

EARTHWORKS, NORTH-WEST OF LEAS HOUSE,
ASKRIGG, NORTH YORKSHIRE

ARCHAEOLOGICAL SURVEY



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**ARCHAEOLOGICAL SURVEY, EARTHWORKS NORTH-WEST OF LEAS HOUSE,
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EXECUTIVE SUMMARY

In February 2011, Ed Dennison Archaeological Services Ltd (EDAS) were commissioned by Professor David Blake and Mr Shane Metcalf to undertake a programme of archaeological survey work near Leas House, Askrigg, North Yorkshire (NGR SD 9373 9175 centred). The project comprised a topographical survey and analytical record of surface earthworks and structures associated with the water supply for early 20th century electricity generation and supply utilising a power house in nearby Mill Gill. The work was required as part of a Higher Level Environmental Stewardship special project to safeguard and enhance the integrity of the complex.

The survey recorded elements of the wider medieval and early post-medieval agricultural landscape and a probable medieval routeway to the west of Leas House, possibly linking properties owned by Jervaulx Abbey on either side of Whitfield Gill via a medieval stream crossing point at Slape Wath. Another possible early routeway diverges from this medieval track and runs south-west, partly along a natural hollow created by a small landslip. This has a number of ruined structures and platforms situated on or just above its northern slope.

In the early 20th century, the Burton family of West Mill started to generate electricity in Mill Gill, using turbines and oil engines, providing electrical lighting for the mill, the associated mill house and the wider community of Askrigg. It is no exaggeration to say that they were the most influential of the local Wensleydale electricity producers, not just in terms of their electricity generation at Mill Gill, but also in their role as electrical engineers to other similar enterprises in both Wensleydale and Swaledale. The remains of reservoirs and water collecting chambers associated with this electricity generation were recorded within the Leas House survey area. The Mill Gill power house underwent several phases of modification during its lifetime, and surviving receipts and bills indicate that these mainly took place in c.1919-1920 and c.1942-1944.

1 INTRODUCTION

Reasons and Circumstances for the Project

- 1.1 In February 2011, Ed Dennison Archaeological Services Ltd (EDAS) were commissioned by Professor David Blake and Mr Shane Metcalf to undertake a programme of archaeological survey work near Leas House, Askrigg, North Yorkshire (NGR SD 9373 9175 centred). The project comprised a topographical survey and analytical record of surface earthworks and structures associated with the water supply for early 20th century electricity generation and supply utilising a power house in nearby Mill Gill. The work was required as part of a Higher Level Environmental Stewardship special project to safeguard and enhance the integrity of the complex.
- 1.2 The Leas House archaeological survey work formed an addition to a larger survey project based on the West Mill complex, located 0.44km to the south-east of Leas House. The findings of this larger project, which include the Leas House work, have been reported on separately (Richardson & Dennison 2012). However, this separate and stand-alone report, detailing only the results of the Leas House survey work, has been produced for the Leas House landowner, Mr Stuart Metcalf.

Site Location and Description

- 1.3 The Leas House survey area lies within a larger pasture field to the west and north-west of the farm and located between the base of a steep, south-east facing natural slope descending from Low Straits Lane to the north and the Whitfield Gill beck to the south (see figures 1 and 2, and plate 1). Leas House was previously called 'Lease House', although the modern name is used here (e.g. see figure 5).
- 1.4 The survey area has maximum dimensions of c.280m south-east/north-west by c.110m north-east/south-west (1.1711 ha); the north-east side is not quite continuous with an area to the east of Leas House previously surveyed by Moorhouse (2003, 332-333). Within the survey area, the ground surface falls from 275m AOD to c.268m AOD from north to south. The survey area has no artificial boundary to the north side, but is bounded to the east and west by drystone walls, and to the south by the beck.
- 1.5 None of the earthworks or structures within the survey area are designated as Listed Buildings or Scheduled Monuments, and it lies beyond the Askrigg Conservation Area. A number of sites are also listed on the YDNPA's Historic Environment Record (see Appendix 1).

Aims and Objectives of the Project

- 1.6 Within the Leas House survey area, the aims and objectives of the project were:
- to identify archaeological and historical features and assess their conservation importance;
 - to provide a detailed record of the earthworks;
 - to produce a survey report and archive.

Survey Methodologies

- 1.7 The methodology for the Leas House archaeological survey was the same as that defined by a YDNPA project brief and an EDAS methods statement for a wider survey project at West Mill (Richardson & Dennison 2012, Appendices 7 and 8). The recording work at Leas House, which involved topographical survey, photography and written descriptions, produced a combination of Level 1, 2 or 3 survey records, as defined by English Heritage (2007, 20-24).

Documentary Research and Collation

- 1.8 No documentary research, other than an assessment of such existing information as was known to the owners and the YDNPA, was required as part of the project. However, in view of the historic significance of the West Mill complex, and the potentially important results arising from this project, it was considered that some background documentary research would be beneficial.
- 1.9 The following sources and repositories of information were therefore consulted:
- The extensive collection of material held by Professor and Mrs Blake of Mill Gill House, covering the period c.1720 to c.1955;
 - Maps and documents held in West Yorkshire Archives (Leeds office - WYL);
 - Maps and documents held in North Yorkshire County Archives (Northallerton - NYCRO).
- 1.10 A full list of all sources consulted for the Leas House survey is given in the bibliography (Chapter 5) below.

Topographical Survey

- 1.11 A Level 3 topographical survey of the area to the west and north-west of Leas House was undertaken at a scale of 1:500. The majority of the area was recorded using EDM total station equipment. This was a divorced survey, but sufficient information was gathered to allow the survey area to be readily located onto Ordnance Survey map bases through the use of surviving structures, fences, walls, water courses, trackways and other topographical features. The survey recorded the ground level position of all structures, wall remnants and revetments, earthworks, water courses, leats, paths, stone and rubble scatters, ironwork, fences, hedges and other boundary features, and any other features considered to be of archaeological or historic interest. The existing walled boundaries of the survey area were inspected, with items of wall furniture (e.g. sheep creeps, butt joints etc) being noted on the field drawings and photographed; the walled boundaries themselves were not recorded or classified.
- 1.12 The topographical survey was integrated into the Ordnance Survey national grid by using Civilcad survey software to align the recorded boundaries, structures etc to those feature's coordinates on a best fit basis. Heights AOD were obtained by reference to the OS benchmark located on Askrigg church. Survey points were taken from fixed survey stations on a closed traverse around and through the survey areas; the locations, descriptions and values of the Bench Marks and control points are stated in the final survey data.
- 1.13 On completion of the EDM survey, the field data was processed and plotted using CivilCad and AutoCad software. The data was then independently re-checked in the field as a separate operation. Any amendments or additions were surveyed by hand measurement; given that an electronic data set was not one of the final

outcomes of the project, amendments or additions were not digitised back into the electronic survey data.

- 1.14 The resulting topographical survey was drawn by hand at a scale of 1:500 and is presented as an interpretative hachure plan using conventions analogous to those used by English Heritage (1999; 2002; 2007). Natural slopes are differentiated from man-made banks and scarps again using English Heritage conventions. Larger scale plans, at 1:10,000 and 1:2,500 scale, were used to put the survey areas into context.
- 1.15 The EDM total station survey work was undertaken in March 2011 and the hand enhancement in May 2011.

Photography

- 1.16 Although not every identified component or part of the survey area was photographed, some photographs were taken to illustrate general views of the structures and earthworks, specific well-preserved elements and details of specific parts etc. More general photographs were also taken showing the landscape context of the survey areas.
- 1.17 The colour photographs were produced using a digital camera with 10 megapixel resolution. English Heritage photographic guidelines were followed (English Heritage 2007, 14) and each photograph was normally provided with a scale. All photographs were clearly numbered and labelled with the subject, orientation, date taken and photographer's name, and were cross-referenced to digital files. A selection of colour digital photographs were printed to illustrate the archive report; the site archive contains the digital files. A photographic register detailing the location, direction and subject of each shot accompanies the photographic record, together with thumbnails of all photographs. A total of 80 photographs were taken, on 10th May 2011 and 18th May 2012.

Written Accounts

- 1.18 Sufficient written observations were made in the field to produce a detailed written account of the survey area and its constituent parts. These descriptions include a preliminary interpretation of extant remains (e.g. dimensions, plan, form, function, date, sequence of development), locational information, mention of relevant documentary, cartographic or other evidence, and management details such as an assessment of current condition and threats.

Survey Report and Archive

- 1.19 This archive report forms a detailed written record of the survey area, prepared from the data gathered by the project, and cross-referenced to the drawn and photographic record. It describes the surviving earthworks and structures, analyses their form, function, history and sequence of development, and places them within their historical, social and industrial context where possible.
- 1.20 The full archive, comprising paper, magnetic and plastic media, relating to the project has been ordered and indexed according to the standards set by English Heritage and the National Archaeological Record (EDAS site code WMA 11). It was deposited with the YDNPA's Historic Environment Record at Bainbridge, North Yorkshire, on completion of the project.

2 DOCUMENTARY AND HISTORICAL BACKGROUND

Introduction

- 2.1 The following information relevant to the documentary and historical background of the Leas House survey area has been extracted from the larger West Mill survey report (Richardson & Dennison 2012, 5-19). As the earthworks within the Leas House survey area relate to the water supply for a electricity power house in Mill Gill, information relating to this venture is also included here for completeness.

The Medieval Period

- 2.2 By the medieval period, a complicated system of landholding had developed around Askrigg, involving both lay and ecclesiastical ownership, which had a profound and long-lasting influence on the wider landscape.
- 2.3 During the medieval period, Mill Gill formed part of the boundary between the vills or townships of Fors to the south-west and Askrigg to the north-east (Moorhouse 2003, 304). At a later date, possibly by the mid to late 13th century, the township of Fors had disappeared, to become part of the large administrative unit known as the Forest of Wensleydale. Mill Gill became part of the boundary between the Forest and the township of Askrigg (Hartley & Ingilby 1989, 35), and it also marked the north-eastern boundary of Jervaulx Abbey's property here. Jervaulx Abbey had two vaccaries on the land to the immediate south-west of Mill Gill, at Helm and at Dale Grange. These were both listed in documents at the very beginning of the 14th century and they developed into small settlements in their own right during the 16th and early 17th centuries (Moorhouse 2003, 295, 335 & 342).
- 2.4 Within and around Askrigg, detailed field survey of the Town Head area on the north side of the town has almost certainly revealed traces of the planned settlement of the now obsolete vill of Little Askrigg referred to in the 13th century (Moorhouse 2003, 307). Within the same area, there are many other features forming part of the contemporary and later landscapes, including groups of linear stackgarths (small raised platforms on which hay was stacked to dry) running down the hill, and random and successive stackgarth groups placed around a still-functioning barn (Moorhouse 2003, 313). Slightly further north, bisected by Moor Road to the west of High Field, there are the earthworks of a former Y-shaped funnel-like feature which provided access from the settlement to the commons before the enclosure of the present fields. Within this funnel is a series of north-south aligned terraced platforms, whose plan and the assumed timber structures that they contained may well pre-date the introduction of typical stone barns into the Dales in c.1600. Examples of these funnels are known from elsewhere within the Dales, and they often have the name 'Lead' associated with them (for example, 'Lead Green' at Askrigg), deriving from Old Norse for 'barn' or 'laithe', the dialect development leading to 'lead' rather than 'laithe'. Elsewhere around Askrigg, detailed earthwork survey has also revealed linear groups of buildings, arranged end to end, within contemporary field systems (Moorhouse 2003, 316).
- 2.5 Further west, to the immediate east of Leas House, a suggested medieval horse stud has been identified at 'Stoned Horse Paddock', the name 'stoned horse' being a dialect term for a stallion. The stud is represented by a sub-square enclosure, which appears to re-use an earlier earthwork, partly defined by a ditch on the southern and western sides. Two lines of adjoining buildings lie in the ditch. The southern group has a stone barn of possible 18th century date built on the eastern of three adjoining platforms, while the northern building of the western pair was

stone-built, with gable access; both groups were thought to be contemporary with the stud. The stud enclosure contains further internal rectangular building platforms and is set on a raised tongue of land, providing the well-drained ground on which horses need to be housed. Fodder was stored on stackgarth stances within the enclosure and on the hillside to the north. The water supply to the stud was provided by two artificial channels, the upper one coming from a spring on the hillside and the lower one being gravity fed from a stream in the valley to the north beyond Low Straits Lane (Moorhouse 2003, 316 & 332-333).

- 2.6 The stud lay within the large enclosure of a probable sheephouse, possibly belonging to Jervaulx Abbey (Moorhouse 2003, 332), although it lies to the immediate north-east of the suggested boundary of the Abbey's estates, formed by Mill Gill (Moorhouse 2003, 342). The northern boundary of the western part of this sheephouse or grange enclosure is described as following the wall line south of the trackway leading to Leas House, the western boundary formed by Mill Gill and the southern boundary by the scar edge above Mill Gill. Within this large enclosure, there are internal divisions lying beneath existing walls, with lynchets to the south and south-west of the stud enclosure, two long earthwork sheephouses and associated enclosures to the south of the terraces, and further buildings to the east. A large rectangular dried-up tarn to the west of the stud was almost certainly the reason for the long-term landscape development at this location (Moorhouse 2003, 333).
- 2.7 Both the 1819 Askrigg Cow Close enclosure plan and the 1st edition 1856 Ordnance Survey 6" map mark "Slape Wath" to the north-west of Leas House, at the point where a bridle road crosses the beck. The Old Norse name elements 'ford' or 'wath', denoting a river or stream crossing, are by far the most commonly occurring examples of such relating to routeways. Such crossings were far more numerous in the medieval and earlier periods than they are today, and the identification of such points is important, for by implication they may identify routes leading to them. A common compound name is 'Slapewath', deriving from the Old English 'slippery, muddy' and Old Norse 'ford', hence a slippery ford. Such names are nearly always found on limestone and describe crossing points that could be slippery (Moorhouse 2003, 319). Hartley and Ingilby (1989, 157-158) note that the Slape Wath across the beck formed part of the long-distance pack-horse route, originated by the monks of Jervaux Abbey, between Lancaster and Richmond.

The Post-Medieval Period

- 2.8 Relatively little information relating to the Leas House survey area has been uncovered for the early post-medieval period. However, by the mid 19th century, census returns, directories and cartographic depictions begin to aid the interpretation and understanding of the surviving post-medieval earthworks and structures within the area.

19th Century

- 2.9 The 1839 tithe map for Askrigg provides the first detailed cartographic depiction of the township. On this, the large 23 acre pasture field within which the survey area lies is named as "Allotment", and is occupied by William Lambert and owned by Ralph Terry (see figure 3). According to the 1841 census, William Lambert (aged 40) was living at Lease House at this time, with his wife Elizabeth and seven children (three boys, three girls and a baby) all under the age of 16 (http://www.dalesgenealogy.com/census/ask_41.htm). In the 1851 census, William Lambert is listed as being a farmer of 140 acres, and he was still at the

farm with five daughters, three sons and a grand-daughter; his wife is not recorded; she may have been away on the night the census was taken (30th March) although she is also not listed in the next census of 1861 (http://www.dalesgenealogy.com/census/ask_51.html; http://www.dalesgenealogy.com/census/ask_61.html).

