CARLISLE NORTHERN DEVELOPMENT ROUTE, CUMBRIA

Archaeological Works for Geotechnical Test Pits. Project Design 003

May 2008

NGR: NY 3725 5685

Cumbria County Council

Connect roads

Birse Civils

oa north

1 BACKGROUND

1.1 INTRODUCTION

1.1.1 This document is the project design covering the archaeological works associated with the excavation of a series of geotechnical test pits, which form part of the construction scheme for a new road, the Carlisle Northern Development Route (CNDR). The archaeological works are designed to mitigate the impact of the test pits on any buried archaeological remains, including, but not necessarily confined to, those that were identified during an archaeological field evaluation of the road corridor in 2002 (CFA 2003). A total of 112 test pits are to be dug on the line of the proposed road, at locations shown on Drawing 42605/05/247/Am0; geotechnical boreholes will not be subject to archaeological works, other than the four in the Scheduled Monument Area covered by Design 002.

1.1.2 Of the 112 test pits to be excavated, a total of 35 are located in areas of known archaeological potential, as established by the field evaluation in 2002 (*ibid*). The project brief prepared by Cumbria County Council's Historic Environment Service (CCCHES) stipulates that the test pits in these areas must be subjected to full archaeological excavation; the remaining 77 test pits will be subject to a permanent archaeological watching brief. The proposed work will be undertaken by Oxford Archaeology North (OA North) for Birse Civils Ltd, acting on behalf of Connect CNDR who have been employed by Cumbria County Council (CCC) to build the road.

1.2 CIRCUMSTANCES OF PROJECT

1.2.1 CCC propose to construct the CNDR around the western edge of Carlisle. The route extends for 8.5km around the western and northern sides of the city, from Greymoorhill North bridge (NY 3945 5990) on the north to Newby West (NY 3731 5365) in the south, and covers an area of approximately 30ha.

1.2.2 The proposed road runs in a west-south-westerly direction from Junction 44 of the M6 motorway, following the course of existing roads and passing close to Kingstown before turning south prior to crossing the main West Coast rail line. The line of the road, which from this point will comprise new build, continues south and then south-west, crossing the River Eden to the west of Stainton. On the south bank of the river the route intersects the line of Hadrian's Wall and an associated earthwork to the south, known as the Vallum, close to Knockupworth Cottage (NY 3710 5680). After crossing the Carlisle to Burgh-by-Sands road, the route then turns south near Cornhill, following a minor road for some of the distance to Bunkershill, where it turns south-east to join the existing A595.

1.2.3 CCC propose to let the construction of the road as a PFI Design and Build-type contract. As there are significant archaeological remains along the

proposed route, including Hadrian's Wall, which has been designated a World Heritage site since 1987 (English Heritage 2002), and which is also a Scheduled Ancient Monument (SAM no. 26110), a brief has been prepared by CCCHES, acting in concert with English Heritage, setting out the archaeological requirements for the main contractor in advance and during construction works associated with building the road.

1.2.4 A separate brief has also been produced by CCCHES for works associated with the excavation of the geotechnical test pits within the road corridor. None of the proposed test pits is located within the area of the Hadrian's Wall SAM.

1.3 GEOLOGY AND TOPOGRAPHY

1.3.1 The River Eden bisects the proposed route; north of the river, the road crosses the low-lying flood plain and river terraces immediately west of Stainton, before rising steeply towards Kingmoor House. On both sides of the river, but particularly to the south, the topography consists of relatively uniform, undulating terrain, in use today predominantly as pasture and arable fields enclosed by substantial hedgerows.

1.3.3 The underlying drift geology consists of Stanwix shales overlain by drift deposits of boulder clay; adjacent to the River Eden, these deposits are also covered with alluvium (British Geological Survey 1982). The local soils are attributed to the Wick Association, coarse well-drained brown earths, which extend westwards to Burgh-by-Sands and Kirkbampton (Countryside Commission 1998).

1.4 ARCHAEOLOGICAL BACKGROUND

1.4.1 A full Environmental Statement in support of the development was published in 2000. This clarified the significance of the sites along the development route.

1.4.2 The archaeological and historical background to the development, including a survey of previous archaeological work, is presented as part of the *Outline Archaeological Strategy* (Project Design 001; OA North 2008a).

