

WATERFALL GILL POND,
SCAWTON, NORTH YORKSHIRE

ARCHAEOLOGICAL INVESTIGATION
AND RECORDING

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EXECUTIVE SUMMARY

In June 2008, Ed Dennison Archaeological Services Ltd (EDAS) were commissioned by Mags Waughman, Archaeological Conservation Officer (ACO) for the North York Moors National Park Authority (NYMNP) and Mrs A Strang to undertake a programme of archaeological investigation and recording at a former pond near Waterfall Gill, Scawton, North Yorkshire. The work was required to ascertain the form and construction of the pond, in order to inform a future restoration project.

Two phases of work were carried out, an initial clearance of the pond followed by the archaeological recording of the features thus exposed, and the excavation of a single trench across the pond to determine the nature of construction. The work also provided an opportunity to demonstrate basic techniques of archaeological investigation and recording to NYMNP Conservation Volunteers and members of Helmsley Archaeological and Historical Society (HAHS).

Once cleared of scrub and vegetation, the pond was seen to be represented by a 7.0m diameter sub-circular depression up to 0.7m deep in the centre. Around this was a sub-circular flattened platform, between 1.2m-1.5m wide, which might have been defined by a line of kerbstones. The south-west side of the pond was cut into the natural slope, and the pond lay on a terrace which ran along the top of the west side of the steep-sided Waterfall Gill.

The pond had been constructed by using a hard-packed clean orange sand to even out the surface of the underlying oolitic limestone, to provide a smooth base for the pond lining, as recommended by William Marshall in 1788, as well as subsequent writers. A layer of sandy limestone rubble was then used to form part of the base of the pond. Above this were two thin layers of crushed lime mortar, ash and charcoal, separated by a layer of clayey sand, with a further greyish-green clay layer above; in total the lining materials had a depth of 0.20m across the northern side of the platform, increasing to 0.45m in the middle of the pond. Above the greyish-green clay layer was a 0.12m thick surface of weathered hard-packed angular pieces of Birdsall calcareous gritstone.

Although no documentary research was undertaken, and no firm dating evidence was recovered from the excavation, it seems probable that the pond was constructed either in the late 18th or the early 19th century. It is possible that it was built in an area which already had a tendency to collect water run-off, and it may have been fed by a very intermittent spring. The wide sub-circular platform around the pond would also have further helped with water collection. The pond presumably provided water for stock, but it is in an isolated location without any direct access, and it is not connected with any enclosure field boundaries. Further documentary research may be able to confirm a precise function or a firmer date for construction.

Nevertheless, the investigations undertaken at the Waterfall Gill pond have confirmed that a considerable depth of local knowledge and experience lay behind the construction of a seemingly simple agricultural feature, and the sample excavation has allowed its construction to be compared to the historic descriptions of pond making.

1 INTRODUCTION

Reasons and Circumstances for the Project

- 1.1 In June 2008, Ed Dennison Archaeological Services Ltd (EDAS) were commissioned by Mags Waughman, Archaeological Conservation Officer (ACO) for the North York Moors National Park Authority (NYMNP) and Mrs A Strang to undertake a programme of archaeological investigation and recording at a former pond near Waterfall Gill, Scawton, North Yorkshire. The work was required to ascertain the form and construction of the pond, in order to inform a future restoration project for wildlife purposes and use as an educational resource.
- 1.2 Two phases of work were carried out, an initial clearance of the pond followed by the archaeological recording of the features thus exposed, and the excavation of a single trench across the pond to determine the nature of construction. The work also provided an opportunity to demonstrate basic techniques of archaeological investigation and recording to NYMNP Conservation Volunteers and members of Helmsley Archaeological and Historical Society (HAHS).
- 1.3 Throughout this report, the Waterfall Gill pond is referred to as a “pond”, rather than a “dew pond”. There are good historical reasons for this, which are further discussed in Chapter 2 below.

Site Location and Description

- 1.4 The pond is located c.500m to the east of Midnight Lodge, at Scawton, North Yorkshire (NGR SE5541183549) (see figure 1). It lies at an elevation of c.190m AOD on the western edge of Waterfall Gill, within an area of uncultivated grassland and semi-open woodland. The pond is reached by crossing a number of enclosed pasture fields, although there is a public footpath located a relatively short distance to the south-west.
- 1.5 Although the existence of the pond was known from historic maps, prior to the commencement of the initial clearance work in 2008, it survived only as a poorly-defined and overgrown oval depression. The vegetation was largely grass, brambles and other low level scrub, and no saplings or more established trees were present. The pond no longer held water by the time of the initial clearance work, and it had clearly not done so for some considerable time.

Aims and Objectives

- 1.6 The aims and objectives of the archaeological survey work were two fold:
 - to inform and facilitate future restoration of the pond by the land owners for wildlife purposes and for use as an educational resource;
 - to gather information on the construction of the pond in order to inform the future management of similar features within the NYMNP.
- 1.7 In addition to the above, the work also allowed the instruction of NYMNP Conservation Volunteers and members of HAHS in the basic techniques of archaeological investigation and recording.

Methodologies

- 1.8 As noted above, the work at Waterfall Gill pond was undertaken in two phases. The first phase involved the clearance of the pond, followed by the archaeological recording of the features thus exposed, while the second phase involved the excavation of a single trench across the pond to determine the nature of construction.
- 1.9 The initial clearance of the pond, i.e. removing vegetation, loose material and modern soil infill, was undertaken by a team of NYMNPA Conservation Volunteers under the supervision of the ACO on the 6th and 9th May, and 17th June 2008. The scope of the first phase of archaeological investigation and recording was then determined following discussions between the ACO and EDAS. This work took place on the 18th-19th September 2008 by a maximum of two NYMNPA staff and three volunteers, supervised and directed by Shaun Richardson of EDAS.
- 1.10 The second phase of archaeological work was defined by a brief prepared by the ACO on behalf of Mrs Strang (see Appendix 2). This work was subsequently modified in consultation with the ACO while the excavations were in progress. This work took place on the 5th-6th March 2009, again supervised by Shaun Richardson of EDAS and assisted by a maximum of three HAHS volunteers.

Documentary research

- 1.11 No new primary or secondary documentary research was required to be undertaken as part of the project. However, a large body of relevant information exists in 18th, 19th and 20th century works dealing with agricultural subjects, and this has been reproduced as appropriate in Chapter 2 below. In addition, there are books dealing solely with the subject of dew ponds (e.g. Martin 1910), as well as papers relevant to dew pond construction in the wider Yorkshire region, particularly on the Yorkshire Wolds (e.g. Hayfield & Brough 1986-87; Hayfield & Wagner 1995). Robert White of the Yorkshire Dales National Park Authority also kindly supplied material relating to the excavation and recording of ponds in that area. The website www.dewponds.com provides extracts from a number of sources on the subject, including some journal articles by Edward Martin that would otherwise be difficult to obtain. Finally, a number of websites provide general histories of Scawton and its area; the most useful is www.scawton.org.uk which provides detailed tenorial histories of the various landholdings around the settlement. A full list of sources consulted is given in the bibliography (Chapter 5) below.

Excavation

- 1.12 The first phase of archaeological recording undertaken in September 2008 involved the removal of the lowest layers of infill material which remained after the initial clearance work carried out earlier that year. This initial clearance work had exposed a sub-rectangular area measuring c.11.50m long (east-west) by 9.00m wide (north-south). Some 60% of this area was then cleaned down to the surface of the stone lining of the pond as part of the first phase of archaeological excavation. In addition, several small extensions were made to the eastern side of the previously cleared area, in order to investigate specific features.
- 1.13 In March 2009, an approximately north-south aligned trench was excavated across the centre of the pond, in order to reveal its method of construction. It was originally envisaged that the trench should be c.10.0m long by 1.0m wide but, due to the small number of volunteers and the heavy nature of the excavation, the

length was reduced to 4.25m, from the northern end. This trench allowed the constructional sequence of one side of the pond to be recorded in section, the presumption being that the other, unexcavated, side would be broadly similar. All excavation during both phases of work was undertaken by hand. There was no Ordnance Survey benchmark within easy reach of the pond, and so a temporary benchmark was established on the top of the north gatepost of the gateway leading into the pond field; this was given a nominal value of 100.0m AD.

- 1.14 All archaeological layers were hand excavated in an archaeologically controlled and stratigraphic manner in order to establish their nature, sequence and condition. Following standard archaeological procedures, each discrete stratigraphic entity (e.g. a cut, fill or layer) was assigned an individual context number and detailed information was recorded on *pro forma* context sheets. A total of nine archaeological contexts were recorded; these are all described in the following text as three digit numbers (e.g. 003; see also Appendix 1). In-house recording and quality control procedures ensured that all recorded information was cross-referenced as appropriate.

Drawn and photographic record

- 1.15 During the first phase of archaeological works in September 2008, a 1:50 scale site plan was made of the initially cleared area. This plan recorded both man-made and natural slopes as hachures, as well as marking individual stones, where significant, and the extent of the cleaned area. A 1:10 scale plan was also made of a representative section of the stone lining. All the information for the drawn record was obtained using traditional hand-held measurement techniques, and representative north-south and east-west profiles across the pond were constructed using a dumpy level. In March 2009, the position of the trench was marked on the 1:50 scale site plan and a 1:10 scale drawing was made of the section revealed in the west side of the trench. Final inked drawings were then produced by hand to publication standard, using archaeological conventions established by English Heritage; reduced versions of these drawings are presented in this report.
- 1.16 A 35mm colour print photographic record was maintained during the works, and these were supplemented by a number of digital colour photographs taken by Tony Wright of the HAHS.

Archive report

- 1.17 A detailed written record of the pond was subsequently produced from the observations made on site, and cross-referenced to the drawn and photographic record. This written record describes the surviving feature, and analyses its form, function, history and sequence of development, and places the pond in its various historical, agricultural and landscape contexts, as far as is possible using the available documentary and secondary evidence.
- 1.18 Hard copies of the survey report, as well as electronic copies in pdf format, have been provided to the NYMNPA, to Natural England's Historic Environment Advisor, and to the landowners, Dr and Mrs Strang.
- 1.19 With the agreement of the landowner, the project archive, comprising written, drawn and photographic elements, will be deposited with the NYMNPA in Helmsley (site code WGP 08). No artefacts were retained from the archaeological investigations.

2 HISTORICAL BACKGROUND

Definition

- 2.1 Throughout this report, the pond near Waterfall Gill is referred to as a “pond”, rather than a “dew pond”. There are good historical reasons for this. Writing in 1910 on the subject of dew ponds, Martin noted that not all ponds on high ground were called dew ponds, and indeed there seemed to be no agreement as to what actually constituted a dew pond (Martin 1909, 174; Martin 1910, 10). He went on to add that:

“When I commenced my experiments I had a strong leaning in favour of the theory of the replenishment of these ponds by dew, but I was soon led to abandon this idea, and, although there is considerable evidence to show that considerable condensation takes place into high-level ponds other than rain, dew has, I submit, little or nothing to do with it.” (Martin 1910, 5-6).

