Non-Invasive Archaeological Investigations for the Aberdeen Western Peripheral Route (AWPR Package)

Project code: AWPR-002

Client: Aberdeen City Council

Consultant: Jacobs UK Ltd

ABERDEEN WESTERN PERIPHERAL ROUTE PACKAGE (NORTHERN LEG)

Ashtown Boundary Stone (Site 120), Parkhill Pumping Station (Site 170), Cranfield Farm Consumption Dyke (Site 201), Goval Standing Stone (Site 218) and Overton Stone Wall (Site 279)

Topographic Surveys

Aberdeen Western Peripheral Route

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Topographic Surveys

Employer	AWPR Managing Agent
Consultant	Jacobs UK Ltd
Contractor	Headland Archaeology (UK) Ltd
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Topographic Survey	Ross Murray, Jürgen van Wessel
Schedule	
Fieldwork	15th August to 20th November 2012
Report	30 November 2012

Summary

Headland Archaeology undertook a topographic survey on five sites (Illus 1) as part of a programme of archaeological non-invasive investigations to facilitate the construction of the Aberdeen Western Peripheral Route (AWPR) and associated schemes. All five sites reported on were located on the Northern Leg section of the AWPR.

The Ashtown Boundary Stone (Site 120) was a granite marker dating to the late 18th century that marked the line of the Freedom Boundary of Aberdeen. It is depicted on historic mapping and has been moved during the 20th century to the verge of a local road. The stone was not identified during the survey and was presumed missing.

Parkhill Pumping Station (Site 170) was constructed in 1898 and is an early example of the use of reinforced concrete in Scotland. The lade which originally carried the water to power the station ran from a reservoir in the north and across the proposed road corridor on a substantial earthwork. The southern part of the lade was also of concrete (possibly reinforced). The lade went out of use in the mid 20th century when the station began to use electric power.

Cranfield Farm Consumption Dyke (Site 201) was a broad, linear dyke built of clearance stones. It appeared to be of double walled construction with smaller hearting stones in the core. The wall pre-dates the 1869 Ordnance Survey and is likely to relate to late 18th century field clearance.

Goval Standing Stone (Site 218) was a substantial granite boulder that may have been intentionally righted. No cartographic or documentary evidence for the stone could be found, and it is assumed to have been placed relatively recently, possibly for use as a cattle-rubbing stone.

Overton Stone Wall (Site 279) was a narrow, single-walled dyke that had been substantially augmented with large quantities of clearance stones. On one side, the additional stone had been built to a neat face, on the other it has merely been dumped adjacent to the dyke. The wall pre-dates the 1869 Ordnance Survey and is likely to relate to late 18th century field clearance.

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1 Introduction

1.1 General

1.1.1 This document is submitted as the report on the topographic survey of five sites located along the corridor of the proposed Northern Leg section of the Aberdeen Western Peripheral Route (AWPR). The topographic survey is part of a programme of archaeological non-invasive investigations to facilitate the construction of the Aberdeen Western Peripheral Route and associated schemes. The work was undertaken in accordance with a specification prepared by Jacobs UK Ltd within the Invitation to Tender (ITT) (Aberdeen City Council 2012).

1.1.2 The AWPR is proposed as both a bypass and a distributor road around the City of Aberdeen. The route envisages the construction of a wholly new dual carriageway some 34.6km long around Aberdeen, together with a link to Stonehaven some 11.5 km long, and includes associated side roads and junctions. The AWPR is divided into three sections; the Northern Leg, Southern Leg and Fastlink (Illus 1).

1.1.3 The Employer is the AWPR Managing Agent, administrator of the Commission on behalf of Aberdeen City Council (ACC) and its funding partners. The Consultant is Adam Brossler of Jacobs UK Ltd. The Contractor is Headland Archaeology (UK) Ltd, the archaeological organisation appointed by the AWPR Managing Agent to carry out the work reported here. Historic Scotland provides advice, supervision and oversight of the content, conduct and quality of archaeological aspects of the Contract, acting in support of Transport Scotland.

