NISSAN TECHNICAL CENTRE
CRANFIELD
BEDFORDSHIRE

ARCHAEOLOGICAL OBSERVATION, INVESTIGATION, RECORDING, ANALYSIS AND PUBLICATION

Albion archaeology

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Preface

Every effort has been made in the preparation of this document to provide as complete an assessment as possible, within the terms of the specification. All statements and opinions in this document are offered in good faith. Albion Archaeology cannot accept responsibility for errors of fact or opinion resulting from data supplied by a third party, or for any loss or other consequence arising from decisions or actions made upon the basis of facts or opinions expressed in this document.

The project was monitored on behalf of the Local Planning Authority by Martin Oake, Archaeological Officer of Central Bedfordshire Council.

The fieldwork was undertaken by Christiane Meckseper (Project Officer) and Wiebke Starke (Assistant Supervisor). This report has been prepared by Christiane Meckseper with figures by Joan Lightning (CAD Technician). All Albion projects are under the overall management of Drew Shotliff (Operations Manager).

The assistance and co-operation of David Edwards of Nissan Technical Centre Europe Ltd and Michael Kelly of Kelly Construction throughout the project are gratefully acknowledged.

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1.0	*29th July 2011*	*n/a*
1.1	*13th September 2011*	*To include comments by CBCA and add photographs*

Key Terms

Throughout this document the following terms or abbreviations are used:

CBCA	Central Bedfordshire Council Archaeologist
Client	Nissan Technical Centre Europe
DA	Development area
HER	Heritage Environment Record
I*f*A	Institute for Archaeologists
LPA	Local Planning Authority (Central Bedfordshire Council)
WSI	Written Scheme of Investigation
Procedures Manual	*Procedures Manual Volume 1 Fieldwork*, 2nd ed, 2001 Albion Archaeology

1. INTRODUCTION

1.1 Planning Background

Planning permission was granted for the construction of a car park at the southern side of the Nissan Technical Centre in Cranfield (CB/11/00856/FULL). A condition (no. 4) for a scheme of archaeological investigation was attached to the permission in order to record and advance understanding of the significance of a heritage asset in the vicinity of the site.

A brief for the necessary work was issued by the Central Bedfordshire Council Archaeologist (CBCA) (CBC 2011), detailing the requirements for a programme of archaeological observation, investigation and recording during the development works. In response to the brief, a Written Scheme of Investigation (WSI) was prepared (Albion 2011a) and agreed with the CBCA.

Archaeological monitoring of the construction works took place between 4th and 18th July 2011. The results are presented in this report.

1.2 Site Location and Description

The NTC Europe is part of the Cranfield Technology Park which lies to the south of Cranfield University and to the west of Cranfield Airfield and the village of Cranfield itself (Figure 1). The development area (DA) is *c*. 2.5ha in size and is centred on grid reference SP 933370 425508.

The DA lies to the south of the Technical Centre between an existing border area (incorporating a landscaped park, car parks and perimeter access road) and the Moulsoe-Cranfield main road.

A small rectangular car park already exists in the north-eastern part of the plot, with access to the Technical Centre. The car park lies adjacent to two tennis courts with mesh fencing and floodlights (Figure 2). The rest of the DA is taken up by two sports pitches which consist of graded topsoil and short grass. It is bordered by a small area of woodland in the west, the main road to the south, an access track towards the Technical Centre to the north-west and the Technical Centre itself to the north-east. Low earth banks form a bund towards the road.

Cranfield lies on a raised plateau above the valleys of the Marston Vale and River Ouzel in the west and east. The underlying geology is Oxford Clay Formation Mudstone with Till drift geology consisting of gravelly and loamy deposits.

The DA lies on level ground at an average height of 100–105m OD. To the south and west the land falls away gently into the river valleys.

1.3 Archaeological Background

A heritage assessment was prepared by Albion Archaeology to accompany the planning application (Albion 2011b). The following paragraphs summarise the findings of the assessment.

