APPENDIX E

ARCHAEOLOGICAL STUDY

Mouchel

NORTH YORKSHIRE

SCARBOROUGH BUSINESS PARK

FEASIBILITY STUDY

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APPENDIX E

ARCHAEOLOGICAL STUDY

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ARCHAEOLOGICAL DESK-TOP SURVEY

1 INTRODUCTION

1.1 An archaeological desk-top survey of an area of land to the south of the Eastfield Industrial Estate, *c.*6km south of Scarborough town centre and *c.*1.5km east of Seamer village in North Yorkshire (NGR TA035830 centred; see figure 1), was undertaken by Ed Dennison, Archaeological Consultant to BHWB Environmental Design and Planning m November 1999. The work was commissioned by Mouchel North Yorkshire, to assist with the preparation of a feasibility study for the development of a business park. The project was defined by a methods statement produced by BHWB which was subsequently agreed with the Heritage Unit of North Yorkshire County Council (see Appendix 1).

1.2 This survey collates all readily available archaeological and historical information from published and unpublished sources, and local databases. A brief inspection of the study area (the proposed development site) was also carried out, to note the location, nature, extent and condition of any recorded and unrecorded archaeological sites or deposits.

2 INFORMATION SOURCES

2.1 In line with standard archaeological practice, the following sources of information were examined as part of the desk-top survey.

Archaeological Databases

2.2 The North Yorkshire County Sites and Monuments Record (NYSMR), which is lodged with the Heritage Unit of the County Council in Northallerton, was consuhed for information on the known archaeological heritage of the area. Data from the National Archaeological Record (NAR), held by English Heritage in Swindon, was also obtained and collated. Aerial photographs of the site and its immediate surroundings, held as part of the County SMR, were consulted for any archaeological information they might contain. The National Collection of Aerial Photographs held at Swindon was not consulted.

Records of Previous Archaeological Investigations

2.3 There has been a considerable amount of previous archaeological work undertaken in the vicinity of the proposed development site. Perhaps the most important and long-running has been that associated with the internationally significant early prehistoric landscape complexes of Star Carr and Seamer Carr, the latter immediately to the south of the current site (Moore 1950; Clark 1954; Schadla-Hall and Cloutman 1985). More recent work has tended to concentrate at Seamer Carr (eg. Cloutman 1988a and 1998b; Schadla-Hall 1988) and further archaeological assessment was carried out here as part of the development of an extension to the Seamer Carr Landfill site (Cardwell, Simpson and Young 1996).

2.4 Other work in the vicinity mcludes a range of investigations undertaken at Crossgates Farm, to the west of the Seamer railway junction, between 1988 and 1997 (Stephens 1990; MAP Archaeological Consultancy 1998); excavations at this site were still ongoing at the time of writing. To the east of the railway line, and immediately adjacent to the proposed development site, excavations were carried out in Crossgates Quarry between 1947 and 1975, and durmg the 1980s, m advance of and after earlier gravel extraction (Mitchelson 1951; Rutter and Duke 1958; Pye 1976 and 1983); this area has since been restored as Burton Riggs Nature Reserve. Numerous other finds and artefacts, mostly of prehistoric and Romano-British date but also including Anglo-Saxon material, were recovered from these investigations.

2.5 Some evaluation work has also been undertaken within part of the proposed development area itself, in a single field in the north-west comer as well as further to the north, in 1989 as part of an earlier phase of the business park. This work comprised a geophysical (resistivity) survey together with limited trial excavations (Jones and Pearson 1989; Leach 1989); to date only an interim report of the excavations has been produced. Elsewhere within the study area, no systematic data collation or detailed archaeological recording work has been carried out.

2.6 Details of all these archaeological investigations are mcluded, as appropnate, in Chapter 3 below.

Museum Records

2.7 The Scarborough (Rotunda) Museum was contacted for any information on recent archaeological finds and sites in the area, which might not have been recorded by the NYSMR or NAR In the event, no new information was able to be added to the existmg records.

Cartographic and Documentary Sources

2.8 The North Yorkshire County Record Office (NYCRO) in Northallerton, the Borthwick Institute of Historical Research (BIHR), and the Scarborough Local Studies Library (SLSL) were consulted for both printed and manuscript maps of the study area. Addnional information was also located at the East Yorkshire Record Office (EYRO) in Beverley. In the event, there were only two early maps available for study, the 1810 Seamer enclosure map and a similarly dated estate plan. Various editions of the relevant Ordnance Survey maps, at both 6" and 25" scales (and their modem equivalents), were also examined, as were any other appropriate maps and documents.

2.9 A number of published and unpublished documentary sources and references in both local and national collections were consulted for background information and specific data on specialised aspects of the history and archaeology, including place and field name evidence, of the study area The manorial history of Seamer has been outlined in the local volume of the Victoria County History (Russell 1923) and there are also two recently-produced histories of the village which contain some details relevant to this study (Finney 1973; Childs 1979).

Geological and Soil Surveys

2.10 The geological and soil survey data were obtained from national sources, as well as from records of limited site mvestigations undertaken in 1975 and 1985. A summary of the relevant information is given below.