1.1.4 Between the 15th of August and 20th of November 2012 Headland Archaeology undertook a topographic survey of five sites along the Northern Leg section of the proposed AWPR. This project was managed by Russel Coleman (Contract Manager) and Sorina Spanou (Project Manager). Fieldwork was undertaken by Ross Murray and Jürgen van Wessel. Reporting was undertaken by Jürgen van Wessel.

1.2 Background to the Project – Aberdeen Western Peripheral Route

1.2.1 Desk-based assessment undertaken in support of the cultural heritage chapter of the Environmental Statement (ES) identified a total of 316 sites of cultural heritage significance along or close to the route (Jacobs UK Ltd 2007). Chapters 13 (Northern Leg), 28 (Southern Leg) and 43 (Fastlink) (Cultural Heritage and Archaeology) of the ES for the scheme recommends measures to be undertaken to evaluate or mitigate potential impacts of the scheme on the cultural heritage resource. These

recommendations include both invasive and non-invasive archaeological evaluation followed by archaeological mitigation.

1.2.2 Based on the requirements of the ES and the results of subsequent dialogue with Historic Scotland, the following non-invasive archaeological investigations are required across all sections of the scheme:

- topographic survey;
- palaeoenvironmental assessment;
- geophysical survey;
- field walking;
- metal detector survey; and
- building recording

1.2.3 The present report deals with the topographic survey of five sites along the Northern Leg section of the AWPR (Illus 1).

1.3 Aims and Objectives

1.3.1 The general aim of the archaeological non-invasive investigations is to identify the extent and character of known and unknown archaeological remains in order to enable a programme of mitigation to be designed. More specific aims and objectives are as follows:

- to identify, investigate and record any such archaeological remains to the extent possible by the methods put forward in the ITT Specification (Aberdeen City Council 2012); in this case, to provide a record of the five sites listed in Table 1 in advance of the construction of the Southern Leg section of the AWPR;

- to disseminate the results through deposition of an ordered archive and a detailed report at the National Monument Records of Scotland (NMRS), and publication at a level of detail appropriate to the significance of the results.

1.3.2 The results of the non-invasive investigations will enable a more accurate assessment of the potential impact of the scheme on archaeological remains and the design of any further evaluation works and an appropriate programme of mitigation works (if necessary). Such works will form part of a separate contract.

Table 1 – Topographic Survey Sites on AWPR (Northern Leg) (Source: Aberdeen City Council 2012 22-6)

Site No.	Name	Importance	Impact	NGR
120	Ashtown Boundary Stone 39	Medium	Moderate	NJ 86838 09886
170	Parkhill Pumping Station	High	Substantial	NJ 88933 14994
201	Cranfield Farm Consumption Dyke	Medium	Slight	NJ 93882 14306
218	Goval Possible Standing Stone	Unknown	Unknown	NJ 89100 14950
279	Overton Stone Wall	Medium	Slight	NJ 86884 14529

1.4 Site Locations and Descriptions

1.4.1 The five sites discussed in this report were distributed along the proposed road corridor between Blackdog and Kingswells, as shown in Illustration 1. A detailed description of the location of each site can be found below. The survey area in each case was the area required to topographically describe the whole or part of the site within the proposed road corridor; which will be impacted on directly by the construction of the proposed road.

1.4.2 Ashtown Boundary Stone (Site 120) was once located within the proposed road corridor 550m south-east of Ashtown Cottage in the parish of Newhills at NGR NJ 86838 09886 (Illus 1, inset a). The stone was described in the ES (Northern Leg Gazetteer entry for Site 120) as a simple, tapered granite marker inscribed with 'ABD 39', located in the northern verge of a small lay by on the local road between Ashtown and Kirkhill (Plate 1). The stone could not be located at or near the coordinates provided in the ES by the present survey.

1.4.3 Parkhill Pumping Station (Site 170) is located 100m north-west of Goval Bridge in the parish of New Machar at NGR NJ 88933 14994, and a height of 44m OD (Illus 1, inset b). The site comprises the pumping station building, which was fed by a lade via a concrete aqueduct and tanks. A manager's house had been constructed nearby. The proposed road corridor will impact on a section of some 157m of the lade, immediately north of the tanks and aqueduct. This section of the lade ran north-south, and mostly on a substantial embankment; its source was some 750m to the north-west at Bridgehaugh Reservoir. The lade and its embankment ran through a pasture field; the embankments were somewhat overgrown. The survey area was approximately 2100m^2.

