



HISTORIC
ENVIRONMENT
SCOTLAND

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ALBA

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Designations:	Scheduled Monument (SM9011)
Taken into State care:	1962 (Ownership)
Last Reviewed:	2020

STATEMENT OF SIGNIFICANCE

ANTONINE WALL - CROY HILL



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HISTORIC ENVIRONMENT SCOTLAND STATEMENT OF SIGNIFICANCE

ANTONINE WALL - CROY HILL

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PART A: FRONTIERS OF THE ROMAN EMPIRE WORLD HERITAGE SITE

Introduction

In 2008 the Antonine Wall was inscribed by UNESCO to become part of the Frontiers of the Roman Empire World Heritage Site (FREWHS). This already included Hadrian's Wall (inscribed in 1987) and the German *Limes* (inscribed in 2005). To be inscribed on the world heritage list, a site must meet at least one of the criteria for the assessment of Outstanding Universal Value (OUV) as defined by UNESCO¹. A fuller exposition of the OUV of the site is given in Appendix 3 below or can be found on the UNESCO website.

This brief introduction sets the Antonine Wall in the context of the FREWHS and outlines the justification for inscription of the Antonine Wall on the World Heritage List.

The Historic Environment Scotland (HES) Statement of Significance for Croy Hill which follows at Part B, recognises this individual site as an integral part of the wider Antonine Wall World Heritage Site. The Assessment however focusses in on Croy Hill itself for a closer examination of its individual history, development and range of heritage values.

It is also acknowledged that HES directly manages only a small proportion of the whole Antonine Wall WHS. This assessment is intended to inform understanding and management of those sites (or 'Properties in Care') for which HES has direct management responsibility:

Bantaskin (PIC167); Bar Hill (PIC168); Bearsden Bath-house (PIC169); Castlecary Fort (PIC170); Croy Hill (PIC171); Dullatur (PIC172); Garnhall Farm (PIC173); Kinneil House (PIC152); Kirkintilloch (PIC174); Rough Castle (PIC175); Seabegs Wood (PIC176); Tollpark (PIC177); Watling Lodge (PIC178) and Watling Lodge West (PIC179).

The Frontiers of the Roman Empire WHS (FREWHS)

The Antonine Wall is one of only three artificial frontiers constructed by the Roman army in Europe. Collectively, they form a serial trans-national World Heritage Site, the FREWHS; the OUV of which lies in the survival of the 2nd-century Roman frontier system across Europe, North Africa and the Middle East. This reflects the development and breadth of Roman military architecture and power. Together, the inscribed remains form an extensive relict cultural landscape which displays the unifying character of the Roman Empire, through its common culture, but also its distinctive responses to local geography and political and economic conditions. Each

¹ For more information on Criteria and the Inscription process, see <https://en.unesco.org/>

component part is a substantial reflection of the way resources were deployed in a particular part of the Empire.

The Antonine Wall within the FREWHS

For a short period in the mid second century the Antonine Wall formed the north-western frontier of the Roman Empire. The Antonine Wall was built under the Emperor Antoninus Pius in the 140s AD as an attempt to conquer parts of northern Britain, and extends for some 60km across central Scotland from the River Forth to the River Clyde. Through its military and civil constructions, it demonstrates cultural interchange through the extension of Roman technical skills, organisation and knowledge to the furthest reaches of the Empire. It embodies a high degree of expertise in the technical mastery of stone and turf defensive constructions. As it was in use for only a single generation, it provides a dated horizon at a particular point in time and offers a specific insight into how the frontier was designed and built. Together, the remains of the frontiers, consisting of vestiges of walls, ditches, earthworks, fortlets, forts, fortresses, watchtowers, roads and civilian settlements, form a social and historical unit that illustrates an ambitious and coherent system of defensive constructions perfected by engineers over the course of several generations.²

The Antonine Wall, as a Roman frontier, is a physical and visual testimony to the former extent of one of the world's greatest states, the Roman Empire. It formed part of a frontier system which surrounded and protected that Empire.

The Antonine Wall has a particular value in being the most highly developed frontier of the Roman Empire: it stands at the end of a long period of development over the previous hundred years and therefore facilitates a better understanding of the development of Roman frontiers in Britain and beyond. It is one of only three artificial barriers along the 5000km European, North African and Middle Eastern frontiers of the Roman Empire. These systems are unique to Britain and Germany, though more fragmentary linear barriers are known in Algeria and Romania. Built following an invasion of what is now Scotland during AD 139/142 and occupied for possibly only 20 years, it served as the most northerly frontier of the Roman Empire at the high point of its power and influence in the ancient world. It has many unique features which demonstrate the versatility of the Roman army, while its short life is of considerable value in offering a snap-shot of a Roman frontier in its most advanced state. As the most northerly frontier, it stands as an example of Rome's stated intention to rule the world.

² <https://whc.unesco.org/en/list/430>

The Antonine Wall has a distinctive value as a unique physical testimony to the nature of the constitution of the Roman Empire and the requirement of the emperor for military prestige. The abandonment of Hadrian's Wall and the construction of a new northern frontier at the behest of a new emperor reflects the realities of power politics in Rome during Edward Gibbon's "Golden Age". It also stands as a physical manifestation of the statements of writers flourishing during the reign of Antoninus Pius about the measures which Rome took to protect its inhabitants, even those living in its most distant province.

The Antonine Wall is of significant value in terms of its rarity, scale, preservation, and historical and archaeological value; the engineering and planning skills of its builders; the understanding of Roman frontier policy and management, and its influence on the landscape and history of local peoples during the Roman period and beyond; and also in terms of its contribution to the economic, educational and social values of today's society.³

The Antonine Wall sits within the broad framework of Roman frontiers, but it also contains many unique or unusual elements. These mainly relate to the structure itself:

- The Antonine Wall was built within 20 years of Hadrian's Wall, and, in its general framework, bears some features in common, but in many aspects it is clearly a development of Hadrian's Wall and is different in many ways, reflecting a more complicated frontier complex;
- The Antonine Wall is the only known frontier to have had a turf rampart erected on a stone base. Hadrian's Wall was of stone in the eastern part and turf in the west, but the turf wall was built directly on the ground - though short stretches of cobble foundations have been found at two locations - and was wider than the Antonine Wall. The Outer *Limes* in Germany was a timber palisade in its primary phase. The purpose of the stone base may have been to add stability to the superstructure, or to aid drainage through the barrier;
- The forts are more densely spaced on the Antonine Wall than on any other frontier of the Roman empire;
- Unlike on Hadrian's Wall the forts are diverse in their sizes, defences and internal arrangements;
- Unusually, many forts have annexes attached to them. Annexes have been recorded at many forts but not at those on linear barriers, but no such structures were constructed on Hadrian's Wall and they do not exist in the same form on the German *Limes*;
- Six expansions, probably used for signalling, are known: these structures are unique to the Antonine Wall;
- The three small enclosures discovered in one section of the Antonine Wall are unique on Roman frontiers;

³ Historic Scotland 2007: 75

- The short life of the Antonine Wall, coupled with the location and morphology of the known camps, enables most to be definitively identified as temporary camps used by the soldiers building the frontier. As a result, it is possible to offer suggestions on the organisation of labour, which is not possible on other frontiers. Many temporary camps are known along the line of Hadrian's Wall (few are recorded in Germany and elsewhere), but the long history of many other frontiers renders it difficult to disentangle temporary camps from marching camps and practice camps;
- The Antonine Wall was the shortest occupied linear frontier in the Roman Empire and is thus a unique archaeological resource.
- The temporary camps discovered on the Antonine Wall are particularly important in relation to the final unique element, the twenty Distance Stones which are known either whole or in part from the Antonine Wall. These record the lengths of Wall built by each of the three legions of Britain, the Second, Sixth and Twentieth.

