositional environments; providing dateable materials.

76. *Radiometric Dating* - a programme of radiometric dating will be undertaken to provide absolute dates for material derived from any archaeologically significant deposits and structures identified during the on-site works. This will comprise the analysis of dateable materials derived from the macroplant remains recovered from those sediments. Samples will be submitted for dating by single entity Atomic Mass Spectrometer dating carried out by the Scottish Universities Research Reactor Centre. While this process will

necessarily destroy the material this is an essential and appropriate means of acquiring an accurate absolute date.

77. *Stratigraphic interpretation* – the refinement of the Harris matrix prepared on-site as additional information is supplied by the other specialisms will enable a critical re-appraisal of the formation processes, phasing and post-depositional changes that have occurred to the monument.

78. The results of the project are likely to warrant publication in an appropriate archaeological journal; the Forestry Commission Scotland Archaeologist will take the final decision on the requirement for publication. The suitable level of publication will be dependent on the significance of the project results. Meeting the publication costs will be a costed element of the project to be met by the client.

79. The appropriate post-excavation analyses and publication of results will be undertaken on an efficient grouped basis. The agreed designs will incorporate a finalised timetable of all remaining works and be integrated into the current version of this Project Design.

80. The project archive originally prepared during the initial site reporting will be expanded during reporting to cover all new materials generated by the post-excavation and reporting works. The finalised paper archive will be submitted to the RCAHMS Collections at the conclusion of the project.

81. The lists of finds submitted to the Treasure Trove Unit will be renewed at the conclusion of the project. The finds will be retained at the archaeological contractor's premises until they can be collected by the institution awarded the collection by the Treasure Trove Unit.

82. The ordered archives of both object and paper elements will be prepared according to the recommendations in *Archaeological Archives A guide to best practice in creation, compilation, transfer and curation* (Brown 2007) and *Standards in the Museum Care of Archaeological Collections* (Museums and Galleries Commission 1992). The archives will be created in accordance with the identified repository's deposition and archiving standards.

Communication and Promotion

83. The scale of communication and promotion will be proportionate to the scale of the project and the quality of the archaeological material recovered during the works.

84. Written updates of progress will be circulated, normally by e-mail, at the end of each week when on-site works have been undertaken by the archaeological contractor. These will be circulated to the Forestry Commission Scotland Archaeologist and West of Scotland Archaeology Service.

85. West of Scotland Archaeology Service will be given notice of when work is due to commence, and will be free to visit the site by prior arrangement with the excavation director. The OASIS entry will be commenced prior to the on-site works to ensure appropriate notification of the details of the project.

86. The Forestry Commission Scotland Archaeologist will be responsible for considering any changes to the specification of works; any such alterations should be agreed in writing with all relevant parties prior to the commencement of on site works, or at the earliest available opportunity.

87. Should the material recovered from the site be suitable then a public lecture would be undertaken to disseminate the findings of the work within Stage 2 of the project. Where possible this would be undertaken in conjunction with a local archaeological society or local library.

Safety Plan

Health & Safety Communication

88. All works will be in compliance with the Health and Safety at Work Act (1974) and all applicable regulations and Codes of Practice. All archaeological staff will undertake their operations in accordance with safe working practices.

89. A site-specific risk assessment will be undertaken and recorded prior to the commencement of work on site by the archaeological contractor. This will be circulated for agreement and approval to the client.

90. An event-specific risk assessment will be undertaken and recorded prior to the open day for visitor management on site by the archaeological contractor. This will be circulated for agreement and approval to the client.

91. A continuous process of dynamic risk assessment will be undertaken and if significant hazards are identified a specific risk assessment will be undertaken and recorded. Control measures will be implemented as required in response to specific hazards.

92. Safe working will take priority over the desire to record archaeological features or remains, and where it is considered that recording is dangerous, any such features or remains will be recorded by photography, at a safe distance.

Forestry Operations, Services and Contaminated Ground

93. Based on current information it is understood that there are no known hazards from services or contaminated land within the area of the monument. We anticipate that there will not be any forestry operations underway while the archaeological team are on-site. The monument is within an area that the public are actively encouraged to visit, hence works should be undertaken with the anticipation that public will be present and should be kept out of excavation areas.

Certification, First Aid and PPE

94. All professional staff working on-site will have relevant CSCS or CPCS cards and staff supervising plant will have received training in vehicle marshalling of mechanical excavators. At least one First Aider will be on-site throughout the project.

95. Staff will have appropriate PPE for working on an archaeological excavation including: hard hats; steel toe-capped boot; gloves; eye protection and foul weather wear. In the event of sustained high winds or heavy rainfall work may be suspended to ensure safe working conditions.

Waste, Debris and Site Condition

96. All waste (inc. office waste and consumable items), recovered materials (artefacts and sediments), site compound and plant will be removed from the site on conclusion of the on-site element of the works. The excavation areas will be filled with the excavated spoil and no spoil waste will be removed from the site.

Site Compound and Plant Refuelling

97. A site compound will be established at a location agreed with the Forestry Commission Scotland for the duration of the on-site works. The compound is anticipated to comprise a toilet unit and a secure store. The compound will not be fenced. All site staff vehicles will be brought to the compound.

Site Working Hours

98. The archaeological team will, at most, work Monday to Friday inclusive. No Weekend working is proposed. Site working hours would be 08:00 to 16:00 each day.

References

Barber, J 1999 *'The Linear Earthworks of Southern Scotland; survey and classification'* TDGNHAS p63-164

Lawes-Marty, E in Barber, J 1999 *'The Linear Earthworks of Southern Scotland; survey and classification'* TDGNHAS p72-76

Graham, A & Feachem, RW 1956 *'The Deil's Dyke in Dumfriesshire and Ayrshire'* Proc Soc Antiq Scot Vol. 88

Jackson AM 1978 *Forestry & Archaeology*, RESCUE

Contact Details

99. Rathmell Archaeology can be contacted at our Registered Office or through the web:

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