One heritage asset was identified within a 500m-radius study area, centred on the DA. It comprised a complex of cropmarks (HER 16478), situated in the field immediately south of the DA and the Moulsoe to Cranfield Road. The cropmarks were plotted from the available aerial photographs in the HER; they consist of three possible sub-rectangular enclosures and a number of smaller sub-circular features which may also be archaeological in nature. The possibility that features associated with the cropmarks extended northwards into the DA was one of the research objectives of the investigation (Section 1.4 below).

The clay geology of the area makes archaeological sites difficult to identify and the cropmarks are not complex in nature. However, intrusive investigations of two similar cropmark complexes to the east of the site near Cranfield village have revealed substantial settlement evidence dating to the Iron Age and Roman period with further evidence for Saxo-Norman occupation and medieval agricultural activity. In addition the location of the DA on the edge of the Cranfield plateau overlooking the river valleys could make it a preferred settlement site.

1.4 Project Objectives

The immediate objective of the archaeological fieldwork was to monitor and supervise all groundworks that had the potential to reveal archaeological remains and to investigate, characterise and record any archaeological deposits encountered within them.

The purpose of the archaeological investigation was to determine and understand the nature, function and character of any archaeological remains in their cultural and environmental setting. These characteristics are what form the "significance" of an archaeological heritage asset as defined by *PPS 5 Planning for the Historic Environment.*

Specifically the aims were to:

- establish the date, nature and extent of activity or occupation within the development area;
- establish the relationship of any remains found to the surrounding contemporary landscapes;
- recover palaeo-environmental remains to determine local environmental conditions.

The broader objective of the project was to add to the knowledge and understanding of the origins and nature of settlement in Cranfield and to produce an archive report that fully described the archaeological investigations.

1.5 Methodology

The following groundworks were monitored:

- Excavation of 200mm of turf and topsoil over an area measuring *c.* 2,880m²;
- Installation of 110mm-diameter drain pipe to the perimeter of the area, including tees for future connection;

- Installation of SWA cables for 18 street lights.

The turf and topsoil were removed by a JCB excavator fitted with a toothless ditching bucket. The stripping of turf and topsoil was monitored at intervals and inspected after the final strip. This strategy was agreed after the second monitoring visit by the CBCA.

The excavation of the drainage trenches was undertaken by a JCB excavator with a narrow toothed bucket under constant archaeological supervision.

The installation of the SWA cables was monitored at the start of the cable trench excavations. As the formation level of the trenches and the concrete pad footings for the street lights was shallow and above the level of archaeological survival, archaeological monitoring did not continue. This was agreed with the CBCA after the first site visit to observe the cable trench installation.

Throughout the project the standards set out in the following documents were adhered to:

- IfA's *Code of Conduct (2010);*
- IfA's *Standards and Guidance for Archaeological Watching Briefs and Field Excavations (updated 2008) and finds (updated 2008);*
- Albion Archaeology's *Procedures Manual for Archaeological Fieldwork and the Analysis of Fieldwork Records* (2001);
- English Heritage's *Management of Archaeological Projects* (1991).

2. RESULTS

2.1 Introduction

The gas and sewer pipelines that run on a WNW-ESE alignment across the DA necessitated a re-design of the car park layout, in order to avoid extensive earth removal and concrete capping within the pipeline corridor. The amended layout is shown in Figure 2. As a result the car park area extended further westwards, resulting in the removal of larger parts of the soil bund on site. The change in design also resulted in a reduced number of drainage trenches in the eastern part of the car park.

2.2 Overburden and Geological Deposits

The first stage of the groundworks involved the removal of 200mm of overburden across the DA (Figures 3 and 5). This consisted of *c.*150mm of playing field turf (100) together with a further 50mm of the top of the underlying made-up ground (101). The exposed layer, left *in situ,* consisted of dark brown clay with moderate inclusions of pebbles, brick and concrete fragments (101) (Figure 6). It masked any potential archaeological features that may have been revealed in plan.

Removal of the soil bund in the western part of the DA to formation level did not result in the complete removal of the base of the bund. The layer left *in situ* consisted of a very mixed dark brown clay soil with frequent fragments of wood, concrete, brick and occasional plastic sheeting (102).