Preliminary Walkover Survey

2.11 A preliminary walkover survey of the study area was carried out to determine the extent of survival of any buildings or other structures, to note the location, nature, extent and condition of any additional recorded and unrecorded archaeological sites, and to identify any concentrations of material which might serve as an indication of sub-surface archaeological features. This survey was carried out on 3 November 1999.

3 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND TO THE STUDY AREA

Introduction

3.1 In order to put the study area into context, it is necessary to consider the wider archaeological background of the region and so reference may be made to sites lying outside the study area. This information has been compiled from a variety of sources which are listed m the Chapter 6 below, and those sites near the study area are shown on figure 2.

The Nature of the Evidence

3 2 Evidence for the archaeological heritage comes from a variety of sources, mcluding upstanding monuments and buried deposits, records of excavated sites and artefacts recovered from fieldwalking, palaeo-environmental studies, and the study of historic maps, antiquarian documentation, and place names. Increasingly, archaeological assessments and evaluations, often carried out in advance of development and including methodologies such as fieldwalking, geophysical survey, earthwork survey, and trial excavation, provide information on otherwise "blank" areas.

3.3 A great deal of archaeological evidence has also emerged through the identification and recording of cropmarks seen from the air and on aerial photographs. Cropmarks are caused by differential crop growth over buried archaeological features and, while they are likely to indicate the presence of an archaeological site, it should be noted that their formation is affected by many extraneous factors including land use, drainage, geology and climatic conditions. Extensive cropmark complexes have been identified in the Vale of Pickering through the work of the Royal Commission on the Historical Monuments of England (now English Heritage), by the Vale of Pickering Research Trust, and by local fliers such as Addyman and Crawshaw.

The Prehistoric periods (up to c.700bc)

3.4 The eastem Vale of Pickering is recognised as being one of the most important areas in Britain for providing infomiation on the cultures and environment of the late glacial and early post-glacial periods. This part of the Vale, which was occupied by the glacial Lake Pickering, contains an extensive early Mesolithic (*c*.8,000 - 4,000bc) landscape, mostly buried beneath peat deposits which have assisted in the preservation of archaeological and environmental remains. The lake gradually infilled from the early post-glacial period, and several occupation sites have been identified and excavated around its margins, such as at Flixton Carr and Star Carr to the south of the New Hertford River (Moore 1950; Clark 1954). The latter site comprised an open camp constructed on a timber and brushwood platform and it is clear that the occupants were exploiting the natural resources of the lake; the number, range and quality of artefacts have made this the best known site of its type in Europe. More recent examination of the site has shown that it is much more extensive than originally thought (Day and Mellars 1994).

3.5 The Seamer Carr complex is located immediately to the south of the proposed development site (Site 1 on figure 2). Sub-surface topographical studies have indicated that this area originally formed an embayment or zone of open water on the northem margins of the former Lake Pickering basm. Between 1976 and 1985 work associated with the creation of the Seamer Carr landfill site resulted in the excavation of two early Mesolithic sites, although other sites of late Upper Palaeolithic, late Mesolithic, Neolithic (*c*.4,000 - 2,500bc) and Bronze Age (*c*.2,500 - 600bc) date were also examined (Schadla-Hall and Cloutman 1985; Schadla-Hall 1987; NAR TA08SW55). Other, more recent mvestigations were undertaken in 1996 immediately to the south-west, m conjunction with an extension to the landfill site, and these revealed further Mesolithic remains associated with a small gravel island within the former lake itself (Cardwell, Simpson and Young 1996). Previous finds from this area also include several Neolithic axes and flint artefacts, and some Bronze age material (NYSMR 12827 (part) and 12819; NAR TA08SW9, 25-27, 31, 33 and 39).

3.6 As a result of the work at Seanier Carr, it has become possible to indicate areas where early Mesolithic sites could potentially be located, provided that detailed information on the palaeo-topography and palaeo-environment has been first obtained (Schadla-Hall 1988, 33); in general, these sites are located around the 25ni AOD contour on sand and gravel deposits while later prehistoric sites can be found on slightly higher ground above the peat deposits, on or above the 27m AOD contour. Since 1986 further surveys and sample excavations have been carried out under the auspices of the Vale of Pickering Research Trust, and three new Mesolithic sites have been identified withm Flixton parish (Schadla-Hall 1987, 28-29). This recent work has also demonstrated that modern drainage is causing the degradation of the peat deposits, and that ploughing and other agricultural activity is damaging otherwise well-preserved archaeological horizons.

3.7 In addition to these concentrated and well-known early prehistoric sites, other evidence for slightly later prehistoric occupation and settlement has been found in the area. A Neolithic axe has been found to the south-west of Crossgates (NYSMR 12522; NAR TA08SW14) (Site 2 on figure 2), and a Bronze Age flint knife and scraper, and a Neolithic axe have been found on the west side of the York-Scarborough railway line, to the south-west and north-east of Hobbits (NYSMR 12823-25 and 12830; NAR TA08SW16, 17 and 23). There is another small concentration of Neolithic flint and stone artefacts to the east, just west of Sweetbeck Farm (NYSMR 12827 (part); NAR TA08SW19, 21, 24 and 37) (Site 3). Recent fieldwork at Crossgates Farm has recovered Neolithic and Bronze Age flints and possible structures, suggesting some activity and occupation in this area (MAP Archaeological Consultancy 1998) (Site 4). Finally, a late Palaeolithic flint artefact has also been found just to the north of the study area, near the bend of the Dunslow Road (NYSMR 12829; NAR TA08SW22) (Site 5)

