

## FIBRE OPTIC CABLE, DUNHAM MASSEY, GREATER MANCHESTER

# Archaeological Watching Brief



**Oxford Archaeology North** 

June 2013

#### **The National Trust**

Issue No: 2013-14/1402 OA North Job No: L10590 NGR: SJ 7335 8750 **Document Title:** 

Fibre Optic Cable, Dunham Massey, Greater Manchester

**Document Type:** 

**Archaeological Watching Brief** 

**Client Name:** 

The National Trust

Issue Number:

2013-14/1402

OA Job Number:

L10590

**National Grid Reference:** 

SJ 7335 8750

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#### **SUMMARY**

The National Trust requested British Telecom to install a new fibre-optic cable running from an existing junction box on Smithy Lane (SJ 73794 87492) to Dunham Hall, on the Dunham Massey Estate, Greater Manchester (SJ 73523 87395). The installation of the fibre-optic cable required the excavation of a narrow trench over a distance of approximately 380m, within the boundaries of the Old Park. In order to secure archaeological interests, the National Trust's Archaeologist recommended that the ground works required for the installation of this cable should be monitored by an archaeological watching brief.

During the watching brief the excavated cable trench was generally devoid of archaeological remains. The only exceptions to this were fragments of late nineteenth-century pottery recovered from the topsoil and subsoil, and a possible eighteenth- or early nineteenth-century brick-built drain. This drain lay adjacent to Smithy Drive, 60m south-west of the Old Park boundary wall. The position of the drain suggest that it may have linked to several eighteenth-century water features known to exist immediately south of Smithy Drive, and/or drained into an early nineteenth-century pond, which formed in this area following the neglect of these water features

#### **ACKNOWLEDGEMENTS**

Oxford Archaeology North would like to thank Jamie Lund, the National Trust Archaeologist, for commissioning and supporting the project on behalf of the National Trust.

The excavation was undertaken by British Telecom's sub-contractor DDK, and the archaeological watching brief was maintained by Lewis Stitt. The report was written by Richard Gregory and Lewis Stitt, and the illustrations were produced by Mark Tidmarsh. The report was edited by Ian Miller, who was also responsible for project management.

#### 1. INTRODUCTION

#### 1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 The National Trust (NT) requested British Telecom (BT) to install a new fibre-optic cable running from an existing junction box on Smithy Lane (SJ 73794 87492) to Dunham Hall, on the Dunham Massey Estate (SJ 73523 87395; Fig 1). This Grade I Listed Building (List Entry No. 1356512) lies in the Borough of Trafford, Greater Manchester, and it is surrounded by the Old Park, a 230 acre deer park, which is a Grade II\* Registered Park and Garden (GD 1849).
- 1.1.2 The installation of the fibre-optic cable required the excavation of a narrow trench over a distance of approximately 380m, within the boundaries of the Old Park. This new fibre-optic cable trench runs close to an existing telecom communications cable trench and traverses an area, which it was suspected might contain buried remains of archaeological interest. In order to secure archaeological interests, the NT's Archaeologist recommended that the ground works required for the installation of the fibre-optic cable should be monitored by an archaeological watching brief. Oxford Archaeology North (OA North) was subsequently commissioned by the NT to complete the watching brief. This work was undertaken between April and May 2013, and entailed archaeological observation during the excavation of the fibre-optic cable trench.

#### 1.2 LOCATION, TOPOGRAPHY AND GEOLOGY

- 1.2.1 The route of the fibre-optic cable trench lies within the area of the Old Park, which falls to the south-east of Dunham Hall (Fig 2). The Old Park was established in the medieval period, as a deer park, and was then extensively replanted in the early eighteenth century by Sir George Booth, second Earl of Warrington, in order to create a formal landscape surrounding Dunham Hall (Woodside 2000a, 2). The fibre-optic cable trench runs from the boundary of the Old Park, south-west for a distance of *c* 288m, along the northern side of Smithy Drive (between SJ 73794 87492 and SJ 735762 873075). The trench then turns through a right angle and runs for a distance of *c* 93m between Smithy Drive and the south-eastern corner of Dunham Hall (SJ 735212 873956).
- 1.2.2 Topographically, the land crossed by the cable trench forms a plateau that slopes down gently towards the River Bollin, which flows to the west of the Old Park. The far north-eastern end of Smithy Drive lies at a height of 26.8m above Ordnance Datum (aOD), whilst closer to Dunham Hall the land has a height of c 20m aOD.
- 1.2.3 Geologically, the area is composed of Helsby Sandstone, dating to the Triassic period (250-200 million years ago), which is overlain by more recent Glaciofluvial sands and gravels laid down during the Devensian period (70,000-10,000 BP; BGS 1993).