However, the distance stones are not simple records, but highly decorated and sculptured stones which depict events during the military campaigning and form one of the most important collections of roman military sculpture from any frontier of the roman empire. Together with the evidence of the temporary camps, they allow important conclusions to be reached about the construction of the Antonine Wall which are unique to this frontier. They are also an important element in any consideration of the reason for the construction of the Antonine Wall, which is generally believed to relate to the personal position of the new Emperor Antoninus Pius. On one interpretation, they glorify the success of Roman arms on behalf of the Emperor, whose name appears on all the inscriptions, over the enemies of Rome and emphasise the support of the gods, and in particular the goddess victory, for the romans and their emperor. However, as the known distance slabs have been removed from the monument and placed in museums or their protection, they are not included in the world heritage site.⁴

PART B: STATEMENT OF SIGNIFICANCE: CROY HILL

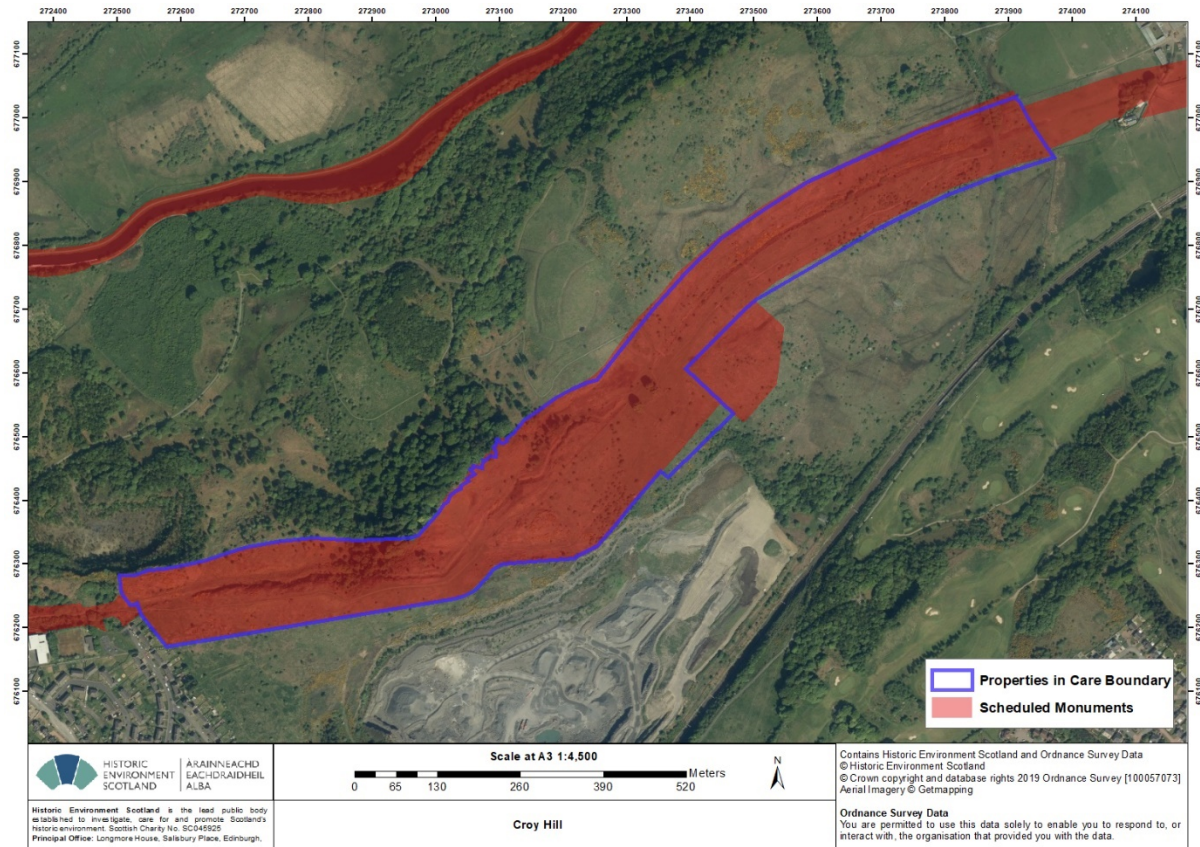
SUMMARY

1.1 Introduction

This property is part of the Antonine Wall, comprising a 1.5km long stretch of the former Roman frontier, as well as the remains of a fort, a fortlet, two turf-built "expansions" of the Antonine Wall Rampart, and structure,

⁴ Historic Scotland 2007: 76-77

possibly a form of temporary camp underlying the fort⁵. This is the longest section of the Antonine Wall in the care of Historic Environment Scotland (HES) and, therefore, offers a significant opportunity to investigate the relationships between the widest range of the frontier's key installation types. An early modern settlement later occupied the site of the Roman fort, but had been completely removed by the twentieth century.



Croy Hill: Scheduled Area and Property in Care boundary, with Forth and Clyde Canal to north. For illustrative purposes only.

1.2 Statement of Significance

As a part of the Antonine Wall, this property inherits the following aspects of significance:

- It is part of a well-preserved Roman frontier.
- Of all of imperial Rome's linear frontiers, this is the final and most developed example, in terms of strategic defense. Its engineers improved on Hadrian's Wall (built a generation before), to incorporate new features into its design, such as the use of fortified annexes which are unique in Roman linear frontier systems. It allows the development of Roman frontiers to be investigated through

⁵ Jones, forthcoming 2020

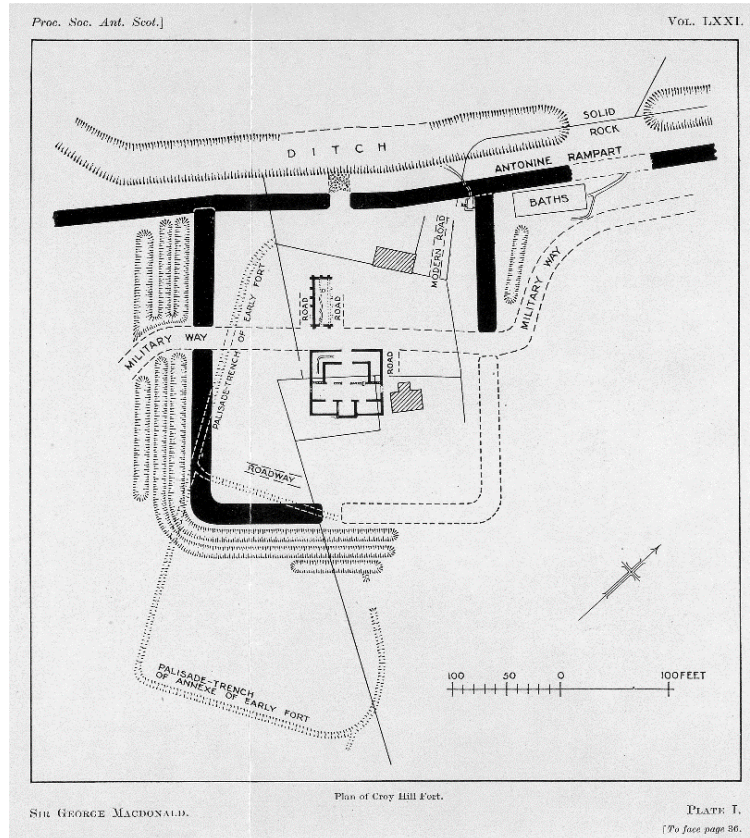
comparison with Hadrian's Wall and the German *Limes* thereby allowing us to understand more clearly the arrangements the Romans made to protect their Empire, as well as the relationship between broad principles and distinct local requirements. The Wall has further importance as a dating tool. Artefacts, pottery and ecofacts found in the structures along the frontier had a limited period of use, and are invaluable for helping date other forts and civil settlements.

- At the time of its creation, it represented the biggest ever engineering project to be undertaken within central Scotland, and a major human-engineered topographical transformation of the landscape.
- The Antonine Wall is the only frontier known to have had a turf rampart erected on a stone base; this may have been to add stability to the superstructure, or to aid drainage through the barrier.
- Following the Roman military abandonment of the frontier, it remained a highly visible landscape feature with continued significance in subsequent periods. It retained significance in a number of ways, e.g. as a defensive line, with its stones and Distance Stones reused in the construction of neighbouring dykes and properties, and in the name "Graham's Dyke," by which it came to be known; a name still reflected within modern street names in the eastern half of the Wall's line.
- Within the FREWHS, the Distance Slabs are unique to Scotland. Three legions built the Wall, and erected these 20 sculpted and inscribed sandstone blocks to record the completion of their individual stretches.
- The Antonine Wall is a most important repository of environmental evidence, both through its materials of construction and because it provides a dated horizon stretching right across Scotland. Through environmental evidence from the Antonine Wall, it has been possible to reconstruct the vegetational history of Central Scotland. The wall gains further international significance through the context in which it is managed as a World Heritage Site. The archaeological remains, the line and the setting of the Antonine Wall and its buffer zone are protected by UK Acts of Parliament, supplemented by National Planning Policy Guidelines, which together form a coherent framework for the protection of the whole of the World Heritage Site and its buffer zone.