Iron Age and Romano-British Periods (**700**bc to *c.*450 AD)

3.8 Extensive cropmark complexes, likely to represent Iron Age and Romano-British (700 BC-AD 450) field systems, farmsteads, settlements and trackways, have been identified from aerial photographs along the south side of the Vale of Pickering, at or about the 30m contour. A few have also been noted on the north side of the vale, including an extensive complex of trackways and enclosures to the north and north-east of Herdborough House Farm (Cardwell, Simpson and Young 1996, Appendix C, figure C3) (Site 6). Part of this site appears to extend into the Seamer Carr complex. These cropmarks suggest that the region was a well-settled and farmed landscape containing a dispersed pattern of small farms with a mixed farming regime during this period.

3.9 More direct evidence for Iron Age and Romano-British settlement in the area has come from detailed field survey and investigation. Work undertaken at Crossgates Farm, to the west side of the Seamer railway junction between 1988 and 1997, has revealed a complex system of interconnecting ditches and enclosures (Site 4 on figure 2). Limited excavations have shown that the site ranges from the Bronze Age to the medieval periods, although the majority of features appear to be of early Iron Age to Romano-British date. Features investigated include circular buildings and other structures, stock enclosures, field systems, and square barrows, and it is clear that the site represents an important, multi-phase and long-lived complex (MAP Archaeological Consultancy 1998); excavations were still in progress at the time of writing and further work is planned.

3.10 A series of excavations were also carried out from the late 1940s until the 1980s in advance of and during gravel extraction on the east side of the Seamer-Filey railway line, m the area now restored as the Burton Riggs Nature Reserve (Site 7 on figure 2). Initial work in 1947-48 revealed the stone foundations of a hut together with a hearth, post holes, pits and associated pottery, with indications of at least one other occupation site nearby (Mitchelson 1951). Subsequent larger-scale and more intensive work between 1949 and 1975, and then in the 1980s, revealed over 100 separate occupation sites and working areas, as well as a large enclosure about 60ni square; the enclosing ditch was up to 4.5m wide and 2m deep, and the excavators believed that it represented a small 1st century Roman fort associated with a temporary military frontier centred on the Vale of Pickering. Although the enclosure was abandoned after the 1st century, the substantial civilian settlement continued to be occupied until the late 4th century (Rutter and Duke 1958; Pye 1976 and 1983). Part of the enclosure was examined by an additional programme of trenching and open area excavation m 1989, and this contirmed the initial military tiinction, with subsequent occupation and an adjacent settlement dating from the 2nd to possibly the 5th centuries AD (Leach 1989). This work also established that a considerable depth of stratigraphy remained on the eastem margins of the site (NYSMR 12842; NAR TA08SW41).

3.11 Other evidence for settlement and occupation during this period comes from several isolated discoveries. A probable chariot burial of Iron Age date was uncovered in the early 1860s, during ballast extraction at Seamer Station; although the remains of a horse and cart were observed, there were no reports of a human skeleton or any other associated tinds (Mortimer 1905, 358; NYSMR 12813) (Site 8 on figure 2). Other Iron Age pottery has also been recovered from an area to the north of Crossgates village (NYSMR 12811). A Roman coin and pottery have been found m Crossgates (NYSMR 12826 and 12828) and a further concentration of Romano-British quem stones and pottery has been recovered during ploughing from Holme Hill, either side of the Seamer-Filey railway line (NYSMR 12845-46; NAR TA08SW44-45) (Site 9). Other fragments of a Roman water bottle have been found north-east of Hobbits (NAR TA08SW42) and a Romano-British hut and pottery has also been excavated in Cayton (NYSMR 12698).

The Anglo-Saxon Period (c.450-1066)

3.12 Anglian activity in the Seamer area was contirmed m 1857, when a grave containing a crouched burial, a small um, and several high quality artefacts mcluding a pendant and necklace were found in the Crossgates limestone quarry to the north of the B2161 road (Wright 1857); this site was later considered to represent the site of an Anglo-Saxon burial ground although the majority of graves must have been destroyed by quarrying activity (NYSMR 12844).

3.13 The excavafions carried out at Burton Rıggs (Sıte 7, see above) also establıshed the presence of a large Anglo-Saxon setflement ımmediately to the west and adjacent to, but not overlapping wıth, the previously occupıed Romano-Britısh site. Over 30 oval or cırcular sunken-floored huts ("grubenhauser") were ıdentified, together wıth a substantıal number of finds and associated artefacts datıng to the 5th and 6th centuries (Rutter and Duke 1958; Pye 1976). Another important sıte of this perıod is an extant but denuded embankment cross located on Holme Hill, to the west of Grove Farnı (Mortimer 1905, 391-2; NYSMR 12850; NAR TA08SW48) (Sıte 10).