- 2.10 The more accurate 1856 Ordnance Survey 6" to 1 mile map marks "Slape Wath" to the north-west of Leas House, at the point where a bridle road crosses the beck (see figure 4). To the west of the beck, the road runs west for a short distance before turning south towards Helm as an enclosed trackway. To the east of the beck, the road follows a south-easterly line, turning gently to the north-east at a point just to the north of Leas House and then ascending steeply rising ground towards Low Straits Lane. A watercourse leaves the west side of a "Well" marked to the immediate north-east of Leas House, and runs north-west parallel to the bridle road, before curving around to the south-west and entering the beck. As noted above, the bridle road, which has medieval origins, represents part of a long distance route between Lancaster and Richmond.
- 2.11 By 1871, the 140 acre Lease House farm was owned and occupied by John Terry, who lived there with his three sons and two daughters as well as Elizabeth Handley (a 30 year old domestic servant) and her young son and daughter (http://www.dalesgenealogy.com/census/ask_71.html).
- 2.12 According to Kershaw (und.), William Handley (W H) Burton (1853-1937) established a hay-rake manufacturing business at the water-powered corn mill of West Mill, to the south-east of the survey area, in 1887, and the products were widely distributed over the north of England. By the time that the 1891 census returns were compiled, there is no further mention of corn milling at West Mill, and William H Burton (aged 38) is described as a joiner and builder, while his son Ernest (aged 14) was an apprentice joiner (TNA RG12/4032 p1).

20th Century

- 2.13 According to several sources, following a conversation with some Lancashire electrical engineers regarding hydro schemes using mountain streams in Italy to generate electricity, William Handley Burton envisaged setting up a similar scheme at West Mill using the power supplied by Mill Gill Force (Kershaw und.; Matkin 1978). There is also anecdotal evidence that John William Handley of Askrigg (b.1871), possibly a cousin of W H Burton, had been taught how to generate electricity from water power at Yorebridge Grammar School in Askrigg in the 1880s, and that he had experimented in West Mill, putting up the first two electric lights in 1906 (Hay 2000, 38-39). William Handley Burton's son, Ernest Burton (1887-1959), stated that by using the overshot waterwheel at West Mill in 1908, Mill Gill House next to West Mill became the first house in Wensleydale to be lit by electricity, although the exact manner of generation is not made clear (Kershaw und.); presumably a dynamo was driven directly by the waterwheel, as had taken place at Godalming in Surrey in 1881 (Hay 2000, 35).
- 2.14 Although it is now difficult to verify the accuracy of some of these early accounts, documentary records show that in December 1908 William Handley Burton paid £10 to Abram Scarr and Isabella de Winton for land, water rights and grant of an easement, water rights and permission to lay a pipeline, which was to run to a small power house subsequently built by him in 1909 below Mill Gill Force. By the terms of the indenture, Burton (described as a 'builder') purchased a piece of land c.26 yards square "being part of and near to the north west corner of a certain

close of land known by the name of 'Slapewath'" (marked 'A' on the accompanying plan - see figure 5). He was also allowed to divert water from the Askrigg Beck by constructing a dam, and to lay a "main or pipe below the surface of the land" to convey water to his "manufactory or works near to Mill Gill", at which point it was returned to the stream. The surface of the pipe or main was to lie not less than one foot below the ground surface and Burton was to provide a free supply of water to the land through which it passed for the purposes of watering cattle. The plan accompanying the indenture also shows the route of the pipe or main through the two fields between Leas (Lease) House and Mill Gill (Blake collection). Just a few months later, a letter from his landlord, Robert Charles de Grey Vyner of Newby Hall, dated 1st July 1909, allowed Burton to erect "at his own expense a small stone and slate building to contain the motor which was for the purpose of working the machinery" (Hay 2000, 39).

- 2.15 The weir and small collection chamber above Mill Gill Force had been installed by 1910. A cast-iron pipe, laid in a trench cut into the sides of the gorge below Mill Gill Force, descended some 40m to the power house (Kershaw und.; Hay 2000, 39). An early photograph of the power house, taken before the building was subsequently extended in c.1913 (see below), provides valuable evidence as to its original appearance (Kershaw, und.) (see figure 6). The photograph shows a small, single storey building, with an unevenly pitched stone slated roof. A large stove-type circular flue rises from the west end of the south slope, from a small domed projection. There is a doorway in the east gable and a single large window in the south wall; the upper light of the window frame contains eight panes (two rows of four) but the lower light appears to be boarded. A low level opening can be seen beneath the window. To the front of the power house, the embanked leat forming the mill race for West Mill can be seen, as well as the regular stonework forming the weir of the mill race. Behind the power house, the cast-iron pipe descending the north slope of Mill Gill on the east side of a drystone wall is clearly visible. Close to the lower end of the pipe, there are two poles carrying electricity from the power house towards West Mill.
- 2.16 The power house was originally equipped with a 1910 16 hp Gilkes Vortex Special turbine (number 2105) with an 8½ inch runner, consuming 90 cubic feet of water per minute at 126 feet head at a speed of 1600 rpm. The turbine drove a Westinghouse direct-drive 12kW DC 110 volt generator, employing a Gilbert Gilkes 4½ inch self-contained hydraulic speed governor. The overall efficiency was claimed to be about 80% (Kershaw, und.; Matkin 1978). A second photograph, apparently taken in c.1910, shows what Kershaw (und.) terms the 'forbay' (collection chamber) above Mill Gill Force under construction (see figure 6). The chamber was constructed adjacent to a small existing barn, west of Leas House, close to a footbridge across the beck, and both barn and footbridge are prominent in the foreground of the photograph. The drop over the weir is just visible, as is the gang of men working on the chamber. Two large timbers are placed across the beck adjacent to the where the men are working (Kershaw, und.; Hay 2000, 47). A third photograph, again seen only as a reproduction, shows the pipeline to the power house under construction (reproduction in Blake collection) (see figure 6).
- 2.17 With his supply of water secure, Burton was able to start producing electricity. On the 23rd September 1909 he offered to provide street lighting for £12 per annum to Askrigg Parish Council, but it was not until a year later that the council agreed to the proposal, at an increased cost of £14 per annum. As a result, in 1910, Askrigg became the first village in Wensleydale, and indeed one of the earliest in the country, to have its own public electricity supply. As well as providing electricity for street and domestic lighting in Askrigg, Burton also supplied electric lighting for

West Mill and Mill Gill House; one source additionally states that the mill machinery was also converted to be driven electrically at an early date (Hartley & Ingilby 1981, 132).

- 2.18 Some of these innovations can be seen on the 1912 Ordnance Survey 6" to 1 mile map (see figure 7). Both the chamber and weir are marked to the west of Leas House, but they are not named or otherwise distinguished on the map. The pipe connecting the chamber to the pipe feeding the power house turbine must have been buried, as it is not shown. The wall adjacent to the turbine pipe passes through an area of outcrops, shown as "Old Quarry", towards the power house. The power house, and the quarry, were accessed by a footpath or track running parallel to Mill Gill from West Mill. A branch diverted from the main route down the short slope to the power house, which is shown as a small square building. In the adjacent beck, a weir with a sluice at the western end diverted water into the mill race for West Mill.
- 2.19 In 1913, William Handley Burton, and his two sons Ernest (d. 1952) and William (d. 1964) were trading not only as hay-rake manufacturers at West Mill but also as electrical engineers. In the same year, improvements were made to the water supply system to the power house, presumably due to the lack of a buffer storage facility in the original system to cope with short-term peak demands and also clogging of the inlet screen by debris and ice (Hay 2000, 39). Under the terms of a conveyance dated 29th October 1913, Burton transferred the original land, water rights and pipeline wayleave to the aforementioned de Grey Vyner Esq for 10 shillings (Blake collection) (see figure 8). Under the terms of another conveyance dated only the day afterwards, de Grey Vyner then paid £50 for ¼ acre of land and grant of easements from Abram Scarr and Isabella de Winton to improve the water supply by taking water off the beck slightly further upstream via a culvert or pipe and to construct a new dam (reservoir) which then connected to the old collection chamber via a new pipeline; these works are shown on the plan accompanying the indenture (Blake collection) (see figure 9).
- 2.20 Not only did de Grey Vyner pay the £50, but he also undertook the works - the relative sums involved imply that the Burtons' landlord had a significant capital investment in their hydro-electric scheme (Hay 2000, 39). De Grey Vyner owned the site of the power house and West Mill itself, and so it was presumably to his commercial advantage to encourage the electrical enterprise to develop. As a result of the improved water supply, the turbine was apparently duplicated, the power house in Mill Gill was extended (Hay 2000, 39) and, at a later date, two 45 hp (33.5 kW) National oil engines driving dynamos were installed to supplement the hydro system (Kershaw und.; Hay 2000, 48). It is difficult to know what 'duplicated' means in terms of the turbine - it may mean a second plant rather than a second turbine. In 1914, de Grey Vyner also used the new reservoir at Slake Wath to improve the agricultural water supply for his other tenants in the fields to the east of Leas House (Blake collection).
- 2.21 By 1915, the Askrigg Electric Light Company, with William Handley Burton as the managing director, was advertising 'Hydroelectric lighting schemes, country house installations, petrol or oil engines supplied where no water power is available', and encouraging customers to 'Save your decorations by installing electric light .. see samples in our show room at Reeth' (Hay 2000, 39-40). A surviving receipt from the company, dated Mayday (May 1st) 1917, shows that the Rev. F M Squibb paid £2 13s for 677 units (less 590), presumably for lighting Askrigg church (Blake collection).

- 2.22 The works at Askrigg were only one of the local electricity generating schemes with which the Burton family were involved, which in turn formed part of a wider contemporary movement for electricity generation via water power in Wensleydale, Swaledale and Wharfedale. At around the same time as he was building the power house in Mill Gill, William Handley Burton had also purchased a water corn mill on the Arkle Beck at Reeth in Swaledale and in 1911 he installed a Gilkes Trent turbine (number 2201) driving a 110 volt DC generator for lighting in the village (Matkin 1978). On the 1912 Ordnance Survey map, this mill was marked as an 'electric light station' (Hay 2000, 39). In addition, in 1914, William Handley Burton had installed a Gilkes Vortex turbine at Bainbridge High Mill for the Bainbridge Electric Lighting Company, and 1917 W H Burton and Sons were employed at Gayle Mill to install, on behalf of the Hawes Electric Lighting Company, a twin flywheel gas engine with a belt drive to a dynamo inside the mill; W H Burton was injured in the course of these works (Hay 2000, 41 & 43). In 1927, the Burtons had installed hydro-electric plant in a mill at Wensley (Hay 2000, 47). Furthermore, Hay (2000, 42) notes that in 1930 the 'Burton Brothers' took over the Aysgarth Electric Lighting Company, but it is not clear if this refers to the same family. A surviving Gilkes Turgo impulse turbine at Walk Mill in Leyburn has the name 'Askrigg Lighting Co. Askrigg' on the casing, an unusual feature implying that the Burton family were involved in its installation (Hay 2000, 46 & 51).
- 2.23 In the late 1920s, the Burton family began to face competition from larger, regional electricity producers. The Newcastle upon Tyne Electricity Supply Company (NESCo), founded in 1889 by industrialist John Theodore Metz, had pioneered a grid distribution system in the north-east of England from 1909 onwards, based on its coal-fired power stations; in 1932 it was renamed as the North Eastern Electric Supply Company as it expanded supply across the north-east. In 1928, NESCo proposed a bill to supply electricity to the North Riding of Yorkshire, which was strongly opposed by the Burtons. The eventual result was the Askrigg and Reeth Electricity Special Order 1929, which empowered the Burtons to supply electricity to the Askrigg and Reeth areas. In 1932, the Askrigg and Reeth Electricity Supply Company was formed, again with William Handley Burton as the managing director. Surviving receipts from 1933 show that the cost of electricity to the customer was 8d per unit, decreasing to 7d after the first 27 units (Matkin 1978); Hartley and Ingilby (1989, 195) say that 6d a unit was charged. The company changed its supply from 110 volt DC to 230v/50Hz AC 3 phase and neutral supply, to comply with the NESCo standard; other local supply companies which had not opposed NESCo continued to supply their customers with direct current, backed up by storage batteries. Given that dynamos cannot generate AC current, only DC, this change in supply must have necessitated changes to both the equipment of the power house (i.e. the installation of alternator/s) and the means of distribution.
- 2.24 An important archive of bills and other documentary material relating to the Burtons' improvements covers the period c.1915 to c.1958 (Blake collection). Clearly not all of the paperwork necessarily relates to the Mill Gill power house, or indeed even to Askrigg, but it is significant that the majority of the surviving documents are concentrated in two periods, c.1915 to 1922 and c.1942 to 1944.
- 2.25 Commencing with the first period, in 1915, the Askrigg Electric Supply Company paid the Waverley Engineering Works in Edinburgh £2 for repairs, and in April 1919 £2 13s was paid to Callender's Cable and Construction Company Ltd., who are described as engineers, cable manufacturers and contractors. In the same month, they bought wooden electric casings worth £4 11s from Beechcroft and Wightman Ltd. of Bradford, and in July 1919 a further £4 10s was paid to the same firm. In August 1919, goods worth £34 were purchased from A P Lundberg and

Sons, Electrical Accessories Manufacturers of London, with a further £11 in February 1920 and £1 19s in September 1920, the bill carrying a query regarding '2 way switches'. More significantly, in April 1920, the Askrigg Electric Lighting Company Ltd. bought £280 worth of electric plant comprising 'Engine, Dynamo, Switchboard and Battery, Shafting Plummer Blocks, shafting, pulleys etc' from Church Brothers, Electrical Engineers and Contractors of Chertsey, and in September 1920, goods worth £44 were purchased from the Batley Engineering and Wrought-Iron Pulley Company Ltd. In April 1922, they paid £3 to Garnet Tucker and Company of Glasgow for 'Fitting Mavor & Coulson Dynamo No. 1264 with 4 carbon (brushes?) complete with brush holders and spindle', and in the same year, a further £5 9s went again to Callender's Cable and Construction Company Ltd.