More particularly, Croy Hill is significant for the following reasons:

- It is the longest continuous stretch of the Antonine frontier in HES care.
- It features a range of phases in the history of the Roman frontier.
- It features the only known section where the Antonine Wall Ditch was not cut.
- It is a very rare example of an Antonine Wall fort with no definitive evidence for an annexe.

- It is the only Antonine Wall fort that has provided clear evidence for buildings in a potential *vicus*.
- An early modern settlement was located directly over the Roman fort.



Plan of Croy Hill Fort.

2. ASSESSMENT OF VALUES

2.1 Background

The Antonine Wall is the remains of the Roman Empire's northwest frontier built in the mid-second century. It was around 41 miles (66km) long and stretched across central Scotland from the Firth of Forth near Bo'ness to Old Kilpatrick on the Clyde. The Wall was constructed, in functional operation, and then abandoned all within a period of about twenty years between the early AD 140s-160s. A full overview and description of the Antonine Wall is given at Appendix 4⁶.

Though termed a "Wall", the main structure was of Rampart and Ditch. The Rampart was constructed mostly out of layers of turf, erected on a stone base, and reached a height of 3m. To the north of the Wall, the defences

⁶ Note: The key linear features include the Rampart, Ditch, Berm, Outer Mound, and Military Way; these features are all presented in this document with an initial capital letter in order to avoid confusion between the main frontier's Rampart and Ditch and those ramparts and ditches that surround the Wall's installations.

also included a huge Ditch, nearly 5m deep in places, and an Outer Mound constructed from the earth thrown out of the ditch. Seventeen forts plus additional 'fortlets' accommodated the men stationed along the Wall during its brief occupation (the number could be as low as 4,500-5,000 men)⁷.

The Military Way, a service road built to the south of the Wall, was another important element, enabling troops to move swiftly along its course, bearing supplies, commands and news. The Wall was entirely built by members of the three Roman legions stationed in Scotland. During construction, the soldiers lived in leather tents situated inside temporary camps which were enclosed by light defences. These temporary camps were an integral part of the design of the Antonine Wall, and were carefully positioned along the frontier during its creation, to ensure maximum efficiency.

In the late 150s / early 160s AD the Antonine Wall was abandoned and the guard withdrawn. The rampart was not demolished, nor was the ditch filled in, but fort buildings were burnt or dismantled. The Romans took valuable and portable items away with them, but heavy or worthless objects were discarded, in some cases down the well of the fort – to the great benefit of future archaeologists.

Throughout the post-Roman and medieval periods the Antonine Wall and its immediate vicinity saw continued occupation and the construction of new settlements and structures, including churches, villages, and several castles, including mottes. The wall became known as 'Grymysdyke' and its Roman heritage was forgotten. Throughout the post-Roman and medieval periods the Antonine Wall and its immediate vicinity saw continued occupation and the construction of new settlements and structures, including churches, villages, and several mottes and castles.

From the 18th century there was growing interest in and exploration of the Wall by antiquarians, and certain sites became celebrated. Industrialisation and development in the central belt also saw destruction of some parts of the wall by agricultural and industrial development, and the building of roads and canals.

Croy Hill was first Scheduled in 1925 and was taken into State care in 1962. HES manages fourteen sites along the Wall but the majority of the Wall is not in State care. In 2008 the Antonine Wall was inscribed as a World Heritage Site and a Management Plan for the WHS is available at www.antoninewall.org/world-heritage/managing-antonine-wall

Following inscription in 2008, a Management Plan Steering Group was established to develop and deliver Management Plans and key strategic work along the Antonine Wall. This comprises Historic Environment Scotland (HES) and the five local authorities along its length (West

⁷ Keppie 2009

Dunbartonshire Council, Glasgow City Council, East Dunbartonshire Council, North Lanarkshire Council and Falkirk Council). A World Heritage Site Co-ordinator is employed by HES to work on behalf of this partnership and deliver the UNESCO WHS requirements. The Partnership invests in capital and revenue projects to protect and promote the Antonine Wall; since inscription this has included (amongst other projects) key branding work, a new website, a digital app platform, new road and onsite signage, economic and visitor studies, investment in visitor counters and a significant Heritage Lottery Fund (HLF) project focused on regeneration and community engagement. New staff members were recruited for a three year period to manage the HLF project and key to their work was a co-design and co-curation approach with local communities. Key groups being targeted include communities in the most deprived areas of the Central Belt, asylum seekers (including those from areas associated with the original Roman troops stationed on the Antonine Wall), young people both in and out of schools, and individuals seeking skills development opportunities.

The Antonine Wall has benefited from the development of the John Muir Way, a coast to coast walking route that crosses several parts of the Antonine Wall. This has helped to find alternative routes for cyclists and horse-riders, where some parts of the site had been vulnerable to damage from such use.

Internationally, as part of the Frontiers of the Roman Empire World Heritage Site, staff and communities connected to the Antonine Wall liaise and network with counterparts along Hadrian's Wall and the German *Limes*. This has included: joint European funding bids; networking trips; hosting / attending international meetings and delegations; and conferences and seminars. There has also been successful engagement with wider European Roman frontier networks.

2.2 Evidential values

This property provides evidence for the Antonine Wall's linear features of the Military Way, Rampart, Ditch, Berm, and Outer Mound, as well as a wide range of installations including a fort, a fortlet, a pair of turf Rampart "expansions," an underlying structure, probably some form of temporary or surveying camp, and a probable civil settlement (*vicus*). Lithics and beaker pottery fragments provide evidence of probable Late Neolithic and Early Bronze Age activity at the site.

The existence of a Roman fort at Croy Hill was noted by antiquaries in the late seventeenth century⁸, but by the 1720s, visible traces had been almost totally demolished by the activities of a small hamlet over the site of the

⁸ Sibbald 1707: 29, summarising records of Christopher Irvine

fort. In the early 1890s, the Military Way at Croy Hill was cut into by the development of a mineral railway, further damaging the archaeological remains at this property⁹. This prompted Alexander Park to excavate several trenches along the line of the Antonine Wall between Bar Hill and Croy Hill in the early 1890s, and these were quickly followed by a number of sections dug by the Glasgow Archaeological Society's Antonine Wall Committee¹⁰. Although a significant volume of Roman masonry was found re-used within the walls of nearby buildings, the fort itself was not definitively located until 1920, when trenching by Sir George Macdonald identified the west gateway and part of the west rampart¹¹. Macdonald later returned to carry out more extensive excavations in 1931 and 1935, providing a relatively complete understanding of the fort's defences and interior, and identifying a previous enclosure underneath and extending to the south of the fort¹². A second round of excavations by Professor William Hanson took place outside the fort between 1975–78, as a response to quarrying in the area¹³. These excavations included areas to the east, south, and south-west of the fort, identifying a fortlet attached to the south face of the Antonine Wall Rampart, 80m west of the fort. Also discovered at this time were limited traces of a possible civilian settlement (*vicus*) to the south-west of the fort, along with signs of agricultural and industrial activities to the east and south-east of the fort.

Excavations have revealed that the fort had an internal area of 0.6ha and that it was constructed later than the Antonine Wall's Rampart, which it used for its own northern rampart. Here, the Rampart was constructed of turf on top of a 4.3m wide stone base, while the Ditch was 12m wide with no evidence of a causeway outside of the fort's north gate. On its east, west, and south, the fort was also defended by turf ramparts on a stone base. Further defences were complicated, with as many as three parallel ditches outside of the fort's west and south gates, while a short section of a single ditch was located near the fort's north-east corner, but no evidence has been found for ditch defences on the fort's south-east corner. The fort's interior featured a stone headquarters building (*principia*) and granary (*horreum*) in the central range, while a spectacularly-built stone well and underground chamber was located within the fort's north-east corner. Just outside of the fort's north-east corner was a stone bath-house measuring about 20.4m by 3.6m; this featured well-preserved hypocausts and was built up against the south face of the Antonine Wall Rampart.