3.14 The pattern of place-name elements also provides a clue to the distribution of settlement and ethnic groups between the 4th and 9th centuries. The extent of Anglıan colonisafion can be seen through villages with suffixes such as *-ham* (meanıng a vıllage, homestead or manor), *-ton* (farnıstead) and *-ıngham*, local examples include Cayton, Ireton, and Ayton. The latter name is derıved from Old English and means "a farm or settlement by the river" with the characterıstic -tun element suggestıng a late 6th or early 7th century Anglian origin (Lang 1989, 56). Later Scandınavian settlements traditionally have *-by* and *-thorpe* suffixes. The part played by the Danes in the colonisation of the marshy land ın the area ıs ernphasised by the frequency of mınor names incorporatıng *-holm* (meaning an ısland) and *-carr* (boggy land), both derıvıng from Scandınavıan terminology (Gelling 1984, 50-52; Field 1972, 38).

3 15 The vıllage name of Seamer stems from the Old Englısh *sae* (sea or lake) and *mere* (pool), and it probably means "a marshy or partially drained pool" (Smıth 1928, 102). It ıs lıkely that the vıllage had its origıns in the Anglo-Saxon period, although the relationshıp between the Burton Riggs settlement and the present village ıs not yet clear; ıt may have moved to slightly higher ground and/or towards a more regular water supply. By the end of the Anglo-Saxon period the area, in common with much of the surroundıng regıon, was well-settled and the complex pattern of manors, *vılls* and parıshes that characterıse the medıeval perıod was already m exıstence, held eıther as extensıve ancient lordshıps or as newer smaller holdıngs.

The **Medieval** and early **Post-medieval Periods** (1066-17**50**)

3.16 By AD 1100, a hıerarchy of adminıstratıve sub-dıvısıons was in place whıch lasted until they were replaced by the cıvil parish system in the 19th century. The wapentakes which made up the North Rıdıng (stemming from the Old Norse *thrıthing* meaning "a thırd part") were each dıvıded ınto a number of parishes and townshıps; the former were ecclesiastıcal units whıle the latter denoted a unit of civil adminıstration, usually corresponding to a manor or *vill*. The study area falls wıthın the townshıp and parısh of Seamer, although the eastern boundary of the site represents the dıvision between Seamer townshıp to the west and Cayton township to the east

3.17 The 11th century Domesday Book notes that Seamer had previously been held by the Saxon earl Karli, and that the manor comprised six camcates (approximately 720 acres or 290 hectares) of taxable land (Faull and Sfinson 1986, 322). The overlordship of the manor was held by William of Percy, a prominent regional Norman land owner who also held the large manor and port of Whitby, as well as extensive lands in East Yorkshire. Interestingly, the manor is not recorded as being waste, unlike many of the adjoining areas; the term "waste" might either retlect land clearance carried out by William I in retaliation for regional uprisings or more likely be an indication of unproductive land The Domesday Book notes that the village was a sizable one, with a church, priest and 15 villagers being recorded.

3 18 The detailed history of Seamer is beyond the scope of this report, but the following provides a summary of the published information (Russell 1923; Finney 1973; Childs 1979). Although Topcliffe was the main manor of the Percys, they had a house at Seamer which is mentioned m 1304; it was subsequently described as a dower house and even a castle, and some of the mins and foundations can be seen near the church. The manor passed through several generations of the Percy family, and they actively encouraged the growth of the market town throughout the medieval period. In 1382 Henry Lord Percy was granted a weekly market and an annual fair and it is clear that Seamer became an important trading centre; in the mid 16th century Leland described Seamer as a "great uplandisch toune".

3.19 In 1536-37 Henry Percy Earl of Northumberland made over his lands to the Crown and in 1555 Queen Mary granted the manor and estate of Seamer to Sir Henry Gate. Despite being Govemor of Scarborough Castle, he evidently favoured Seamer and he was responsible for the continued growth and development of the town. One of his most significant acts was to revive the market, much to the displeasure of the Scarborough townsfolk who feared that their trade would be taken. Their case was eventually accepted and Seamer market was suppressed in 1612 (Baker 1882, 318). In 1610 the manor was bought by the Mompesson family and it then passed to Sir Nicholas Salter who was described as being Lord of Seamer, East Ayton and Ireton in 1619-20. Subsequent owners or major tenants included Edward Wareham and William Talbot, and by the mid 17th century the manor was held by Sir Robert Napier. During this period however, the town declined, probably due to the rapid turnover of absentee landlords.

3.20 In 1719 the estate was sold to the Duke of Leeds and he started to drain, enclose and improve the surrounding fields. A detailed survey of the manor was produced in 1735 but, although the field book survives, the accompanying plan does not and it is not possible to identify the study area without considerable additional research. His improvements were then carried on m the later 18th and 19th centuries by the Denison family (see below).

3.21 Some elements of the medieval and early post-medieval landscape can still be seen m the area. Many of the medieval villages or hamlets in this area were surrounded by large open fields and areas of common grazing; individual landholdings took the form of several narrow strips in the fields and a right to use parts of the common grazing and meadow land. The evidence of local place names and field boundaries shown on the 1st edition Ordnance Survey map (sheet 93, 1854) show that "Low Field" lay to the east of the village, "Town End Field" to the north, and "Low East Field" further to the east; part of the latter is also named as "Sour Lands", suggesting coarse, worked-out or acid soils (Field 1972, 211).