- 2.2 Some 20 years later, he was even more definite in his opinion:

“One thing is certain. It is obvious that a pond can never receive any dew worth mentioning, and therefore there is no such thing in nature as a real dew-pond.” (Martin 1930, 351).

- 2.3 Martin was in fact echoing much earlier opinions. In 1877, Harry Pool Slade was highly critical of the late Victorian practice of describing dewfall as the principal water source for high-level ponds, to the point where he proposed scrapping the term “Dew-Pond” and re-naming them “Artificial Water Ponds” (Hayfield & Brough 1986-87, 86). In fact, late 18th and early 19th century agricultural writers never used the term, nor did they mention dew as a water source (see below).

- 2.4 Two modern definitions for a (dew)pond state that:

“A pond constructed to maintain a supply of water in an area of high permeability. Dewponds on the chalk downs of Southern England maintain their water supply in hot dry weather even longer than ponds at lower levels. They were used at least as early as the Middle Ages, and are still constructed of straw and puddled clay covered by a layer of chalk rubble.” (Adams 1976, 102).

“An artificially constructed pond, lined with cement or clay, situated at high level on chalk downs, e.g. in southern England, which retains water for unusually long periods, even during drought, and is therefore useful for watering cattle. The name suggests that the water supply is maintained by dew, but in fact little is derived from this source”. (Moore 1973, 64).

- 2.5 The various mechanisms by which water may or may not have entered high-level ponds are discussed in more detail below, together with the influences these mechanisms might have had on the methods of pond construction.

Early Ponds

- 2.6 In one form or another, the provision of water for domesticated animals has a history extending back to the prehistoric period, and there was a particular need for such provision in areas where the underlying geological deposits, such as limestone or chalk, meant that the presence of free flowing surface water was unusual.

- 2.7 Early considerations of what were then termed “dew ponds” within prominent prehistoric earthworks in the south of England assumed that they were also of this date (Ashford 1913, 34-47), for example:

“The birth of the dew-pond may, indeed, have been coeval with the birth of an intelligent race, even though his intelligence was but little above that of brute creation” (Martin 1910, 25).

- 2.8 The best known of the early considerations is *Neolithic Dew-Ponds and Cattle-Ways*, which was published in 1907 (Hubbard & Hubbard 1907). Other ponds have been ascribed early dates on the strength of place-name evidence, although in some instances it is not clear whether these were wholly artificial features at the time they were mentioned, natural features enhanced by man, or wholly natural water sources; Orna or Oxon Mere on the Wiltshire Downs, mentioned in a boundary survey of AD 825, is the most frequently quoted example (Wilson 1995, 3). However, for the purposes of this report, only the history and techniques of pond construction as they were undertaken in the 18th and 19th centuries are discussed in detail below, as these are most relevant to the Waterfall Gill site.

Pond Construction during the 19th century

- 2.9 A number of agricultural writers give information on pond construction in general, which provides a useful context for the construction of ponds across Yorkshire. Writing in 1849, Wilson noted that “a prime pond” for the use of cattle as well as sheep could be constructed as follows:

“Let a circle be marked on the ground 60 feet in diameter, more or less, as the person chooses, or the size of the pasture may require a supply of water; and if it of that diameter, let it be hollowed out in the shape of a bason or bowl, to the depth of 7 feet in the centre. When the surface of this hollow has been raked smooth, let it be well beaten over, so as to reduce it into as even, uniform, and firm a surface as the nature of the ground will admit of. On this, well slacked and skreened lime must be uniformly spread with a riddle, to the thickness of two or three inches; the more porous or open the ground, the greater will be the quantity of lime required. This lime must then be slightly watered, to make it adhere firmly to its place; and great care must be taken to spread it equally, so that no place may remain uncovered, as on the lime depends, more than anything else, the success of the work. On this lime must be laid a bed of clay, to the thickness of about six inches, which being moistened sufficiently to render it ductile, is to be beaten with mallets or beetles into a compact solid body, capable of being trod upon without impression or injury. Great care is to be taken in laying on uniformly this mass of clay and beating it into a compact body; for which purpose no more must be spread at a time upon the lime than go undergo the beating, while it retains a proper temper or consistence for the purpose. After the whole is thus finished, it is gone over several times by the beaters, and to prevent any cracks being formed, which might entirely destroy the power of retention. As soon as this operation has been duly performed, the whole surface of the clay is covered, to about the thickness of a foot, with broken chalk, fine gravel, or the chippings of mouldering stone, or limestone, to prevent any injury being done by the treading of the cattle. Sometimes the clay is covered with sods, the grass sides being laid downwards, as a support to the gravel, by which some saving of covering may be made; or several inches thick of common earth is laid upon them, or upon the clay without the sods, by way of bed for the covering, where gravel or such like materials may be scarce, by which something may also be saved. The best season for making these ponds is thought to be in autumn, as they are then likely to be filled the

soonest and the least liable to crack before they are filled. Should the weather prove dry at the time they are finished, it is well to cover their surface with straw or litter, to hinder them from cracking. They are usually made at the foot of some declivity, where, after heavy rains, a slight run of water may be conveyed into them, from some road, or other firm surface; but many are placed without any such assistance for filling, or with very little, it being found that the rain that falls upon their surface is generally sufficient for a supply after they have once been filled.” (Wilson 1849, 887-888).

- 2.10 *Beeton's Field, Farm and Garden*, published some 30 years later, gave similar advice:

“Chalk forms the best material for the formation of the bottom of a pond, the water impregnated by it being sweeter than that which stands on clay or gravel. The pond needs to be sunk to a sufficient depth to ensure against too speedy exhalation, and should not be less than five feet, nor contain a surface of less than one hundred and twenty feet in circumference, and the sides should be sloped to an angle of forty five degrees.

By filling the surface of the excavation with clay, carefully trodden down, from four to six inches in depth, and spreading over the whole a layer of quick-lime, an inch to an inch and a half in thickness; and again covering over the lime with a second stratum of pressed clay, a firm bed will be made that is quite retentive of water. Over this stones, or gravel, are then spread, of sufficient thickness to prevent the bottom of the pond being injured by the feet of the cattle. Ponds made after this manner will last many years, as worms are prevented by the lime from penetrating through the layers of clay, and hurting the bottom.” (Beeton c.1880, 288-289).

- 2.11 The advice given by Wright in 1910 in *The Standard Cyclopedia of Modern Agriculture* for the construction of a dew pond shows that some aspects of construction had scarcely changed in 60 years, although there are some interesting differences in the order in which materials were used:

“Dew-ponds. This name is given to ponds constructed on the high down lands of Wiltshire, Sussex and other counties. They are made in such positions that they do not get filled by running surface water, as is the case with ponds on lower levels, but obtain their supply entirely from rainfall and dew. It has been a constant theme of wonder how they retain water so long, and supply so many sheep during a time of drought. Rudyard Kipling describes those he saw in Sussex in this quaint and pretty rhyme:-

*‘We have no waters to delight
Our broad and brookless vales-
Only the dew-pond on the height
Unfed, which never fails,
Whereby no tattered herbage tells
Which way the season flies –
Only the close-bit thyme that smells
Like dawn in Paradise’.*

Experience has shown that they maintain a supply of water for sheep and other stock in a most remarkable manner in periods of prolonged dry weather when other water holes fail, but no carefully recorded measurements have been taken to show the amount supplied by the dew, which gives to these ponds their distinctive name. It is impossible to say when they were first made. Some have given them a

Neolithic origin, but the evidence of that is more imaginary than real. It is certain, however, that about one hundred and fifty years ago they were being commonly made to supply sheep with water on the hills of Sussex and Wiltshire during the summer months. Since that time, dew-ponds have been made by landowners and occupiers of farms. The technical skill for the making of these ponds has been confined to a few families. The Smiths of Market Lavington in Wiltshire, have for generations been acknowledged experts in the art, and have made many on the estates of the Duke of Rutland, of Lord Wantage, and of other noblemen. The mode of construction is as follows. The highest part of a down is selected, and the soil dug out and removed for a space of 20 to 22 yards square, or in diameter, and sloping down to a point, the total depth at the centre being about 7 ft. As the subsoil is nearly always chalk, a firm foundation is readily obtained. Some prefer that the ponds should be circular, while others like them square in shape. For an excavation of this size some 200 to 250 cu. yd. of soil must be removed. When this has been done, clay is well puddle over the whole surface. The thickness of the coat depends upon the quality of the clay and the nature of the bottom of the future pond. Red clay is the most suitable. The depth of the clay is usually from 5 to 6 in. The durability of the pond largely depends upon the way in which the clay has been beaten. Above this coat of clay is placed a layer of lime, mixed to the consistency of a paste, and spread evenly over the whole surface. This is to prevent worms perforating the clay and to preserve it. Two hundred and twenty five bus. of lime will be necessary for the size of a pond mentioned. Over this is evenly laid a layer of wheat or rye straw of good quality. Two tons of this material are required, and over the straw pieces of chalk or rubble, of sizes varying from a walnut to a cricket ball, are carefully placed to the depth of from 14 to 16 in. The straw is to prevent the chalk or rubble breaking the waterproof face of the clay, and to protect it from the heat of the sun or from frost, until the clay and lime have well set and the pond has gradually filled. Horses and cattle should not be allowed access to these ponds, unless they are fenced in and a specially prepared drinking place is made, otherwise they will, with their heavy weight, press through the clay. It is equally important that crowbars or other pointed implements should not be used to break ice in the winter, and that docks and other weeds should not be allowed to grow to the detriment of the foundation. The expense of making varies according to the facility of procuring and carting the necessary materials, but for those about 22 yards square, the cost is from £120 to £125. As they are usually constructed at elevations varying from 800 to 1000 ft. above sea level, where no other water supply is available, it is clear that they must be of immense advantage to sheep-farmers. When properly constructed, and when reasonable attention is paid to their preservation, there is abundant evidence that they maintain a sufficient supply of water for sheep, even in periods of deficient rainfall.” (Patrick Wright 1910, 149-150).

- 2.12 In the early 20th century, Edward Martin conducted a detailed study of dew ponds in the south of England, in particular to establish whether or not they actually relied on dew as their main water source. Through detailed observation and experimentation, including the construction of experimental ponds, he concluded that the high locations for some ponds were chosen because they were more exposed to the weather, and therefore precipitation, but also to mists and fogs, and that dew had nothing to do with the collection of water (Martin 1909; Martin 1910, 57-81; Martin 1930, 349-351). He noted that water needed first to be introduced to such a pond by artificial means and that it was the differences in air temperature between the air above the pond water and colder air flowing into the pond hollow which produced the condensation that replenished it (Martin 1910, 74-75 & 85).