⁹ Keppie 2012: 123

¹⁰ Glasgow Archaeological Society 1899: 46–95

¹¹ Macdonald 1932: 243–276

¹² Macdonald 1937

¹³ Hanson forthcoming

Very few artefacts were recovered from the fort excavations, but finds included a number of inscriptions and sculpted stones¹⁴, including two portions of a relief of Jupiter Dolichenus, an altar to the Nymphs, and a large selection of ballista balls. Pottery fragments were almost all dated to the Antonine period. Several of these finds indicate the presence of members of the Sixth Legion. The presence of legionaries is surprising at Croy Hill, as it was a small, secondary fort on the edges of the frontier¹⁵. Building inscriptions (RIB 2161, 2162, 2163) indicate that this legion was probably responsible for the construction of the fort, but an altar (RIB 2160) and a legionary tombstone suggest that a detachment from the legion may have stayed on as part of the fort's garrison. No other unit is recorded at Croy Hill.

Underlying the fort is an earlier enclosure that Macdonald had interpreted as a Flavian period fort – with annexe – representing one of Julius Agricola's c. AD 79/80 chain of forts (*praesidia*) that Tacitus wrote were constructed across the Forth-Clyde isthmus. Excavations of the enclosure's ditches to the south of the fort in the 1970s – along with newer excavations of a similar enclosure that pre-dated the nearby fort on Bar Hill (PIC168) – has now led to this being interpreted as a temporary structure, possibly a surveying camp from the early Antonine period. If this is correct, it probably housed the soldiers who were responsible for surveying the Antonine Wall in this area before construction began. The idea that this camp could have been used to house troops involved with building the Wall in this area has been rejected because of its small size, but it would have been sufficient for a smaller group of surveyors or potentially fortlet builders. Interestingly, this camp appears to feature an annexe, which is relatively rare for temporary camps along the Antonine Wall¹⁶.

The fortlet, situated about 80m to the west of the fort's western rampart, was discovered in Hanson's 1977 excavation¹⁷. This was found to be built at the same time as the Antonine Wall, using the Rampart and Ditch as its northern defence, with turf ramparts on a stone base and a single ditch providing further defences on the east, south, and west sides. The fortlet measured about 18.5m by 22m internally, and featured north and south gates. Strangely the south gate was found to be off-centre and near the fortlet's south-east corner, probably due to the rocky surface of the hill's summit. Both the Antonine Wall Ditch immediately north of the fortlet and

¹⁴ See <https://romaninscriptionsofbritain.org/>

¹⁵ Breeze 2006: 90–91

¹⁶ Jones 2006; 2011: 329–30; forthcoming 2020

¹⁷ Hanson forthcoming

the fortlet's own eastern ditch featured odd deviations: the Antonine Wall Ditch features a short northern detour to the north of the fortlet, while the eastern ditch features an almost s-shaped curve. Again, the nature of the hill's solid rock surface may be the reason for these oddities. Given the fortlet's close proximity to the fort – and the fact that the fortlet is of one build with the Antonine Wall Rampart while the fort appears to abut a pre-existing Rampart – it has been proposed that the fortlet was constructed first, and that the fort was a later addition to this property.

No definite structural evidence for a fort annexe has been identified at Croy Hill, but if the pattern of external bath-houses located within annexes at many other Antonine Wall forts (e.g. at Bearsden, PIC169) is followed, there may have been an annexe attached to the east side of the fort, enclosing the bath-house within a larger ditched area. Thus, there may be further evidence in the unexcavated area to the fort's east.

Tantalising traces of other activity to both the south-east and south-west outside of the fort, uncovered in Hanson's excavations, may, however, indicate the presence of a civilian settlement (*vicus*), including rare possible physical evidence for *vicus* buildings anywhere on the Antonine Wall. Among the finds from the south-west of the fort are coins of Trajan and Domitian, a bronze arm-purse¹⁸, cremated human remains within a storage jar, fragments of a face mask, hobnails, and pottery.

“Expansions”, consisting of small squared southern extensions of the Antonine Wall Rampart, occur in pairs and are known from three locations: one pair to either side of the fort at Rough Castle (PIC175) and a pair on the western slope of Croy Hill. Excavations of these structures found that expansions were generally constructed at the time of the building of the Wall, as the turves in the superstructure of the Rampart overlapped with the expansions. This was not, however, the case at Croy Hill where it appears that the expansions were added after the construction of the wall¹⁹.

Stratigraphically above all of the Roman period remains are the traces of post-Roman activities, including the settlement that was located over the fort in the eighteenth century. These activities should be highlighted as having disturbed the Roman remains, but may also provide useful insights into early modern Scotland at a period in which the former Roman frontier

¹⁸ A 3D digital model of this object can be freely viewed on the HES Sketchfab page: <https://sketchfab.com/models/4dbcee6ee5c64797931af38a474626fa>

¹⁹ Breeze 2006: 87

was becoming more and more recognized, and as the Industrial Revolution was transforming the region.

2.3 Historical values

The earliest known activity at this property was in the Late Neolithic and Early Bronze Age, evinced through a small collection (19 pieces) of lithics and beaker pottery²⁰. However, the evidence is too sparse to tell a coherent story of occupation and/or settlement. A Kilmarnock type barbed and tanged arrowhead, rounded convex scraper, and beaker pottery sherds may all indicate a possible beaker burial in the Bronze Age. Other flint, chert, and tuff objects, including a chert blade and flint bifacial knife, are indicative of Neolithic activity, but the small collection and lack of definitive burials and/or structural evidence leaves the extent and character of this site's use in these periods uncertain.

The narrative is far more cohesive during the Antonine occupation, circa AD 140–160/65, highlighting the Roman frontier's development from the initial construction of the Wall and fortlet through to the addition of Rampart expansions and the construction of the fort, discontinued use of the fortlet, and development of a possible civil settlement (*vicus*). Archaeological excavations have provided cultural evidence including a cremation burial pot, dedicatory altar to the Nymphs, two portions of a relief of Jupiter Dolichenus, an extra-mural bath-house, ballista balls, pottery, agricultural field systems, and an uninscribed tombstone. We know, from inscriptions, of the presence of soldiers from the Sixth Legion, and an altar identifies the commanding officer as Fabius Liberalis. An inscription set inside a laurel wreath supported by Cupids and Venus commemorated the legion's building work at the site. The fact that current evidence only places soldiers from the Sixth Legion at the fort is unusual, as both the Antonine Wall and Hadrian's Wall typically saw a garrison of auxiliary soldiers with only limited support from legionary vexillations. The lack of evidence for any auxiliary unit at Croy Hill is particularly unusual, but it is possible that further excavation will reveal such evidence.

While the imperial material culture of the Romans is most obvious, the impact on the surrounding peoples is not so obvious and the property has the tantalizing potential to reveal more about the relationship between the occupying Roman forces and the local community. Better investigation of the civil settlement surrounding the fort would begin to address the wider

²⁰ Wright 2015

cultural impact of the Romans on local life, but local native settlements should also be sought in order to more fully address this important topic.

The site's name probably post-dates the Roman occupation and is likely rooted in the topography, meaning "hard, firm ground." This is similar to other fort names along the Antonine Wall being linked to their surrounding topography such as Camelon ("the crooked pool"), Bar Hill (PIC168, "top of the hill"), and Mumrills ("the rounded or breast-shaped hill")²¹. The evidence for post-Roman activities at the site has not been as well documented as the Roman period but by the 1720s Alexander Gordon describes a town built completely over the fort, which had prevented him from determining its outline; the buildings of this town were constructed with stones from the fort, and Gordon was able to identify some key inscriptions within the fabric of these early modern structures²². Horsley never describes the town/village here but merely indicates that a fort may have been located here²³, while Maitland indicates that despite his careful searches he "could not discover the least vestige of, nor learn that there ever was a fort at or in the neighbourhood"²⁴. By the time of Macdonald's excavations in the 1920s the town/village had been reduced to a single cottage²⁵, and this settlement's history of development and demise may also be an interesting story to tell.