1.4.4 Cranfield Farm Consumption Dyke (Site 201) is located 475m north-west of Cranfield Farm in the parish of New Machar at NGR NJ 93882 14306 and a height of 77m OD (Illus 1, inset c). The broad double-walled granite Dyke ran from south to north for a total length of 175m. The proposed road corridor will impact on a 58m long section of the dyke, towards the northern end. The dyke was surrounded by undulating arable fields; a rough track ran parallel on the eastern side. The survey area was approximately 540m^2.

1.4.5 Goval Standing Stone (Site 218) was located within the proposed road corridor 220m north-east of Parkhill Pumping Station (Site 170) in the parish of New Machar at NGR NJ 89100 145950 and a height of 45.9m OD (Illus 1, inset b). The stone was a large granite boulder standing in an undulating field which had recently been harvested for hay at the time of the survey (November 2012). The survey area was approximately 530m^2.

1.4.6 Overton Stone Wall (Site 279) is located 450m north of West Overton farm in the parish of Dyce at NGR NJ 86884 14529 at a height of between 74m and 96m OD (Illus 1, inset b). The wall forms part of a larger network of dykes; this section runs for a total of 340m from south-west to north-east, turning northwards at its northern end. The proposed road corridor will impact on a 275m long section of the wall at the northern end. The wall consisted of a single, drystone wall which had been augmented for much of its length by substantial quantities of field clearance stone. The land to the north-west was open pasture, while that to the south-east was rough scrub with areas of trees and frequent spreads of coarse field stone. The south-western end of the wall was on the highest ground; there was a general slope down to the north. The survey area was approximately 1550m^2.

1.5 Archaeological Background

1.5.1 The five sites discussed in this report can be related to post-medieval agricultural and industrial activity. A considerable change in attitudes toward farming was underway during the 18th century (Smith 1962, 14). The continued expansion of Aberdeen and its urban population relied increasingly on the provision of adequate supplies of food from the surrounding areas. This substantial market provided the incentive for landowners and, later, tenant farmers to seek means of improving the agricultural productivity of their holdings. Farming was no longer just a means of subsistence, but a potential source of profit (RCAHMS 2008 218).

1.5.2 The speed of changes to the farming landscape increased dramatically in the 19th century (*ibid* 220). Improvements in road communications, especially the transition from the statute labour system to privately financed turnpike roads, allowed much easier access to market. Clearance and rationalisation of fields was required to adapt to new systems of crop rotation and tenancy; this process has resulted in the creation of consumption dykes such as those at Cranfield Farm (Site 201) and Overton (Site 279). It

may also be this increased focus on land divisions that prompted the re-marking of the Freedom Boundary with new carved granite marker stones (e.g. Site 120).

1.5.3 The pumping station at Parkhill (Site 170) is described in the Listing Description (LB 18957) as a 'rare and distinctive example of a late 19th small-scale pumping station'. The development of reinforced concrete in the late 1800s (Borden 2010, 147) allowed industrial structures to be built stronger and cheaper and the pumping station may be a very early example of this in Scotland.

2 Survey Procedure and methodology

2.1 The surveys were undertaken to English Heritage Level 2 standard (2007, 23), and consisted of a written description and metrically accurate interpretative site plans (Illus 8-10) supplemented by a photographic record (Appendix 1). The topographic surveys were intended to provide as complete as possible record and interpretation of upstanding and other surviving features.

2.2 The survey was carried out using a combination of dGPS and Total Station EDM. Fixed survey control was not required at Sites 170 (Parkhill Pumping Station) and 279 (Overton – Stone Wall) due to the use of dGPS which provides an accuracy of sub 0.02m. The width of the lade at Site 170 was measured from known GPS points using a hand tape as there was no safe access to the eastern side. At the remaining sites a Total Station EDM was controlled by reference to fence lines, building corners and other detail which could be related to detailed Ordnance Survey mapping, giving an absolute positional accuracy of approximately 0.1-0.15m. Internal accuracy of EDM survey was typically sub 0.01m.