- 2.13 Martin was also scathing of the belief that the introduction of straw into a pond lining created a non-conducting layer which allowed the clay to become chilled and attract dew (Ashford 1913, 37), believing that straw was laid over the clay either to stop it cracking or to prevent the chalk rubble lining of the pond being pushed into the clay (Martin 1910, 84, 95-98; Martin 1930, 349-50). Through his conversations with pond makers, Martin learnt that some would choose a site where “runnels made their appearance in rainy weather”, that the ideal depth for a pond was less than 4 feet (and in practice often less than 2 feet), and that there was some importance attached to a wide water-collecting margin (Martin 1910, 89, 114-118 & 136-138). Finally, he quote the late 18th century naturalist Gilbert White, who noted that a pond 30 feet in diameter and never more than 3 feet deep in the middle afforded water for 300 to 400 sheep and 20 head of large cattle (Martin 1910, 37). Martin also provided an illustration of schematic sections through ten dew ponds, including a Yorkshire example (Martin 1910, 106-107) (see figure 3).

Pond Construction in the Wider Yorkshire Region

- 2.14 As with elsewhere in the country, the provision of water for animals and humans within Yorkshire has an extremely long history. Some of the earliest ponds to be exploited by man, on the open tops of the Yorkshire Wolds, may have been glacially derived. The solution of chalk at depth caused collapse of the overlying chalk strata to form a sink hole, and the resulting surface hollow was then filled with glacially derived clay, creating a natural water holding surface which might have attracted early human activity (Hayfield & Wagner 1995, 51-52). These glacially-derived ponds are more properly called “meres” (Flenley 1987, 73).
- 2.15 There is some evidence that during the Bronze Age, possible estate units on the Yorkshire Wolds were deliberately structured to include access to natural water sources, but archaeological evidence for artificially constructed water sources, other than wells, remains elusive for the Iron Age, Roman-British and early medieval periods (Hayfield & Wagner 1995, 53-56). Archaeological evidence shows that the meres of Holderness were exploited from the early prehistoric periods (Flenley 1987), while place-name evidence provides some idea as to settlement water sources in the early medieval period, for example in the names “Sledmere” and “Fimber”, both on the Yorkshire Wolds (Wagner & Hayfield 1995, 56). Some existing village ponds or meres may be of considerable antiquity; for example, Overscar pond at Lockton is suggested to date back to the 13th century (Hartley & Ingilby 1990, plate 37). Although Hayfield and Wagner state that the spring-fed pond at Burdale in the Yorkshire Wolds served both the human and animal population of the township, documentary evidence from West Yorkshire demonstrates the importance of watercourses which flowed through field systems as watering places for animals during the medieval period (Hayfield & Wagner 1995, 56; Moorhouse 1981, 695-699).
- 2.16 The continuing importance of water supply into the post-medieval period is illustrated by the example of Sledmere in the late 18th century, where a severe drought dried up the village pond and livestock had to be walked some three miles to the Gypsy Race stream at Kirby Grindalythe to be watered (Hayfield & Wagner 1995, 56-57). The need to do so also suggests that there were either no artificially constructed ponds on the higher ground in Sledmere township at this date, or that they too had dried up in the drought. This situation changed in the late 18th century with the enclosure of High Wolds estates, where the creation of “dewponds” was essential to water livestock.

- 2.17 A very detailed account of post c.1770 dewponds and pondmakers in the Yorkshire Wolds is given by Hayfield and Brough (1986-87), who include schematic sections through various Wold ponds in the style of Martin, and the following text draws heavily on this. One of the earliest recorded East Yorkshire pondmakers were the Gardiners or Gardeners, although in some early accounts two different families appear to have been confused; a Gardener undertook pond construction work for Sir Christopher Sykes at Sledmere between 1776-79. In the late 18th century, agricultural writers estimated that the average price for constructing a pond 60 feet in diameter was about £10, while a 36 feet diameter pond was £5. This had risen slightly by c.1800, and the cost of pond making continued to rise throughout the 19th century. By 1850, the majority of Wold dewponds had already been constructed, but there then developed a demand for repairing older ponds, of which the Welburn family of Fridaythorpe were notable practitioners (Hayfield & Brough 1986-87, 75-78). Hayfield and Wagner reproduce a photograph of the Welburn brothers relining a dew pond at Thixendale in the 1920s (Hayfield & Wagner 1995, 61), while Hartley and Ingilby have a similar illustration of the pond at Lockton dating from c.1910 (Hartley & Ingilby 1990, plate 37).
- 2.18 The earliest description of how to construct a Wold dewpond was given by William Strickland in 1786 (Strickland 1786, reproduced in Hayfield & Brough 1986-87, 78 & 81). Strickland stated that a circular hole was dug in the ground, and puddled with clay to about a foot in depth. Quick lime was then laid on the clay, and then another foot deep layer of clay added to this, which was then topped with a stone lining; straw could be placed on top of the finished pond in dry weather to prevent cracking. Hayfield and Brough point out that the transportation of clay to the pond site could be a major source of expense, and subsequently the clay was reduced to a single layer; even water could be difficult to obtain, and at Lockton in c.1910 the water used to mix the puddling clay had to be brought in a cart from a quarter of a mile away (Hartley & Ingilby 1990, plate 37). Two years after Strickland, in 1788, William Marshall in his *Rural Economy of Yorkshire* produced a very detailed description of pond construction. He stated that once the pond hollow had been cut, then the sides of the cut should be carefully smoothed to receive the lowest level of the pond lining, a layer of lime; as an alternative to the lime, a lime and sand mortar could be used above and below the clay. The clay was to be very carefully applied, and a thin layer of earth or turf sods could be laid between the clay and the stone lining (Hayfield & Brough 1986-87, 80).
- 2.19 An interesting and apparently previously unpublished account of Wold pond construction has been supplied by Michael Hicks, and is taken from lecture entitled “*Extracts from a Wold Farmer’s Diary of a 100 Years Ago*”, given by his relative R J Hicks before the Market Weighton Agricultural Discussion Society in February 1936. It reads as follows:

“To meet the requirements of the increasing numbers of stock carried on this farm, provision had to be made for watering ponds on the higher ground. The method of making these ponds was the one introduced by a well sinker of Kilham, Robt. Gardiner, towards the end of the 18th century. In a suitable situation to collect rain water at the greatest number of sources, a circle is drawn 60 feet in diameter, an excavation is made within this and the top soil carted off, this excavation in the shape of a basin descends from edges to centre which is 7 ft. deep. The excavated surface is made smooth and even and covered with a coat an inch thick of sifted lime, sprinkled with water to make it adhere well to the smooth chalk surface. On this bed of lime a coating 6 in. deep of well tempered clay is laid well beaten down and without cracks, water added from time to time if necessary to form a perfectly even covering of clay. When perfect this clay covering is covered

with straw, to prevent the chalk now laid on from cutting through the clay. This chalk from the excavation is laid on broken small to a depth of 8 to 10 inches.

The work is best done in winter and the sooner the pond is filled with water the better, but it is advisable not to let cattle approach it until it has had two months to settle. A pond of this description cost in 1828 £16/-/-."

- 2.20 Edward Martin quoted the antiquarian J R Mortimer in 1910 regarding pond construction on the Yorkshire Wolds. He stated that with regards to siting, pond builders generally looked for a depression in the ground where rainwater already had a tendency to collect, or a site near sloping ground or a road/trackway, from which running water could be conveyed by a channel into the pond. In the Wolds, ponds were generally constructed as follows:

"First, a dish-shaped excavation with a gentle slope to the centre, is made in the ground, to the depth of 4 to 6 feet, according to the diameter of the pond. This is then covered with quick lime, next a layer of clay, which is wetted and beaten with wooden mallets into an impervious sheet, 3 to 4 inches thick. Again a covering of quick-lime is applied, then a coating of stiff wheat straw, and on top of this is spread broken chalk. The two coverings of lime are to prevent the earth-worms boring through the bed of clay. The bed of straw is to prevent the covering of broken chalk from being trodden, by cattle going to drink, into the impervious bed of clay, which, if not protected by the straw and broken chalk, would be pierced through, and the pond would lose its water. I believe it is generally considered that, as soon as the pond is constructed, the sooner it is filled with water the better, as, if without water for any length of time, the clay lining is liable to shrink and crack from the effects of dry weather." (Martin 1910, 98-99).

- 2.21 Hayfield and Brough also reproduce a rare surviving colour plan and section dating to 1903 showing the proposed relining of a pond at Aldro on the Birdsall Estate (Hayfield & Brough 1986-87, 82).

- 2.22 The attitude of agricultural authorities in the late 18th and early 19th centuries towards the functioning and siting of Wold ponds supports many of the arguments made by Martin in 1910 and described above. During the period that the great majority of the ponds were constructed, c.1770 to 1850, they were never described as "dew ponds" nor was it suggested that dew formed an important source of the water within. In the late 18th century, both Strickland and Marshall emphasised the need for a pond to attract run-off water. Although some mid 19th century accounts criticised this practice, as it was thought to bring insects and silt down into the pond, there was no mention of dew, a practice that only really developed during the late Victorian period when the construction of most of the ponds was beyond living memory (Hayfield & Brough 1986-87, 84-85).

- 2.23 Many of the earliest of the ponds to be constructed on the Yorkshire Wolds in the late 18th century were sited on still open areas of grassland, used as sheep walks, where there had previously been no water supply at all, causing fewer sheep to die of thirst in very dry weather. Although the enclosure of the Wolds did herald a decline in the importance of sheep and an increase in the amount of arable land, most farms still carried some sheep and cattle, and there was a need to water these animals in the newly-created enclosure fields. Many of the new ponds constructed as a result were located at the intersection of one or more field boundaries, so that the pond could serve as many fields as possible. Sometimes, this practice required the ponds to be made stockproof by means of a post and rail fence socketed into large stone blocks, which were laid on the pond lining rather

than piercing it (Hayfield & Brough 1986-87, 86-88; Hayfield & Wagner 1995, 61-62).