Part of this story are the industrial activities that took place on and near to the location, which also helped to instigate the earliest excavations. Mungo Buchanan, a prominent Falkirk antiquary and competent photographer, took photographs of the mineral railway that cut through the Military Way in 1891 not long after it was laid. This railway cut across the Military Way at the eastern side of Croy Hill, prompting the early 1890s excavations by Alexander Park and Glasgow Archaeological Society's Antonine Wall Committee. These early trenches did not reveal the location of the fort, but they did determine that several nearby buildings and walls had re-used Roman masonry, giving stronger support to the early antiquarian accounts of a fort here. These early excavations marked the first systematic and organized excavation on the Antonine Wall²⁶.

²¹ Keppie 2012: 14

²² Gordon 1726: 56

²³ Horsley 1732: 170

²⁴ Maitland 1757: 175

²⁵ Macdonald 1932: 243

²⁶ Keppie 2012: 124

2.4 Architectural and artistic values

The property exhibits unique and well-preserved sections of the Antonine Wall, and the combination of architectural features provides one of the best examples of Roman defensive design and function along the Antonine Wall. The fort at this property, and at nearby Bar Hill (PIC168), are situated at the highest part of the whole frontier. The rock-cut Ditch and the Outer Mound are well defined across the property and the latter is a pronounced ridge on top of the counterscarp, which is a unique feature. The Ditch is cut through solid rock across this property, and the toughness of this geology necessitated alterations in the line of the Ditch as well as to the south entrance of the fortlet. Particularly notable is a 25m stretch of solid rock just east of the fort that blocks the Ditch: through which a Ditch was clearly never cut, and serves to highlight the immense task that the Roman Ditch-diggers faced through this property²⁷. Despite this short stretch of un-dug Ditch, it is otherwise dug to an average width of 8m and a shallow 1.5m in depth across Croy Hill. As the Ditch reaches the site of the fortlet, though, it deviates to the north, creating the largest Berm anywhere on the Wall: here, analysis of LiDAR data indicates that the distance between the Ditch and Rampart exceeds 32m, while the Ditch narrows to a little over 5m wide and is less than 1m deep²⁸. As is standard for the parts of the Antonine Wall to the west of Watling Lodge (PIC178 and PIC179), the Rampart here is built of stacked turves on a stone base, 4.3m wide.

The fort, 0.60ha in size, was built abutting the Antonine Wall, through which a gate was placed. The remaining three sides were built of a 6m wide turf rampart on a stone base, with three ditches on the west and two or three on the south. Gates were also placed on the south, west and east sides, but the evidence for defensive ditches on the fort's east side and south-east corner is severely limited. There is a single short stretch of ditch between the fort's east gate and the bath-house just outside of the fort's north-east corner, but there is no evidence for ditches on the south-east. Within the fort are the remains of a stone granary (*horreum*) which was unusually placed at the front of the fort. The headquarters building (*principia*) was also built of stone and there is evidence that it had been altered and rebuilt. The *via principalis* shows heavy traffic wear and tear, requiring at least three resurfacings²⁹. A stone well was built in the north-east corner of the fort and this was later covered over by a tower. The remains of a stone bathhouse were found outside the fort to the north-east with a series of rooms that were heated through hypocausts. There is no definitive evidence for an annexe attached to this fort, but the presence of the extra-mural bath-house may indicate that one was attached to the fort

²⁷ Robertson 2015: 86

²⁸ Hannon forthcoming

²⁹ Robertson 2015: 87

on its east side. Croy Hill is one of the few Antonine Wall forts where three distinct phases of internal buildings have been identified, the others being Mumrills, Cadder, and Old Kilpatrick³⁰. Of these, it is the only one in the care of Historic Environment Scotland.

The fortlet, located about 80m west of the fort, measured 18.5 x 22m and is of one build with the Antonine Wall Rampart, through which a gate is placed but no causeway is present across the Ditch. The fortlet's South Gate is a little off-centre, toward the south-west, and the fortlet is defended by turf ramparts on a stone base, with a single ditch cut into the rock.

Even further west, on the western slopes of the hill, two turf platforms called "expansions" are located attached to the Antonine Wall Rampart. These measure about 5.2m square, and have been found to abut the Rampart. Two other pairs of "expansions" are known from either side of Rough Castle fort (PIC175)³¹, and only one of the Bonnyside East expansions has been fully excavated. At Bonnyside East, while the expansion's stone base was laid abutting the Rampart base, the stacked turves overlapped with those of the Rampart, suggesting that they were contemporary; this differs from the expansions at Croy Hill, where there is no stone base and the turf was laid separately from that used in the Rampart³².

Of particular importance at Croy Hill is the structural evidence for a potential civil settlement (*vicus*) associated with the fort. The evidence is severely limited, but includes a rectangular open-ended building to the south-west of the fort and set within a ditched area, and with a possible trackway leading to a bypass road for the Military Way³³. Excavation to the east of the fort also revealed a system of fence lines and stretches of ditch, located on both sides of a road that bypassed the fort, and dividing the area into small rectangular plots. Although the only certain *vicus* on the Antonine Wall is at Carriden, this has only been confirmed by an inscription that specifically mentions the site's *vikani* ("vicus dwellers"); the presence of such extramural structural evidence at Croy Hill may offer much to inform us about the non-soldier communities that almost certainly followed the military to the Antonine Wall.

³⁰ Hanson and Maxwell 1986: 208

³¹ At Bonnyside East/West and Tentfield Plantation East/West

³² Breeze 2006: 87

³³ Hanson and Maxwell 1986: 188; Hanson forthcoming

2.5 Landscape and aesthetic values

This property represents one of the highest elevations along the entire Antonine Wall and is less built-up – particularly on the north – than many other areas along the former frontier, providing an impression that is probably more similar to that experienced in the Roman period, and certainly more similar to that experienced by early antiquaries who travelled along the Wall. The Ditch is particularly dramatic here, and can be visually traced for a long distance.

2.6 Natural heritage values

One of the most important aspects of Croy Hill, along with other sections of the Antonine Wall, is their capacity to act as wildlife and biodiversity corridors for the surrounding areas. Linear features of relatively undisturbed countryside are of great importance, and this site incorporates a range of habitats within it, including woodland, heath, scrubland and seasonal ponds.

A number of designated species have been recorded on, or in the immediate vicinity of, the site, including Great Crested Newts (European Protected Species), Redwing, and Fieldfare (British Protected Species). Song Thrush, Starling and Skylark (all Birds of Conservation Concern), Kestrel and Green Woodpecker (UK Biodiversity Action Plan Priority Species) have also been noted. The presence of the Greater Butterfly Orchid has also been noted.

Geology

The Antonine Wall made the best advantage of local geology and topography, here utilising a natural ridge. The bedrock belongs to the Midland-Valley Sill Complex of the North Britain Late Carboniferous Tholeiitic Suite³⁴.

2.7 Contemporary/use values

The property offers a popular walking route, with excellent views from the high elevation provided here. More generally, the Antonine Wall is well used by communities along its length as a relatively rare green space amid the urbanisation of Central Scotland. Walkers, trail runners, healthy living

³⁴ British Geological Survey, 2019

groups, and youth groups have all been identified as key ‘greenspace’ users during consultation events. Since its World Heritage Inscription in 2008, growing awareness of its status has emerged, and a more diverse audience developed. ‘World Heritage’ tourism has been noted by local tourism providers and a growing schools audience has been observed through social media. Further information on the WHS Management Plan Group and partnership activities and projects is given above at section 2.1 Background. Wider opportunities for community development, regeneration, and local / national / international networking remain significant.

Visitor numbers to the HES managed Antonine Wall sites have been difficult to quantify as the sites are freely accessible and not staffed. Many attract substantial numbers of walkers as well as those setting out to visit the Roman site. Automatic counters have been installed at some sites which gives an idea of footfall. At Rough Castle, which is very near the Falkirk Wheel, over 100,000 were counted, while at Bar Hill 34,000 were counted over the course of a year (2018).