#### 1.3 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

- 1.3.1 *Prehistoric period:* some evidence for prehistoric activity has been recovered from the Old Park. The earlier of this evidence dates to the Neolithic period (4000-2300 cal BC) and comprises a single leaf-shaped arrow head (NT SMR No. 50,836), which was discovered by chance some 500m south-east of Smithy Drive (Woodside 2000a, 77).
- 1.3.2 The remaining evidence for prehistoric activity within the Old Park dates to the Bronze Age (2300-800 cal BC) and comprises several cinerary urns (NT SMR No. 50,834) that appear to have contained cremated human remains (cf Gregory and Wright 2008, 5). These urns were recovered from the area of the Old Park to the north of the hall by workmen who were either digging an ornamental canal, or planting trees along an avenue as part of Sir George Booth's early eighteenth-century scheme of landscaping (ibid). It is therefore possible that the urns were originally associated with a barrow cemetery that was subsequently levelled in the early eighteenth-century.
- 1.3.3 More generally, it appears that the wider area of the Dunham Massey Estate contained a fairly sizeable Bronze Age community. For instance, a Bronze Age barrow has been excavated at Fairy Brow, Little Bollington (NT SMR No. 50,983; Woodside 2000b, 157), whilst a potential Bronze Age barrow cemetery (NT SMR No. 50,858) has been detected by aerial photography at Home Farm, immediately south-east of the Old Park (*op cit*, 24).
- 1.3.4 *Medieval period:* it is known from documentary evidence that during the medieval period, initially, Dunham formed the core of a large Anglo-Saxon estate, which in the eleventh century was held by Alweard (*op cit*, 29). Following the Norman Conquest, the estate then passed into the hands of the de Masci family who held the Barony of Dunham Massey until *c* 1342. The barony then passed through various hands before coming into the possession of the Booth family in *c* 1433 (Woodside 2000a, 15).
- 1.3.5 For much of this period, the de Masci's main residence was a motte-and-bailey castle, and it is possible that this lay close to the north-western corner of the present-day hall (*cf* Gregory and Wright 2008, 5). In this area a low circular mound is visible which may represent the degraded remains of a Norman motte, though it is also possible that it represents a seventeenth-century prospect mound (*ibid*).
- 1.3.6 Documentary evidence indicates that by at least the early fifteenth century the motte-and-bailey castle had been replaced by a medieval hall, as the main seat of residence, for the de Masci family, or their immediate successors. Although the precise location of this hall is not known, this was probably sited in the area now occupied by the present-day Dunham Hall and was surrounded by a moat (Woodside 2000a, 17-18).

- 1.3.7 The origins of the Old Park also date to the medieval period, when it formed a deer park surrounding the medieval hall (*op cit*, 24). The earliest documentary references to the park date to the late fourteenth century and it appears to have been enclosed by a ditch and palisade, the remains of which have been uncovered during archaeological excavation to the north of the hall (*ibid*; Thompson and Arrowsmith 2009, 30). The discovery of these remains indicate that the medieval park was smaller in size than the present-day Old Park, whose limits were probably established in the late seventeenth century by Sir Henry Booth (1651-94) (Gregory and Wright 2008, 6). However, the extent of the medieval deer park is not presently clear as its boundary to the south of the hall has yet to be established. Based on early mapping, specifically Saxton's 1577 map of Cheshire, it is possible, however, that the southern boundary of the medieval deer park lay to the south of Smithy Drive and the route of the fibre-optic cable trench.
- 1.3.8 Significantly, outside of the hall, apart from the boundary of the deer park, other remains dating to the medieval period have been uncovered by archaeological excavation. These include several gullies, which lay within the deer park to the north of the hall, one of which was associated with medieval pottery (*op cit*, 26). The discovery of these gullies may suggest that comparable features might also be present within the medieval deer park, to the south of the hall.
- 1.3.9 *Early post-medieval period*: in the sixteenth and early to mid-seventeenth centuries Dunham Massey remained in the hands of the Booth family, who also rebuilt Dunham Massey Hall in *c* 1616 (Woodside 2000a, 18).
- 1.3.10 During this period, the area to the south of the hall, including the area traversed by the fibre-optic cable trench, continued to lie within the deer park. However, the only definitive structure that dates to this period is the extant Watermill (NT SMR No. No 50,807), located at the far south-western end of Smithy Drive. This, in a similar fashion to the seventeenth-century hall, was probably constructed around 1616 by 'Old' Sir George Booth (1566-1652) (*op cit*, 26).
- 1.3.11 *Late seventeenth to mid-eighteenth century*: during this period the Booth family made a series of profound changes to both Dunham Hall and the Old Park. Initially, in the late seventeenth century this included the enlargement of the Old Park by Sir Henry Booth (1651-94), first Earl of Warrington, along with the planting of trees along the major north/south-aligned carriageways to the north and south of the hall (*op cit*, 25).
- 1.3.12 Fortunately, the form of the late seventeenth hall and park can be partially discerned from two late seventeenth-century illustrations. The earlier of these dates to 1696 and is a painting by Adriaen Van Diest, which shows the hall from the south-east (Plate 1). The other illustration dates to 1697 and is an engraving made by Kip and Knyff in order to show the hall and grounds from the south-west (Plate 2).