2.26 There is then a gap in the documentary material until 1940, when payments relating to electrical matters recommence. This gap is interesting, for in a conveyance dated September 1933 (see below), there is no mention of any electricity works; the complex is described as the "corn mill and saw mill and buildings dams ponds and sluices situate thereon" (Blake collection). It may be that the electricity part of the business took a back seat at this time. However, in October 1940, W H Burton and Sons again made a payment of £41 to Callender's Cable and Construction Company Ltd. In 1942, a case was sent to Pritchett and Gold and EPS Ltd, manufacturers of Storage Batteries in Essex. However, the most important of all the surviving documentation is a typed account dated February 1943, documenting work undertaken in November and December 1942 (Blake collection) (see figure 10). This unquestionably relates to the power house in Mill Gill, and is as follows:

Brought forward	42	0	9
Nov 14 Two men at top dam		14	6
21 Getting Engine Block from the Station and up Gill		10	6
22 23 24 Getting Engine into house and work on engine etc	3	3	0
6 new lamps for power house		12	0
4 new D, P, Swt and fuses for Reeth and Carr		1	2 0
Paid Gilks for new parts for Governor		2	6 6
Paid Carriage on Empty Barrels			3 3
Decm Carting oil up Gill			7 6
Pipes for Ruston Air Starter and for Air Compressor	1	4	0
32 ft 1¼ @ 9d			
One Tee One Union and three bends		12	6
25 Ft ¾		10	7
7 fittings at 1/-			7 0
One ¾ union and 3 Fullway valves	1	4	0
One T and 2 Plugs			2 6
46 ft of 7 x 2½ costprice 10½	2	0	3
20 ft 6 x (?) costprice 10½			17 6
103 ft 5 x 1 costprice 3½	1	7	11
8 six inch bolts and 3 six inch coach screws			3 4
9 ft of 1¼ x 4 and one bag of cement			6 9
		<u>59</u>	<u>16 4</u>

2.27 Subsequent to these works, more monies were laid out in 1944. In January, the National Gas and Oil Engine Company Ltd. of Ashton-under-Lyne was paid £9 8s and a further £101 in October 1944. In February, the No-Val Engineering Company Ltd., Hydraulic and General Engineers, were paid just over £8. In April, W H Burton and Sons bought £7 3s worth of goods from Stephens Belting Company Ltd. of Birmingham, while in the same month, they paid Captain Whitehead of Thornton Rust the sum of £31 15s for 'one second hand engine' and

a block, and also dispatched a dynamo to the B A Winding Company via Bradford Valley station on the London and North Eastern Railway. In May, W H Burton and Sons made a payment of £7 15s to Crofts (Engineers) Ltd. of Bradford and in June they bought 50 gallons of burning oil from the Petroleum Board. In September, the large payment of £117 was made to the Tudor Accumulator Company Ltd., Dukinfield; on the 16th April of the same year, W H Burton and Sons had dispatched either a battery or two 'R/Eng cases' from Askrigg to the firm via the London and North Eastern Railway, and in May they had paid £22 to the same firm. In October 1944, a payment of £13 16s was made to J H Tucker & Company Ltd. of Birmingham. In the same month, £18 12s was paid to Ideal Boilers and Radiators Ltd. in Hull. In December 1944, goods worth £5 7s were purchased from the Bowthorpe Electrical Company Ltd., Oxford.

- 2.28 The Askrigg and Reeth Electricity Supply Company maintained about 100 customers in 1948, although the supply was sometime erratic - its cost was said to prevent it being used for cooking and radiators (Pontefract & Hartley 1942, 66). However, as a result of the nationalisation of supply and distribution following the 1947 Electricity Act, a Reeth sub-station was commissioned in 1946 and an Askrigg sub-station in 1949, causing the closure of the Burtons' schemes at Askrigg and Reeth. Nevertheless, the family maintained their connection with electricity generation, Ernest Burton becoming 'Chief Executive Officer of the National Electricity Board, Askrigg Area', while his nephew, another William Handley Burton, began five years employment as a supervisor at Reeth (Kershaw, und.; Hay 2000, 39-41). Ernest Burton was subsequently involved in ensuring that adequate compensation was paid to the owners of some of the small electricity generating companies in Wensleydale for 'loss of their business as a going concern in the open market' (Hay 2000, 43). The aforementioned William appears to have also maintained his own business; on a bill dated December 1952, W Handley Burton and Son are described on a billhead as 'Electrical Engineers & Contractors, Radio & TV based at High Row, Reeth, Richmond, Yorkshire'. Their business was both domestic and commercial, and demonstrations could be arranged. Fluorescent lighting was a speciality and they also undertook the installation of 'Private Plant for Country House Lighting' (Blake collection). The great grandson of William Handley Burton now runs Maxwell's of Northallerton, a supplier of electrical products (www.maxwellselectrical.co.uk).

3 DESCRIPTION OF THE SURVEY AREA

Introduction

- 3.1 It should be noted that the Leas House survey area contains many complex and discrete earthworks, likely to belong to many different phases of activity and with some almost certainly re-used in different periods for different purposes. It is sometimes difficult, and indeed might be considered erroneous without further research and investigation, to place the earthworks within anything other than a broad chronological framework (e.g. medieval, early medieval, later post-medieval, modern) - it should also be stressed that the assignment of a particular earthwork to one of these periods is based on a combination of available documentary sources, the plan form of the earthwork and its relationship to other features, and professional judgement. When considering the following description, reference should be made to figure 11 which depicts the recorded earthworks.
- 3.2 In order to aid description, the identified earthworks, structures and other features have been assigned unique identifier numbers, indicated as **Site 1**, **Site 2** etc. It has sometime been necessary to further sub-divide these identifiers, e.g. **Site 1a**. Reference should also be made to the various survey plans and photographs which form a part of this report. Appendix 1 provides a list of all the identified sites and Appendix 2 provides a catalogue of the photographs taken as part of the project; these photographs are referenced throughout the following report in italics, the number before the stroke representing the film and the number after indicating the shot [e.g. *5/032*].

The Pre-Medieval Period

Field system

- 3.3 In the northern limit of the survey area, there are two parallel banked and ditched boundaries (**Site 5**), on a general north-south alignment and set 26m apart. The north-western boundary is the better preserved, comprising a 1m wide spread bank with a slightly wider 0.50m deep ditch on the east side. This ditch can be traced further south than the bank, and both may be disturbed by low, parallel east facing scarps cut into the natural slope here. The south-eastern boundary is less well defined but its ditch also runs further south than the bank, towards the western end of a group of possible structures (see Site 3 below). Both boundaries continue for some distance up the natural slope to the north-east [*4/988*, *4/989*] where they are linked by cross-boundaries, forming fields or enclosures with a pattern suggestive of being a fragment of a once large co-axial system. Some of these boundaries are shown on the YDNPA HER, plotted from aerial photographs.

The Medieval and Early Post-Medieval Periods

Routeways

- 3.4 As has already been noted in Chapter 2 above, previous survey by Moorhouse suggests that a horse stud, located within a larger sheepphouse enclosure possibly belonging to Jervaulx Abbey, was located to the east and south of the existing Leas House. Jervaulx Abbey had two documented vaccaries in the area to the immediate south-west of Whitfield Gill, and on the 1856 Ordnance Survey map a bridle path runs between the two (see figure 4). In addition, where this bridle path crosses the beck in Whitfield Gill, the crossing point is marked as "Slape Wath", a common compound name denoting a medieval stream or river crossing across

limestone. The evidence suggests that there was therefore a medieval routeway through the survey area, possibly linking properties owned by Jervaulx Abbey on either side of Whitfield Gill.

- 3.5 The eastern origin of the routeway is not certain. It may have originated close to the horse stud complex, or perhaps have once continued beyond this. Moorhouse's survey (2003, 333) shows the existing trackway leading to Leas House to be terraced into the base of the slope here. As it moves south-west, along the northern edge of the suggested enclosure within which the horse stud is located, a narrower, slightly terraced trackway leaves its north side and runs west on a shallow north-western alignment. This trackway can be traced to the west beyond a drystone field wall into the gap between the previous and the current survey areas. It then begins to fade and become less visible, although its line is arguably continued by a several lines of parallel east facing shallow scarps (**Site 10**) within the EDAS survey area. However, these do not run in the direction of Slape Wath.
- 3.6 There is a route which runs more directly towards Slape Wath (**Site 1**), and it is a continuation of the existing track to Leas House. It may therefore be this that represents the main medieval routeway that used the stream crossing. This routeway has remained in use by farm vehicles until relatively recently, and so the eastern part within the EDAS survey area is somewhat rutted and spread. The routeway is clearly visible as a flattened linear strip with an average width of 3m, slightly terraced into the natural slope, which can be followed for c.90m on a general east-west alignment. At the lower end of this section, the sides of the trackway diverge slightly and its line is then lost. However, it appears to become visible again 30m to the west, its line (again partly enhanced by wheeled vehicles) cutting into, and faintly across, a broad curvilinear depression [4/976], almost certainly natural in origin and denoting one side of an earlier, higher, stream bed. Further to the west, close to the current bank of the beck, there are several large limestone blocks that may have been artificially worked and shaped, together with a c.10m length of stone rubble edging or footings, visible in plan only.
- 3.7 There is also a depression in this bank of the beck, leading down to the "Slape Wath" marked in 1856. The 'wath' itself comprises a worn, smoothed area of limestone outcrop (**Site 11**), the surface of which has split naturally in a grid of semi-regular fissures of similar appearance to limestone pavement [4/978, 9/985]. The routeway is also visible on the opposite side of the beck, continuing its line to the west. Although the smoothed limestone outcrop appears to mark the main crossing point, it is quite possible that as the course of the beck has changed over time, so has the position of the crossing. There are several further smoothed limestone outcrops, similar to that described above, c.20m to the south.
- 3.8 Another routeway of possible early date (**Site 2**) may diverge from the north side of the Slape Wath routeway (Site 1) described above, to follow a more north-western line [4/965, 4/967, 9/979]. In contrast to the route crossing the beck at Slape Wath, which is terraced into a natural slope, this routeway appears to partly re-use a natural hollow created by a small landslip. The base of this routeway is also very marshy as it ascends a gentle slope, and it is possible that water may have drained down it at one time. This would either have run across or have been crossed by the line of the Slape Wath routeway, and entered a funnel-shaped natural depression, which passed into the former east side of the earlier, higher line of the beck.

- 3.9 At its south-east end, the routeway curves to the north between two natural scarps, and then turns north-west to run behind a prominent mound created by the landslip. It climbs steadily as it runs north-west and is formed by a relatively flat-bottomed depression, 5m-6m across; the lower south side stands up to 1m in height, but the north side is over 2m high, and has a number of structures situated on or just above it (see Site 3 below). The routeway narrows adjacent to a small sub-rectangular platform, and then levels out. Here it maintains a similar width, and is terraced into the base of the natural slope to the north but runs across the top of a steep south-facing natural scarp [4/960]. There may be a rectangular structure placed on the line of the track and running parallel to it (see Site 3d below); alternatively, the latter may be the line of a wall defining one edge of the routeway. To the north-west of this possible structure or wall, the routeway again becomes a slight hollow, and has a sub-rectangular, slightly raised platform on its south side (see Site 4a below). The routeway becomes more spread after this point, and there is a second group of possible structures or small quarries on its north side (see Site 4b below). The drystone field wall defining the west side of the survey area has a gateway close to the line of the routeway, but it is likely that the earlier line ran just slightly to the north, although there is now no indication of any blocked feature in the wall. Beyond the wall, the course of the routeway may be marked by a south-facing scarp, one of several here at the base of the natural slope.

Group of structures

- 3.10 As already noted, there are two groups of structures located on the north side of the routeway (Site 2) that may be of early date.
- 3.11 The larger, eastern group (**Site 3**) is positioned on or just above the steep scarp of the marshy central section of the routeway [9/981]. Within this group, the best preserved and most obvious feature is a ruined stone building (**Site 3a**), which is not shown on any of the historic Ordnance Survey maps. The building has a sub-rectangular plan and is aligned east-west, with maximum dimensions of 6m long by 4m wide (NGR SD93735 9180) (see plate 2). The walls stand up to 0.70m in height and have an average width of 0.5m, although the north wall which partly retains the slope behind is somewhat thicker [4/970]. The walls are built of roughly squared limestone rubble and there is a doorway at the south-east corner; on either side of the doorway, larger stones have been used to define the base of the opening [4/973]. The building may once either have been larger, or could perhaps be a rebuilding of an earlier structure on the same site, as stone footings in line with the south wall are visible extending at least 4m further east, incorporating at least one larger stone in their line. To the east of these footings, there is a short length of angled trackway, partly disturbed by stock that leads to a modern springhead located c.10m to the north-east; this is represented by a concrete construction dug into the hillside with a manhole cover on the top [9/982-9/983]. Although the structure is clearly modern, the spring could have been used as a water source during earlier periods.
- 3.12 To the south of this springhead, and south-east of the ruined structure (Site 3a), there appear to be several conjoined sub-rectangular enclosures (**Site 3b**). They are all located on the steeply sloping north scarp of the depression forming the routeway here, and are most easily visible from the top of the south scarp. Viewed from here [4/975, 9/980], they are defined by intermittent lines of stone rubble or boulders, with more convincing wall footings towards their eastern end; it is possible that the stones have fallen naturally but they do form short alignments, although the insides of the enclosures are steeply sloping, and so they are unlikely

to have formed actual structures. Described from west to east, the enclosures may measure c.5m square and then 5m by 8m, with smaller structures or platforms slightly terraced into the slope at the very eastern end. To the south-east of this group, there are several shallow, south-facing scarps running parallel to one another across the relatively steep natural slope, some of which probably result from natural erosion but others of which might be the remains of either terraces or former trackways.

- 3.13 To the north-west of the ruined structure (Site 3a), there are further low angular scarps which may represent other structures and platforms (**Site 3c**). At the north end of one of these, a spread of stone rubble partly obscures a short length of built footing or wall base [9/984]; this might represent another former spring head. Within the limestone rubble heaped around it, there is a large stone measuring over a metre square, which has a very pitted, weathered surface [4/968, 4/969]. As noted above, there may be a further rectangular structure (**Site 3d**) to the west, positioned on the line of the adjacent track (see Site 2 above) and running parallel to it, the south side of which appears to be partly defined by buried rubble wall footings.
- 3.14 The second group of possible small structures (**Site 4**) lies at the north-western limit of the survey area. On the south side of the routeway (Site 2) there is a sub-rectangular slightly raised platform (**Site 4a**) measuring c.5.5m by 4.0m, with the outer edges perhaps being formed by buried rubble footings. On the north side of the routeway, there are at least three sub-rectangular conjoined platforms terraced into the natural slope (**Site 4b**). They might be interpreted as small former quarries, although the easternmost one in particular has a regular appearance with a level interior, and the suggestion of former wall footings forming the north and east sides [4/957]. These platforms run beneath the adjacent drystone field wall, and at least one further example can be seen in the field to the west.