3. MAJOR GAPS IN UNDERSTANDING

The Antonine Wall Research Agenda (due to be published in 2020) highlights a number of areas where further work on the Wall line could enhance understanding. These include:

- Work on the local landscape and environment before the Wall’s construction.
- Geoarchaeological work on the rampart and ditch.
- Study of the building materials and techniques deployed on the Wall.
- Remote sensing in the vicinity to detect additional structures including the Military Way.

For further information on the Research Agenda, see:
www.antoninewall.org

The primary gaps in our understanding of this property are:

- The nature and extent of Neolithic and Bronze Age activity.
- The full plan and nature of the Roman fort.
- The reasons why a fort was constructed so close to a pre-existing fortlet.

- The precise date and function of the enclosure/camp underlying the fort.
- The date, nature, and function of the fort's civil settlement (*vicus*), as well as its relationship to the fort and wider landscape.
- The features including a possible annexe to the east of the fort.
- The dates, plan, and details of the early modern settlement that once existed over the fort.

4. ASSOCIATED PROPERTIES

In addition to this property, there are currently 13 further portions of the Antonine Wall in the care of Historic Environment Scotland:

Bar Hill (PIC168); Bearsden Bath-house (PIC169); Castlecary Fort (PIC170); Dullatur (PIC172); Garnhall Farm (PIC173); Kirkintilloch (PIC174); Kinneil House (PIC152); Rough Castle (PIC175); Seabegs Wood (PIC176); Tollpark (PIC177); Watling Lodge (PIC178) and Watling Lodge West (PIC179).

5. KEYWORDS

Croy Hill; Roman frontier; limes; Antonine Wall; Hadrian's Wall; World Heritage Site

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Other Resources

3D digital models of various artefacts found at Antonine Wall sites, can be freely viewed on Historic Environment Scotland's Sketchfab page³⁵. This includes a bronze arm purse³⁶ found at Croy Hill, and other items within the collections of the Hunterian Museum, Glasgow. An interactive Antonine Wall mobile app can also be downloaded to aid site visits and interpretation³⁷, and the full scheduling description for Croy Hill is available at: <http://portal.historicenvironment.scot/designation/SM90011>

Appendices

Appendix 1: Timeline

c. AD 142	Construction of the Antonine Wall is initiated by the Roman Emperor Antoninus Pius (AD 138-161), after a successful campaign in AD 140s by Lollius Urbicus, Governor of Britain. Fort garrisoned by a detachment of soldiers of the Sixth Legion (<i>legio VI Victrix</i>) commanded by Fabius Liberalis.
c. AD late 150s / early 160s	The Antonine Wall system is abandoned by the Roman military, and the northern frontier returns to the line of Hadrian's Wall.
18th century	A settlement existed on the site of the fort.
1891	A mineral railway is developed at Croy Hill, cutting through the Military Way.
1920s	By this time the early modern settlement had been reduced to a single cottage.
1925	The site is first Scheduled.
1962	The property is taken into State care (ownership).

³⁵ <https://sketchfab.com/HistoricEnvironmentScotland/collections/antonine-wall>

³⁶ Bronze Arm Purse:

<https://sketchfab.com/models/4dbcee6ee5c64797931af38a474626fa>

³⁷ Available at: <http://www.antoninewall.org/visiting-the-wall/download-the-app>

- 2003 The Scottish Executive announces that the Antonine Wall (including this property) would be nominated as a UNESCO World Heritage Site.
- 2008 The Antonine Wall is inscribed as part of the “Frontiers of the Roman Empire” UNESCO World Heritage Site, joining Hadrian’s Wall and the Upper German-Raetian *Limes*.

Appendix 2: Summary of Archaeological Investigations

- 1685–90 Christopher Irvine records the presence of a “great fort” at Croy Hill.
- 1700s Various antiquarian visitors suspect a Roman fort here, but are able to find very little evidence for one.
- 1890s Excavations by Glasgow Archaeological Society demonstrated well-preserved sections of the Military Way, Rampart, and “expansions.”
- 1920, 1931, and 1935 Excavations by Sir George Macdonald uncovered the Antonine Wall Rampart, much of the plan of the fort, and an earlier enclosure (which he mistakenly thought to be Flavian).
- 1934 The line of Wall and Military Way was surveyed here by Sir George Macdonald.
- 1957 The line of Wall and Military Way was surveyed here by the Ordnance Survey.
- 1967 The “expansion” and sections of 1899 excavations were re-excavated and recorded by Anne S. Robertson.
- 1975–1978 Excavations by William Hanson found the remains of separate fortlet to the west of the larger fort, proved the underlying fortlet site was of second century AD date and was a construction camp for the fortlet attached to the Wall, confirmed the line of the Military Way bypass and found extensive remains of a civil settlement with farming allotments.

- 1980 The line of Wall and Military Way was surveyed here by the Ordnance Survey.
- 2015 A watching brief by Kirkdale Archaeology during replacement of interpretive signs revealed no finds or features of archaeological significance.
- 2010 Aerial LiDAR captured at 0.5-m resolution covering the World Heritage Site, as part of the “Hidden Landscape of a Roman Frontier” collaborative research project run and jointly funded by Canterbury Christ Church University (CCCU) and Historic Environment Scotland (HES).

APPENDIX 3: OUTSTANDING UNIVERSAL VALUE

The Justification for Inscription of the Antonine Wall World Heritage Site against OUV criteria³⁸.

Criterion (ii): exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design.

The extant remains of the fortified German *Limes*, Hadrian’s Wall and Antonine Wall constitute significant elements of the Roman Frontiers present in Europe. With their forts, fortlets, walls, ditches, linked infrastructure and civilian architecture they exhibit an important interchange of human and cultural values at the apogee of the Roman Empire, through the development of Roman military architecture, extending the technical knowledge of construction and management to the very edges of the Empire. They reflect the imposition of a complex frontier system on the existing societies of the north-western part of the Roman Empire, introducing for the first time military installations and related civilian settlements, linked through an extensive supporting network. The frontiers did not constitute an impregnable barrier, but controlled and allowed the movement of peoples: not only the military units, but also civilians and merchants. Hence, they triggered the exchange of cultural values through movement of soldiers and civilians from different nations. This entailed profound changes and developments in the respective regions in terms of settlement patterns, architecture and landscape design and spatial organization. The frontiers still today form a conspicuous part of the landscape.

Criterion (iii): bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared.

³⁸ A fuller exposition of the OUV of the site can be found on the UNESCO website: <https://whc.unesco.org/>

As parts of the Roman Empire's general system of defence the German *Limes*, Hadrian's Wall and the Antonine Wall have an extraordinarily high cultural value. They bear an exceptional testimony to the maximum extension of the power of the Roman Empire through the consolidation of its north-western frontiers and thus constitute a physical manifestation of Roman imperial policy. They illustrate the Roman Empire's ambition to dominate the world in order to establish its law and way of life there in a long-term perspective. They witness Roman colonization in the respective territories, the spread of Roman culture and its different traditions – military, engineering, architecture, religion management and politics – and the large number of human settlements associated with the defences which contribute to an understanding of how soldiers and their families lived in this part of the Roman Empire.

Criterion (iv): *be an outstanding example of a type of building or architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history*

The fortified German Limes, Hadrian's Wall and the Antonine Wall are outstanding examples of Roman military architecture and building techniques and of their technological development, perfected by engineers over the course of several generations. They demonstrate the variety and sophistication of the Romans' responses to the specific topography and climate as well as to the political, military and social circumstances in the north-western part of the Empire which spread all around Europe and thereby shaped much of the subsequent development in this part of the world.

Integrity

The inscribed components convey the extraordinary complexity and coherence of the Frontiers of the Roman Empire in northwestern Europe. Although some parts have been affected by land use change and natural processes, the integrity of the property is demonstrated through its visible remains and buried archaeological features. Their state of survival has been researched in many areas. Several areas of the frontier have been built over, but where significant archaeological remains have been proven to exist they have been included in the property.

Currently, about one-third of the linear barrier is visible; about one third lies in open countryside but is not visible above ground, though its existence has frequently been tested through excavation; about one-third lies in urban areas, though again its survival has been tested through excavation in many areas. About 2 km of the total length of the Antonine Wall have been totally destroyed, though to this sum should be added minor cuttings for roads and railways.