Plate 1: Dunham Massey from the south-east, 1696, by Adriaen Van Diest

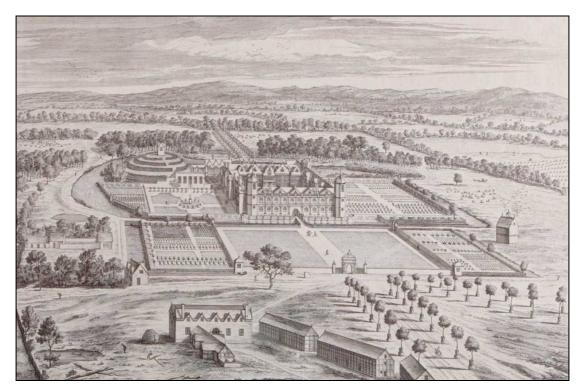


Plate 2: Kip and Knyff's 1697 engraving of Dunham Massey from the south-west

- 1.3.13 In terms of the area crossed by, and in the immediate vicinity of, the fibre-optic cable trench both illustrations depict Smithy Drive, indicating that this carriageway had been established by at least the late seventeenth century, and that a water-filled ditch ran parallel with its northern side. The illustrations also indicate that the area traversed by the fibre-optic cable trench, between Smithy Drive and the south-eastern corner of the hall, fell within a lawned area, enclosed by a brick wall, which lay immediately east of the hall's main driveway.
- 1.3.14 Following the death of Sir Henry Booth in 1694 the Dunham Massey Estate passed into the hands of his son, Sir George Booth, second Earl of Warrington. Sir George Booth immediately commenced upon a major campaign of building and landscaping. This entailed the probable demolition of the seventeenth-century hall and the construction of a 'new' hall, during the early part of the eighteenth century (*op cit*, 19-20). In addition various ancillary buildings were also constructed within the Old Park, during this period, and an extensive scheme of landscaping and replanting was undertaken in order to create an imposing planned landscape, with the hall at its centre (*op cit*, 26-8).
- 1.3.15 Following the completion of this work, Sir George Booth then commissioned the artist John Harris to paint four birds-eye views showing the hall and Old Park, which were completed around 1751. Although the paintings show some slight discrepancies, they appear to present fairly accurate views of the park and it is presumed that Harris must have made a plan, or was working from a pre-existing map, of the park, which has unfortunately not survived (*op cit*, 7).
- 1.3.16 The paintings indicate that the main hall was similar in form to its seventeenth-century predecessor and that the formal landscape to its south was based on a *patte d'oie* (goose-foot) design. This consisted of a semicircular arrangement of trees, close to the hall, which acted as the hub for six radiating avenues.
- 1.3.17 With regard to the areas crossed by, and in the immediate vicinity of, the fibre-optic cable trench, Harris's view to the south is particularly informative (Plate 3). This indicates that in the mid-eighteenth century Smithy Drive was a tree-lined carriageway, which had several ponds and canals positioned along its southern side (NT SMR No. 50,839). In addition, this view depicts a small building on the northern side of this carriageway, which lay at the end of a tree-lined avenue, running perpendicular to this route. This painting also indicates that a block of trees had been planted in the late seventeenth-century lawned area that lay immediately south of hall.



Plate 3: An extract from Harris's 1751 view to the south, showing Smithy Drive and the areas crossed by the fibre-optic cable trench

- 1.3.18 *Mid-eighteenth-early twentieth century*: following the death of Sir George Booth in 1758 the Dunham Massey Estate passed into the hands of his daughter Mary, who was married to the Earl of Stamford. With her death in 1772 the estate then passed to her son Harry Grey, the fifth Earl of Stamford (1739-1819). Harry Grey appears to have initially divided his time between Dunham Massey and his other country residence at Enville Hall, in Staffordshire (op cit, 15). This pattern of shifting occupancy persisted until 1853, when the seventh Earl of Stamford, George Harry Grey (1827-83) left Dunham Massey and took up permanent residence in Enville Hall (ibid). His son and heir, another George Harry Grey (1812-90), eighth Earl of Stamford failed to claim his seat and during the later nineteenth century the Earl's trustees therefore ran the estate. During this period the hall and grounds were largely neglected. However, in 1905, this period of neglect ended when William Grey (1850-1910), the ninth Earl of Stamford, returned to Dunham Massey and began to restore Dunham hall, which was partially rebuilt, and also parts of the Old Park (*ibid*).
- 1.3.19 Significantly, during this period a series of maps were produced which depict the area crossed by the fibre-optic cable trench (Figs 3-6). These all plot the position of Smithy Drive, though they indicate that by 1839 this route no longer formed a tree-lined avenue. This mapping also indicates that the early eighteenth-century building lying immediately north of Smithy Drive had been demolished by 1839 (Fig 3), and that the ponds and canals to its south were neglected and gradually infilled. By the time of publication of the 1911 Ordnance Survey map (Fig 6) these features merely formed a small fish pond, which is still an extant feature within the Old Park.

#### 2. METHODOLOGY

#### 2.1 WATCHING BRIEF

2.1.1 The ground works associated with the laying of the fibre-optic cable entailed the excavation of a 0.2m-wide trench, excavated to a maximum depth of 0.35m. The programme of field observation recorded the location, extent, and character of all surviving features and deposits of archaeological interest contained within this trench. This was in accordance with the Project Brief (*Appendix 1*) and also the IfA Standards and Guidance for archaeological excavations (IfA 2008a).