- 2.24 Dew ponds have undergone only a limited amount of archaeological investigation in Yorkshire. One example at Towthorpe, on the Yorkshire Wolds, constructed between 1850 and 1910, was excavated by Hayfield and Brough in 1985 (Hayfield & Brough 1986-87, 84). Two dew ponds were investigated in 1995 in the Yorkshire Dales National Park by the Department of Archaeological Sciences of the University of Bradford. The first, at Langcliffe Scar, lay close to a valley bottom. Following excavation, it was found to be 13.50m in diameter and with a maximum central depth of 1.25m. All sides but the eastern were revetted by an earthwork bank; the eastern (upslope) side was defined by a shallow hemispherical hollow. The lining of the pond was formed by a layer of quicklime beneath 0.25m of clay and then undressed limestone paving. No dating evidence was uncovered (Wilson 1995). The second pond was located on Malham Moor, and measured 15m in diameter but was only 1m deep in the centre. Preliminary excavation work revealed the pond to have a paved limestone surface laid over clay, disturbed by an inserted concrete lining. As with the other pond, no dating evidence was discovered but based on an analysis of the surrounding landscape, it was suggested that the pond might have originated in the late medieval period as part of the monastic sheep management system, or perhaps even be related to a prehistoric co-axial field system (McIlwaine 1995).

The History of the Waterfall Gill Pond

- 2.25 There is a lack of easily accessible published material relating to Scawton in the periods relevant to the work undertaken for the project. The website www.scawton.org provides an enormous amount of extremely well-presented information, but without the accompanying maps, particularly the 1839 Scawton Tithe Map and Apportionment, it is difficult to relate the field names and landholdings described to what survives today. A search of the internet reveals no references to an Enclosure Award for Scawton, and so it is at present not known at what date any remaining open land in the township was enclosed. However, it appears that some enclosure did take place within the township in the late 18th or early 19th centuries, as between 1812 and 1839 the area of arable land increased from 486 acres to 793 acres, with a corresponding decline in pasture land (www.scawton.org), mirroring the trend noted above on the Yorkshire Wolds during the same period.
- 2.26 The Waterfall Gill pond is shown on the Ordnance Survey 1856 6" map, with a trackway to the west curving up a slope past a "Limestone Quarry" (see figure 2). It was then located at the narrow southern neck of a large enclosure running parallel to the Gill. The enclosure is crossed by a curvilinear line of trees, running parallel to the long axis and becoming a double line at the northern end. These may represent a former field boundary, or perhaps a former trackway, and appear to relate to the natural break of slope above the terrace on which the pond stands.
- 2.27 The Waterfall Gill pond is only one of a number of ponds shown on the 1856 map. After passing the quarry, the trackway heads north-west back towards Scawton, reaching another pond at the north end of the village. To the west of the village, Scawton Park appears to have two ponds very close to the house and farmstead. However, more interestingly, there are three ponds in the fields associated with Scawton Park. Two are linked by a trackway, while the third lies some distance to the south-west. All three are placed at the intersection of field boundaries, but have a wall curving around one side, so that they appear to be accessible only

from one field. To the east of Waterfall Gill, there is another pond shown almost directly opposite the example forming the focus of this survey. Like the latter, it is not situated at the intersection of field boundaries, but is close to a trackway. In this area, the two named building complexes, Bungdale Head and Manor House, appear to have far fewer ponds than Scawton Park; the only clearly marked example is situated at the intersection of three field boundaries south of Bungdale Head.

- 2.28 It is not known when the Waterfall Gill pond fell into disuse, but this is perhaps most likely to have happened in the first half of the 20th century.

3 SURVEY DESCRIPTION

Location, Setting and Geological Background

- 3.1 The pond is located some 500m to the east of Midnight Lodge (NGR SE5541183549), Scawton, North Yorkshire, at an elevation of c.190m AOD (see figures 1 and 2). Scawton lies on an outcrop of Corallian oolitic limestones and sandstones, and so the land around the village will have a tendency to drain quickly; a typical sequence underlying the top-soils and sub-soils in the area might be expected to comprise Hambleton Oolite, passage beds and then Birdsall Calcareous Grit (Richard Myerscough, *pers. comm.*).
- 3.2 The pond is set on a terrace, c.11m in width, which runs along the top of the west side of Waterfall Gill; the terrace is aligned north-east/south-west parallel to the gill but, for the purposes of the following description, it is assumed to lie north-south. The gill itself is a very substantial ravine, dry apart from in very wet weather, with very steep (near vertical) sides over 8m in height. It is probably a post-glacial creation (Richard Myerscough, *pers. comm.*) and is one of a number of such features in this area, flanked by Bungdale Gill to the east and Brignall Gill to the west, all eventually merging with the valley of the river Rye.
- 3.3 The terrace on which the pond is situated may have resulted from a slope failure, a process by which the geological features known as “windy pits” are ultimately formed; a largely-infilled quarry a short distance to the north-west of the pond might actually be an example of such, with stone worked from a face exposed by geological rather than human actions. Indeed, it is possible that the pond itself was once a partly-formed “windy pit”, comprising a shallow sub-circular depression with a lip on the downslope side, which was taken advantage of by the pond builders (Richard Myerscough, *pers. comm.*).
- 3.4 To the immediate north of the pond, there is a steep but uneven south-facing slope, some 5.0m in height. This continues to the east and west either side of the pond, but merges with the general line of the terrace, so that the two essentially form a single feature, sloping fairly evenly downwards from north to south but with a slight break of slope defining the terrace’s northern “edge”. The terrace continues for several hundred metres to the north of the pond, but much less to the south, where it narrows and is cut off by a hollow way which descends the slope to the west of the pond on a more acute north-east/south-west alignment than the terrace.
- 3.5 The hollow way is well defined and lined with mature trees, including hawthorn and field maples. The flat bottomed base is c.2.5m wide, while the sides are formed by steeply sloping scarps. The east side stands up to 1.0m in height and has a high proportion of tumbled limestone rubble to the base, while the west side rises to almost 2.0m from the remains of a rubble revetment wall. The hollow way becomes shallower as it moves south-west, and it can be traced beyond the Strang’s property into the adjoining farm land where it is joined by another trackway coming into it from the west. At its north-east end, the hollow way again becomes shallower but can be followed north in a gentle curve around a disused limestone quarry, and then north-west as a wide hedgerow running back in the direction of Midnight Lodge. On the Ordnance Survey map of 1856, the hollow way is shown looping around the south-western end of Waterfall Gill and then running north-east, with branches towards the farms at Manor House and Bungdale Head (see figure 2). The route appears to provide no access to the pond itself, and therefore the

only remaining direction from which the pond could be approached was from the north along the terrace.

Description of the Pond

Overall form

- 3.6 As has already been noted above, the removal of the lowest layer of infill remaining after the initial clearance work was completed as part of the first phase of archaeological excavation. This infill was a sticky compacted black silt soil (009), which reached a maximum depth of 0.30m in the centre of the pond; towards the bottom of this material, several pieces of black plastic were recovered together with a number of shotgun cartridges, suggesting that it had been deposited relatively recently. During the removal of the silt (009), a number of small pieces (less than 0.10m across) of abraded red clay tile/pantile were also recovered. It is likely that some of these were loosened during the cleaning process, as similar material was found embedded into the stone lining of the pond (see below). Similarly, three pieces of pottery were found during cleaning, two small pieces (including a rim) of a white glazed vessel, perhaps a 19th or early 20th century jar, and a single fragment of a larger vessel with a red clay body, glazed to the interior only with a yellowish slip, and probably part of a 19th century storage bowl or other container. As with the tile, they may once have been embedded in the surface of the pond.
- 3.7 Once the remaining infill (009) had been removed, the overall form and layout of the pond became far more apparent (see plate 1). The pond is represented by a central sub-circular depression with a gently concave profile, some 7.0m in diameter overall but rather shallow, having a maximum depth of about 0.7m in the centre (see figures 4 and 5). The central depression is surrounded by a sub-circular flattened platform which varies in width, being narrowest on the west side and wider towards the south and east; it has an average width of between 1.20m-1.50m. The outer edge of the platform was difficult to see on its north-east side, and it may be that it extends slightly beyond the cleared area here.
- 3.8 The combined diameter of the central depression and the outer platform varied between 9.0m and 10.5m. The platform may have had either a partial or continuous kerbstone perimeter when originally built, as traces of such a feature survive intermittently around its edges (see figure 4). The best preserved section is on the southern side, where there are three sub-rectangular stones in a row, with a combined length of 0.80m and raised 0.10m above the surface of the platform (see plate 2). Other possible kerbstones can be traced intermittently around the eastern side of the platform, and then there is a large gap before another isolated possible example is visible on the northern part of the platform. The western edge of the platform appears to have been cut into the natural slope, as immediately above it, clearance showed that the surface of the slope was formed by a dark brown silt soil up to 0.15m in depth. Below this, an orange sand could be seen, containing very frequent inclusions of angular pieces of oolitic limestone, up to 0.10m across. This latter deposit is similar to the natural material exposed beneath the artificial lining of the pond (see below).
- 3.9 During the survey work, a spread line of moss was noted descending from the base of the natural slope to the west of the pond, along and around the bank to the southern edge of the platform, and then into Waterfall Gill. It had also been previously noted that the hollow way fills up with water after heavy rain at a point approximately in line with the mossy spread (Dr Strang, *pers. comm.*). This may

suggest that there is a spring in this area, which runs for only a short time after rain, and which might provide part of the water supply for the pond (Tony Wright, *pers. comm.*; see Chapter 4 below).

- 3.10 The scarp around the south-western edge of the platform is curvilinear and stands up to 1.20m in height. This scarp contains at least one break of slope and has a concentration of oolitic limestone rubble around the upper edge. Further to the south, the scarp becomes a proper bank, c.5.0m in length, which slopes downwards from west to east. At its upper end, the bank is over 2.0m wide but at the lower end it narrows to less than 0.5m. The bank is a rather spread feature, generally standing less than 0.5m in height, and after clearance it could be seen to contain a high proportion of oolitic limestone rubble, perhaps upcast from the excavation of the pond itself. At its southern end, the sides of the bank begin to diverge again.
- 3.11 The pond also has a slight bank around the south-eastern edge. This is partly formed by the sub-circular platform, but further clearance undertaken during the second phase of the archaeological works along the abortive southern half of the excavation trench appeared to reveal a concentration of stone rubble perhaps forming the outer edge of an artificial feature, extending a further 1.5m south beyond the possible kerbstone perimeter. Furthermore, investigation undertaken during the first phase of works revealed what appeared to be a curvilinear channel at the southern end of the bank. The channel was at least 1.50m long, 0.45m wide and 0.25m deep, and filled with topsoil. It had near vertical sides, and in some places these appeared to be lined with vertically set limestone rubble, with some greyish-green clay visible in the base.