The Later Post-medieval Period (1750 onwards)

3.22 In 1787 the Seamer estate was bought by Joseph Denison of Leeds and London for £111,000. He set about reviving and improving the estate, undertaking more drainage, rebuilding many of the cottages in the village, restoring the church tower, and providing a school. His heir, Lord Albert Denison was created Viscount Raincliffe and Earl of Londesborough in 1887 and, in true Victorian character, he continued the good work by building yet more houses and introducing piped water into the village. The estate remained with the Earls of Londesborough until it was auctioned off in several lots in July 1912.

3 23 Marshall, writing in 1788, notes that the Vale of Pickering was sfill poorly drained by sluggish rivers, but that some cuts and embankments had been made so that there was scarcely an open field or undivided common remaining (Marshall 1788 vol 1, 47) In Seamer, the final areas of common fields and pasture were enclosed by private Act of Parliament passed m 1809. Crab Lane and Long Lane were constructed at this time, and are characteristically straight features dividing up the landscape in this area; Metes (now Meads) Lane, which passes through the survey area (see below) was also created to facilitate the enclosure of The Metes, an area of 133 acres around and to the south of Rabbit Hill. The enclosure process was also responsible for the digging of the Black Dike through Seamer Carr, probably representing the canalisation of an existing stream which fed into the River Hertford and which drained this part of the Vale. The enclosure of one of the former commons to the south of the village is commemorated m the local name of "The Flats", *flat* stemming from the Old Norse meaning land enclosed from a division of the common field (Field 1972, 79). Many of the outlying farmsteads were also built during this period, to take advantage of the newly created and drained enclosures; those near the study area include Low East Field Farm and Seamer Carr House (see below).

3.24 Industrial and agricultural development m the area was given further impetus in the late 18th and early 19th centuries through various regional transport improvements. A canal was proposed to run around the Vale, to connect the east coast with the Vale of York and beyond, but this never came to fruition (Marshall 1788 vol 1, 15). The main road from York to Scarborough through Seamer was tumpiked around the tum of the century but the main sfimulus was the coming of the railway. The York to Scarborough line was opened in July 1845 by the York and North Midland Railway (later to become the North Eastem Railway Company), and a junction was built just to the south of Seamer Stafion. From here, a branch line to Filey was opened in 1846 although a connection was not made to Hull via Bridlington until a year later. Another branch line from Seanier to Pickering opened m May 1882 but this was closed to passenger traffic in 1950 and to freight m 1964, and the line was eventually lifted (Childs 1979, 71; Body 1989,150-151). Part of the Seamer to Filey branch forms the southem boundary of the study area and its constmction resulted in some reorganisation of the field boundaries in this area (see below).

3.25 By the end of the 19th century, small-scale industry had also started to appear in the area. Limestone quarries are shown at Crossgates and near Seanier Station on the Ordnance Survey 1st edifion 6" map (1854, sheet 93), together with a brick works near the village. It was noted above that the development of a gravel pit at Burton Riggs, by the Seamer Sand and Gravel Company in the 1940s, resulted m the idenfification of an important Romano-British and Anglo-Saxon settlement

4 THE STUDY AREA

Introduction

4.1 The approximately 52 hectares comprising the study area and proposed development site lies to the south of the B1261 road and Eastfield Industrial Estate and north of the Seamer-Filey railway line (see figure 2).

Physical Characteristics

4.2 As noted above, the study area is bounded to the south by the Seamer-Filey single track railway line, to the west by the restored gravel workings of the Burton Riggs Nature Reserve, to the north by the existing Eastfield Industrial Estate, and to the east by agricultural land.

4.3 The area is divided north-south by a private road which runs south from a junction with Dunslow Road to the Seamer Carr landfill site; this road was constructed in 1978 and incorporates a bridged crossing of the railway. A public footpath also crosses the northem part of the site in an east-west direction, before turning south to eventually cross the railway line. Existing levels across the site range between below 30m OAD adjacent to the Seamer-Filey railway line, to over 40m OAD in the north-east comer of the site at Great Hill. Of the seven fields which comprise the site, the two nearest the railway are in pasture while the remainder are m varying states of arable cultivation; the field in the north-east comer had recently been ploughed.

4.4 The solid geology of the area is gently dipping Jurassic strata, and limestone was previously quarried in Crossgates and also adjacent to Seamer Stafion. A borehole (1H) located in the angle of Dunslow Road proved limestone at a depth of 3.3m but other boreholes (2H and 3H) further to the south along the landfill access road did not encounter rock; one borehole (SC2) in the south-east comer of the site adjacent to the railway did not encounter rock despite being terminated at 37m.

4.5 The study area is underlain by glacial fill, which results in a hummocky, undulafing ground surface. A borehole (2H) in the central part of the site along the landfill access road encountered peaty topsoil underlain by well graded sand and gravel, becoming clayey with depth. Water was met at a depth of 2.3m. Borehole 3H, *c*.200m to the south along the same road, exposed firm, slightly sandy gravelly clay at 1.2m. Two other boreholes (4H and 5H) either side of the landfill access road railway bridge revealed a firm sandy clay to 6m in the north and 4.5m in the south, underlain by medium dense fine to coarse gravel with some sand. Both boreholes were teminated at 15m in medium dense silty sand. Borehole SC2 in the south-east comer of the site revealed peat to 1.25m underlain by firm sandy clay and gravel to 7.6m. The soils are predominantly stagnogleyic argillic brown earths of the Burlingham 2 Association.