Boundaries

- 3.15 When viewed from the west, the buildings of Leas House are placed on a prominent natural platform [4/955, 4/956, 4/961, 4/966], the western edge of which is formed by a steep west-facing natural scarp. A curvilinear earthwork (**Site 6**) runs along the top of this scarp, and may once have partly defined the limit of the medieval enclosure in which the horse stud is suggested to have been placed (Moorhouse 2003, 332-333). The earthwork may be a continuation of a prominent depression, resembling a holloway, which curves around the south-eastern corner of the walled enclosure to the south-west of the farm buildings. The natural ground level falls away steeply to the south-east onto a more level field here, and there are a number of widely spaced west-facing lynchets; one of the lynchets curves around at its southern end almost into the very top part of the Mill Gill survey area.
- 3.16 The curvilinear earthwork is represented by a curving shallow depression or ditch, averaging 2m wide but only 0.3m deep [4/020]. A spread bank runs parallel to the west side and for much of its length there is another parallel scarp set slightly further down the natural slope below. Tracing the earthwork to the north, the ditch becomes narrower and the bank more prominent [4/021]. The bank stops short of a prominent steep-sided gully (see Site 7 below), but the ditch may be cut by it. However, the line of the earthwork may be continued to the north by a shallow west-facing scarp on the same alignment, which is not clearly visible until the area north of the Slape Wath routeway (Site 1) is reached [4/022], where it appears to cross an earlier routeway (Site 10).

Other features

- 3.17 There are several other features within the Leas House survey area which, although they are difficult to date closely, almost certainly pre-date the early 20th century works associated with the hydro-electric scheme in Mill Gill.
- 3.18 The earlier survey by Moorhouse (2003, 333) shows a depression or ditch commencing on the west side of the curving wall to the west of the horse stud enclosure, at the point where a “well” is marked on the Ordnance Survey 1856 map. The ditch follows the line of a watercourse shown leaving the well in 1856 and running north-west on a relatively straight alignment before curving around sharply to the south-west, following the base of a contour and emptying into the beck. This watercourse is not shown in 1893 or 1912, but a newly constructed walled enclosure to the north of Leas House respects its line, while a footpath leading to the footbridge over the beck (also erected after 1856 but before 1893) appears to cross its former route.
- 3.19 By the time that it reaches the EDAS survey area, the depression or ditch (**Site 7a**) is over 8m wide at the top and c.5m wide at the bottom, with steeply sloping sides up to 2m deep. It curves around to the south-west, becoming narrower and shallower. At the point where it narrows, there are at least two sub-square grassed-over features resembling stone bases (**Site 7b**). One of these is placed opposite a bolt projecting from the grass [4/019], which has another shorter bolt set through the head with a corroded washer or nut at either end; the arrangement is suggestive of a former sluice being placed across the deep channel here. Just south of the position of the base and bolt, a ditch and bank enters the line of the main depression from the north-west. The ditch then appears to turn south-west, to run towards the 1913 mill pond/dam (see Site 12e below), and there is also a shallow scarp on the east side. Beyond the aforementioned base and bolt, the main depression becomes very shallow and marshy, although the line shown in 1856 can still just be traced, including the right-angled alignment at the very southern end just before the beck (**Site 7c**), which is still partly embanked and retains traces of stone lining here.
- 3.20 Adjacent to the north side of a former drain or watercourse, there is a U- or horse-shoe-shaped earthwork, open to the south-west, of unknown function (**Site 9**) [9/992] (see plate 3). It is possible that it represents the site of a sow kiln (an early form of lime kiln), although they are generally thought to be pre-18th century in date. Alternatively, it might be a very small more recent lime kiln, perhaps associated with the construction of the adjacent field barn (Site 14, see below) or even the hydro-electric structures.

Later Post-medieval Period

Footbridge

- 3.21 The historic maps show that the footbridge spanning the beck to the south-east of the Slape Wath was built between 1856 and 1893 (**Site 13**). The existing wooden footbridge is of a similar form to that shown on the c.1910 photograph (Kershaw und.; see figure 6) but it is obviously a modern replacement [4/007, 9/994]; the upper parts of the stone bridge abutments have also been rebuilt.

Field barn

- 3.22 A small rectangular field barn (**Site 14**), measuring 7.0m by 6.0m, stands at the southern end of the survey area (NGR SD 93830 91660) [9/975]. This is shown on the 1856 and later Ordnance Survey maps, although not on the 1839 tithe map. It is of two storeys, with a pitched stone slated roof and ridge coping which appears to have been reset and repointed relatively recently (see plate 4). It is built of roughly coursed and squared sandstone/limestone rubble with corner quoins, set with a lime mortar. The main (east) elevation has a pair of ground floor doorways with slightly projecting stone lintels, retaining plank and batten doors [9/996]. Above, to the first floor, there are two narrow slit ventilators, flanked by smaller square recesses or openings. There are intermittent courses of throughstones through the full height of this elevation, but none cross the complete width. The north gable has two courses of throughstones, above which there is a first floor forking hole to the apex [9/997]. The west elevation, like the east, again has intermittent courses of throughstones through the full height of the elevation, and what could be a blocked ground floor opening at the south end [9/993]. The south gable has four courses of throughstones but otherwise appears blank. The interior was not inspected, but the evidence in the external elevations, together with comparison with other surviving examples (Pacey 2009, 14-17), suggests that it forms an example of what has been described as the 'two-door plan' barn. The south doorway in the east elevation would have led into the shippon, and the more central doorway to the foddergang and mew.

The 20th century

Water system associated with hydro-electricity generation

- 3.23 The majority of 20th century features within the Leas House survey area are associated with either the original 1908 supply for the power house in Mill Gill or the 1913 extension to this scheme.
- 1) The original 1908-10 works (**Site 8**)
- 3.24 The weir representing part of the 1908-10 works (**Site 8a**) is formed by a series of relatively large sub-square blocks, arranged in a line across the bed of the beck on top of a c.1.50m natural step in the watercourse [4/010, 4/016, 9/999] (see plate 5). There is a partly displaced timber at the front of the weir, spanning the beck, and another *in situ* timber of similar size below it [4/015].
- 3.25 At the south-west end of the weir is a masonry pier [4/008, 4/014], standing 1.80m high with a slightly canted plan form (**Site 8b**). It is built of coursed squared limestone/sandstone set with a lime mortar. A grooved vertical cast-iron bracket is fixed to the base of the pier's north face using bolts with square-headed nuts, and has the remains of a mechanism which helped to raise or lower a fitting set within the groove. It is assumed that this fitting was a vertical timber passing along the top of the weir, housed in the grooved bracket, and able to be raised or lowered to allow water to be directed into the collecting chamber to the north (see below). On the top of the pier, a flat wrought-iron bracket with a raised semi-circular centre is held in place by two bolts with square-headed nuts; there is a small diameter circular recess in the south face of the stone to which the bracket is secured directly in line with the semi-circular centre [4/013]. The remains of a similar bracket and bolts are visible at the south-west corner of the collecting chamber on the opposite side of the beck, and therefore a fitting would have been suspended

over the watercourse. This may have been a pole with hanging chains or similar fittings, to stop debris washing down towards Mill Gill Force.

- 3.26 A low wall, apparently one edge of a rectangular flagstone surface of uncertain function, also runs west from the south abutment to the pier, towards the footbridge abutment.
- 3.27 The collecting chamber (**Site 8c**) is situated on the east side of the beck at the north-east end of the weir, adjacent to a small field barn unconnected to the scheme (NGR SD 93827 91651) [9/995]. The chamber is rectangular in plan, aligned south-east/north-west, and measuring 7.50m long by 3.50m wide externally; the south-east end of the north wall projects slightly beyond the east wall of the chamber. It is built of roughly squared stone rubble, set with a thickly applied lime mortar, and rising from bedrock [4/018] (see plate 5). The walls stand to a maximum height of c.1.50m and have a squared sandstone capping. The site of the original inlet is now unclear. There is a large collapse to the west of centre in the south wall, close to the weir, which may have destroyed the inlet [9/998]. However, further to the east on the same side, there is a 0.40m square hole passing through the wall. It is possible that this once housed one end of a wooden launder, fed by the combination of the weir and a sluice or vertical timbers mounted above it. A ceramic pipe of uncertain function projects from the base of the east end of the south wall [4/017]. At the time of the survey, the interior of the chamber was in poor condition and partly obscured by vegetation [4/009]. However, a stone rubble inset running parallel to the internal north wall is built over the pipe which was installed in 1913 to replace the original inlet and to link the c.1908-10 chamber to the 1913 mill pond/dam (see Site 12c). There is another, wider, inset at a lower level against the east wall.
- 3.28 The pipe left the south-east end of the chamber and ran on a north-east alignment towards the top of the cast-iron pipe within the Mill Gill survey area (see Chapter 4). The pipeline was grubbed up in the 1940s or 1950s, and comprised a mixture of cast-iron and ceramic pipes (Mr S Metcalfe, *pers comm.*). The former route of the pipeline is now partly visible as a very shallow, intermittent depression.
- 2) The 1913 extension (**Site 12**)
- 3.29 The weir (**Site 12a**) constructed as part of the 1913 works survives in relatively good condition, still spanning almost the entire width of the beck [4/982] (see plate 6). It is built of one line of well cut sub-square stone blocks, set slightly above the level of the bed of the beck, and served to direct water into a culvert [4/984] still visible in the east bank of the beck.
- 3.30 The culvert opening [4/983] is now in poor condition, although the remains of the south side wall and the flagstone top remain visible; a ceramic pipe can be seen emerging from the bank [9/986, 9/987]. A short distance (c.1.5m) to the north of here are the remains of a wooden structure, possibly a revetment for the bank or even a sluice gate, eroding from the bank [9/989, 9/990]. The underground culvert (**Site 12b**) follows a line to the north-east, running along the base of a natural scarp marking the east side of an earlier alignment of the beck. Approximately 9m to the east of the culvert opening there is a rectangular 1m long and 0.5m wide stone-lined inspection pit [4/980, 4/981], once covered with flagstones, although these have now fallen into it (see plate 8). Further to the east, several flagstones remain *in situ* [4/990], either exposed or just below the turf. The line of the culvert can be traced for a total length of 37m from the inlet on the beck, after which point its course is no longer clear from the surface. It may be that water was later piped

into the west end of the pond/dam, as several *ex situ* ceramic pipes remain visible in this area [4/992], including one bearing the impressed mark “THE NORTH BITCHBURN FIRECLAY CO LTD DARLINGTON” [4/993]. This company was formerly located at Howden-le-Wear in County Durham, and was once the largest producer of fireclay goods in the county. North Bitchburn was the last colliery in the area to close, in 1968, followed by the company’s pipe-yard a few years later (www.durhamintime.org.uk). The plan accompanying the 1913 conveyance notes that the supply to the new dam was to be a ‘culvert or pipe line’ (Blake collection; see figure 9).

- 3.31 Whereas the ‘site of new dam’ as shown on the 1913 plan is fairly large and oval in shape, the actual pond/dam (**Site 12c**) is more sub-triangular in plan, with maximum external dimensions of 55m north-south by 31m east-west. The north-west corner is open but the east and west sides of the pond/dam are formed by substantial earth banks, up to 7m wide, and standing up to 2.5m high externally and 1.5m high internally [4/991, 9/972, 9/978] (see plate 9). The east corner may be disturbed or broken by a channel running in from the north-east (Site 12e), and to the immediate west of this depression, parallel sections of stone edging might suggest a roughly culverted section leading to the pond (see below); Beyond these features, the well-defined and steep internal scarp of the dam resumes. The earthwork forming the west side of the dam is considerably wider than that to the east, presumably because it is this side which effectively ponds the water. Indeed, it gradually increases in width as it runs north-west, although the external scarp becomes lower and more spread, while the internal scarp retains its steep and well-defined profile. Towards the southern end of the dam, both sides of the interior retain stone lining to a maximum visible height of 0.50m; the stone lining is set forward from the base of the internal scarp of the earthwork bank [9/973].
- 3.32 A second possible inflow into the pond is perhaps represented by a shallow channel which runs south-west from close to the potential sluice position (see Site 7b above). A channel runs towards this area from the north-west, and then turns sharply south-west (**Site 12e**) to run through a short culvert (seen as two buried parallel lines of stone edging) before entering the east corner of the pond just before the start of the stone lining; a section of ceramic pipe can be seen emerging from the stone edging [9/974].
- 3.33 In the southern corner of the dam is the collection chamber (referred to as a ‘forbay’ by Kershaw), used to prevent debris and ice entering the water supply of the power house, together with its associated overflow sluices and other structures (**Site 12d**) (NGR SD 93800 91695) [9/991]. These elements are all placed within or adjacent to a north-east/south-west aligned wall running across the end of the pond/dam [4/002, 4/994, 9/977] (see plates 10 and 11). This wall is 9m long and the side facing the pond stands up to 1.5m high. It is built of roughly coursed and squared limestone/sandstone, set with a lime mortar. The wall was apparently once surmounted by crenellations, and had small crenellated turrets at either end but these were subsequently destroyed (Mr S Metcalfe, *pers. comm.*), although slightly raised areas to the outer ends of the wall top may mark the former turret positions.
- 3.34 To the immediate north of the north end of the wall, a self-regulating stone-lined spillway or overflow angles around the chamber, stepping down and then discharging into a shallow marshy area at its base; this spillway stopped the water level in the pond from becoming too high, and waste water must have eventually found its way from the end of the overflow into the nearby beck. The water level within the pond, and therefore the flow into the chamber, was also controlled by a

sluice built into the wall to the immediate south of the chamber [4/995] (see plate 10). The cast-iron mechanism for raising and lowering the sluice paddle is held in place by a decayed piece of timber resting on short pieces of angle-iron mounted to the west face of the wall [4/996]. Although the mechanism has lost its handle, the screw and brackets survive, as does the cast-iron paddle, which moves within two grooved vertical cast-iron brackets bolted directly to the wall face [4/997]. After passing through the sluice opening, water was discharged into a narrow gap between the south wall of the chamber and a freestanding wall to the south [4/005]; the east end of the latter descends in a series of steps. The water then presumably found its way into the beck through the same shallow marshy depression as that from the overflow [4/011].

- 3.35 The collection chamber itself is slightly sub-rectangular in plan, with maximum external dimensions of 3.75m north-south by 3.00m east-west. The walls of the chamber are tied into those of the main wall at their north ends, and are built of the same materials. Due to the falling ground level, the south external face of the chamber [4/004] stands 2.50m in height, with the east [4/003] and west [4/006] faces being generally lower. Larger stones, resembling capping stones, on the top of the south external face suggest that the walls of the chamber did not rise any higher, at least not in stone. The external faces of the chamber are largely blank, with a few projecting stones to the south face but no other visible features. There is no sign externally or internally of an inlet into the chamber, and so this must presumably lie below the visible parts. Similarly, there is no visible means by which water flow into the chamber was controlled, although one must surely have been present to prevent flooding. The interior of the chamber is c.2m deep, and is crossed at a high level by two east-west aligned cast-iron members of differing sections, which are assumed to be bracing the side walls [4/999]. At the bottom of the south side of the inside of the chamber, there are two inclined cast-iron grilles [4/001] (see plate 7), designed to stop debris and ice entering the buried pipe supplying the earlier c.1908-10 chamber to the north-east (see Site 8b above).
- 3.36 The exact route of the pipe to the east of the collecting chamber is not clear, although it may run beneath the embankment defining one end of the watercourse (Site 7c) shown in 1856. It must then pass close by the north end of the footbridge across the beck (Site 13).