Pond construction

- 3.12 The first phase of archaeological works revealed both the pond's central sub-circular depression and the surrounding platform to have a surface formed by hard-packed angular pieces of Birdsall calcareous gritstone (001), averaging between 0.05m and 0.10m in width. The gritstone was a light brownish/orange colour and was very weathered; the black silty soil (009) infilling the pond had seeped into the gaps between the individual stones. Within the surface, amongst the gritstone, there were occasional fragments of abraded red clay tile or pantile.
- 3.13 The approximate north-south aligned trench excavated as part of the second phase of archaeological works established that the gritstone (001) had an average depth of 0.12m, although it was slightly deeper towards the centre of the pond (see figure 6). There were also a number of larger flat pieces of stone, up to 0.20m long, within the base of the gritstone in the centre of the pond. The gritstone had been pushed into the surface of a spread of clean greyish-green clay (002), which had weathered to an orange colour where the stone surface had thinned (see plate 3). The clay had an average depth of 0.10m and it sloped gently down from north to south following the general profile of the pond's surface. The clay (002) overlay a very thin layer (less than 0.01m) of crushed lime mortar, burnt lime, ash and some charcoal flecks (003). This layer was indistinct, particularly in the northern part of the section, but was relatively level where it could be seen.
- 3.14 Beneath the crushed lime mortar and ash (003), a band of clean reddish orange clayey sand (004) was exposed, which contained a proportion of very fine gravel, between 1mm-2mm across. This clayey sand (004) first became visible in the section 1.55m from the northern end of the trench, and it gradually increased in depth to the south (i.e. towards the centre of the pond), reaching a maximum depth

of 0.22m. The clayey sand (004) overlay a shallow deposit of limey greyish-brown sand (005), which contained frequent inclusions of small pieces of oolitic limestone, less than 0.05m across. The limey sand (005) was confined to the top of a mass of larger pieces of thin light brown fine sandy limestone rubble (006) (see plate 5). These rubble pieces had been deliberately laid on top of one another, and were up to 0.30m across. They continued beyond the south end of the trench, and appeared to overlay the lowest visible construction layer, a buff coloured crushed lime mortar (007) similar to deposit 003 above but containing large pieces of charcoal and also some coal up to 0.05m across.

- 3.15 The crushed lime mortar (007) marked the bottom of the construction layers of the pond; these had a total depth of 0.20m across the northern side of the platform, increasing to 0.45m in the middle of the central sub-circular depression (see figure 6). There was no clear construction cut for the pond. The crushed lime mortar overlay a dry but very hard packed clean orange sand (008), mottled with large inclusions of greyish-green sand that were almost rock-like in their consistency (see plate 4). The sands very soon gave way to the weathered surface of the oolitic limestone beneath.

4 DISCUSSION AND CONCLUSIONS

- 4.1 It is probable that the pond was constructed either in the late 18th or the early 19th century. Although no firm dating evidence was found, a small number of probable 19th and 20th century pottery fragments were recovered during cleaning. It is not certain that these were once embedded in the stone lining, but the lining did incorporate worn red clay tile or pantile fragments, while the method of construction exposed in the excavated section bore a strong resemblance to that recommended by late 18th and early 19th century authorities.
- 4.2 Although no clear construction cut was visible, the hard-packed clean orange sand (008) may have been used to even out the surface of the oolitic limestone beneath, to provide a smooth base for the pond lining, as recommended by William Marshall in 1788. The two layers of crushed lime mortar, ash and charcoal (003 and 007) are also reminiscent of Marshall's recommendations (and Mortimer's in the early 20th century), although he had them placed above and below a clay layer, whereas at Waterfall Gill they were separated by a clayey sand (004) with the clay layer (002) above. There was no evidence of any straw between the clay (002) and the gritstone lining (001), but a dew pond at Towthorpe excavated in 1985 also showed no trace of straw, although this was ascribed to it having decayed since the pond was built (Hayfield & Brough 1986/87, 84).
- 4.3 The immediate sources of both the gritstone lining and the clay are not yet known, but it may be that the clay was obtained relatively locally; a possible band of weathered orange (Oxford?) clay is visible in the side of Waterfall Gill c.60m-70m to the south of the pond but at approximately the same elevation (Tony Wright, *pers. comm.*). However, there are other features of the pond's construction which appear specific to its location. The sandy limestone rubble (006) in the base of the pond commences only half way across its width, on the southern, Waterfall Gill, side. If a pre-existing hollow was chosen as the site of the pond (see below), the pond makers may have found that, once the hollow had been enlarged and the right shape achieved, there was insufficient slope on the south side, and so this was created artificially using the limestone rubble. Alternatively, they may have believed that, due to the very steep-sided nature of Waterfall Gill itself, a substantial retaining bank was required on the south side of the pond to prevent it slipping down the slope.
- 4.4 The location and form of the pond also correspond to some aspects of the late 18th and early 19th century descriptions, and particularly to that given for a Yorkshire Wolds pond by Mortimer in the early 20th century. As has already been noted, it is possible that a natural hollow existed on the site of the pond, and that the pond makers had noted a tendency for water to collect here. It is also located close to a trackway and at the base of a steep slope, from both of which run-off could be obtained. Most importantly, there appears to be some sort of water source running down the adjacent bank, perhaps an intermittent spring, causing the visible mossy spread and pooling in the trackway after heavy rain; this echoes the description given by Martin in 1910 of southern English pond makers who sought out sites where "runnels made their appearance in rainy weather" (Martin 1910, 89).
- 4.5 The wide sub-circular flattened platform surrounding the central depression was most probably used for stock to stand on, although again it bears some resemblance to the water-collecting margins noted by Martin which occur around ponds in the south of England. At between 9.0m-10.5m, the overall diameter of the pond places it at the smaller end of the sizes given by most agricultural

authorities, but the 0.7m central depth is close to the two feet depth most commonly recorded by Martin. The possible kerbstone perimeter seen at the Waterfall Gill pond appears to be an unusual feature, but it may just be that insufficient examples of ponds have been recorded regionally, and that others with the same edging might be found elsewhere. Similarly, the possible run-off channel recorded around the southern edge of the pond is not mentioned in any of the historic pond construction sources consulted during the research for this survey. However, a note of caution must be sounded in regard to the latter. An excavated dew pond at Langcliffe Scar in the Yorkshire Dales had a shallow hemispherical hollow running around the eastern side, which appeared to be a channel. This was thought likely to be the result of settlement around the edge of the stone paving, and it was stated that the same effect had been seen at another unexcavated dew pond in the area (Wilson 1995, 8).

- 4.6 It therefore appears relatively straightforward to understand why the pond was built where it was, and it obviously provided a water supply, presumably for stock, but it is not actually known what this supply was used for. As has already been stated, the only logical access to the pond appears to have been from the north along the terrace on which it is sited. There is a trackway close by, but it does not appear to provide a direct access to the pond, nor is the pond located at the intersection of enclosure fields or along field boundaries like many of the Wold examples. It may be that the pond once fell within or serviced a sheep walk, like the example present at Wharram Percy in 1836 (Hayfield & Brough 1986/87, 89), but more work would be needed on the documentary sources, particularly the Scawton tithe map, to be able to confirm this.
- 4.7 The wider landscape context of the pond also needs further consideration. For example, did the topography of the general Scawton area, with raised areas of ground between deep valleys, influence how the plateaux were farmed and therefore what water resources were required? Why are some of the ponds shown on the 1856 map linked by tracks, and what is the purpose of the curving field walls around other ponds shown at the same date (see figure 2)? Why did Scawton Park require more field ponds in 1856 than Bungdale Head; was it because it was still pursuing a pastoral rather than arable regime?
- 4.8 In conclusion, the investigations undertaken at the Waterfall Gill pond have confirmed that a considerable depth of local knowledge and experience lay behind the construction of a seemingly simple agricultural feature, as might be expected, while the sample excavation has allowed it's construction to be compared to the historic descriptions of pond making. The work has also demonstrated the advantage of a multi-disciplinary approach, combining geology, landscape history and archaeology. But perhaps most of all, the work provided the volunteers with some appreciation of the sheer physical effort required to construct such a feature; as Hayfield and Brough noted:

“Skills notwithstanding, the true art of dewpond-making lay in the ability to endure many days of back-breaking labour” (Hayfield & Brough 1986-87, 84).

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1856 Ordnance Survey 6" to 1 mile map sheet 90