Excavation of the drainage trenches showed the made-up ground (101) to be 0.30–0.50m thick. The layer increased in thickness from 0.30–0.50m from north to south.

Natural geological deposits were revealed within the base of the service trenches at a depth of 0.50–0.70m below ground level. They consisted of light to mid orange brown clay with frequent small and medium-sized chalk fragments and flecks.

2.3 Archaeological Remains

A total of four archaeological features were revealed during the construction of the drainage trenches. The trenches were 0.30m wide and excavated to a maximum depth of 0.70m. The archaeological features were visible as darker areas of clay in the base and sides of the service trenches. They were below make-up layer (101).

As the service trenches are likely to dissect the features at oblique angles their exact form and function could not be easily determined. The base of the features was also not reached. The narrow width of the trenches made it very difficult to record the features or draw any sections, they were therefore recorded in plan and by photographs only. The features are summarised in Table 1; for their location see Figure 3.

Features [109] and [111] (Figure 8) were located 8m apart and were very similar in size, with near identical fills. It is likely that they represent two segments of a possible enclosure ditch. Feature [105] may represent the corner of a possible ditch, due to its considerable width, or a substantial pit (Figure 7). Feature [107], located *c*. 3.5m to the NE of feature [105] may either be part of the same feature with an undulating base, or form a separate ditch.

All feature fills were very homogenous in nature and contained no finds. They were formed through natural silting and erosional processes after the features had fallen out of use.

Context	Type	Description	Interpretation
105	Cut	Unclear in plan, steep sides, base not reached. 3.2m wide, >0.5m deep.	Ditch or large pit
106	Fill	Dark brown silty clay with moderate inclusions of pebbles, flint fragments and charcoal flecks and very occasional flecks of burnt clay.	Fill of [105]
107	Cut	Unclear in plan, steep sides, base not reached. 1.0m wide, >0.5m deep.	Ditch? Or part of [105]
108	Fill	Dark brown silty clay with moderate inclusions of pebbles, flint fragments and charcoal flecks and very occasional flecks of burnt clay.	Fill of [107]
109	Cut	Unclear in plan, steep concave sides, base not reached. Located 8m west of [111]. 1.0m wide, >0.4m deep.	Ditch, part of enclosure with [111]?
110	Fill	Mid to dark grey silty clay with occasional charcoal flecks.	Fill of [109]. Natural silting.
111	Cut	Unclear in plan, steep concave sides, base not reached. Located 8m east of [111]. 1.0m wide, >0.4m deep.	Ditch, part of enclosure with [109]?
112	Fill	Mid to dark grey silty clay with occasional charcoal flecks.	Fill of [111]

Table 1: *Summary of archaeological remains revealed in drainage trenches*

2.4 Artefacts

No archaeological artefacts were revealed within any of the features. The overburden (101) and (102) contained several fragments of brick, concrete and modern artefacts like gun cartridges, metal bolts and plastic wrappers. These were not collected.

3. CONCLUSIONS

The investigations at the Nissan Technical Centre revealed a number of archaeological features that are of local significance.

Overburden on the site consisted of a thick layer of made-up ground. It is likely that the area was levelled for the construction of the sports fields on the site a few years previously. However, the thickness of the made-up ground and some of the material within it (brick, fragments of concrete and occasional rusty bolts (not retained)) suggests that it was formed earlier. It may be related to ground levelling for the SW runway during construction of Cranfield Airfield.

The archaeological features revealed below the made-up ground represent a series of ditches and/or a possible large pit. One of the ditches within the investigation seems to align with one of the ditches of the cropmark complex (HER 16478) to the south of the Moulsoe to Cranfield Road (Figure 4).

Some variation in location needs to be taken into account due to margins of error in geo-referencing and locating the DA and the cropmarks. However, it can be stated with a degree of confidence that the enclosures associated with the cropmark complex do extend to the north of the Moulsoe to Cranfield road.

Unfortunately no dating evidence was retrieved from the features but the morphology of the cropmark complex is suggestive of a late prehistoric and / or Roman in date.

The site records do not merit any further analysis or reporting. The project archive will be deposited with Bedford Museum (accession no. BEDFM: 2011.53). This report will be uploaded onto the Archaeology Data Service's OASIS website.