2.3 Detail survey recorded as a minimum the inner and outer edges and entrance positions of any visible wall, building or structure, and the top, bottom and break of slope for all earthwork features. Data from the survey was downloaded from the data-logger into a separate computer at least daily, to ensure security of the data.

2.4 A written descriptive and interpretative account of the remains, accompanied by a sketch plan was recorded on pro-forma recording sheets during the survey.

2.5 The field record consisted of:

- the type (classification) of the archaeological field monument being investigated, and its period;
- the location of the site;

- the name of the compiler, the date of the investigation and reason(s) for the survey, with details of site ownership and present land use;
- a summary of the salient features;
- a concise description of the site, including information on plan, form, dimensions and area, function, age, developmental sequence and past land use; and
- consideration of the topographical setting of the monument and its relationship to other sites and landscapes, and to historic buildings in the immediate vicinity.

2.6 A photographic record was made of the sites using digital photography and care was taken to ensure that they were well exposed in good natural light and where possible, that advantage was taken of variations in light conditions that may enhance the definition of the site against its surroundings. A record was kept of the subject, orientation, the date taken and any other relevant information. The locations and directions of record photographs are marked on the site plans (Illus 1, 8-10) and tabulated in Appendix 1.

3 Assumptions and Limitations

3.1 Ashtown Boundary Stone (Site 120) could not be located at or near the coordinates in the ES (Jacobs 2007) and is presumed to have been recently removed. No topographic or photographic survey work was undertaken.

3.2 Parkhill Pumping Station (Site 170) was overgrown in large parts, particularly at the northern end and along the eastern embankment, where dense undergrowth made access to the eastern side of the lade unsafe. The concrete lade however had a broadly standard width and as such could be confidently extrapolated in this area.

3.3 Cranfield Farm Consumption Dyke (Site 201) was overgrown in parts at the time of the survey but could be surveyed for most of its course. The dyke was somewhat unstable, limiting access to the upper surface for taking levels and photographs in places.

4 Results

4.1 Documentary Evidence

4.1.1 **Ashtown Boundary Stone (Site 120)** is Category B Listed (Historic Scotland LB 15658) and has entries in both the NMRS (ref NJ80NE 36) and the Aberdeen City SMR (ref NJ80NE 0053). The stone was related to the marking of the boundary of the old Royal Burgh of Aberdeen (the Freedom Lands). This boundary has been marked with stones

since at least 1545 (RCAHMS 2008, 5), initially by cup-marked rocks. Since 1790 these were replaced with a system of granite markers; Ashtown Boundary Stone 39 was one of these. The NMRS entry notes that the stone stood 0.78m high, 0.25m wide and 0.18m thick. It had a bevelled top which is marked '39 ABD'. The stone was shown on the 1869 Ordnance Survey 25-inch (Illus 2), although it was positioned in the field to the north of its presently recorded location. It was marked as part of the 'Boundary of the Freedom of Aberdeen'; another stone was located nearby to the west, marked '38 ABD' (Site 282). The location of this second stone falls just outside the proposed road corridor. The stones and the boundary were still visible at the same location on the 1901 Ordnance Survey 25-inch (Illus 3), although the boundary was now marked 'Freedom Boundary (Aberdeen)'. The 1964 Ordnance Survey 1:2500 showed the stones have been moved to locations in the verge of the main road. Google Streetview imagery from 2008 confirmed these locations but the stones were not found at the time of the survey.

4.1.2 **Parkhill Pumping Station (Site 170)** is Category B Listed (LB 18957) and has entries in the NMRS (ref. NJ81SE 85.0) and Aberdeenshire SMR (ref. NJ81SE0054) (Plate 2). It was constructed in 1898 to pump spring water uphill to a reservoir at Overton, near Dyce. The area is shown before construction on the 1869 Ordnance Survey 25-inch map (Illus 4) and afterwards on the 1900 Ordnance Survey 25-inch map (Illus 5). The only part of the complex directly affected by the proposed development is a 157m section of the lade which was used to bring water from the reservoir at Bridgeheugh in order to power the station. The lade was no longer needed when the station changed to electric power in the mid 20th century. It was presumably blocked and did not appear to be flowing at the time of the survey. The listing description (Historic Scotland LB 18957) suggests that the concrete part of the lade may have been reinforced, which would make it among the earliest reinforced concrete structures in Scotland (see Borden 2010 for examples from the early 20th century).