Preliminary Walkover Survey

4.6 A preliminary walkover survey of the whole of the study area was carried out to determine the extent of survival of any buildings or other features, to note the locafion, nature, extent and condition of any additional recorded and unrecorded archaeological sites, and to identify any concentrations of material which might serve as an indication of sub-surface archaeological features. This walkover survey was carried out on 3 November 1999 in bright and windy condifions.

Historical Development

4.7 As noted in paragraph 3.16 above, the study area lay on the eastem edge of Seamer township, presumably on the margins of the manor. The higher land towards the northem end of the area is likely to have been part of the large arable "Eastfield" associated with the medieval village of Seamer, while the low-lymg ground to the south was probably marsh and poorly-drained grazing. A detailed survey of the Manor of Seamer dating to 1735 does survive but unfortunately there is no plan and it is not possible to identify the specific study area. The 1849 tithe map does not provide any detail of individual fields (the area not being assessed for tithes), although the adjacent Cayton tithe map (1848) shows that the higher ground is divided into fields containing "Close" or "Pasture" elements, while the lower fields are "Cair" lands.

4 8 The earliest map of the study area identified by the desk-top survey is the 1810 enclosure plan which was drawn up when the area was divided into small fields under the direction of the Lord of the manor at that time, Joseph Denison. This plan is difficult to correlate with surviving features, but it is clear that some of the existing land parcels, such as that called "Blinking Sike", were originally composed of several smaller fields.

4.9 The study area underwent a significant change m the 1840s when the Seamer-Filey branch railway line was built. The Ordnance Survey 1st edition 6" map of 1854 (sheet 93) shows that many of the field boundaries were straightened and many of the smaller fields shown on the 1810 enclosure map were amalgamated into the larger parcels seen today.

4 10 The Ordnance Survey 1st edition map shows that Metes Lane (now Meads Lane) originally crossed the railway at "Dunn's Low", a gatehouse built by the railway company in the 1840s, to extend north-east through the study area to then turn south to run back over the railway towards Seamer Carr House and Rabbit Hill. A further gate house called "Dunn's High" was built at the latter crossing on the south side of the railway. This 1854 map also shows that a small right-angled plantation of woodland had been created within the study area at this point, adjacent to the railway line. The Ordnance Survey 1912 6" map (sheet 93SE) shows that the central section of Meads Lane was abandoned by that date. Few other changes can be seen on this and later maps, apart from the amalgamation of some of the smaller fields (see figure 2).

4.11 In 1912 the Seamer Estate, which was then owned by the Lords of Londesborough, was auctioned off. The sale plan shows that the majority of the study area was farmed from Low East Field Farm, formerly located just to the north of the site (Site 11 on figure 2); a comparison of Ordnance Survey maps shows that this farm complex was demolished between 1977 and 1991 and the site is now occupied by the industrial estate. The sale plan shows that all the fields were arable, with the exception of that immediately to the south of "Blinking Sike" which was pasture. The two fields nearest the railway line formed part of the Seamer Carr House Farm holding, and this complex has also been demolished in favour of the present landfill site (Site 12 on figure 2).

Archaeological Sites

4.12 One field within the proposed development area has already been the subject of a previous archaeological survey. This field lies on the west side of the site, immediately to south of some recently constructed industrial units and just east of the Burton Riggs Nature Reserve (see figure 2). A geophysical (resistivity) survey was undertaken in 1988 m poor weather conditions and, although techniques were not as advanced as now, a possible circular anomaly and several other features of likely archaeological potential were recorded (Jones and Pearson 1988). Some fragments of possible prehistoric pottery and a flint core were also recovered from the same area at the time of the geophysical survey. Further work, comprising a new geophysical survey and trial trenching, is planned for this area in advance of development but it has not, to date, been carried out (pers comm M Griffiths).

4.13 The North Yorkshire County Sites and Monuments Record notes that several cropmark features are visible on aerial photographs of the area, one within "Blinking Sike" in the north of the development site (AP7), and in the field forming the south-east corner of the site adjacent to the railway line (AP2); details of the aerial photographs are given in the bibliography. The features in AP2 appear to represent a few faint linear ditches (such as were revealed by geophysical surveys at Crossgates Farm) while more circular features in AP7 seem to be of geological, rather than archaeological, origin.

4.14 The walkover survey showed that there were no obvious archaeological earthwork features in the two pasture fields, and no specific concentrations of archaeological material could be seen in the ploughed field, although it should be noted that a systematic fieldwalking survey was not undertaken. The railway gatehouse formerly known as "Dunn's Low", and shown on the modern 1977 Ordnance Survey maps, has been demolished although the remains of low and overgrown brickwork walls, forming a building *c.*15m square, were evident. The route of Meads Lane through the study area has also been lost within the Burton Riggs Nature Reserve although its alignment can be traced as a field boundary. The north-south section of the lane is now represented by part of the road leading to the Seamer Carr landfill site.