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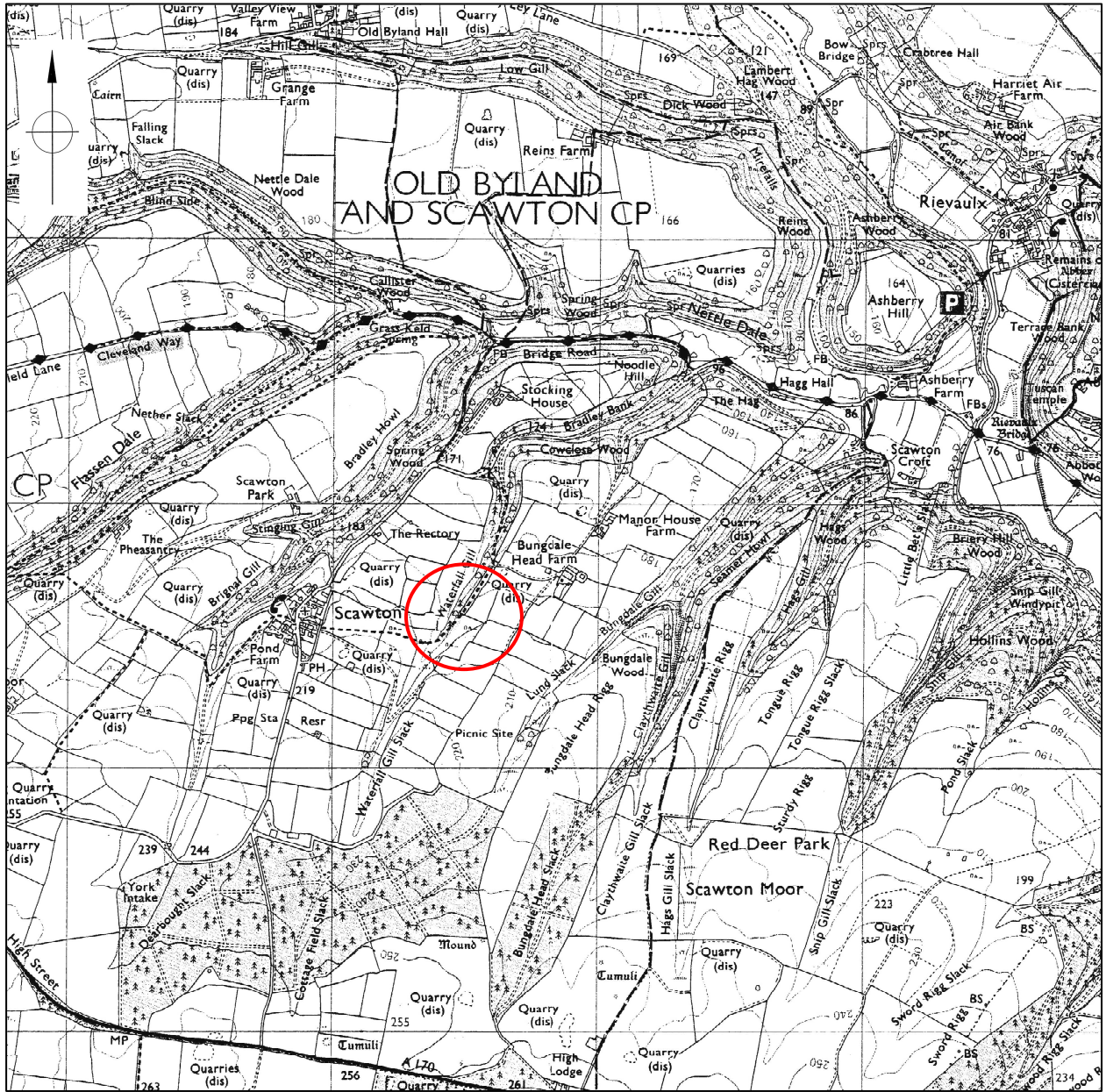
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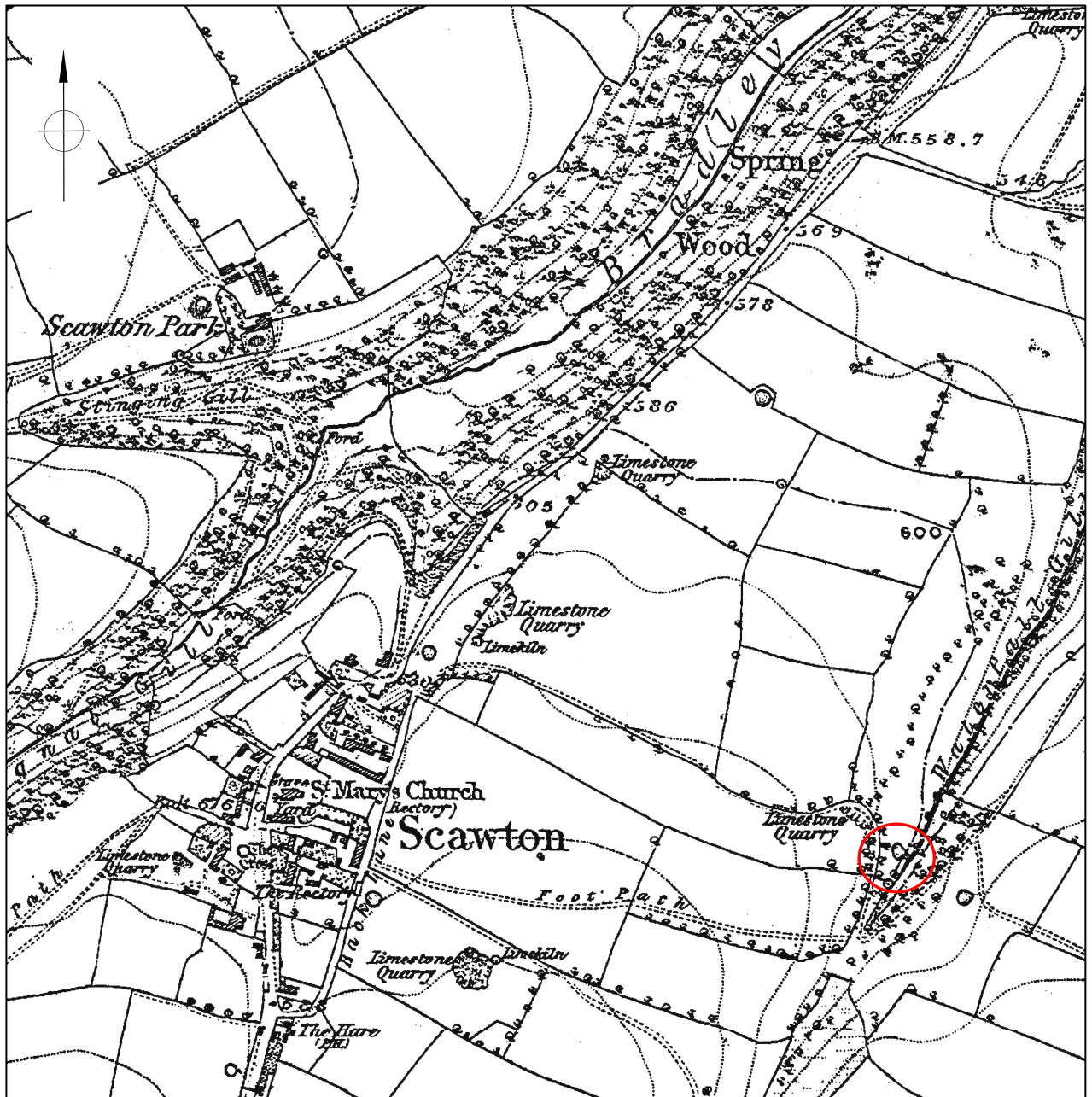
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- 6.2 EDAS would like to thank Mags Waughman, Archaeological Conservation Officer for the North York Moors National Park Authority (NYMNP), for initiating the project, and to her and Mrs Strang for commissioning the work and undertaking negotiations with Natural England. Tony Wright of the HAHS also coordinated the Helmsley Archaeological and Historical Society volunteers, while the NYMNP Conservation Volunteers were gathered together by Bill Ashton-Wickett. Thanks are also due to Tony Wright for his input into the survey report, and to Richard Myerscough of the Yorkshire Vernacular Building Materials Study Group who commented on the underlying local geology and the geological materials uncovered during the excavation. Additional information on other dew ponds was supplied by the NYMNP and Robert White of the Yorkshire Dales National Park Authority.
- 6.3 The archaeological investigations were supervised by Shaun Richardson of EDAS, who also produced the field records and a draft report. Tony Wright also took digital photographs. The final report was produced by Ed Dennison, of EDAS, with whom the responsibility for any errors remains.



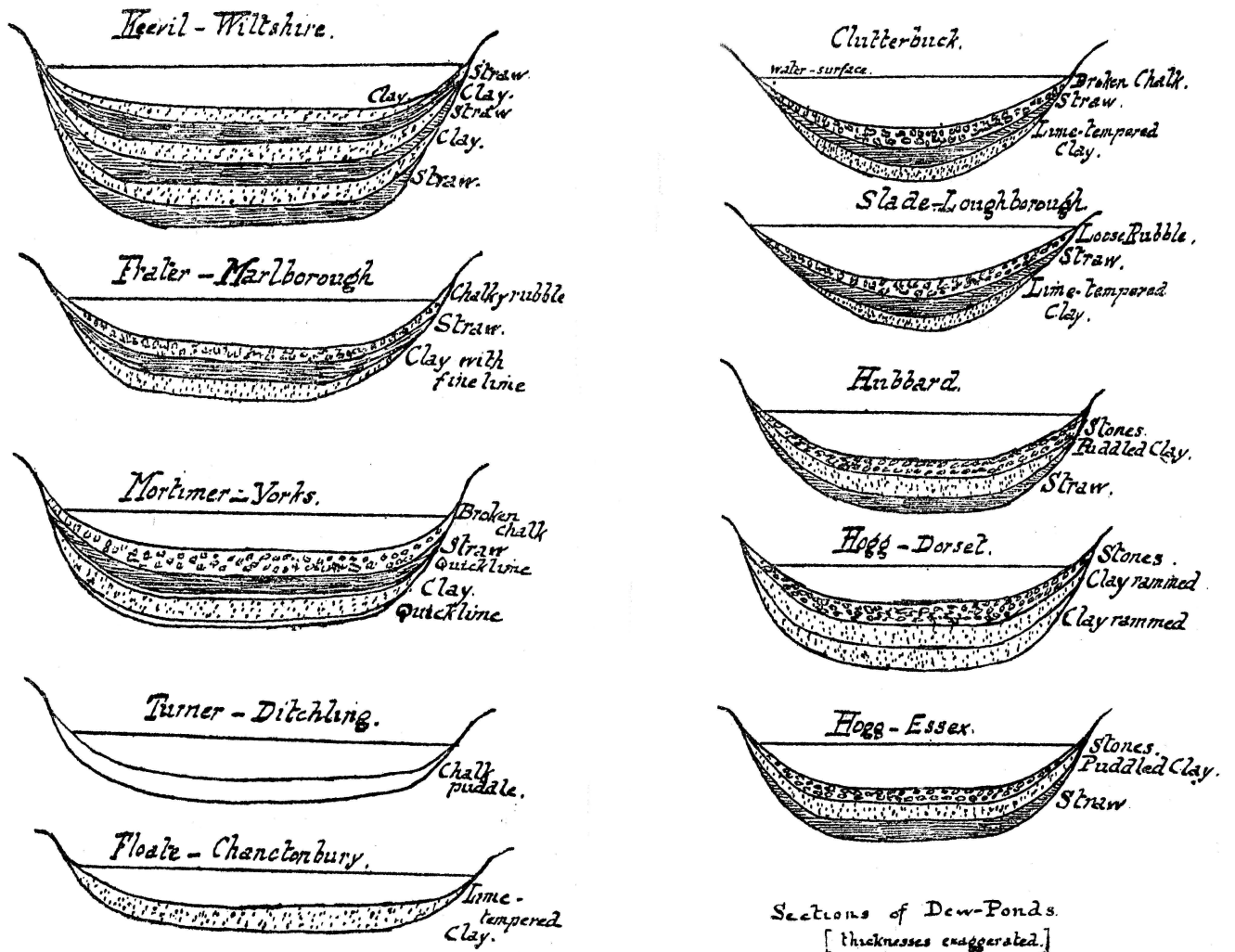
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PROJECT		WATERFALL GILL POND, SCAWTON	
TITLE		GENERAL LOCATION	
SCALE	NTS	DATE	MAY 2009
	EDAS	FIGURE	1



Source: Ordnance Survey 1856 1st edition
6" map sheet 89.