4.1.3 **Cranfield Farm Consumption Dyke (Site 201)** is shown on the 1869 Ordnance Survey 25-inch map (Illus 6) in much the same form as it was found during the survey. The entry in the Aberdeen City SMR (ref NJ91SW 0143) does not provide any specific detail. No earlier maps show enough detail to determine a date of construction and no further documentary evidence was found.

4.1.4 **Goval Standing Stone (Site 218)** does not appear on either the 1869 or 1900 Ordnance Survey 25-inch maps (Illus 4 and 5). No subsequent maps could be found to show the stone, nor were any other relevant documentary sources found. The ES (Northern Leg Gazetteer entry for Site 218) states that the stone may have been a righted glacial random.

4.1.5 **Overton Stone Wall (Site 279)** appears on the 1869 Ordnance Survey 25-inch map in much the same form as it was found during the survey. The dyke had already been augmented with clearance stone in the same places. No earlier maps show enough detail to determine a date of construction and no further documentary evidence was found.

4.2 Results of Topographic Survey

4.2.1 **Ashtown Boundary Stone (Site 120)** was no longer extant at or near the locations marked in the ES or on historic mapping (Illus 1, inset a, Illus 2, 3; Plate 1). No survey work (topographic and photographic) was undertaken.

4.2.2 The proposed road corridor affects a 157m section of a lade that carried water to power **Parkhill Pumping Station (Site 170, Illus 1)**. In this section, the lade ran in a culvert under the Goval Farm access road and a field access bridge in the north, then continued southwards in cutting for 53m. The southern 102m was carried on a substantial embankment leading to the pumping station (Illus 8). These earthworks were necessitated by the generally south facing slope through which the lade ran. The three parts are described in turn below.

4.2.3 In the north, a 4m wide field access bridge (Plate 3) crossed the lade immediately adjacent to the local road. The lade was in a culvert which likely continued north under this road. The walls of the culvert were of part squared granite blocks of c.0.2x0.3m that appeared to be mortared – close access could not be gained. The walls stood approximately 1.7m apart. The base of the culvert was not seen. The access bridge itself appeared to be supported on wooden beams spanning the culvert walls although the structure was generally obscured by mud and vegetation.

4.2.4 South of this bridge, the lade ran in a cutting of up to 6.7m wide and up to 1m deep for a length of 53m (Plate 4). The lade itself was c. 2.25-3.0m wide and 0.3m deep, with partially collapsed earthen banks revetted in places with course stone. The base felt stony but it could not be established if this was a built lining. The lade was substantially overgrown in this section (Plate 5), and further detail of the structure of the revetment could not be recorded.

4.2.5 The southern section of lade continued on embankment (Plate 6). The embankment was 7.5m wide at the northern end, and 23.5m wide at the southern end, where it reached a height of 5m. The material and means of construction of this embankment were not identified. The top of the embankment was broadly flat for a width of c. 6-8m allowing access to either side of the lade itself (Plate 7). The lade changed form as it passed onto the embankment and was now lined with concrete (Plate 8), presumably to improve the flow rate and prevent seepage into the embankment. The concrete appeared to have been cast in-place; no sign of metal reinforcement was visible on the exterior. The channel thus formed was typically 1.9m across and 0.65m deep, with a further 0.15m battered lip on either side (see profile on Illus 8). Around 15m from the southern boundary of the survey area, the lade and embankment turned gently south-south-east. A timber plank had been laid across the lade to allow access to either side. Immediately outside the southern boundary, the lade passed through a concrete tank (Plate 9). The embankment was then terminated with a substantial concrete revetment wall (Plate 10).

The lade passed over this on a concrete aqueduct into the pumping station building (Plate 11).