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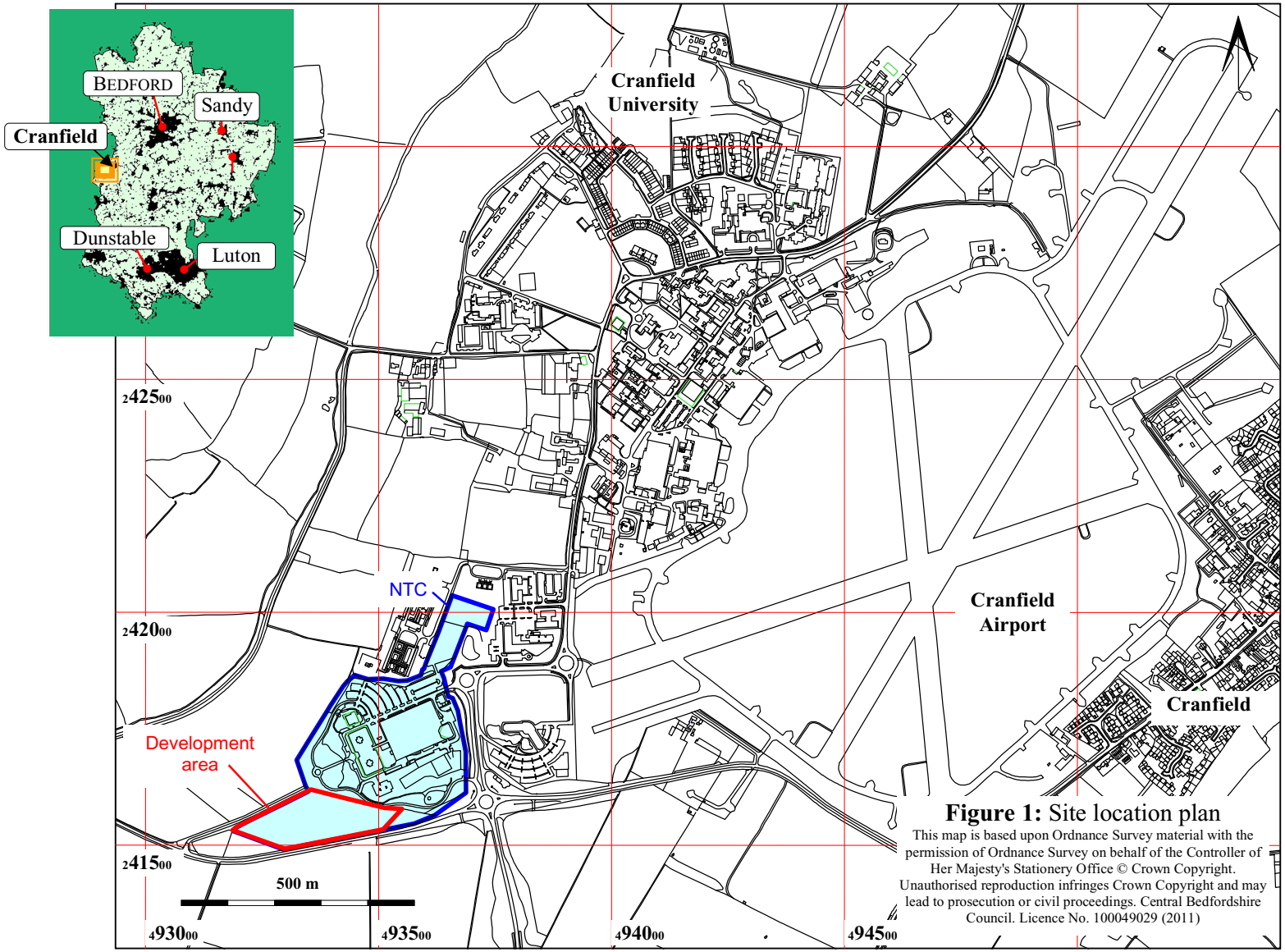