#### 2.2 FINDS

2.2.1 The recovery of finds and sampling programmes were carried out in accordance with best practice, following current IfA guidelines (IfA 2008a), and subject to expert advice, in order to minimise deterioration.

#### 2.3 ARCHIVE

2.3.1 A full professional archive has been compiled in accordance with the current IfA (IfA 2008b) and English Heritage guidelines (English Heritage 1991). The project archive represents the collation and indexing of all the data and material gathered during the course of the project.

#### 3. RESULTS

#### 3.1 WATCHING BRIEF

- 3.1.1 Along the complete length of the fibre-optic cable trench the stratigraphic sequence was essentially similar consisting of an upper, 0.2m-deep, topsoil deposit (100), which contained late nineteenth-century pottery (Plates 4 and 5). Beneath the topsoil a subsoil deposit (101) was encountered, which consisted of mid-brown sandy silt. This deposit extended below the depth of the trench and it contained late nineteenth-century pottery.
- 3.1.2 The only exception to this sequence was observed close to the south-eastern corner of the hall, where the trench crossed a c 4m-wide modern gravel pathway (Fig 2; Plate 6). In this area the pathway (104) was found to seal a modern bedding deposit (105) composed of loose silty sand, crushed brick and small stones (Plate 5).
- 3.1.3 Aside from the modern pathway and bedding deposit, the only archaeological feature encountered was a brick-built drain (*103*; Plate 7). This drain was located within that section of the cable trench running parallel with Smithy Drive, some 60m south-west of the Old Park boundary wall (Figs 3-6). It was aligned north-east/south-west and was discovered at depth of 0.38m from the present ground surface. The drain was constructed from handmade bricks, measuring 230 x 90 x 90mm, which were bonded with a light-grey lime mortar. However, this feature was not fully excavated as it lay at the base of the excavated cable trench.



Plate 4: Part of the north-east/south-west-aligned section of the trench, running parallel with Smithy Drive, showing excavated topsoil and subsoil deposits



Plate 5: Part of the north-west/south-east-aligned trench, running between Smithy Drive and Dunham Hall, showing excavated topsoil deposits



Plate 6: The modern pathway and its bedding deposit, close to Dunham Hall



Plate 6: The brick-built drain

#### 3.2 FINDS

- 3.2.1 A small assemblage of artefacts, comprising 11 fragments of pottery and a single fragment of wall tile, was recovered from the watching brief; five fragments of pottery were recovered from topsoil 100, the remainder of the assemblage deriving from subsoil 101. In general, the fragments were in good condition, in an unabraded state, with several large, diagnostic sherds.
- 3.2.2 The pottery comprised kitchenware, tableware and gardenware vessels, with a limited range of fabric types represented. The assemblage was dominated by dark-glazed earthenwares, which probably represented storage vessels and other kitchenware forms. Two large fragments of unglazed vessels from subsoil *101* are likely to have been plant pots. Subsoil *101* also yielded two fragments of light-brown stoneware vessels, possibly deriving from Nottinghamshire. Tablewares were limited to a single fragment of a white-glazed earthenware cup.
- 3.2.3 In summary, a late nineteenth-century date may be ascribed to the assemblage as a whole. It is little archaeological interest, and it is recommended that the material is discarded.

#### 4. CONCLUSION

- 4.1 During the course of the watching brief the only pre-twentieth-century remains identified included the fragments of late nineteenth-century pottery, contained within the topsoil and subsoil, and the brick-built drain.
- 4.2 With regard to the drain, the bricks used in its construction suggest that it dates to the eighteenth or early part of the nineteenth century, and it probably formed one of a series of similar drains that were installed across the Old Park during this period. Furthermore, its alignment might suggest that it was used to drain water into the eighteenth-century water features, which lay to the south of Smithy Drive, or to the large pond, which formed following the neglect of these features, whose position is plotted on the 1839 tithe map (Fig 3).

#### **BIBLIOGRAPHY**

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Tithe map of the township of Dunham Massey in the parish of Bowdon, 1839

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#### APPENDIX 1: PROJECT BRIEF

Invitation to tender: Archaeological watching brief on trenching through the Old Park, Dunham Massey, Cheshire.

#### Introduction

The National Trust would like to invite Oxford Archaeology North to produce a Written Scheme of Investigation and costing for an archaeological watching brief on a project to install a new fibre optic cable through the Old Park at Dunham Massey, Cheshire.

As part of the Trust's program of planned business and communication improvement work the National Trust have requested BT to install a new fibre optic cable from the junction box outside the property, through the Old Park, to the house.

This process will require a trench 150mm to be excavated by a mini-digger to accommodate an armoured cable. The cable trench is likely to be backfilled every 6m, although this is obviously subject to change on-site. The total length of the cable trench is close to 400m. The cable will be laid close to the existing BT communications cable trench, however, the new armoured cable will be in a separate trench running through previous undisturbed ground.