4.2.6 **Cranfield Farm Consumption Dyke (Site 201)** was a broad granite dyke that ran parallel to a farm track on a north-south alignment (Illus 9, Plate 12). The proposed road corridor will impact on a 58m long section of the dyke (Illus 1), starting from a point 24m from its northern end. In this section, the dyke measured between 1.7m and 2.2m wide and between 1m and 1.2m high. It appeared to be of double-wall construction, with larger stones built to slightly battered, but uncoursed faces, and the interior filled with smaller stones (Plate 13). The facing stones were generally rounded to sub-rounded and measured typically around 0.3x0.3x0.2m (Plate 14) but up to 0.7x0.7x0.6m in places (Plate 15). The hearting stones were more varied in shape and typically measuring 0.1x0.1x0.2m. No clear through stones were identified, and would most likely be unnecessary in a structure that is wider than it is tall. Parts of the structure were in poor condition and one area had already collapsed (Plate 16). A number of bushes were growing through the structure, particularly on the eastern side (Plate 17).

4.2.7 **Goval Standing Stone (Site 218)** was a large granite boulder measuring 2.1x2.03x1.97m (Illus 8 and Plates 18-21). The stone was sub-rounded, somewhat narrower and pointed towards the top and did not appear to have been worked. Although prominent in size and shape, the stone does not stand in a particularly prominent location, situated on a slight south-facing slope in an undulating field (Plates 22 and 23). A possible pinning stone was located on the northern side (Plates 21 and 24); this was unworked, sub-rounded and measured 0.75x0.52x0.32m. It was unclear whether this stone supported the larger one or was merely resting against it.

4.2.8 **Overton - Stone Wall (Site 279)** consisted of a narrow single-wall granite dyke that had been augmented along much of its length with large quantities of clearance stone (Illus 10, Plate 25). The section of the dyke impacted by the proposed development (Illus 1) measures 275m long and is aligned north-east to south-west, turning to the north for the northern 25m (Illus 10). The dyke itself could be traced for most of its length, although in places only the coping stones were visible (Plate 26). It measured between 0.4m to 0.6m wide and between 0.9m and 1.2m high, with no discernible batter (Plate 27). It had been well built; much of the stone appeared to have been partially squared and laid neatly in courses. The stones measured typically between 0.1x0.15x0.4m to 0.3x0.5x0.6m. The dyke was capped with a row of coping stones, typically 0.25x0.3x0.5m (Plate 27).

4.2.9 The dyke had been augmented with large quantities of clearance stone. On the north-western side, this stone had been built to a consistent, albeit rough face (Plate 28) along the northern 225m of the dyke. The width varied from 0.65m to 2.2m and the height between 0.6m and 1.2m. The stones ranged from rounded to angular in shape and were up to 0.5x0.6x0.5m in size. Occasionally, even larger boulders and fragments of concrete had been dumped on top (Plate 29). On the south-eastern side, clearance stone was dumped against the dyke in two spreads with no attempt at facing. The northern spread (Plate 30) measured 7.6x7.2m and stood up to 0.9m high; the southern spread followed the dyke for 75m, and was up to 7m thick and 1.2m high. In

combination, the dyke and the dumps of clearance stone measured between 4m and 9m wide (Plate 26).

5 Discussion

5.1 **Ashtown Boundary Stone 39 (Site 120)** was not located at any of the possible locations suggested by the ES or the documentary evidence. It must be assumed that it has been recently removed.

5.2 The lade at **Parkhill Pumping Station (Site 170)** was presumably constructed in or around 1898, at the same time as the pumping station building. It has been suggested (Listed Building Description – Historic Scotland LB 18957) that the pumping station may be among the earliest buildings in Scotland to be built of metal reinforced concrete. It is likely, however that other engineering structures may have been built using this technique in the latter decades of the 19th century (Borden 2010, 147). This suggests that the lade at Parkhill, if it was reinforced, may not have been as pioneering as the building itself. It would still be valuable to confirm the nature of construction of the lade to assist research into early reinforcement systems, which were at that time built to closely guarded proprietary designs (*ibid*).

5.3 **Cranfield Farm Consumption Dyke (Site 201)** did not appear to have been altered substantially since first appearing on the 1869 Ordnance Survey 25-inch map. No further specific documentary evidence was found, but it is likely that the dyke is a result of later 18th century field clearance. The structure is in somewhat poor condition, with some collapse already noted and potential for further collapse due to a number of large bushes growing through the eastern face.