Figure 1: Site location plan

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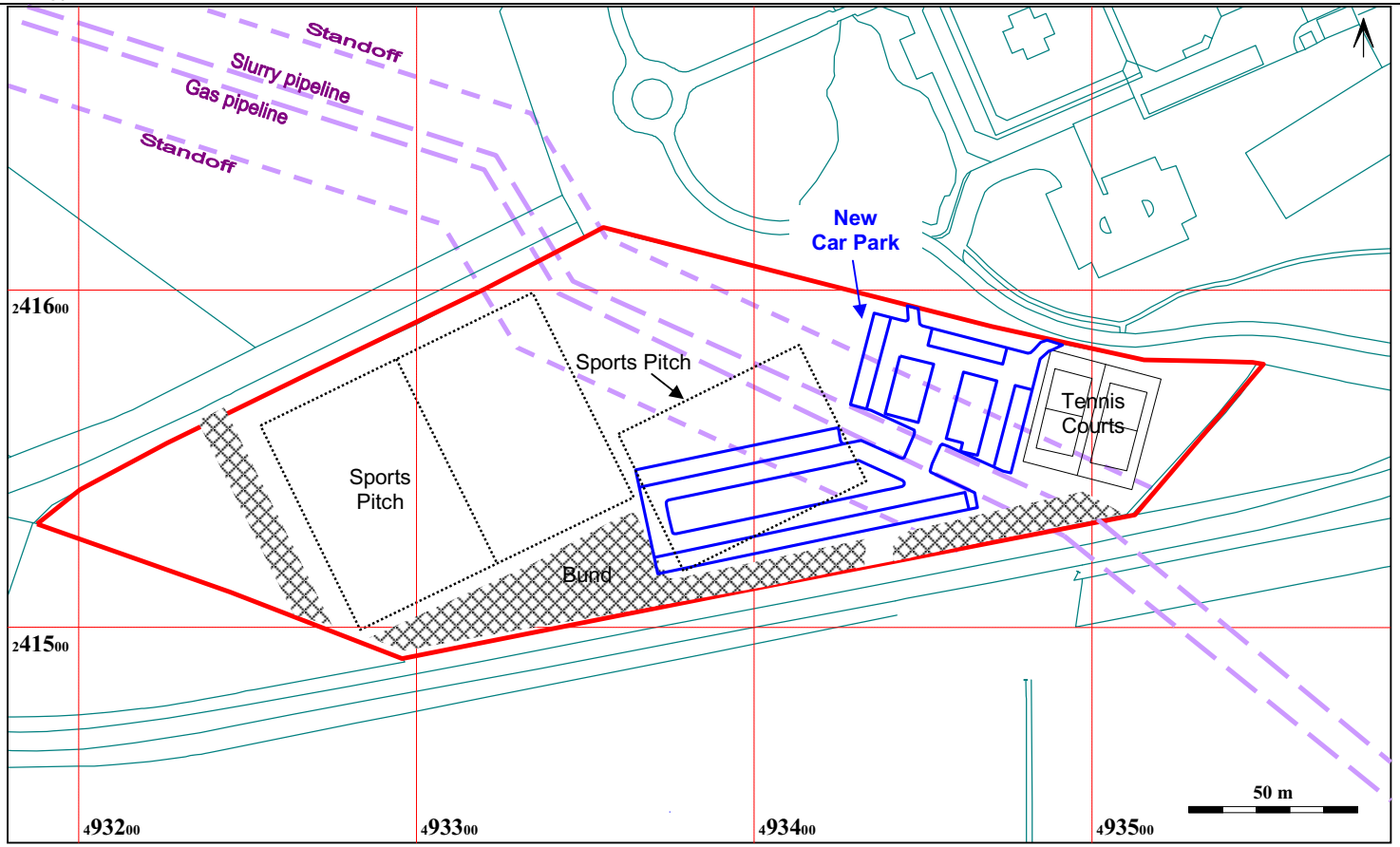

Figure 2: Layout of development area

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Figure 3: Location of groundworks and archaeological features