4 DISCUSSION AND CONCLUSIONS

Introduction

- 4.1 As might be expected, the recording work undertaken near Leas House has raised a number of issues meriting further discussion, which are outlined below.

Electricity Generation c.1909-1945

- 4.2 The chronology of how and why electricity generation came about in Mill Gill is fairly well documented, although as has already been noted in Chapter 2, previous statements made about the very earliest stages of the works are now difficult to verify. However, whatever the truth about these early schemes, it is certain that by September 1909 the power house below Mill Gill Force had been built and was operational, as at this date W H Burton offered to supply street lighting to Askrigg Parish Council; when this offer was taken up a year later, Askrigg became the first village in Wensleydale and one of the first in the country to have its own public electricity supply (Hay 2000, 39). It is not an exaggeration to state that the Burton family were the most influential local electricity producers in Wensleydale, not just in terms of their electricity generation at Mill Gill, but also in their role as electrical engineers to other similar enterprises in both Wensleydale and Swaledale.
- 4.3 In its earliest form, water for the turbine in the power house was taken off the Whitfield Gill above Mill Gill Force, to the west of Leas House. A timber and stone weir (Site 8a) across the beck here probably directed water along a wooden launder into the west side of a collection chamber (Site 8c). Water was stored in the chamber, and then directed into a pipe leading towards Mill Gill and the power house. This pipe was certainly of cast-iron when it reached Mill Gill, and it is assumed that the same material was used between the collection chamber and Mill Gill. On reaching the northern edge of Mill Gill, the pipe emerged from a culvert and then dropped down the steep slope over a distance of 49m, running parallel to a drystone wall that was purpose-built to provide it with some stability, preventing the ground to the immediate west eroding or slipping and undermining the pipe. The pipe most probably passed beneath a track on the north side of the power house and then entered the building at the west end of the north elevation.
- 4.4 Fieldwork as part of the wider West Mill archaeological survey included a detailed survey of the Mill Gill power house (Richardson & Dennison 2012, 72-77). In its earliest form, the power house was considerably smaller than the building which survives today. The early photograph, and the structural evidence, show that it measured 4.80m east-west but was presumably of a similar width to the existing building; if the west end contained the same return as is present today, then the power house would have had a broadly L-shaped plan. The feed for the 1910 16 hp Gilkes Vortex Special turbine (number 2105), supplied from the cast-iron pipe, most probably emerged from the angled opening in the return to the internal west wall, indicating that the turbine was originally placed in the south-west corner of the building. In a vortex turbine, water flow is radially inwards; incoming water passes moveable guide vanes, producing a swirl before it impacts on the curved blade of the turbine's runner or rotor - vortex turbines were thought to be particularly suitable for driving dynamos (Wright 1911, 21; Hay 2000, 38). Enclosed within a circular casing, they could be mounted either horizontally or vertically (Wright 1911, 22); the earlier vortex turbines had vertical shafts, whereas many of the later ones had horizontal shafts (Crocker 2000, 95-97). Having turned the rotor, water was discharged on each side of the casing through flumes or suction pipes, which extended below the water level in the turbine's tail race (Crocker 2000, 96).

- 4.5 The position of the original vortex turbine, almost certainly vertically mounted with a horizontal shaft, in the power house is indicated by the impression left in the concrete floor at the south-west corner, with water discharging through flumes into the passage or channel beneath the floor here, and then out of the opening in the bottom of the external south elevation. It is assumed that the Westinghouse direct drive 12kW 110V DC generator was placed immediately to the east of the turbine, and that its former position may again be indicated by the impressions left on the concrete floor in this area; in some instances it was possible to directly couple the turbine's output shaft to the generator (Hay 2000, 38). The northern part of the power house may have been used for storage, or perhaps to house batteries, which were sometimes used to store electricity in DC systems to be used at times of peak demand.
- 4.6 The size and layout of the existing power house result from the extension and changes that were undertaken after 1913. As a part of these changes, the water supply at Leas House was also improved, interestingly by the landowner rather than the Burtons. A new weir (Site 12a) was constructed across the beck some distance to the north-west of the earlier one, diverting water into a culverted leat (Site 12b) and thence into a new pond (Site 12c), greatly increasing the storage capacity of the old collection chamber. The pond had a new storage chamber (Site 12d) constructed at its east end, fitted with screens to prevent debris entering the supply pipe. This passed through the old collection chamber and then is assumed to have followed the same route below ground as previously, before it emerged at the top of the north side of Mill Gill. The power house was extended to the east, more than doubling its original size. No firm dates are given for this extension, but the surviving receipts and bills described in Chapter 2 suggest that it was done in the period c.1919-1920, and it is possible that further major alterations were undertaken in the period c.1942-1944.
- 4.7 Hay (2000, 39) states that, as a result of the improvement works, the turbine was 'duplicated'; this may mean a second plant rather than two turbines - the current survey work has not uncovered any clear evidence for two turbines. The two 45hp (33.5kW) National oil engines driving dynamos installed at a later date to supplement the turbine (Kershaw und.; Hay 2000, 48), to judge by the surviving bases, were located away from the south-west part of the interior, but again, published information does not make it clear if they were both installed or indeed operational at the same time; it is also important to establish if they were driving generating equipment directly or if this was done via a belt, and whether they were installed prior to the conversion of the supply from direct current to alternating current in around the mid 1930s. The small surviving parts of the operating instructions for an engine on the west internal wall suggest that the base of one engine was formed by the two concrete bases at the north-west part of the floor, with the circular base let into the very north-west corner. This base may have supported an oil storage tank, although it is more likely to have been for a tank to hold water, which would have been needed to cool the oil engines - under-floor channels would have drained waste water away. However, the T-shaped concrete block to the south is reminiscent of the arrangement seen where a vertical oil engine was direct driving a dynamo (for example, see www.oldengine.org/members/ruston). The chamfered concrete bases towards the east part of the interior are different in form and in a better state of preservation than those noted above, probably a result of them being installed at different dates. The former bases may relate to the engine and dynamo purchased in April 1920, whereas the chamfered examples could well belong to the works described in November and December 1942, when an engine was taken up Mill Gill and installed in the power house. Given that by the latter date, the Burtons had gone

over to a three-phase and neutral supply, dynamos would no longer have been in use to generate electricity. Instead, the oil engines (if both remained in use) must have been driving an alternator or alternators.

- 4.8 The remnants of the cable visible in the floor on the east side of the T-shaped concrete base, together with the fittings on the inside and outside of the east wall indicate that the main outlet for the electricity produced within the building was at the east end. Originally, electricity was transferred to West Mill, and then to Askrigg, by wires suspended from the wooden electricity poles visible in the early photograph of the power house. It is assumed that there was a line of these running down Mill Gill, past Mill Gill House and thence into Askrigg, although in some early schemes buried cables were used, with consumers connected to the main supply using insulated cables (Bowers 1973, 126). A detailed inspection of the village of Askrigg to try to locate any part of the pre-Nationalisation electricity distribution network associated with the Burton family lies beyond the scope of this report. However, work undertaken in Shropshire (e.g. Jones 1996) has demonstrated that associated features can survive.

Medieval Activity

- 4.9 The Leas House archaeological survey has also recorded other elements of the wider local medieval landscape. The earthworks of a probable medieval routeway (Site 1) were noted, possibly linking properties owned by Jervaulx Abbey on either side of Whitfield Gill, via a medieval stream crossing point at Slape Wath (Site 11). Another possible early routeway (Site 2) diverges from the medieval track described above and runs east-west, partly along a natural hollow created by a small landslip. It has a number of ruined structures and platforms situated on or just above its northern slope (Sites 3 and 4) which might represent, in part, former field barns.

5 BIBLIOGRAPHY

Primary Sources

- 1819 Enclosure plan of Cow Close, Askrigg (NYCRO I (DC/AY))
- 1839 Askrigg tithe map and schedule (WYL RD/RT 12)
- 1856 Ordnance Survey 6" to 1 mile map Yorkshire sheet 66 (surveyed 1854)
- 1893 Ordnance Survey 1893 25" to 1 mile map Yorkshire sheet 66/3 (surveyed 1892)
- 1908 Conveyance of land and grant of easement from Mr Abram Scarr and one other to Mr W H Burton, 29th December 1908 (Blake collection)
- 1912 Ordnance Survey 6" to 1 mile map Yorkshire sheet 66/3 (revised 1910)
- 1913 Conveyance between W H Burton and R D de Grey Vyner Esq, 29th October 1913 (Blake collection)
- 1913 Conveyance of land and grant of easements from Mr Abram Scarr and one other to R C De Grey Vyner Esq, 30th October 1913 (Blake collection)
- 1914 Agreement between Robert Charles de Grey Vyner and William Bell as to water in Askrigg .. , 31st July 1914 (Blake collection)
- c.1915-58 Collection of bills and other material relating to the Burton family (Blake collection)
- 1933 Conveyance of Mill Gill situate at Askrigg from the Newby Hall Estate to Ernest Burton, 6th September 1933 (Blake collection)

Secondary Sources

- Bowers, B 1973 'Electric Power'. In Bracegirdle, B (ed) *The Archaeology of the Industrial Revolution*, 123-130
- Crocker, A 2000 'The Rolt Memorial Lecture 1999: Early Water Turbines in the British Isles'. *Industrial Archaeology Review* vol 22(2), 83-102
- English Heritage 1999 *Recording Archaeological Field Monuments: a Descriptive Specification*
- English Heritage 2002 *With Alidade and Tape: Graphical and Plane Table Survey of Archaeological Earthworks*
- English Heritage 2007 *Understanding the Archaeology of Landscapes: A Guide to Good Recording Practice*
- Hartley, M & Ingilby, J 1981 *Life and Tradition in the Yorkshire Dales*
- Hartley, M & Ingilby, J 1989 *Yorkshire Village* (3rd edition, original 1953)

Hay, T T 2000 'Hydroelectricity Generation in the Yorkshire Dales'. *The Cleveland Industrial Archaeologist* vol 26, 35-53

Jones, C 1996 'Electricity Supply in Shropshire before Nationalisation'. *Industrial Archaeology Review* vol 18(2), 201-222

Kershaw, B (und.) *Power from Water* (unpublished pamphlet and accompanying map, left in mill building at West Mill)

Matkin, R B 1978 'The Day they saw Light'. *The Dalesman* vol 40(8), 684-686

Moorhouse, S 2003 'Anatomy of the Yorkshire Dales: Decoding the Medieval Landscape'. In Manby, T G, Moorhouse, S & Ottaway P (eds) *The Archaeology of Yorkshire: An Assessment at the Beginning of the 21st Century*, 293-362

Pacey, A 2009 *Yorkshire Dales Field Barns Part 1: Types and Plans*

Pontefract, E & Hartley, M 1942 *Yorkshire Cottage*

Richardson, S & Dennison E 2012 *West Mill, Askrigg, North Yorkshire: Archaeological and Architectural Survey* (unpublished EDAS archive report 2010/388.R01 for Professor D Blake, 3 vols)

Wright, R (ed) 1911 'Turbines'. *The Standard Cyclopaedia of Modern Agriculture and Rural Economy* vol 12, 19-22

Electronic sources

<http://www.dalesgenealogy.com/census> - transcripts of census data for Wensleydale and Swaledale (accessed January 2013)

<http://www.durhamintime.org.uk> - Durham in time (accessed September 2012)

<http://www.maxwellselectrical.co.uk> - History of Maxwell's of Northallerton (accessed September 2012)

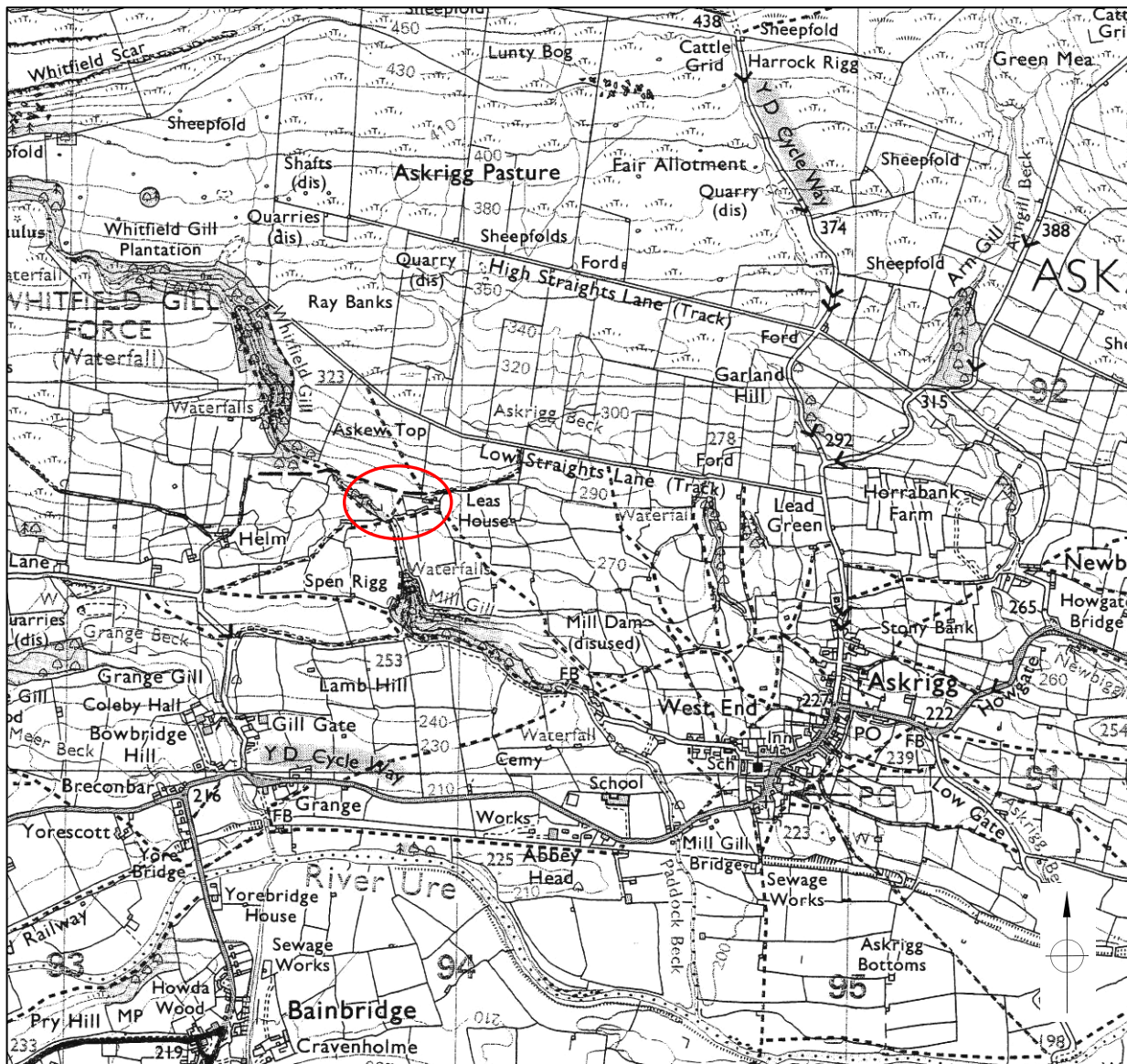
<http://www.nationalarchives.gov.uk/records/census-records.htm> - TNA (The National Archives) census data (accessed August 2012)