Archaeological Potential

4.15 Despite the evidence for the numerous archaeological sites in the vicinity of the proposed development site, there is generally a lack of archaeological material from within the study area itself While this may, in part, reflect a "real" absence, it is much more likely to be due to a lack of detailed or systematic archaeological activity or investigation.

4.16 The existing evidence suggests that Mesolithic (and earlier) occupation sites are potentially more likely to survive at around the 25m AOD contour, on the sand and gravel deposits and in peat. Later prehistoric sites (Neolithic and Bronze Age) are likely to survive on slightly higher ground above peat deposits, on or above the 27m AOD contour, with a concentration of Iron Age and Romano-British sites on or around the 30m AOD contour. Many of these sites are likely to have suffered some degradation or disturbance as a result of agricultural activity.

4.17 In the absence of any further archaeological field investigation, it is impossible to predict with any degree of certainty the presence or otherwise of any archaeological material within the proposed development area. However, analogy with the neighbouring areas strongly suggests that the site will contain significant archaeological deposits, probably of Iron Age/Romano-British date and possibly extending into the Anglo-Saxon period; the majority of the proposed development site lies around the 30m contour. Medieval and later deposits would appear to be unlikely, as much of the area would have been either agricultural land or waste ground during this period In addition, the presence of important prehistoric material cannot be discounted in the 30m-25m AOD zone and the borehole in the south-east corner of the site (SC2) identified peat to a depth of 1 25m below existing ground level Several of the other boreholes revealed sand and gravel deposits.

5 ASSESSMENT OF THE PROPOSALS AND MITIGATION MEASURES

5.1 At this stage, the development proposals are not sufficiently advanced to allow detailed impact statements to be made and, apart from the north-west comer where previous work has taken place, too little is known about the presence or absence of archaeological deposits throughout the whole of the development site.

5.2 It is recommended that a suite of archaeological field evaluafion techniques be employed to determine the tme archaeological potential of the site. The various techniques and methodologies will depend on ground conditions at the time any work is commissioned but a combination of field walking and geophysical survey, together with palaeo-environmental sampling (coring), would be the most appropriate and cost-effective non-mtrusive methods. The size of the development site (52 hectares) means that an appropriate sampling strategy would need to be employed, and it is presumed that the area subject to existing archaeological proposals (*c*.5 hectares) need not be included. If features or deposits are identified by this work, further intmsive trial trenching and/or test pitting will be required, to confirm any results and to determine the extent, nature and date of any deposits. It should be noted that any suggested programme of fieidwork would be need to be confirmed and agreed with the County Archaeologist and, given the significance of the sites to the south, possibly with English Heritage.

5.3 It is also recommended that the non-intrusive investigations are carried out over the rest of the proposed development site (*c*.47 hectares), so that the broad archaeological potential of the area can be determined by a single programme of work. This would provide an overview for the whole site and it should be possible to develop broad mitigation principles and design options, such as the use of raft foundations or the identification of especially archaeologically sensitive areas. Proposals for intmsive trenching and test pitting techniques can then be formulated and costed on a plot-by-plot basis, and this work could be undertaken by individual developers as and when required. Once this work is complete, detailed mitigation strategies can be determined for individual and specific development proposals.

Archaeological field walking

5.4 Archaeological field walking takes place in areas of ploughed or recently planted soil, usually in the autumn and winter months during an appropriate crop window. Two methodologies would be employed, initial reconnaissance followed by more detailed survey. The initial work involves walking along lines placed 10m apart along the longest axis of the specified survey areas, usually an individual field The purpose of this work is not to collect material, but to identify areas worthy of more detailed field walking techniques; this method of survey is the most efficient and cost-effecfive way of assessing large areas of ground.

5.5 More detailed field walking involves setting out a grid of 10m squares over the area of interest and collecting all archaeological artefacts in each grid square. The spread, density and date of any collected material provides a clear indicator of any sub-surface archaeological features and deposits. All survey areas and results should be tied into established survey stations and the Ordnance Survey national grid to facilitate the drawing up of detailed mitigation strategies at a later stage.

5.6 It is recommended that initial field walking is undertaken over as much of the proposed development site as possible, ie. within all fields given over to arable, during appropriate crop windows; the area involved would equate to some 30 hectares. Areas for detailed field walking cannot at present be proposed, but it is possible that an area of between 10 or 15 hectares might be required to be walked m this way.

Geophysical survey

5.7 This is a non-intrusive survey technique which is undertaken within a grid of 20m squares that is set out over the specified survey area. The squares are then scanned by various hand-held instruments which record any variations in the resistance and magnetic properties of the soil. As these factors vary according to the presence or absence of underlying archaeological deposits, it is often possible to identify hitherto unsuspected features up to depths of *c.*1.5m below existing ground levels.

5.8 Given the archaeological potential of the area, it is recommended that as much of the site as possible is investigated using this technique through an appropriate sampling strategy. This would be need to be worked out in detail, but would typically involve a number of sample strips through each field. At this stage, it is considered that a 35-40% sample of the site would be sufficient, depending on appropriate crop windows.