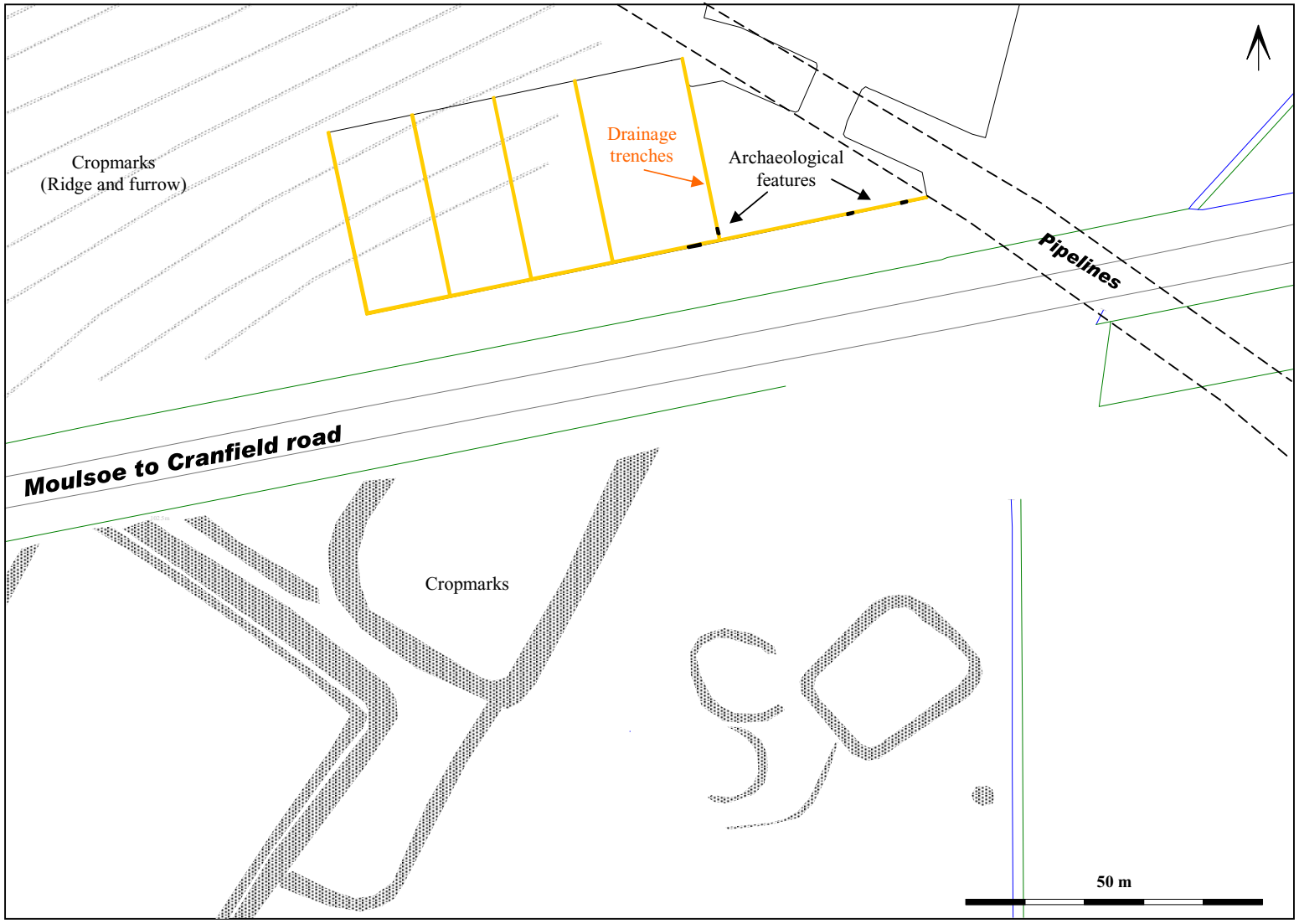

Figure 4: Relationship of cropmarks with archaeological features in development area

Figure 5: Development area after stripping of topsoil

Figure 6: Made-up ground (101) above natural clay (1m scale)

Figure 7: Ditch [105] in base of trench and N facing section (1m scale)

Figure 8: Ditch [111] looking NE (1m scale)