<http://www.oldengine.org> (accessed September 2012)

<http://www.oldengine.org/members/ruston> - Ray Hooley's Engine Pages (accessed September 2012)

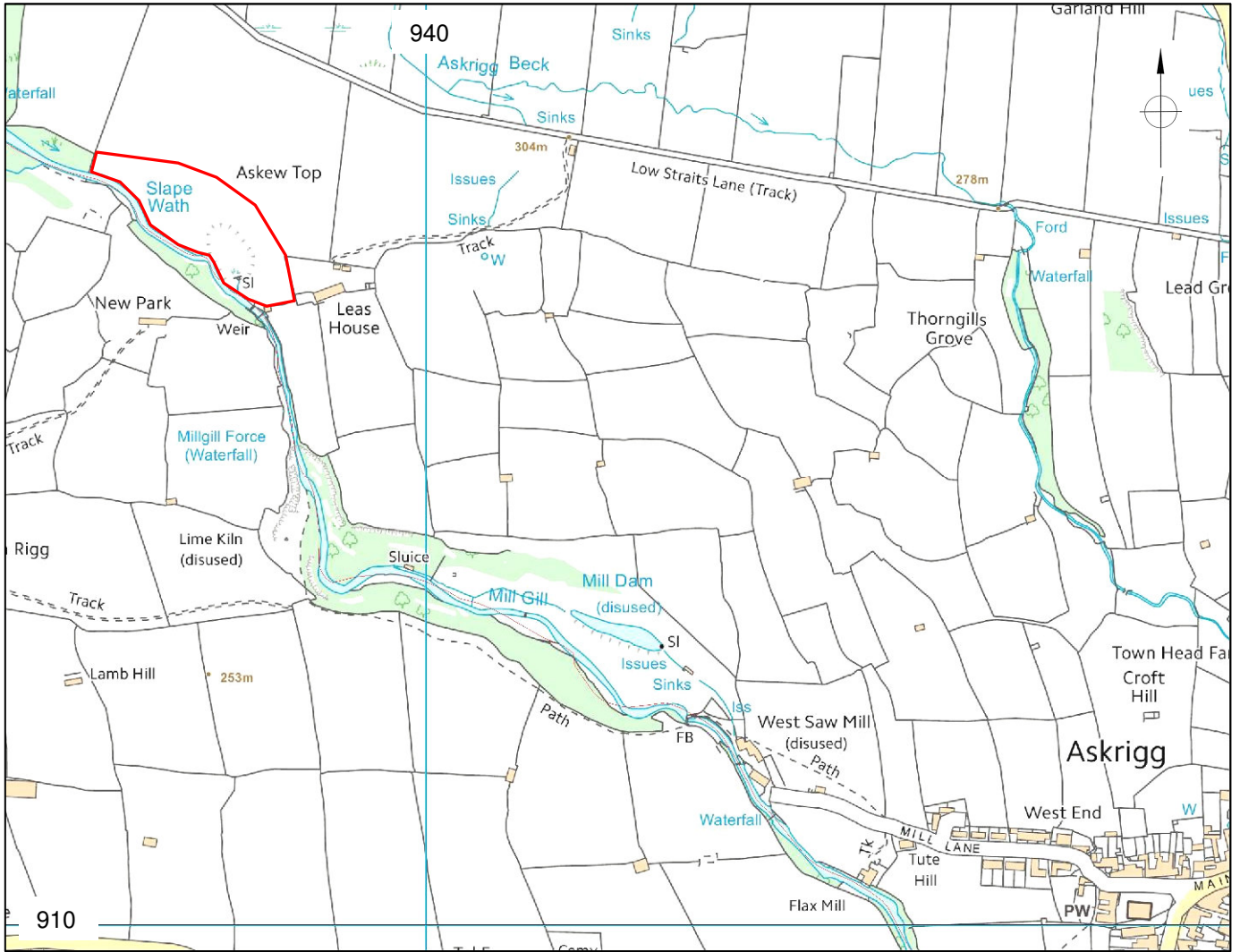
6 ACKNOWLEDGEMENTS

- 6.1 The archaeological survey work at Leas House was commissioned by the landowners, Professor David Blake and Mr Shane Metcalf, and was funded by Natural England. EDAS would like to thank Professor and Mrs Blake, Mr Shane Metcalf, Robert White (Yorkshire Dales National Park Authority), and Dr Margaret Nieke and Kimberley Parsons (both Natural England) for their assistance and co-operation in carrying out the survey. Professor Blake is specifically thanked for the loan of his documentary material, and for access and use of other documentary material originally collected by Brian Kershaw.
- 6.2 The archaeological survey was undertaken by Shaun Richardson and Benchmark Surveys of Leeds, assisted by Ed Dennison. Shaun Richardson and Ed Dennison took the photographs. Shaun Richardson produced the site archive and a draft report. The final report was produced by Ed Dennison, with whom the responsibility for any errors remains.



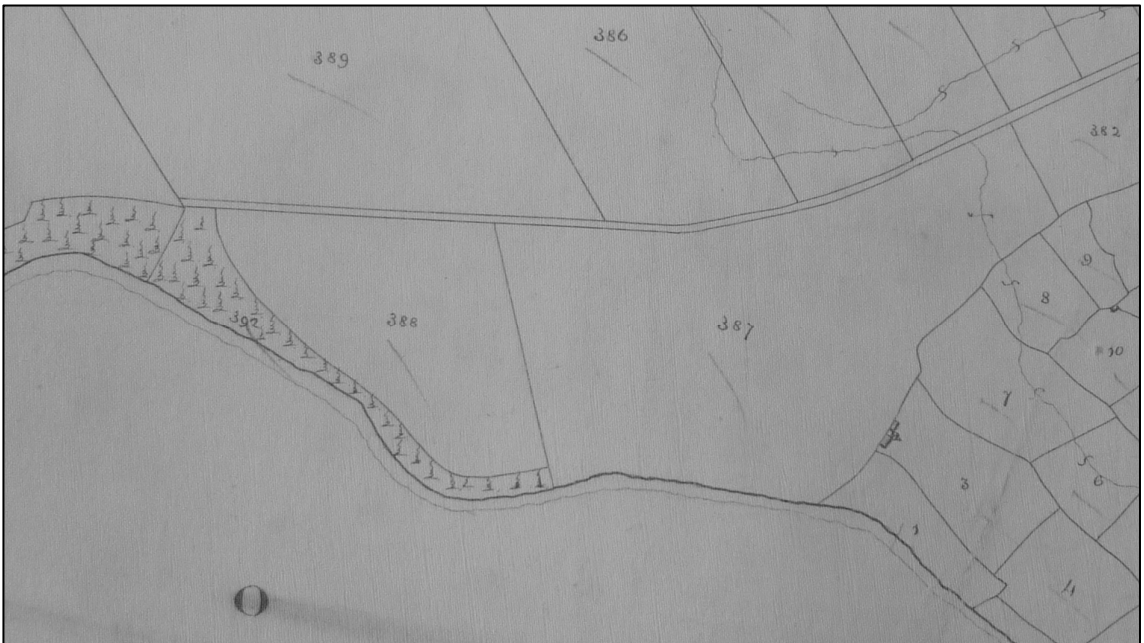
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PROJECT		LEAS HOUSE, ASKRIGG	
TITLE		GENERAL LOCATION	
SCALE	NTS	DATE	JAN 2013
EDAS		FIGURE	1



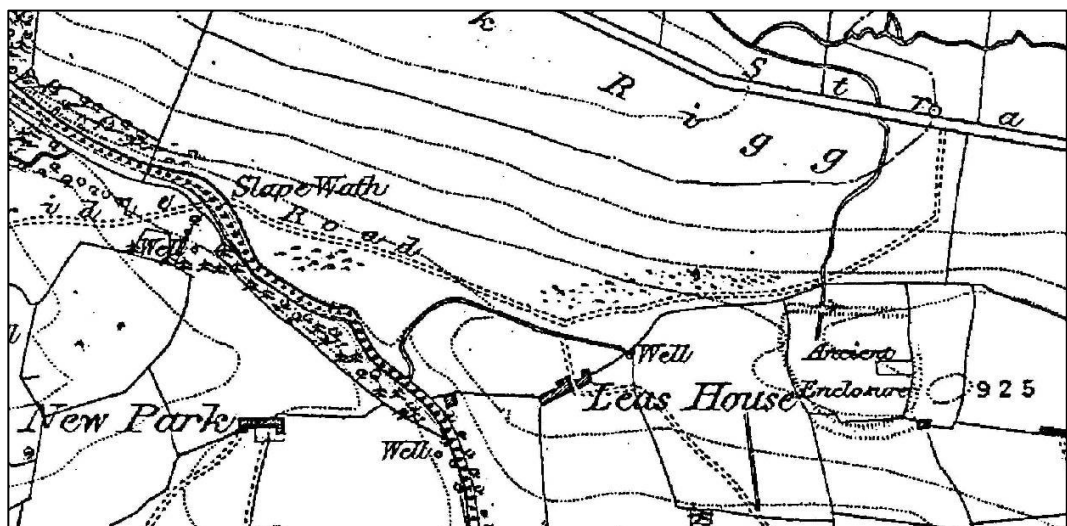
Map base provided by YDNPA.

PROJECT		LEAS HOUSE, ASKRIGG	
TITLE		AREAS OF SURVEY	
SCALE	NTS	DATE	JAN 2013
EDAS		FIGURE	2



Source: 1839 Askrigg tithe map (WYL RD/RT 12).

PROJECT		LEAS HOUSE, ASKRIGG	
TITLE		1839 TITHE MAP	
SCALE	NTS	DATE	JAN 2013
EDAS		FIGURE	3

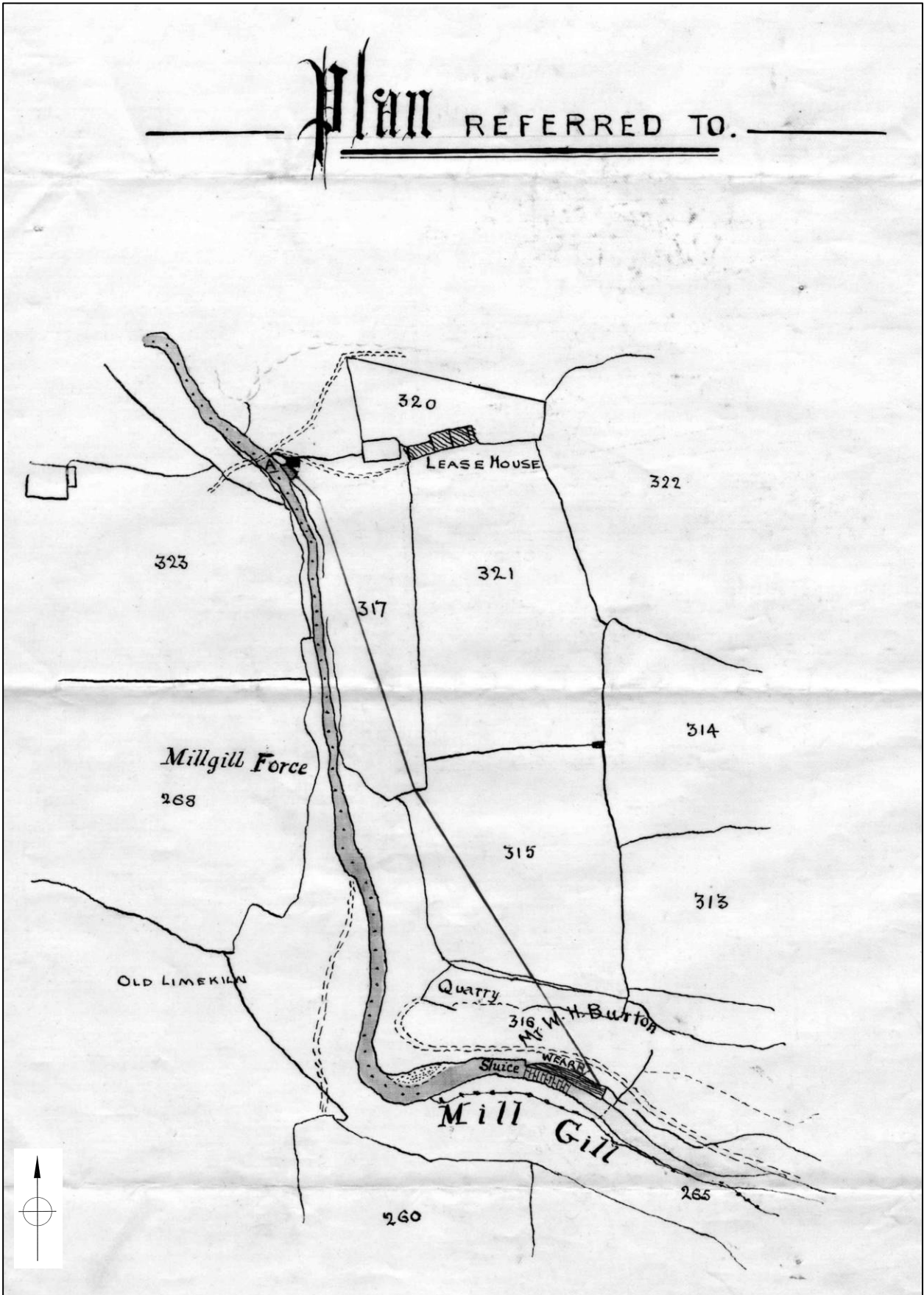


Source: Ordnance Survey 1856 6" map sheet 66 (surveyed 1854).

PROJECT		LEAS HOUSE, ASKRIGG	
TITLE		ORDNANCE SURVEY 1856 MAP	
SCALE	NTS	DATE	JAN 2013
EDAS		FIGURE	4

Plan

REFERRED TO.



Conveyance of land and grant of easement from Mr Abram Scarr and one other to Mr W H Burton, 29th December 1908.
Source: Blake collection.