Authenticity

The inscribed component parts have a high level of authenticity, with each having been verified through extensive study and research. The materials and substance of underground archaeological remains are well-preserved, as are upstanding and visible remains. The form and design of each representative part of the frontier and its associated structures are clear and comprehensible. Later development overlying parts of the frontier are treated as vertical buffer zones.

The remains of the Antonine Wall exist in a generally good condition and visible sections sometimes have significant heights and depths. Conservation and consolidation measures that have been carried out in the interest of better understanding and protection fit in with the setting of the property and do not diminish its authenticity.

Protection and management requirements

At the time of inscription on the World Heritage List, the World Heritage Committee adopts a Statement of Outstanding Universal Value (SOUV) which will be the key reference for the future effective protection and management of the property. The FREWHS as a whole is collectively managed. At the international level, the States Parties have established an integrated management system consisting of three closely cooperating and interacting bodies: the Inter-Governmental Committee (IGC) to oversee and coordinate the overall management at an international level; the Management group which assembles those directly responsible for the site management of the property and provides the primary mechanism for sharing best practice; The Bratislava Group, an international advisory body with expert members from States Parties with inscribed or potential parts of the Frontiers of the Roman Empire World Heritage property.

The Antonine Wall is protected by designation under the Ancient Monuments and Archaeological Areas Act 1979, and through the legislation that guide planning and development in Scotland - the Town and Country Planning (Scotland) Act 1997, the Planning etc. (Scotland) Act 2006 and the Planning (Listed Building and Conservation Areas) (Scotland) Act 1997. It is covered by national policy for the historic environment set out in the Scottish Historic Environment Policy and Scottish Planning Policy. Policies to protect, promote, conserve and enhance the property are included in local authority development plans and strategies, supported by Supplementary Guidance. Most of the Antonine Wall is in private ownership, but some sections are in the care of local authorities and Historic Environment Scotland.

APPENDIX 4: OVERVIEW AND INTRODUCTION TO THE ANTONINE WALL

The Antonine Wall is the remains of the Roman Empire's northwest frontier in the mid-second century. Stretching across central Scotland from the Firth of Forth to the Clyde, the Wall was constructed, in functional operation, and then abandoned all within a period of about twenty years between the early AD 140s to early 160s. The Antonine Wall was one component within a vast and varied system of linear frontiers established by Rome during the second century AD, and other examples are known from across Europe, the Near East, and North Africa. The most famous of these Roman frontiers is Hadrian's Wall in the north of present-day England, which preceded the Antonine Wall and served as a model for key components of its design. In 2008 the Antonine Wall was inscribed as a UNESCO World Heritage Site, joining Roman frontiers in England (Hadrian's Wall) and Germany (the Upper

German-Raetian *Limes*) as the latest addition to the “Frontiers of the Roman Empire” serial trans-national World Heritage Site.

The Antonine Wall is about 41 miles (66km) long and features a range of linear features that are present along most of this length, which is punctuated by several types of installations of various purposes; the Wall was previously reported to have a length of 60km, but this has been amended by recent three-dimensional distance measurements based on analysis of recent LiDAR survey³⁹. Although common perceptions of the term “wall” often revolve around an enclosing structure or rampart – generally of timber, stone, or brick – the term “Antonine Wall” is used by scholars and heritage managers to refer to this full collection of inter-related features. Beyond the installations, the linear features of Rampart and Ditch are typically (and would have been in the Roman period) the most topographically visible elements of the frontier.

Linear Features

Note on nomenclature: The key linear features include the Rampart, Ditch, Berm, Outer Mound, and Military Way; these features are all presented in this document with an initial capital letter in order to avoid confusion between the main frontier’s Rampart and Ditch and those ramparts and ditches that surround the Wall’s installations.

The Rampart was a turf or earth/clay superstructure set atop a kerbed stone base, averaging 4.3–4.8m wide, and rising in a sloped fashion to a height of probably at least 3m. The best-preserved Rampart remains lie just west of Rough Castle fort (PIC175), where it survives to a height of only about 1.5–1.8m. Because the Rampart does not survive to its full height anywhere, we remain uncertain of how it was finished on top, but it was probably squared flat and may (although there is no direct evidence) have featured stakes set into the top or a wooden duckboard walk with a timber palisade. The Rampart’s superstructure differs to either side of Watling Lodge (PIC178 and PIC179), with stacked turves used from here westward and packed earth or clay revetted by clay or turf “cheeks” to the east.

The Berm represents the space between the Rampart and Ditch, and is relatively flat or gently slopes toward the Ditch to the north. The Berm is typically between 6–9m in width, but can vary widely, exceeding 30m at Croy Hill (PIC171); at some locations – usually in the eastern half of the frontier – series of pitted obstacles have been identified on the Berm, matching similar features also known from Hadrian’s Wall.

The Ditch is a monumental earthwork dug to the north of the Berm, with a V-shaped profile and banks cut at an angle of about 30 degrees, with evidence at some locations for large stones placed to strengthen its edges. Ditch size varies widely across three key sectors: generally between 6.1–10.7m wide to the east of Falkirk, an average of 12m wide and 4m deep between Falkirk and Bar Hill, and generally between 6.1–7.6m wide to the west of Bar Hill (PIC168); across its full length, the Ditch’s width ranges from a narrow 4.27m to as wide as 20.73m, although subsequent erosion must account for some of the wider widths, and it should be noted that the Ditch was not cut at all in a short section on Croy Hill (PIC171).

³⁹ Hannon forthcoming

Immediately north of the Ditch lies the Outer Mound, occasionally called the “Upcast Mound” on the assumption that it is formed from material cast up from the digging of the Ditch. The Outer Mound is typically a low mound spread and partially leveled to a width of about 18–20m; this frequently serves to heighten the north face of the Ditch, and on north-facing slopes the Outer Mound was narrowed to further accentuate the Ditch.

The final linear feature is the Military Way, which was a Roman road located to the south of the Rampart, offering lateral communication and movement along the frontier; this was generally about 5–5.5m wide with a distinct camber and flanking ditches. The Military Way was typically situated between 36–46m south of the Rampart and was usually connected to each fort’s *via principalis*, with evidence at several sites (e.g. Rough Castle, PIC175; Croy Hill, PIC171) for an additional bypass road that provided movement without the need to enter the fort. At river crossings, the Military Way was provided with bridges, as confirmed at the river Kelvin near Balmuildy.

Installations

Installations can be grouped into five key types: forts, fortlets, expansions, minor enclosures, and possible watchtowers. Forts are the primary and largest installation type, with 17 forts currently known, ranging in size from 0.12–2.6ha. Although there is no set interval between forts, they are generally located about 3.5km apart, and it has long been assumed by many scholars that there may have been as many as 19 or 20 forts in total; given the long gaps between the forts at Carriden and Inveravon and those at Rough Castle (PIC175) and Castlecary (PIC170), it has been suggested that additional forts may have been located at Kinneil and Seabegs (near PIC176), but these sites have only provided evidence of fortlets rather than forts. The forts themselves were – like the Rampart – primarily constructed of turf and/or clay, with stone or timber internal buildings, and all but one (Bar Hill, PIC168; and possibly Carriden, if the Rampart did not reach that far east) were physically attached to the Rampart. Whilst the majority of forts were defended by turf or clay ramparts, those at Castlecary (PIC170) and Balmuildy featured stone defences. Most forts have also been found to include an additional fortified space, traditionally called an “annexe”. The precise purpose and nature of these annexes remains uncertain, but they are likely to have been later additions and not part of the original plan; in some cases the annexe is significantly larger in area than the fort itself.