5.4 **Goval Standing Stone (Site 218)** could not be identified in any cartographic or documentary sources other than the ES. The provenance of the stone remains unclear, although it seems unlikely that such a prominent boulder could have survived in agricultural land for long without having been removed, marked or used for something *in situ*. Since it has not been mapped, it is therefore likely to have been placed relatively recently. It could possibly have been used as a cattle-rubbing stone (the 2004 photo provided in the ES shows the field in use as pasture).

5.5 **Overton Stone Wall (Site 279)** did not appear to have been modified substantially since first appearing on the 1869 Ordnance Survey 25-inch map. No further documentary evidence was found, but it is likely that much of the stone was placed during large scale field clearance in the latter 18th century, possibly around an earlier dyke. The structure is in generally excellent condition.

6 References

6.1 Bibliographic Sources

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6.2 Digital Sources

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http://data.historic-scotland.gov.uk/pls/htmldb/f?p=2200:15:0::::BUILDING:15658

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http://canmore.rcahms.gov.uk/en/site/19333/details/aberdeen+ashtown+boundary+marker+39/

NMRS Site Record for Parkhill Pumping Station, Lade and Aqueduct Details, accessed 27th November 2012

http://canmore.rcahms.gov.uk/en/site/266133/details/parkhill+pumping+station+lade+and+aqueduct/

6.3 Cartographic Sources

Site 120

Ordnance Survey 1869 Aberdeen Sheet LXXIV.4 (Newhills) 25-inch to the mile

Ordnance Survey 1901 Aberdeenshire, Sheet 074.04 25-inch to the mile

Ordnance Survey 1964 Sheet NJ 86 09 1:2,500

Sites 170/218

Ordnance Survey 1869 Aberdeen Sheet LXVI.5 (New Machar) 25-inch to the mile

Ordnance Survey 1900 Aberdeenshire, Sheet 066.05 25-inch to the mile

Site 201

Ordnance Survey 1869 Aberdeen Sheet LXVI.7 (Old Machar) 25-inch to the mile

Site 279

Ordnance Survey 1869 Aberdeen Sheet LXV.8 (Dyce) 25-inch to the mile

7 Appendices

7.1 Appendix 1: Photographic Register

Photo No	Direction	Description
Site 120		
1	-	Site 120 - Panoramic view of verge at location of stone from 1964 map
2	-	Site 120 - Panoramic view of verge at location of stone from 1964 map
3	-	Site 120 - Panoramic view of verge at location of stone from 1964 map
4	-	Site 120 - Panoramic view of verge at location of stone from 1964 map
5	-	Site 120 - Panoramic view of verge at location of stone from 1964 map
6	-	Site 120 - Panoramic view of verge at location of stone from 1964 map
7	-	Site 120 - Panoramic view of verge at location of stone from 1964 map
8	-	Site 120 - Panoramic view of verge at location of stone from 1964 map
9	north	Site 120 - General view of location of stone from Environmental Statement
Site 170		
1	south	Site 170 - View of northern end of lade from bridge
2	south-east	Site 170 - Detail of lade bank in cutting (somewhat blurry)
3	north-north-west	Site 170 - Detail of concrete lining
4	north-north-west	Site 170 - Detail of concrete lining
5	south-south-east	Site 170 - General view of concrete-lined section of lade
6	north-north-east	Site 170 - General view of concrete-lined section of lade
7	south-east	Site 170 - General view of southern end of lade. Tank visible to right of photograph