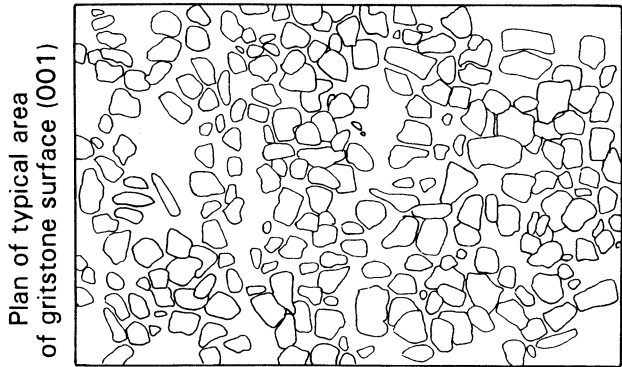
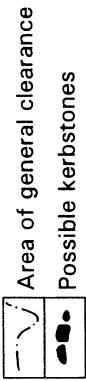
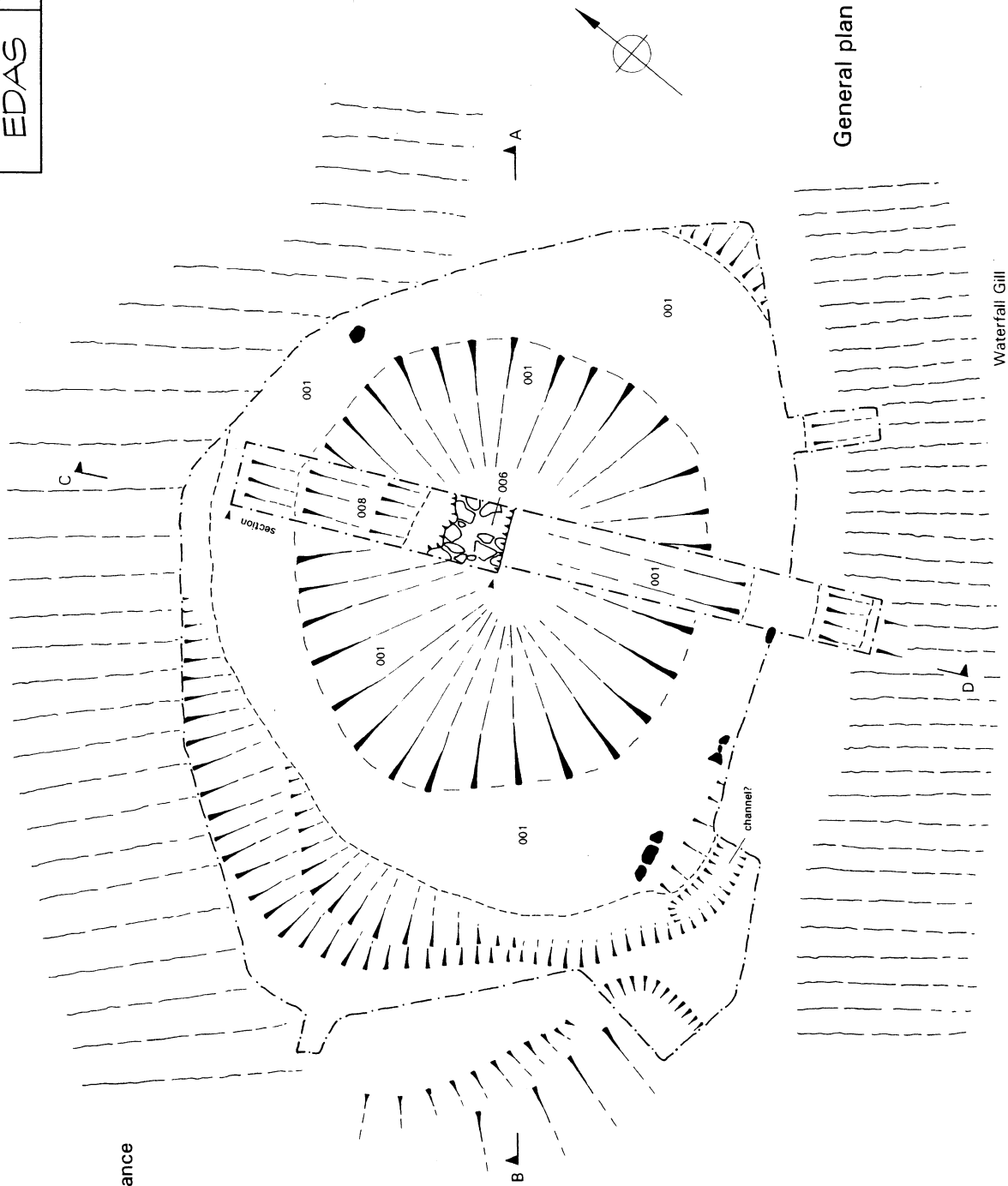
PROJECT		WATERFALL GILL POND, SCAWTON	
TITLE		ORDNANCE SURVEY 1856 MAP	
SCALE	NTS	DATE	MAY 2009
EDAS		FIGURE	2



Source: Martin 1910, 106-107.

PROJECT	
WATERFALL GILL POND, SCAWTON	
TITLE	
SECTIONS THROUGH DEW PONDS	
SCALE	DATE
NTS	MAY 2009
EDAS	FIGURE
	3

PROJECT	WATERFALL GILL POND, SCAWTON		
TITLE	PLANS		
SCALE	AS SHOWN	DATE	MAY 2009
	EDAS	FIGURE	4



General plan

Waterfall Gill

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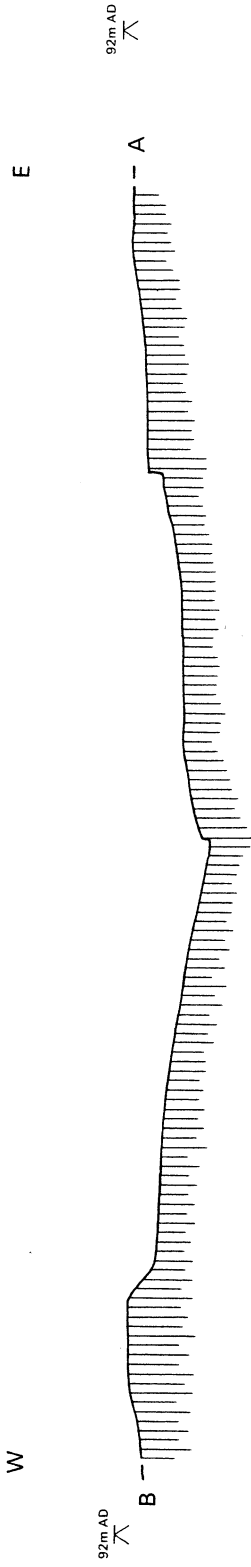
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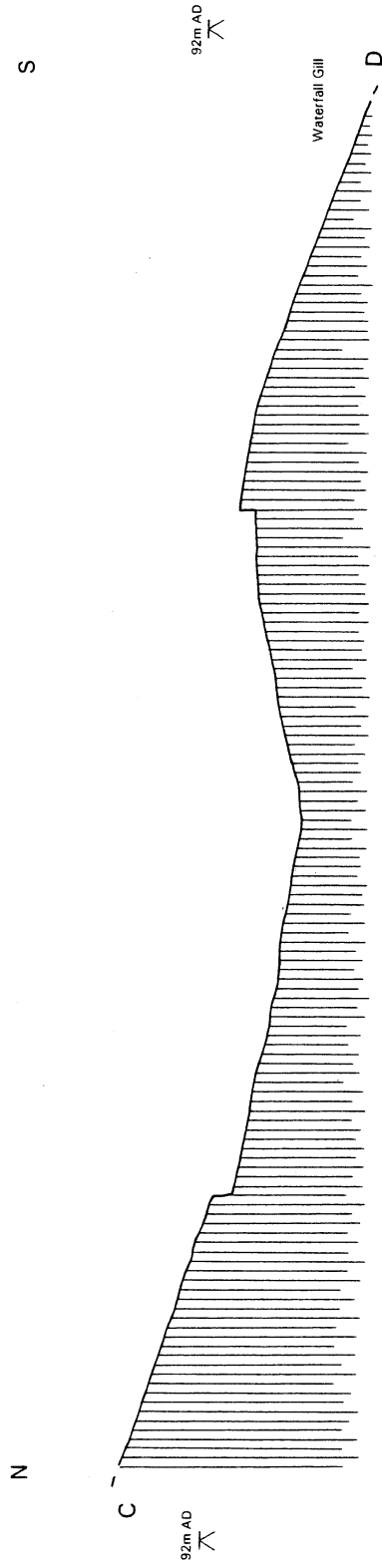
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East-west section



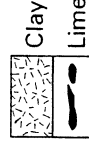
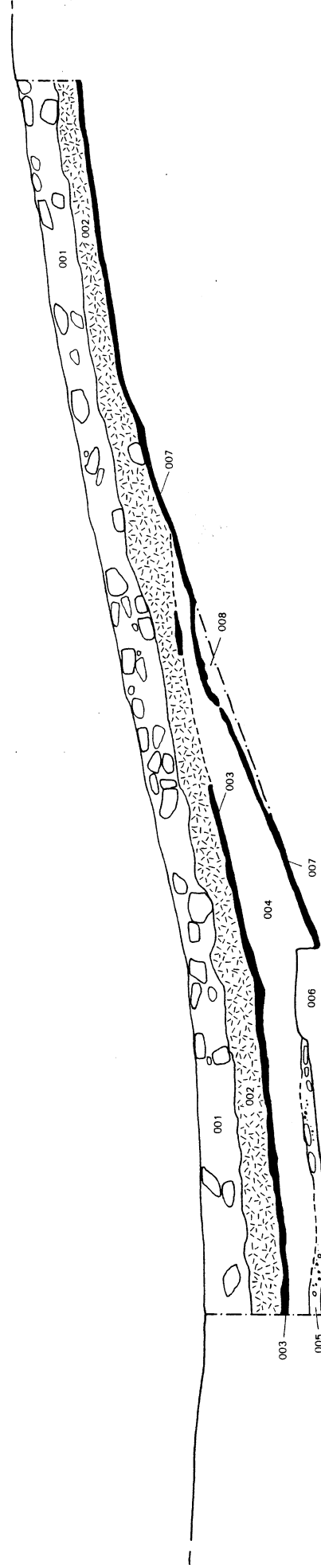
North-south section



PROJECT	WATERFALL GILL POND, SCAWTON		
TITLE	PROFILES		
SCALE	AS SHOWN	DATE	MAY 2009
	EDAS	FIGURE	5

92m AD
K

92m AD
K



South side of trench



PROJECT	WATERFALL GILL POND, SCAWTON		
TITLE	EXCAVATED SECTION		
SCALE	AS SHOWN	DATE	MAY 2009
	EDAS	FIGURE	6



Plate 1: Pond after first phase of archaeological work, looking SW.



Plate 2: Possible kerbstones on south side of pond, looking SW.



Plate 3: Trench after removal of gritstone surface (001), showing clay (002) beneath, looking NW.



Plate 4: Completed trench, showing orange sand (008) overlying oolitic limestone, looking SE.