PROJECT		LEAS HOUSE, ASKRIGG	
TITLE		PLAN WITH 1908 CONVEYANCE	
SCALE	NTS	DATE	SEPT 2012
EDAS		FIGURE	5



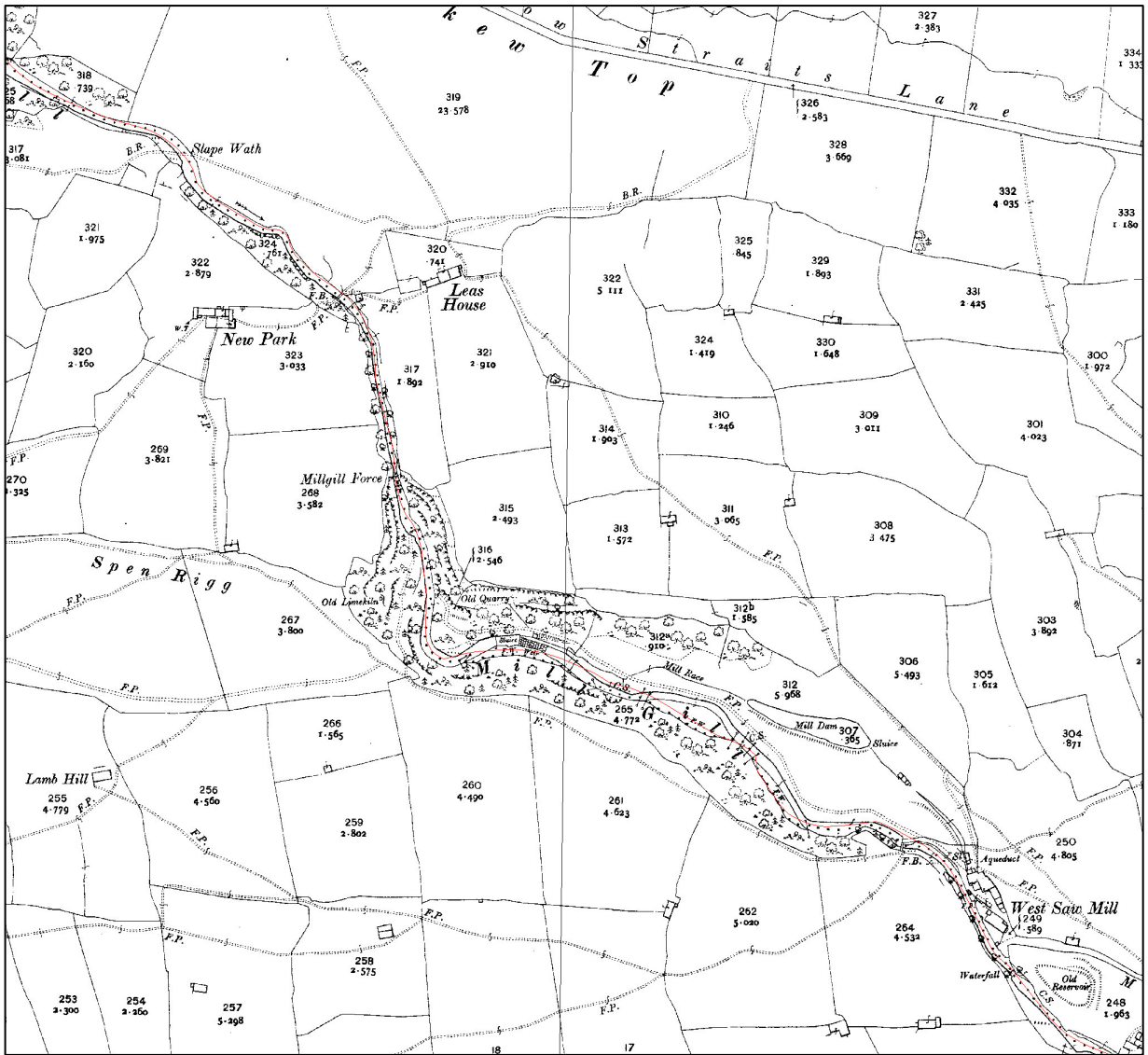
Top left: early photograph of original Mill Gill power house before 1913 expansion.

Top right: pipeline to Mill Gill power house under construction.

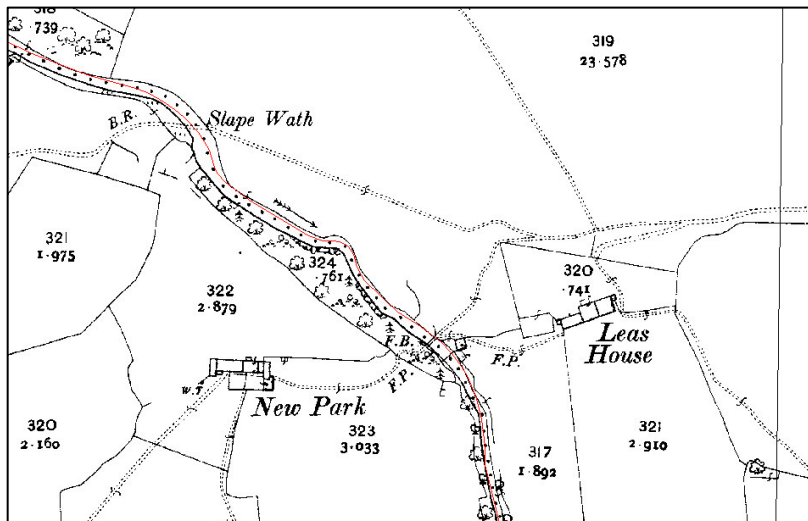
Bottom: collection chamber above Mill Gill Force under construction, c.1910.

Source: Kershaw collection.

PROJECT		LEAS HOUSE, ASKRIGG	
TITLE		MILL GILL POWER SYSTEM	
SCALE	NTS	DATE	JAN 2013
EDAS		FIGURE	6



Source: Ordnance Survey 1912 25" map sheet 66/3 (revised 1910).



PROJECT		LEAS HOUSE, ASKRIGG	
TITLE		ORDNANCE SURVEY 1912 MAP	
SCALE	NTS	DATE	JAN 2013
EDAS		FIGURE	7

P.D.S.



This Indenture made the Twenty ninth day of October
 One thousand nine hundred and thirteen Between the within named William
Handley Burton of the one part and Robert Charles De Grey Vyner of Newby Hall
 Ripon in the County of York Esquire of the other part Witnesseth that in consideration
 of the sum of Ten Shillings to the said William Handley Burton now paid by the
 said Robert Charles De Grey Vyner (the receipt whereof the said William Handley Burton
 hereby acknowledges) the said William Handley Burton as Beneficial Owner hereby
 grants and conveys unto the said Robert Charles De Grey Vyner All the within
 mentioned land and hereditaments with the rights liberties easements and appurtenances
 thereby granted and conveyed to hold the same unto and to the use of the said
 Robert Charles De Grey Vyner his heirs and assigns in fee simple subject nevertheless
 to the within mentioned covenants on the part of the said William Handley Burton
 to be observed and performed And the said Robert Charles De Grey Vyner hereby
 covenants with the said William Handley Burton his heirs executors and
 administrators that he the said Robert Charles De Grey Vyner his heirs and
 assigns will henceforth observe and perform the within mentioned covenants so far
 as the same are now subsisting and capable of taking effect and will at all times
 hereafter keep the said William Handley Burton his heirs executors and
 administrators indemnified against all proceedings costs claims and
 demands whatsoever in respect thereof And it is hereby certified for the
 purposes of the Finance Act 1910 that the transaction hereby effected does not
 form part of a larger transaction or of a series of transactions in respect of
 which the amount or value or the aggregate amount or value of the
 consideration exceeds the sum of £500 In Witness whereof the said
 parties to these presents have hereunto set their hands and seals the day
 and year first hereinbefore written

Signed sealed and delivered by the said
 William Handley Burton in the presence
 of
Arthur Wilkinson

W H Burton

Sol. Layton

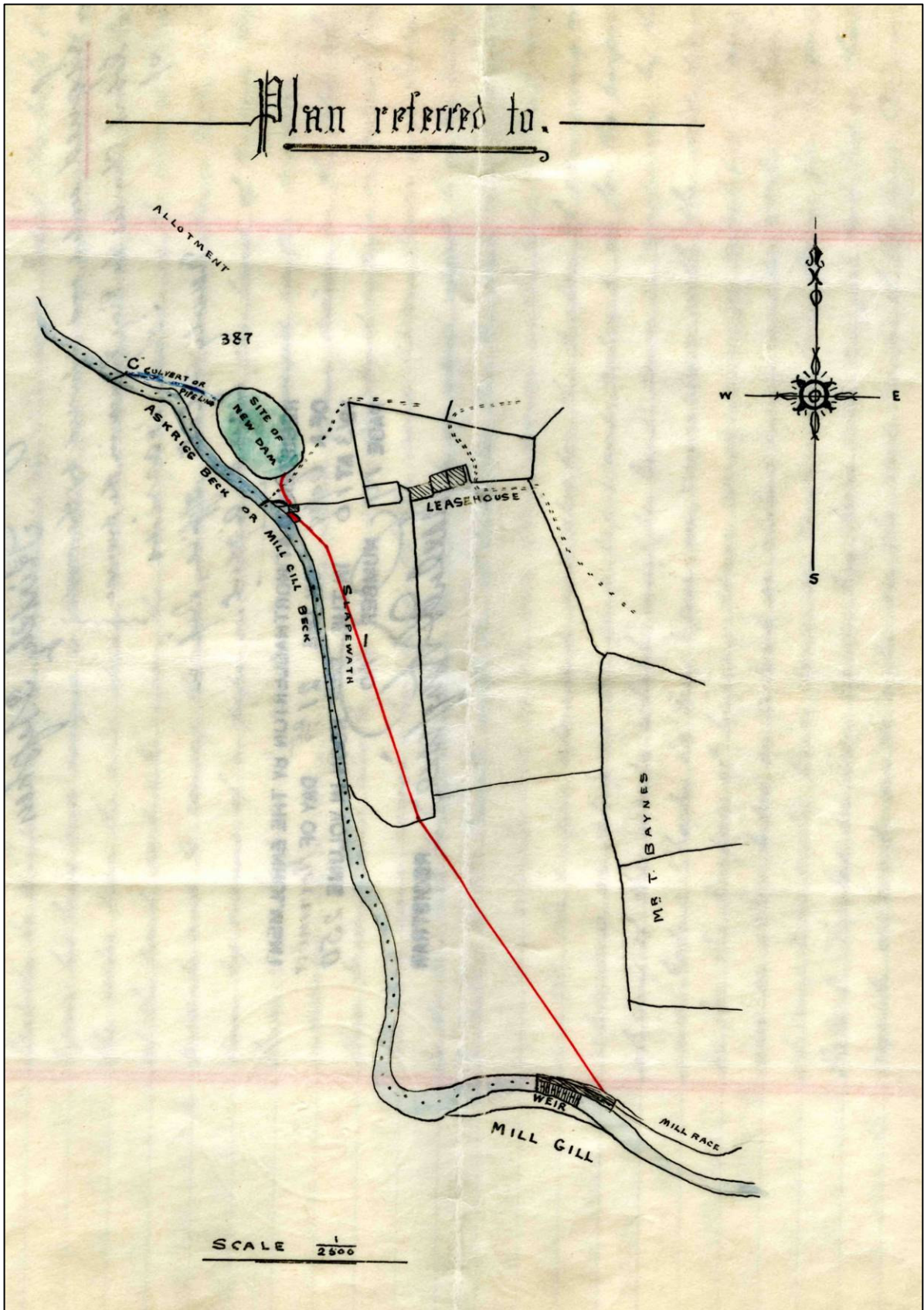
Signed sealed and delivered by the said
 Robert Charles De Grey Vyner in the presence
 of
John Harris
 Newby Estate Office, Ripon.
 Land agent.

Robert Charles de Grey Vyner



Conveyance between W H Burton and R D de Grey Vyner Esq, 29th October 1913.
 Source: Blake collection.

PROJECT		LEAS HOUSE, ASKRIGG	
TITLE		1913 CONVEYANCE	
SCALE	DATE	NTS	JAN 2013
EDAS	FIGURE		8



Conveyance of land and grant of easements from Mr Abram Scarr and one other to R C De Grey Vyner Esq, 30th October 1913.
Source: Blake collection.

PROJECT		LEAS HOUSE, ASKRIGG	
TITLE		PLAN WITH 1913 CONVEYANCE	
SCALE	DATE	NTS	JAN 2013
EDAS		FIGURE	9

February 1943

essrs Askrigg & Reeth
Askrigg

Brought Forward	42-	0-	9
Nov 14 Two Men at top dam		14-	6
21 Getting Engine Block from the Station and up Gill		10-	6
22 23 24 Getting Engine into house and work on Engine etc	3-	3-	0
6 new lamps for power house		12-	0
4 new D.P. Swt and fuses for Reeth and Carr	1-	2-	0
Paid Gilks for new parts for Governor	2-	6	6
Paid Carriage on empty barrels		3-	3
Decm Carting oil up gill		7-	6
Pipes for Ruston Air Starter and for Air Compressor			
32 Ft 1 1/4" 9d	1-	4-	0
One Tee One Union and three bends		12-	6
25 Ft 3/4"		10-	7
7 fittings at 1/-		7-	0
One 3/4 union and 3 Fullway valves	1-	4-	0
One T and 2 Plugs		2-	6
46 ft of 7 X 2 1/2 Cost price 10 1/2	2-	0-	3
20 ft 1 X 1 1/2 10 1/2		17 1/2	6
103 ft 1 X 1 3 1/2	1-	7-	11
8 six inch bolts and 3 six inch coach screws		3-	4
9 Ft of 1 1/4 X 4 and one bag of cement		6-	9
		59-	16- 4