Fortlets were smaller enclosures attached to the rear (i.e. south side) of the Rampart, and were first formally identified during excavations at Duntocher in 1949; the fortlet at Watling Lodge (between PIC178 and PIC179) had been initially described in the 1720s but was only recognised as a fortlet after the discovery at Duntocher. Similar in design and construction to the Antonine Wall forts, they measure about 21m x 18m and were constructed with turf ramparts on stone bases, with small timber barrack-blocks to house the soldiers stationed within them. All known Antonine Wall fortlets had a south and north gate, the latter opening through the Rampart. These northern gateways are problematic, as only the fortlet at Watling Lodge (between PIC178 and PIC179) has provided clear evidence for a causeway across the Ditch. Although tentative traces of a possible causeway that was later removed were identified at Kinneil fortlet, it appears that most Antonine Wall fortlets either did not provide access to the north of the

frontier or that a decision was made during the frontier's short functional lifespan to eliminate these original access points; this latter view may be further supported by tentative evidence at Kinneil and Seabegs Wood (PIC176) that the north gateways of these fortlets may have been narrowed or removed. Fortlets are known from across the Roman Empire, with others on Hadrian's Wall known as "milecastles" because of their regular spacing at approximately one Roman mile intervals. Searches in the 1970s for fortlets on the Antonine Wall succeeded in identifying some examples at Kinneil, Seabegs Wood (PIC176), Croy Hill (PIC171), Summerston, and Cleddans. If a model of a regular series of fortlets at about one Roman mile intervals is proposed, a total of 41 fortlets would be expected; to date, only nine have been definitively identified, and investigations at proposed additional fortlet locations have either provided negative or inconclusive results.

Expansions are represented by roughly square southern extensions of the Antonine Wall Rampart, constructed of turf on a cobble stone base and about 5.2m square. Six examples are currently known, all occurring in pairs located close together; two pairs are located to either side of Rough Castle fort (PIC175), called (to the east of Rough Castle) Tentfield East/West and (to the west of Rough Castle) Bonnyside East/West, whilst a third pair is located on the western slope of Croy Hill (PIC171). The functions of these installations are uncertain, but one interpretation is that they served as signalling platforms, with some evidence of burnt material recorded at Bonnyside East. This type of installation is unknown on other Roman frontiers, and may have been a unique innovation for the Antonine Wall, serving a similar function to towers or "turrets" known from Hadrian's Wall and the Antonine frontier in Germany.

Minor Enclosures are known at three locations along the frontier, all in the vicinity of the fortlet at Wilderness Plantation, and each identified via aerial photography. They are sub-rectangular and ditched, attached to the rear of the frontier's Rampart. Only one (Wilderness West) has been excavated, revealing that it is later than the Rampart, and had an internal area of about 5.5m square; no entrance or internal surfaces or structures were identified. Although these appear to have been designed as permanent features, their precise function remains uncertain.

Watchtowers may have existed along the Antonine Wall, as they are known from other Roman frontiers, but no definitive evidence for this type of installation has been uncovered. The minor enclosures near Wilderness Plantation do not appear to feature structural evidence for towers, and other possible watchtowers suggested at Garnhall (PIC173) and Callendar Park require more substantiation before they can be accepted as definitively representing this type of installation.

When all of these features are taken into account, the Antonine Wall was one of the biggest ever engineering projects to be undertaken within central Scotland, and the digging of the Ditch particularly altered the local topography, with continuing implications for later periods. Currently, about one-third of the linear barrier is visible; about one third lies in open countryside but is not visible above ground, though its existence has frequently been tested through excavation; about one-third lies in urban areas, though again its survival has been tested through excavation in many areas. Only about 2 km of the total length of the Antonine Wall have been totally destroyed, though to this sum should be added minor cuttings for roads and railways.

The Antonine Wall provides significant evidence for the activities of the Roman military during the mid-second century AD. Structural remains provide evidence for the advanced degree of complexity in Roman frontier planning and construction, with the most complicated array of interlinked elements known from any Roman frontier. The short functional lifespan of the Wall – only about 20 years in total, a generation – makes this frontier particularly valuable as a dated horizon that is relatively unencumbered by the wide range of significant alterations that complicate the functional histories of longer-lived frontiers elsewhere in the Empire. Artefacts inform us about production and procurement and daily life and society on this particular edge of the Empire, offering crucial comparative collections to assemblages from both the Empire's other frontier zones and areas that were closer to the Empire's cultural and political centre. Inscriptions also add a very valuable dimension that allows for the identification of specific military units, and, in some cases, even named individuals. The most important set of inscriptions are the Distance Slabs: at least 19 sculpted and inscribed sandstone blocks that record the work of building the frontier (perhaps the Rampart itself) by different legions, and which have been identified at various locations along the Wall.

The Antonine Wall's Abandonment and Later History

Around the late AD 150s / early 160s the Antonine Wall was abandoned by the Roman army, who moved south to the line of Hadrian's Wall and its outpost forts. Evidence from some sites, notably Old Kilpatrick and Bar Hill (PIC168), indicate that the frontier's installations were deliberately demolished and ritually decommissioned in advance of the redeployment south. Although the Roman army would return to the area during the early third century campaigns of Septimius Severus, there is no evidence that the Antonine Wall was brought back into functional operation or reoccupied by Roman forces.

Active research and fieldwork on the Antonine Wall has, not surprisingly, focused almost entirely on its Roman period construction, functional operation, and abandonment. There is, therefore, significantly less detailed knowledge of the Wall's post-Roman history. A possible souterrain at Shirva, in the Wall's central sector midway between the forts of Auchendavy and Bar Hill (PIC168), may represent the earliest post-Roman settlement activity on the former Roman frontier and could have been in operation from very soon after the Roman withdrawal until as late as the AD 220s. Although the Antonine Wall had ceased to function as a frontier of the Roman Empire, it would continue to play a role in subsequent settlement and other activities in the region.

It appears likely that the Forth-Clyde isthmus served as an effective border in the early medieval period, separating the Anglo-Saxons and Picts in the east, while to the west the successive British kingdoms of Alt Clut and Strathclyde straddled the line of the former Roman frontier. Whether or not the Antonine Wall was itself utilised or recognised as a geopolitical or cultural barrier in this context, its continued visibility would have served to underscore the transitional nature of the isthmus in this period. Timber structures located along the Wall in the area of Falkirk – a ninth-century hall possibly associated with the Thaness of Callendar at Callendar Park and another large structure east of the fort at Mumrills – may

represent examples of early medieval reuse of the Wall's line as a regional power centre⁴⁰.

Castles or mottes were also constructed on the line of the Wall in the Norman and later medieval period at Inveravon, Watling Lodge (PIC178 and PIC179), Seabegs (near PIC176), Kirkintilloch, and Cadder, each using some aspect of the Roman frontier as part of its own defences. These are part of a wider regional collection of medieval period fortified sites and may not necessarily reflect a conscious decision to reuse former Roman military sites. They do, however, reflect these particular locations' continued relevance and significance as powerful places within a medieval landscape and this later reuse does not detract from the sites' association with the Roman frontier, but adds further depth to their accumulated meanings and significances within the present. It is in this period when the Wall is first recorded (by John of Fordun) as bearing the name "Grymysdyke," later modified to "Graham's Dyke," and still reflected within modern street names in the eastern half of the Wall's line.

In the late seventeenth century the Wall began to attract serious antiquarian attention and was visited and discussed in some depth through the eighteenth century by antiquaries such as Sir Robert Sibbald, Alexander Gordon, and the Rev. John Horsley, amongst others. These antiquaries provided valuable early documentation of the Wall and its remains before the extensive industrialisation and development of the Wall's corridor from the late eighteenth century onward. Such works included the controversial dismantling of Arthur's O'on by Michael Bruce of Stenhouse in 1743, using the masonry from the possible Roman temple in the construction of a dam on the Carron⁴¹. Numerous other areas of the Wall also fell prey to quarrying and agricultural "improvements", and the wider Antonine Wall corridor played an important role in the Industrial Revolution, with the formation of the Carron Iron Works, construction of the canals, steam engine experiments by James Watt at Kinneil, increased mining and factory production, and the building of the railways. The Forth-Clyde Canal was particularly important, criss-crossing the former Roman frontier multiple times and running parallel to it for long stretches; while the construction of the canal extensively damaged large portions of the Wall, it also revealed significant information and provided the context for later antiquarian activities and the transition to formalised archaeological societies and – by the 1890s – more scientific exploration.

⁴⁰ For further discussion, see: Maldonado 2015

⁴¹ See <https://canmore.org.uk/site/46950/arthurs-oon-stenhouse>