As part of this scheme of works the existing junction box (see JB23 on attached plan) with a new junction box (see JUF2 on plan). The size of the new junction box is likely to be in the region of 253mm X 725mm.

The cable will need to pass through the deer park wall that surrounds the Old Park and Dunham Massey, as well as through the fabric of the house at Dunham Massey in order to reach the network hub. Both of these structures are listed buildings.

The history and archaeological character of Dunham Massey is well understood, largely as a result of detailed desk based studies and intermittent archaeological investigation. Using the information, a preliminary desk based impact assessment of the proposed route has indicated that no known archaeological sites of features will be impacted upon by the works, other than the impact to the listed buildings previously mentioned.

However, some recent works in the Old Park have encountered archaeology; some of it not evidence from desk based analysis. On this basis would like Oxford Archaeology North to develop a simple Written Scheme of Investigation and costing that responds to this brief and the outline specification of work provided by BT (see separate specification).

#### **Archaeological Background**

Dunham Massey is an important National Trust property lying on the outskirts of Greater Manchester. The estate covers 3135 acres of prime agricultural land and includes 17 working farms and 111 cottages. At the heart of the estate lies Dunham Hall, surrounded by its garden and a 230 acre deer park known as the Old Park, laid out in the early eighteenth century. The North Park forms part of a Grade II\* Registered Park & Garden (GD 1849). To the north-east lies the New Park, planted in the 1770s, but with perhaps far earlier origins, which is currently being used as a golf course. Following the death of the 10th and last Earl of Stamford in 1976, the National Trust has been actively conserving historic elements of the house, gardens and deer park, which are today enjoyed by an estimated quarter of a million people annually.

Dunham Massey is typical in many ways of rural Cheshire estates and the subtle nature of its historic environment is no exception. The development of the Dunham Massey landscape is expressed by both components and comprises evidence representative of both ancient and more recent agricultural practices, which, together with the historical landscaping of the parks, woodlands and gardens carried out over the last three hundred years draw a picture of an estate of considerable historic interest.

There is no evidence to suggest that the operations in the Old Park will disturb any known archaeological sites or features. However, the archaeological potential of the Old Park has been demonstrated by recent projects, including the creation of the existing car park. As such it is felt that an archaeological watching brief would be an appropriate form of mitigation.

#### Outline of work required

The proposed archaeological watching brief should observe the initial excavation of the cable trench in order to identify and record any features or finds of archaeological interest that come to light.

The main aims of the watching brief are as follows:

- To attend and supervise the ground works associated with the excavation of the new trench for the new fibre optic cable.
- The contractors undertaking the ground works will be instructed by the client to stop work if requested by the archaeological contractor to allow for recording on exposed features as necessary. If significant archaeological features are found the archaeological contractor should contact the National Trust Archaeologist or Lead Ranger who will consider the issues and provide further instruction.
- The ground works contractor will be instructed to provide sufficient time for the archaeologist to clean and record features and finds of archaeological interest. However, the archaeologist should not delay the works without good cause. Close liaison between the archaeological contractor and site foreman will be essential.

- The archaeological recording methodology will follow the standard guidelines set down by the *Institute of Field Archaeologists*. The record to consist of a <u>minimum</u> of a brief written statement with drawn and digital photographic record of any archaeological features or finds that are encountered along with working shots of the ground works.
- The archaeological contractors are to comply with the requirements of Health and Safety legislation.

#### **Project Outputs**

A report will be produced that describes the results of fieldwork and contains the following:

- Non-technical summary.
- Brief historical and archaeological background.
- Reasons for the watching brief.
- Methodology.
- Results, illustrated as appropriate by drawings and quality digital photographs. To also include general working shots.
- An annotated digital survey plot showing the extent of the excavations and location of any archaeology encountered (a digital version of the maps and plans attached will be provided on request).
- Discussion of significance of results.
- List of archives consulted.

An ordered and fully catalogued archive will be produced to be deposited with the National Trust. At the conclusion of the investigations, the contractor will provide the products described below to the National Trust Archaeologist in the following fashion:

- Five bound paper copies of the report.
- An additional bound copy of the report to be sent to the County Archaeologist/HER.

 Two digital copies of the report complete with all plans and images fixed in the body of the report in both Adobe PDF and Word formats.

Should no significant archaeology be encountered a brief written report will still be produced.

#### **Other Considerations**

The contractor should inform Annaleigh Kennard (National Trust Property Administrator) of their arrival at Dunham Massey and follow what ever booking in arrangements are required at the property. Reception will be able to ensure that the person in charge of car park project will be informed so that they can liaise with the contractor if necessary.

The working area is within an area accessible by the public and due regard must be given to the health and safety and general comfort of visitors.

Responsibility for the hire of plant and safety fencing will be the responsibility of the ground works contractor.

The National Trust will provide welfare facilities (toilet and hand washing facilities, a room to site and eat lunch) for the archaeological contractor.

The National Trust archaeologist will monitor the implementation of the watching brief.

#### General terms

The archaeological contractor must prepare a Written Scheme of Investigation and costing which should be forwarded to the National Trust Archaeologist prior to the start of work.