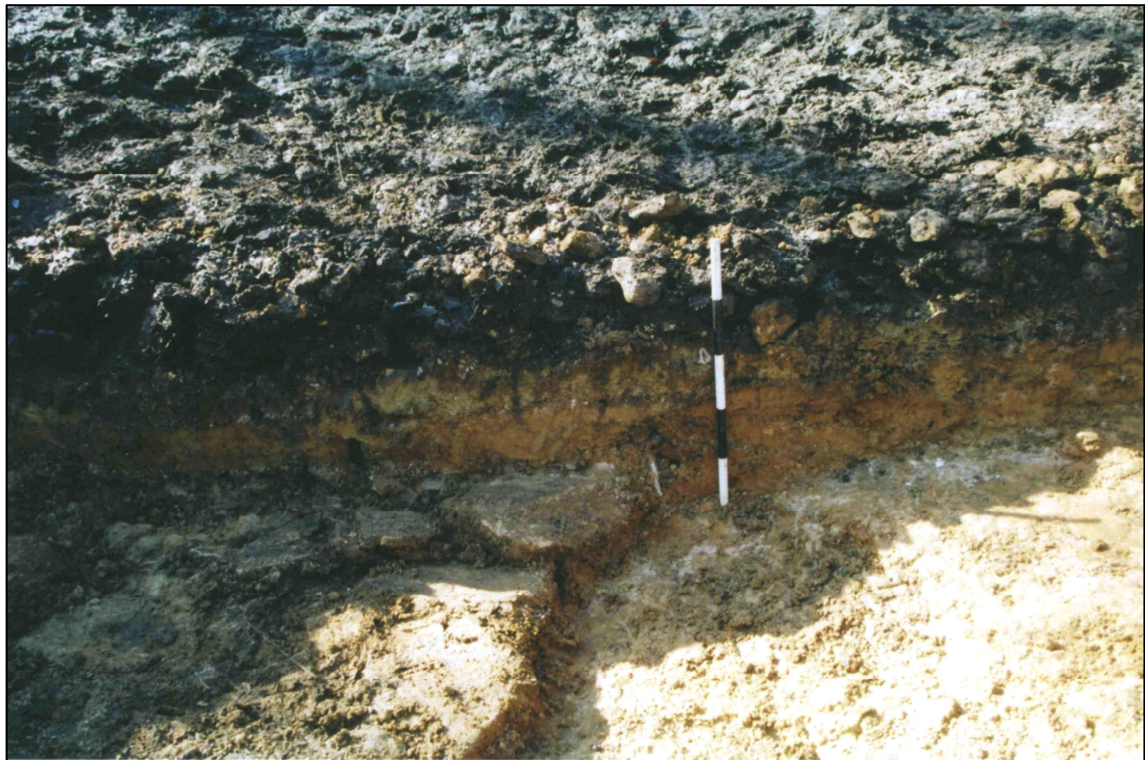


Plate 5: Completed trench, showing limestone rubble (006) and east-facing section, looking W.

APPENDIX 1

APPENDIX 1: LIST OF RECORDED CONTEXTS

Context Description

- | | |
|-----|--|
| 001 | Birdsall calcareous gritstone, light brown/orange colour and very weathered - pond surface, up to 0.15m thick. |
| 002 | Firm/hard clean greyish-green clay, up to 0.13m thick. |
| 003 | Crushed lime mortar, burnt lime, ash and charcoal flecks, up to 0.2m thick. |
| 004 | Compacted red-orange clayey sand, containing very fine gravel, up to 0.22m thick. |
| 005 | Firm limey grey-brown sand with frequent inclusions of oolitic limestone, 0.04m thick. |
| 006 | Thin pieces of light brown sandy limestone rubble, 0.08m thick. |
| 007 | As 003, but with larger pieces of charcoal and coal, up to 0.2m thick. |
| 008 | Hard packed clear orange sand with large inclusions of grey-green sand, on top of natural oolitic limestone. |
| 009 | Compacted black silt soil, up to 0.3m thick. |

APPENDIX 2

**Brief for archaeological recording of 'dew pond' at Waterfall
Gill, Vicarage farm, Scawton**



Prepared for:
Ann and Jeffrie Strang
Midnight Lodge
Scawton
Thirsk
North Yorkshire
YO7 2HG

November 2008

Brief for archaeological recording of 'dew pond' at Waterfall Gill, Vicarage farm, Scawton

Summary

This brief describes the work required to excavate a section through the the historic pond at Waterfall Gill, in order to provide an archaeological record and inform the subsequent pond restoration project.

Background

This pond is one of a number of man-made ponds (often known as 'dew ponds') in the Scawton area of the North York Moors National Park (NYMNP). It lies outside the immediate area of the village on the steep slopes of Waterfall Gill (NGR: SE 55411 83549) and was probably constructed to take water run-off down the slope as its water supply. Located as it is away from farms and in a relatively inaccessible place, it is not clear whether it was intended to provide water for livestock or as a watering hole along the route of a former trackway situated slightly upslope to the west, or possibly for some other purpose. The present structure probably dates from the main period of agricultural improvement in the 18th and 19th centuries, but it could have had earlier origins.

The pond is located in land which is uncultivated and is being managed as semi-open woodland and grassland for its wildlife value, within a Higher Level Stewardship scheme. The owners would like to restore the feature, both in order to provide wildlife benefits and so that it can be developed as an educational resource. The National Park's Archaeological Conservation Officer (ACO) was approached by the owners early in 2008 with an enquiry as to the archaeological value of the historic feature. At that time the pond was almost completely filled-in with soil (and possibly had been deliberately infilled in the past) so that it no longer held water or even had waterlogged deposits.

Purpose of arch recording

Although this type of feature was once common on the well-drained limestone hills on the southern edges of the North York Moors National Park, and appears frequently on early (mid 19th century) editions of the Ordnance Survey maps, most historic ponds have now disappeared from the landscape as visible features. Very little is known about how they were constructed in this area, although a number of examples have been restored in the Peak District National Park and on the Yorkshire Wolds. None have been investigated archaeologically within the NYMNP; a programme of archaeological investigation and recording of a well-preserved example such as this would give us a better understanding of how they were made and enable future management of both this pond and others. Information obtained on the historic construction of the pond will also add to the educational potential of the feature. Restoration of the pond as a landscape feature would help to preserve the historic character of the landscape, as well as provide wildlife and habitat benefits.

Previous work

In spring 2008 a programme of work was initiated by the NYMNP ACO to uncover and record the surface of the pond at Waterfall Gill, in order to provide the start point for future investigation, recording and restoration. A team of NYMNP Conservation Volunteers removed the modern soil infill over several days through the late spring and summer. Final archaeological cleaning and recording of the surface of the pond structure was commissioned by the NYMNP and undertaken by Ed Dennison Archaeological Services in September, using a team of volunteers drawn from both the Conservation Volunteers who had helped with the earlier stages and from the Helmsley Archaeological and Historical Society.

Initial recording work included survey to produce a drawn plan and profiles across the pond. The work established that the original pond was a sub-circular dished depression measuring about 9.5 to 12m across, with a deeper area in the centre about 7m in diameter and 0.7m deep. It had been cut into the base of the natural slope to the west and was partly surrounded to the south and east by a bank composed of upcast material. The exposed lining consisted of compacted small-sized stone rubble and there was a suggestion that there may have been a kerb of larger stones around the perimeter.

Although the uncovered pond surface was exposed to several episodes of heavy rainfall, no water was seen to collect and remain within the pond, which indicated that replacement of the pond lining would be necessary in order to restore the pond as a landscape feature.

Further archaeological investigation

Prior to the relining work further archaeological investigation is required both to complete the archaeological record of the Waterfall Gill pond and in order to inform the restoration project. This should involve the excavation of a narrow trench from the centre of the pond to one edge in order to expose and record a cross-section of the original lining. The trench should be excavated through all layers forming the original lining; details of construction will be used to inform the specification for pond restoration, so that the pond can be relined using traditional methods and materials the same as or similar to the original.

The excavation should be carried out by a professional archaeologist, using a small volunteer team, ideally drawn from volunteers who have already been involved in the project. The excavation should take place as soon as possible so that the results can be supplied to potential pond restoration contractors to use as a basis for estimating materials and costs for the relining.

Health and Safety and Insurance

Contractors are expected to abide by the 1974 Health and Safety at Work Act and its subsequent amendments. Appropriate provision of first aid, telephone and PPE as described in the SCAUM manual *Health & Safety in Field Archaeology 2002* should be followed. The undertaking of a risk assessment prior to the commencement of works is strongly recommended, particularly with regard to the use of volunteers.

It is the contractor's responsibility to ensure that they have adequate public and professional insurance cover.

Methods

All archaeological layers should be hand excavated in an archaeologically controlled and stratigraphic manner in order to enable their nature, sequence and condition to be described. A full record should be made according to the normal principles of stratigraphic excavation. Sections should be drawn at 1:10, and trench location should be planned at 1:50 to tie in with the previously drawn plan of the pond surface. All levels should be tied into Ordnance Datum and the trench accurately located within the National Grid.

An appropriate scale should be present in all photographs. A good quality 35mm camera and lens should be used for all aspects of the photographic work to produce high quality images from which significant enlargements can be made. Digital photography is only acceptable in a limited supporting role due to unproven archiving qualities.

All finds should be collected and recorded. Significant small finds should be three dimensionally located prior to collection. It should be noted that archaeological finds remain the property of the landowner and as such should not be removed from site unless previously arranged by agreement.

Following completion of fieldwork, all finds should be processed to MAP2 standards and subject to specialist identification, spot-dating and assessment. They should be stabilised and properly packaged in accordance with the requirements of the recipient museum. A fully indexed field archive shall be compiled consisting of all primary written documents, drawings and photographs. The archive should be prepared to a minimum standard in accordance with Archaeological Archives (A guide to best practice in creation, compilation, transfer and curation, produced by the Archaeological Archives Forum in 2007) and as defined in MAP2.

Reporting

A report should be produced and presented in an ordered state, printed and bound. The report should include the following:

- a title page giving project name, the name of the archaeological contractor and the site owner
- a site location plan with NGR
- background information on the project
- a description of the methodology employed
- plan showing location of the excavated section
- section drawing showing fabric of pond construction
- description of layers making up pond fabric construction
- a statement indicating where the archive will be deposited.

The report should incorporate the results of the previous topographic survey and recording, and it should interpret the results, placing them in a local and regional context.

Copies of the printed report should be sent separately to the site owner, to the Natural England Historic Environment Adviser
Dr. Margaret Nieke, Historic Environment Adviser, Natural England,
Yorkshire and the Humber Region, Genesis 1, University Road, Heslington,
York, YO10 5ZQ

and to the NYMNPA HER for the attention of
Mags Waughman, Archaeological Conservation Officer, The Old Vicarage,
Bondgate, Helmsley, York YO62 5BP.

A digital version of the report should also be supplied to the HER as a .pdf file, including photos and illustrations.

Please note that by depositing this report, the contractor gives permission for the material presented in the document to be used by the NPA, in perpetuity, although the contractor retains the right to be identified as the author of all project documentation and reports as specified in the Copyright, Designs and Patents Act 1988 (chapter IV, section 79). The permission will allow the NPA to reproduce material, including for non-commercial use by third parties, with the copyright owner suitably acknowledged.

Brief prepared by Mags Waughman, 13/11/2008