8	south-south-east	Site 170 - General view of tank and aqueduct
9	south	Site 170 - General view of tank and aqueduct
10	north-east	Site 170 - Detail of stone culvert at north of lade
11	north-east	Site 170 - Detail of stone culvert at north of lade, showing field access bridge
12	south	Site 170 - General view of lade in cutting
13	north-north-east	Site 170 - General view of lade in cutting with bridge in background
14	south-south-east	Site 170 - General view of lade and embankment
15	north-north-east	Site 170 - General view of lade and embankment
16	south-south-east	Site 170 - General view of lade and embankment
17	south-south-east	Site 170 - General view of tank and aqueduct
18	east	Site 170 - Detail of wooden plank crossing southern end of lade
19	north-east	Site 170 - Detail of concrete tank at southern end of lade
20	north-north-east	Site 170 - General view of southern end of lade. Tank visible in foreground
21	south-south-east	Site 170 - General view of aqueduct
22	south-east	Site 170 - General view of embankment
23	south-west	Site 170 - General view of embankment
24	west-north-west	Site 170 - General view of embankment
25	west	Site 170 - General view of pumping station
26	north-west	Site 170 - Southern end of embankment
Site 201		
1	north	Site 201 - General view of eastern side of dyke
2	west	Site 201 - Eastern elevation
3	north-north-west	Site 201 - General view of eastern side of dyke
4	west	Site 201 - Detail of collapse
5	south-west	Site 201 - General view of eastern side of dyke
6	south-south-west	Site 201 - General view of eastern side of dyke
7	south	Site 201 - View along top of dyke
8	south-east	Site 201 - General view of western side of dyke
9	east	Site 201 - Western elevation
10	north	Site 201 - General view of western side of dyke
11	east	Site 201 - Western elevation

12	north	Site 201 - General view of western side of dyke
13	south	Site 201 - General view of western side of dyke
Site 218		
1	east-north-east	Site 218 - West-south-west facing elevation of stone, showing possible pinning stone
2	north-north-west	Site 218 - South-south-east facing elevation of stone
3	south-west	Site 218 - north-east facing elevation of stone, showing possible pinning stone
4	south-south-east	Site 218 - North-north-west facing elevation of stone, showing possible pinning stone
5	south-south-east	Site 218 - Detail of possible pinning stone
6	east-north-east	Site 218 - General view of stone
7	north-east	Site 218 - General view of stone
8	north-north-west	Site 218 - General view of stone
9	north-west	Site 218 - General view of stone
10	south-west	Site 218 - General view of stone
11	south-west	Site 218 - General view of stone
Site 279		
1	south-east	Site 279 - View of northern end of dyke showing large spreads of clearance stone to the east
2	south-east	Site 279 - North-west facing elevation near kink in wall showing fence and ladder
3	north-north-east	Site 279 - View just north of kink showing north-western clearance stone tapering to original wall face
4	north	Site 279 - Northern end of dyke
5	south-west	Site 279 - Kink in dyke showing clearance stone on either side
6	north-west	Site 279 - South-east facing elevation just south-west of kink
7	west-south-west	Site 279 - General view of clearance stone south-east of dyke, just south-west of kink
8	north-east	Site 279 - Dyke with clearance stone on north-west side
9	south-west	Site 279 - Dyke with clearance stone on both sides
10	north-east	Site 279 - General view of south-eastern side of dyke
11	north-west	Site 279 - South-east facing elevation of dyke

12	south-west	Site 279 - General view of clearance stone on south-east side of dyke
13	north-west	Site 279 - South-east facing elevation of dyke
14	north-west	Site 279 - South-east facing elevation of dyke
15	south-west	Site 279 - Dyke almost completely hidden by clearance stone on both sides
16	south-south-west	Site 279 - General view of clearance stone on south-east side of dyke
17	south-west	Site 279 - Dyke with clearance stone to north-west side
18	north-west	Site 279 - South-east facing elevation of dyke
19	west-south-west	Site 279 - General view of south-eastern side of dyke
20	south-west	Site 279 - Dyke with clearance stone to north-west side, showing concrete fragments
21	north-east	Site 279 - General view of dyke
22	south-west	Site 279 - Dyke showing southern terminal of clearance stone on north-west side
23	south-east	Site 279 - North-west facing elevation of dyke
24	east-north-east	Site 279 - General view
25	south-east	Site 279 - North-west facing elevation
26	south-east	Site 279 - North-west facing elevation
27	south-east	Site 279 - North-west facing elevation
28	north-east	Site 279 - General view of north-western face of dyke with clearance stone
29	south	Site 279 - General view of north-western face of dyke with clearance stone
30	north-east	Site 279 - General view of dyke with clearance stone on either side

7.2 Appendix 2: Illustrations