The National Trust will retain copyright over the resulting report and all associated archival material (including all digital maps and photographic material), and shall have absolute control over the use and dissemination of that information. The National Trust fully recognises the originator's moral right to suitable accreditation in any publication of the results.

The project will be undertaken by the contractor acting on an independent basis. Staff working on the project will not be deemed employees of the National Trust. Tenders should reflect this fact and more specifically the Contractor will take sole responsibility for the payment of tax, National Insurance contributions, etc. If VAT is payable, this too should be indicated in the bid.

#### **Timescale**

The ground work contractor has indicated that they would like to begin ground work in March 2013. As with all projects, it is possible that the start date may move forward or back at short notice, it will be the job of the National Trust Archaeologist to ensure the contractor is kept up to date with changes to the timetable.

The final report and project archive should be handed over within two months of the end of the project. The National Trust Archaeologist should be given an opportunity to comment on the report at the final draft stage.

The archaeological contractor should indicate to the National Trust archaeologist if they are able to undertake the work as soon as possible to provide time for alternative arrangements to be made.

### APPENDIX 2: SUMMARY CONTEXT LIST

#### **Context List**

Context No.	Description	Inits	Date
100	Topsoil	LWS	29/04/13
101	Subsoil	LWS	29/04/13
102	Cut for new ducting	LWS	29/04/13
103	Brick Drain	LWS	30/04/13
104	Path	LWS	03/05/13
105	Levelling layer below path (104)	LWS	03/05/13

## **ILLUSTRATIONS**

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Figure 2:	Plan showing the route of the fibre optic cable trench
Figure 3:	Route of the fibre optic cable trench superimposed on the Township of Dunham Massey Tithe map of 1839
Figure 4:	Route of the fibre optic cable trench superimposed upon the Ordnance Survey Second Edition 6":1 mile map of 1899
Figure 5:	Route of the fibre optic cable trench superimposed upon the Ordnance Survey First Edition 25": 1 mile map of 1909
Figure 6:	Route of the fibre optic cable trench superimposed upon the Ordnance Survey Third Edition 25": 1 mile map of 1909