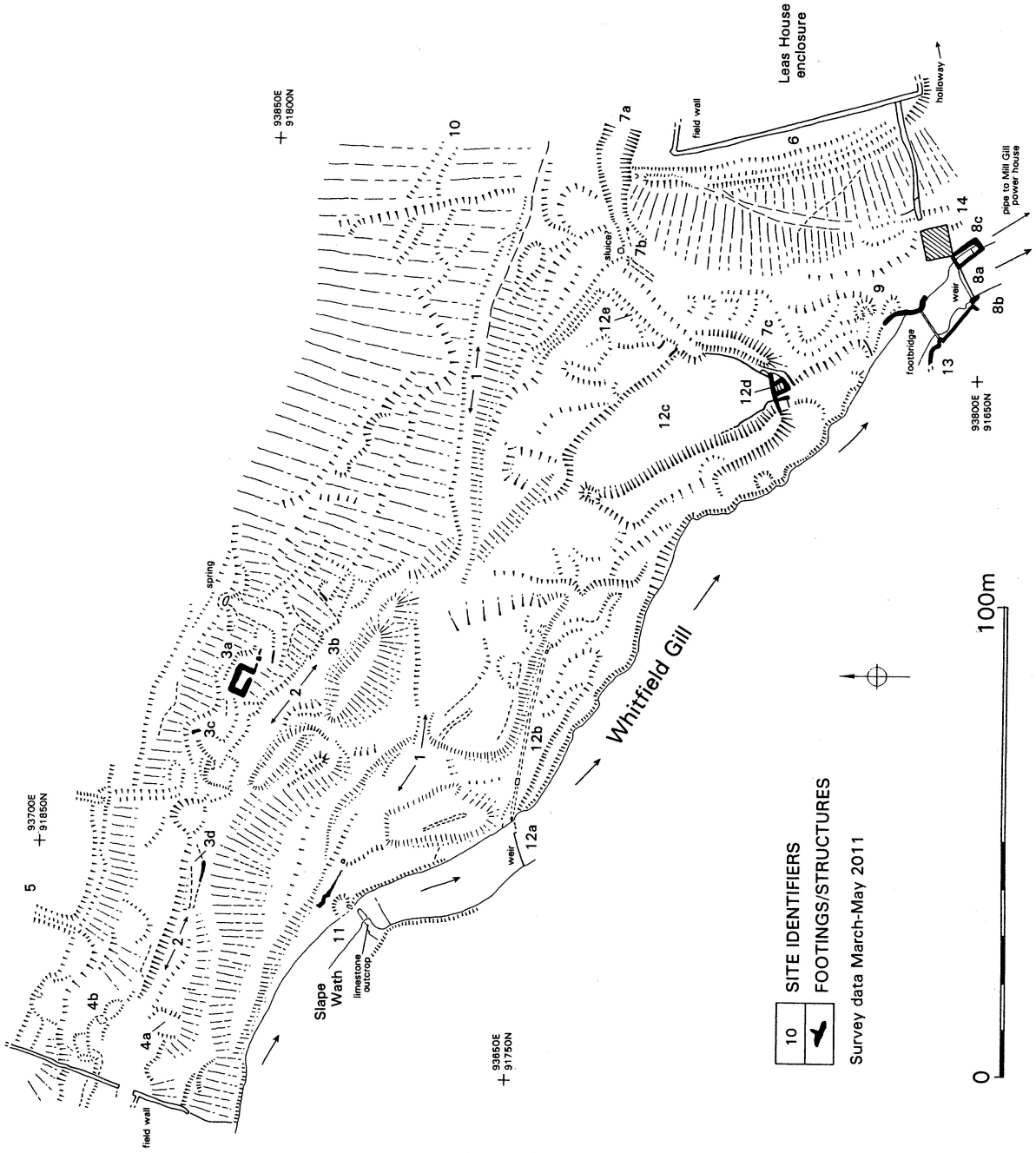
Paid 17/2/43
To Mr H B ...
EB



Account dated February 1943, documenting work undertaken at Mill Gill power house. Source: Blake collection.

PROJECT		LEAS HOUSE, ASKRIGG	
TITLE			
		ACCOUNT OF WORK 1943	
SCALE	NTS	DATE	JAN 2013
	EDAS	FIGURE	10

PROJECT	LEAS HOUSE, ASKRIGG		
TITLE	EARTHWORKS		
SCALE	AS SHOWN	DATE	JAN 2013
	EDAS	FIGURE	11



10	□	SITE IDENTIFIERS
	▬	FOOTINGS/STRUCTURES

Survey data March-May 2011





Plate 1: General view of Leas House survey area, looking SE (photo 4/964).



Plate 2: Leas House survey area, structure (Site 3a), looking N (photo 4/973).



Plate 3: Leas House survey area, possible kiln (Site 9), looking NE (photo 9/992).



Plate 4: Leas House survey area, field barn (Site 14), looking NW (photo 9/996).



Plate 5: Leas House survey area, 1908-10 collecting chamber and weir (Sites 8a and 8c), looking N (photo 9/998).

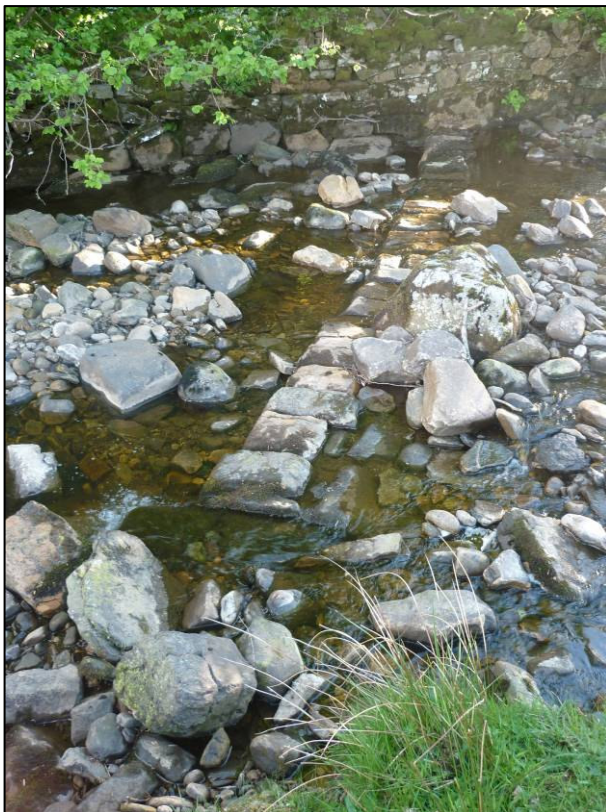


Plate 6: Leas House survey area, weir (Site 12a), looking W (photo 4/982).



Plate 7: Leas House survey area, interior of 1913 collecting chamber (Site 12d) (photo 4/999).



Plate 8: Leas House survey area, inspection pit on line of 1913 culvert (Site 12b), looking N (photo 4/980).



Plate 9: Leas House survey area, pond for 1913 scheme (Site 12c), looking SE (photo 4/991).



Plate 10: Leas House survey area, 1913 collecting chamber (Site 12d), looking E (photo 9/991).



Plate 11: Leas House survey area, 1913 collecting chamber and pond (Sites 12c and 12d), looking S (photo 9/973).

APPENDIX 1
LIST OF IDENTIFIED SITES

APPENDIX 1: LIST OF IDENTIFIED SITES

<i>Site no</i>	<i>Site name</i>	<i>NGR</i>
1	Potential medieval routeway, running east-west towards Slape Wath	SD 93810 91751 (C)
2	Early routeway, running NW-SE	SD 93740 91790 (C)
3	Group of structures and enclosures, north side of early routeway	
	3a: Ruined stone building	SD 93735 91800 (A)
	3b: Enclosures or structures	SD 93741 91790 (C)
	3c: Structures and platforms	SD 93720 91810 (C)
	3d: Possible structure	SD 93645 91815 (C)
4	Group of structures and enclosures, either side of early routeway	
	4a: Platform	SD 93660 91825 (C)
	4b: Conjoined platforms	SD 93665 91837 (C)
5	Banked and ditched boundaries, north-west part of survey area	SD 93700 91850 (C)
6	Curvilinear earthwork, west side of Leas House enclosure	SD 93843 91696 (C)
7	Former watercourse, adjacent to Leas House enclosure	
	7a: Depression	SD 93850 91729 (C)
	7b: Possible sluice	SD 93827 91727 (C)
	7c: Right-angled depression	SD 93815 91688 (C)
8	Remains of 1908-10 hydro-electricity works	
	8a: Weir	SD 93823 91654 (A)
	8b: Pier	SD 93817 91650 (A)
	8c: Collecting chamber (MYD 54878)	SD 93827 91651 (A)
9	Possible kiln	SD 93815 91675 (A)
10	Potential early routeway, north of Leas House enclosure	SD 93845 91770 (C)
11	Slape Wath ford across Whitfield Gill (MYD 29173)	SD 93685 91780 (A)
12	Remains of 1913 hydro-electricity works	
	12a: Weir	SD 93705 91750 (A)
	12b: Underground culvert	SD 93723 91740 (C)
	12c: Pond	SD 93787 91718 (C)
	12d: Collecting chamber (MYD 45096)	SD 93800 91695 (A)
	12e: Possible leat	SD 93815 91720 (C)
13	Footbridge over Whitfield Gill	SD 93815 91610 (A)
14	Field barn (MYD 29168)	SD 93830 91660 (A)

MYD = YDNPA's Historic Environment Record number.

APPENDIX 2
PHOTOGRAPHIC RECORD

Leas House Photographic Catalogue

Film 4: Digital colour prints taken 10th May 2011

Film 9: Digital colour prints taken 18th May 2012

<i>Film</i>	<i>Frame</i>	<i>Subject</i>	<i>Scale</i>
4	001	Leas House, interior of collecting chamber (Site 12d), looking SE	1m
4	002	Leas House, N elevation of collecting chamber (Site 12d), looking S	1m
4	003	Leas House, E elevation of collecting chamber (Site 12d), looking W	1m
4	004	Leas House, E elevation of collecting chamber (Site 12d), looking SW	1m
4	005	Leas House, sluice passage to E elevation of collecting chamber (Site 12d), looking W	-
4	006	Leas House, S elevation of collecting chamber (Site 12d), looking N	1m
4	007	Leas House, footbridge (Site 13), looking SE	-
4	008	Leas House, remains of pier (Site 8b) on S side of beck, looking S	-
4	009	Leas House, collecting chamber (Site 8c), looking E	-
4	010	Leas House, weir (Site 8a), looking SE	-
4	011	Leas House, collecting chamber (Site 12d), looking NW	-
4	013	Leas House, clamp to SE corner of pier (Site 8b)	1m
4	014	Leas House, remains of pier (Site 8b) on S side of beck, looking W	1m
4	015	Leas House, weir (Site 8a), looking NE	1m
4	016	Leas House, weir timbers (Site 8a), looking NE	-
4	017	Leas House, S elevation of collecting chamber (Site 8c), looking NE	-
4	018	Leas House, S elevation of collecting chamber (Site 8c), looking NE	-
4	019	Leas House, bolt adjacent to channel (Site 7b), looking NE	1m
4	020	Leas House, boundary (Site 6) south-west of Leas House, looking S	1m
4	021	Leas House, boundary (Site 6) south-west of Leas House, looking N	1m
4	022	Leas House, continuation of boundary (Site 6) to the north-west, looking N	1m
4	955	View to Leas House, looking N	-
4	956	View to Leas House, looking N	-
4	957	Leas House, structural platforms (Site 4b) at W end of survey area, looking NW	1m
4	960	Leas House survey area, looking SE	-
4	961	Leas House survey area, looking SE	-
4	964	Leas House survey area, looking SE	-
4	965	Leas House survey area, looking SE	-
4	966	Leas House survey area, looking SE	-
4	967	Leas House, routeway (Site 2) and structures (Site 3b), looking NE	-
4	968	Leas House, 'porous' stone within rubble spread, looking N	1m
4	969	Leas House, 'porous' stones within rubble spread, looking N	1m
4	970	Leas House, ruined structure (Site 3a), looking E	1m
4	973	Leas House, ruined structure (Site 3a), looking N	1m
4	975	Leas House, possible ruined structures (Site 3b), looking NE	1m
4	976	Leas House, former course of beck, looking SE	1m
4	978	Leas House, Slape Wath (Site 11), looking S	-
4	980	Leas House, pit on line of culvert (Site 12b), looking N	1m
4	981	Leas House, pit on line of culvert (Site 12b), looking S	1m
4	982	Leas House, weir (Site 12a) across beck, looking W	-
4	983	Leas House, culvert and N end of weir (Site 12a) across beck, looking N	1m
4	984	Leas House, N end of weir (Site 12a) across beck, looking N	1m
4	988	Leas House, bank and ditch (Site 5), looking N	-
4	989	Leas House, bank and ditch (Site 5), looking N	-
4	990	Leas House, remains of culvert (Site 12b), looking N	1m
4	991	Leas House, pond (Site 12c), looking SE	1m
4	992	Leas House, ceramic pipe in base of pond (Site 12c), looking S	1m
4	993	Leas House, mark on ceramic pipe in base of pond (Site 12c), looking S	-
4	994	Leas House, W elevation of collecting chamber (Site 12d), looking E	1m
4	995	Leas House, W elevation of collecting chamber and sluice (Site 12d), looking SE	1m
4	996	Leas House, detail of sluice in W elevation of collecting chamber (Site 12d), looking E	1m
4	997	Leas House, detail of sluice in W elevation of collecting chamber (Site 12d), looking E	1m
4	999	Leas House, interior of collecting chamber (Site 12d), looking E	-

9	972	Leas House, pond (Site 12c), looking NE	-
9	973	Leas House, north revetment wall to pond (Site 12c), looking S	1m
9	974	Leas House, culvert structure (Site 12e), looking N	-
9	975	Leas House, view to barn (Site 14) and footbridge (Site 13), looking SE	-
9	977	Leas House, collecting chamber (Site 12d), looking NE	-
9	978	Leas House, pond (Site 12c), looking SE	-
9	979	Leas House, view along early routeway (Site 2), looking SE	-
9	980	Leas House, enclosures or structures (Site 3b), looking N	-
9	981	Leas House, building (Site 3a) and platforms (Site 3c), looking N	-
9	982	Leas House, modern springhead close to building (Site 3a), looking NE	1m
9	983	Leas House, modern springhead close to building (Site 3a), looking N	1m
9	984	Leas House, rubble scatter close to platform (Site 3c), looking N	1m
9	985	Leas House, general view to Slape Wath ford (Site 11), looking SW	-
9	986	Leas House, inlet for culvert (Site 12b), looking N	1m
9	987	Leas House, inlet for culvert (Site 12b), looking N	1m
9	988	Leas House, view up Whitfield Gill from Slape Wath (Site 11), looking NW	-
9	989	Leas House, timber in bank close to inlet for culvert (Site 12b), looking N	1m
9	990	Leas House, timber in bank close to inlet for culvert (Site 12b), looking N	-
9	991	Leas House, collecting chamber (Site 12d), looking E	-
9	992	Leas House, possible kiln (Site 9), looking NE	1m
9	993	Leas House, field barn (Site 14), looking E	-
9	994	Leas House, footbridge (Site 13), looking NW	-
9	995	Leas House, collecting chamber (Site 8c), looking W	-
9	996	Leas House, field barn (Site 14), looking NW	-
9	997	Leas House, field barn (Site 14), looking NW	-
9	998	Leas House, collecting chamber (Site 8c), looking N	-
9	999	Leas House, weir (Site 8a), looking N	-



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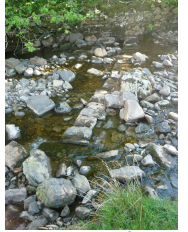
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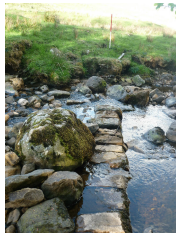
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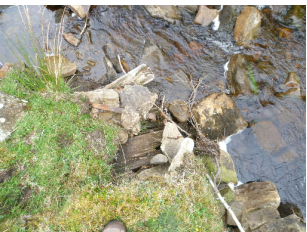
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