Palaeo-environmental survey

5.9 The palaeo-environmental potential of the site would need to be assessed through an appropriate programme of boreholes and corings. On this site, the work is likely to involve coring at 30m intervals along transects 50m apart iii specific samples, and it is important that the results of adjacent investigations are considered

5.10 In addition to the above, any proposals to alter the site drainage and underlying water table may have significant implications for the preservation of those nationally important Mesolithic and Neolithic sites identified immediately to the south of the railway line, as well as any other deposits found within the study area Any compression of underlying peat deposits may also have an effect on these deposits.

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1810 Plan of the townships of Seamer and Ireton by William Rawson (NYCRO MIC 1578)

1845 Seamer tithe map (BIHR TA350)

1846 Cayton tithe map (BIHR TA636)

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Sheets 93 and 94 (1854 edition)
Sheet 93SE and 94SW (1912 and 1924 editions)

Aerial Photographs

AP2 TP153/8 taken 22/07/76, centred on TA034827
AP7 ANY 88/26-27 taken 13/05/80, centred on TA035831

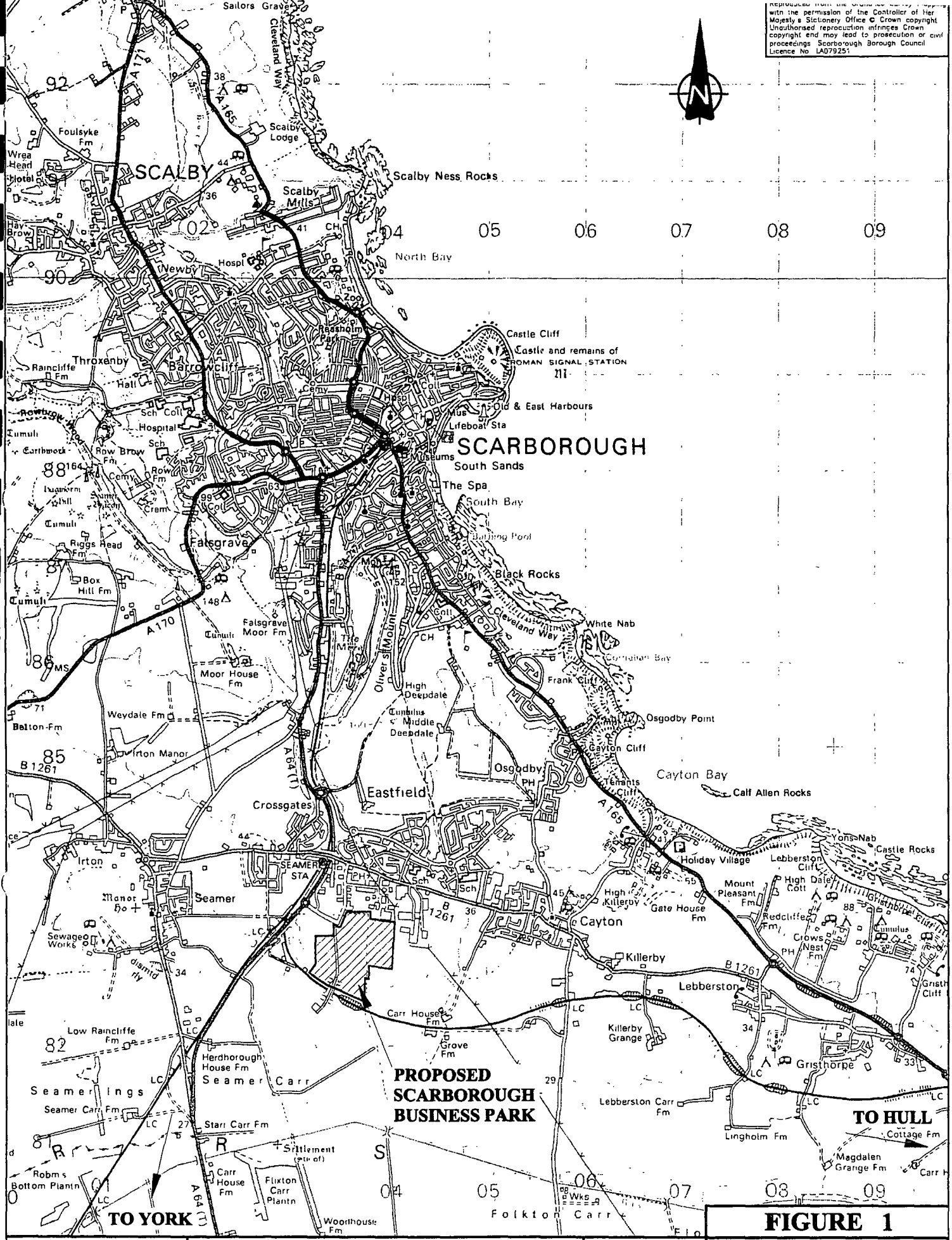

FIGURE 1

Client: Scarborough Borough Council, Town Hall, St Nicholas Street, Scarborough YO11 2HG	PROJECT – SCARBOROUGH BUSINESS PARK FEASIBILITY STUDY	DRAWN C J BROWN	SCALE – 1:50,000
Mouchel North Yorkshire	DRG TITLE – LOCATION PLAN	CHECKED L J WARD	DATE – 17/9/99
		APPROVED P J WELCH	DRAWING No – B0136 / 0004
			Computer Filename: 0004_location_plan

SNY 562

FIG 2 not scanned – see original in Parent file.