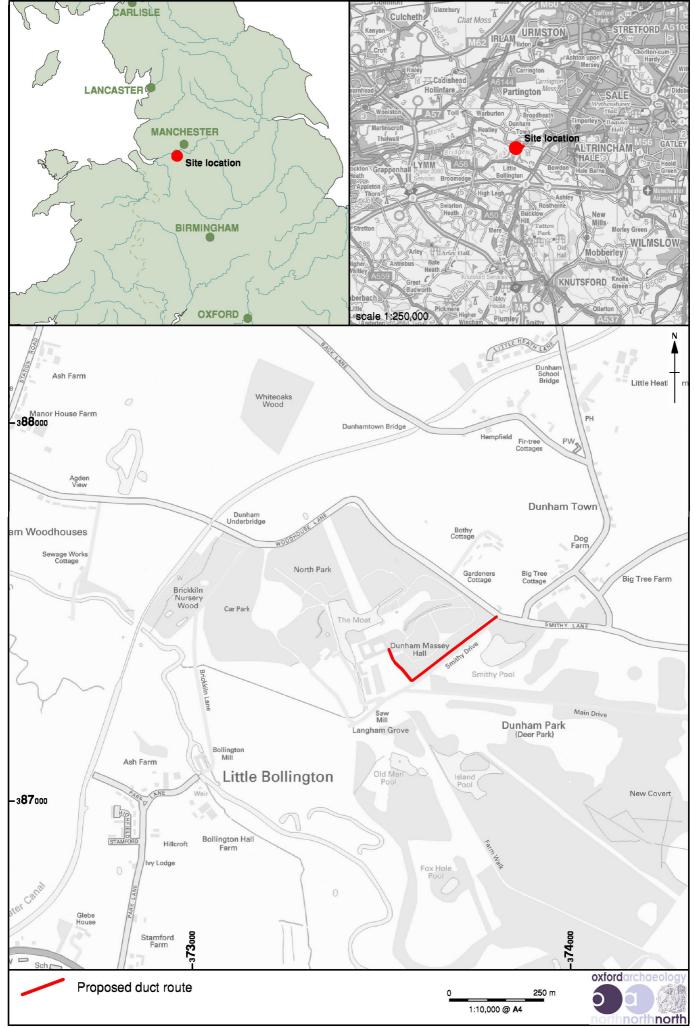


Figure 1: Site location

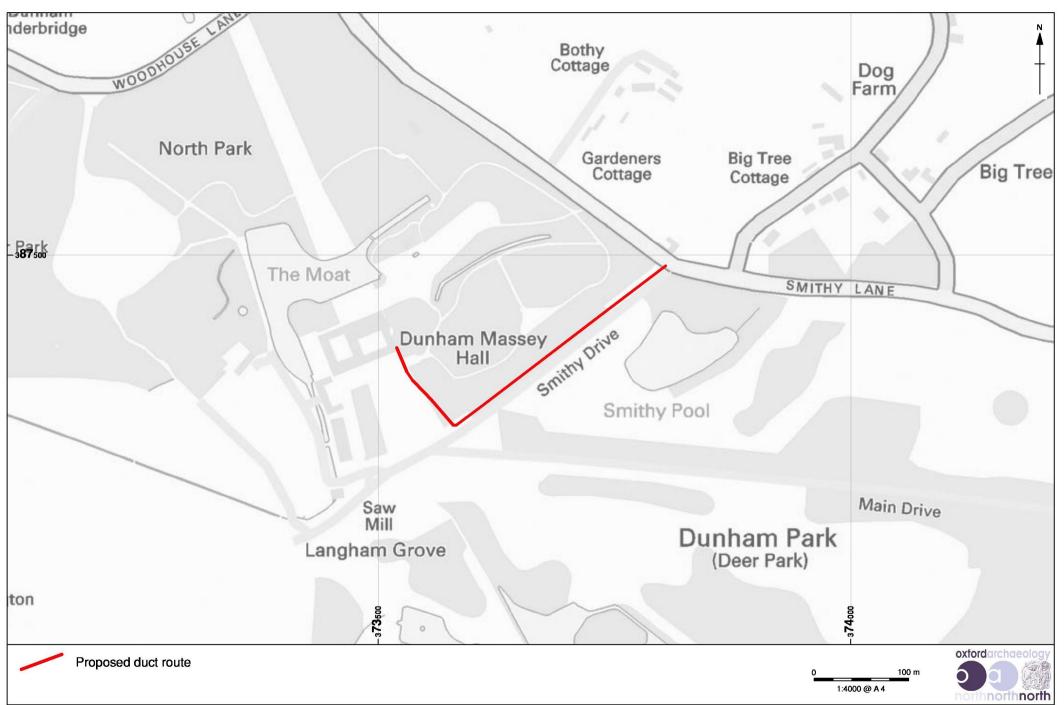


Figure 2: Plan showing the route of the optic fibre cable trench



Figure 3: Route of the fibre optic cable trench superimposed on the Township of Dunham Massey Tithe map of 1839

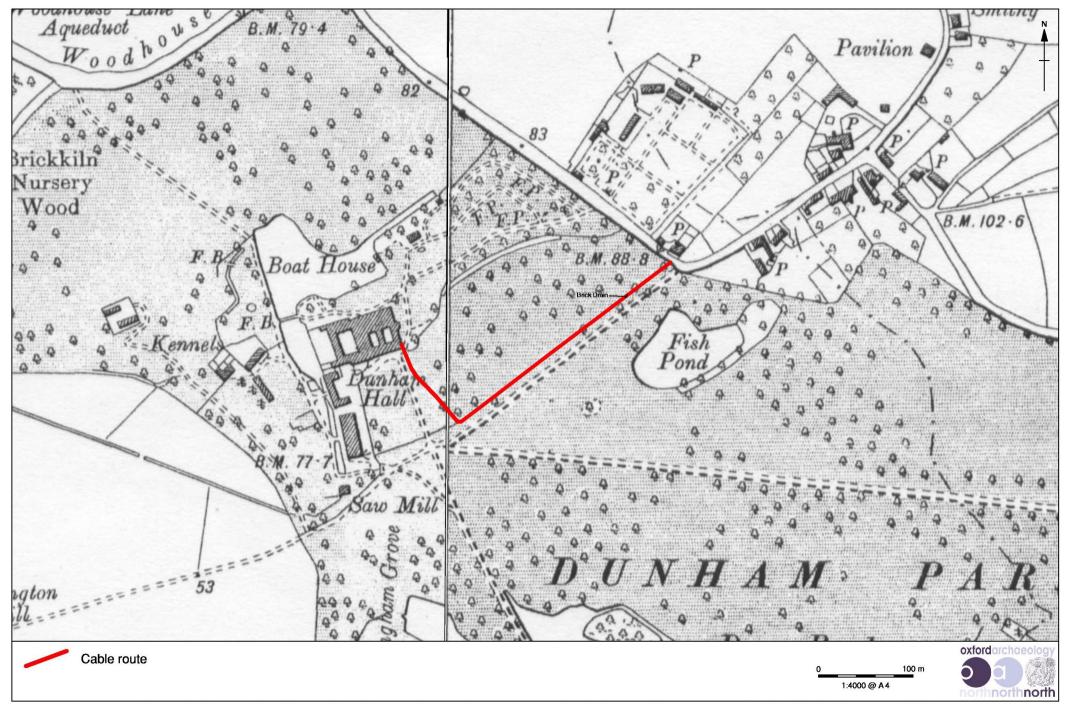


Figure 4: Route of the fibre optic cable trench superimposed upon the Ordnance Survey second edition 6":1 mile map of 1899

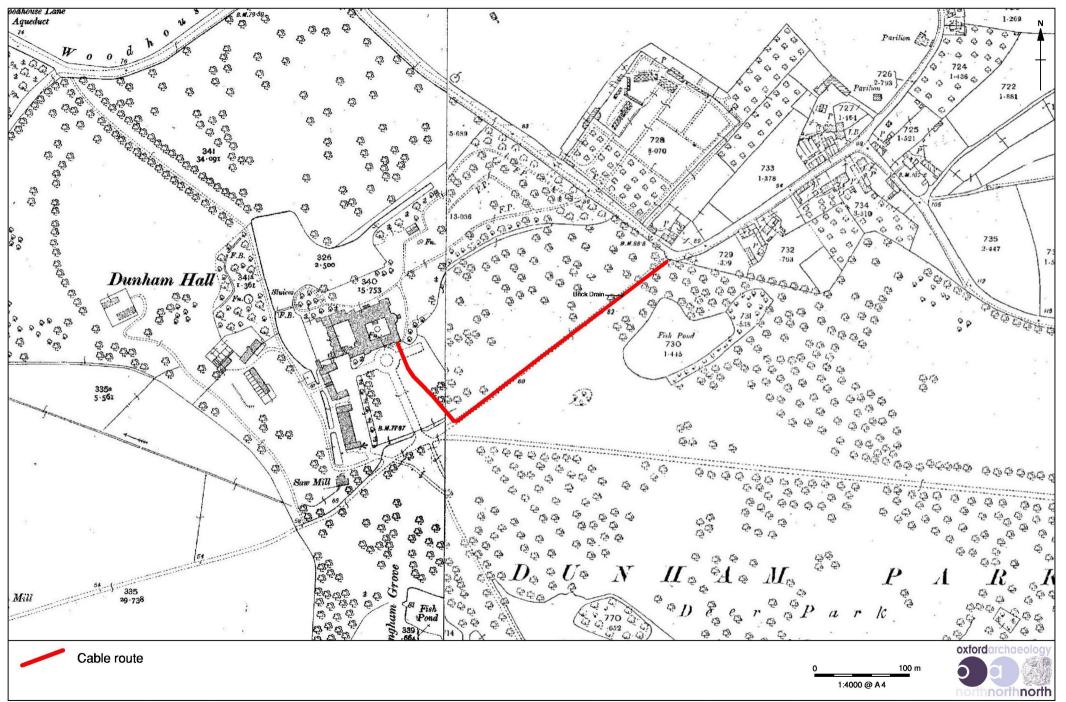


Figure 5: Route of the fibre optic cable trench superimposed upon the Ordnance Survey first edition 25":1 mile map of 1909

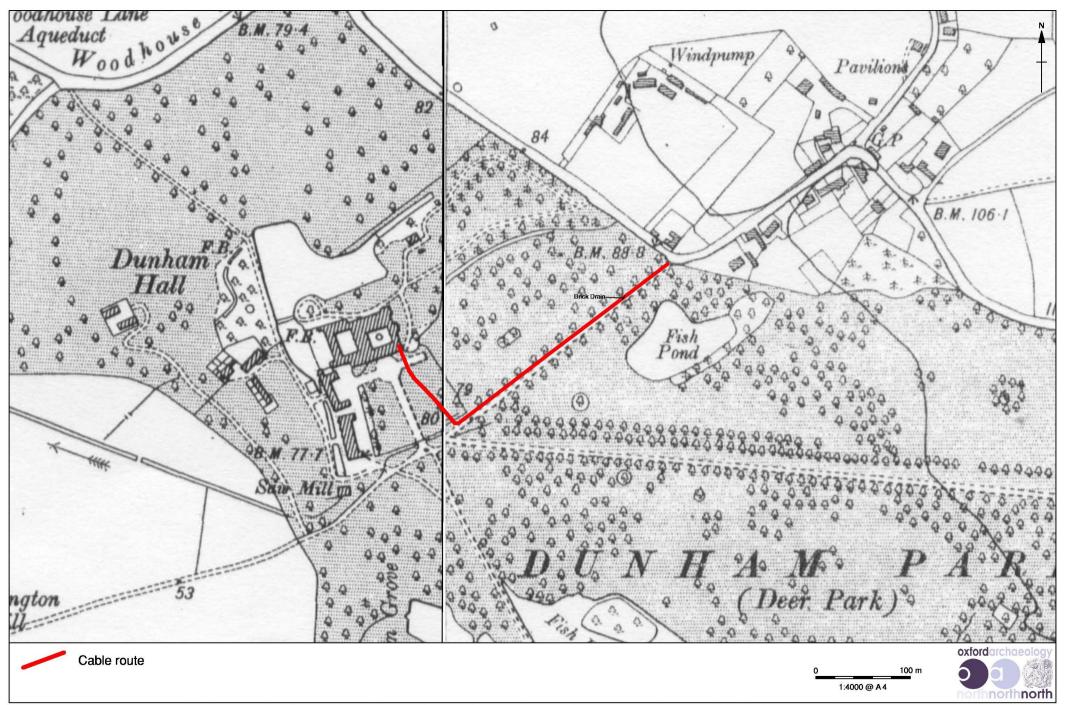


Figure 6: Route of the fibre optic cable trench superimposed upon the Ordnance Survey Third Edition 6":1 mile map of 1911