1.5 OXFORD ARCHAEOLOGY

1.5.1 Oxford Archaeology has over 30 years of experience in professional archaeology, and provides a professional and cost effective service. It is the largest employer of archaeologists in the country, with more than 200 members of staff, and can deploy considerable resources with extensive experience to deal with any archaeological obligations arising from the development. Our offices in Lancaster and Oxford, trading as Oxford Archaeology North (OA North) and Oxford Archaeology (OA) respectively, enable us to provide a truly nationwide service. Watching briefs, evaluations and excavations have taken place within the planning process, to fulfil the

requirements of clients and planning authorities, to very rigorous timetables. OA is an Institute of Field Archaeologists (IFA) Registered Organisation (No 17), is bound by the IFA's Code of Conduct and applies the IFA's quality standards.

1.5.2 Between our two offices our company has unrivalled experience of working on prehistoric, Roman, medieval and post-medieval sites, and is recognised as one of the leading archaeological units in the country.

2 AIMS AND OBJECTIVES

2.1 ACADEMIC AIMS

2.1.1 The main research aim of the archaeological work will be to excavate, record and interpret the extent, nature, quality and significance of any archaeological deposits that lie within each of the 112 geotechnical test pits, and which will be damaged or destroyed by mechanical excavation of the test pits.

2.2 OBJECTIVES

2.2.1 The principal objectives of the archaeological work can be summarised as follows:

- to subject the 35 test pits located in areas of known archaeological potential (*Section 1.1.2*) to full archaeological excavation;
- to subject the remaining 77 test pits to a permanent archaeological watching brief;
- to determine whether any significant archaeological deposits and/or sites that are revealed by the watching brief need more formal, detailed investigation in the form of Further Archaeological Works (FAW);
- to identify and excavate, in accordance with the specifications set out in the brief, all significant archaeological features and deposits, of all periods and types, that are encountered during the excavation of the test pits. This includes features and deposits recorded during the archaeological excavation of the 35 test pits located in areas of known archaeological potential, and any significant features and deposits encountered during the permanent archaeological watching brief maintained on the remaining 77 test pits;
- to fully record, by means of written descriptions, survey, scale drawings and photographs, all significant archaeological features and deposits encountered during excavation of the test pits;
- to recover artefacts and ecofacts from all archaeological deposits located within the excavation areas;
- to retrieve palaeoenvironmental samples, including bulk samples and column samples, as appropriate, from suitable archaeological deposits;
- to undertake all on-site archaeological works in accordance with current Health and Safety legislation and relevant guidelines;
- to produce a client report summarising the results of the archaeological works, and to prepare a project archive to professional standards.

2.3 POST-EXCAVATION ASSESSMENT AND ARCHIVE PRODUCTION

2.3.1 The site records and any finds and samples generated by the archaeological works will form a checked and ordered site archive as outlined in the English Heritage guideline document *Management of archaeological projects, 2nd edition* (English Heritage 1991; hereafter *MAP 2*). The results will form part of the archaeological post-excavation assessment undertaken for the CNDR project as a whole, which will be deposited with Cumbria County Council's Historic Environment Record (CCCHER) and English Heritage in due course.

3 METHOD STATEMENT

3.1 GENERAL

3.1.1 The following work programme is based on information available at this time and is submitted in line with the aims and objectives summarised above.

3.1.2 Oxford Archaeology fully endorses the following codes of conduct issued by the IFA:

- *Code of conduct* (revised edition; IFA 2002);
- *Standard and guidance for archaeological field excavation* (revised edition; IFA 2001);
- *Code of approved practice for the regulation of contractual arrangements in field archaeology* (revised edition; IFA 2000).

3.1.3 Management of the project will be in accordance with the methods and practice described in *MAP 2* (English Heritage 1991).

3.2 FIELDWORK

3.2.1 ***Surveying***: co-ordinates will be obtained from Birse Civils recording the precise location of all 112 geotechnical test pits. Birse Civils or their subcontractor will be responsible for accurately locating the boundaries of each test pit, and for clearly marking the boundaries. OA North will independently survey the boundaries with a Differentiated Global Positioning System (DGPS); the boundaries will be tied-in to the Ordnance Survey National Grid and located on a 1:2500 or 1:1250 map of the area..

3.2.2 ***Excavation***: the 35 test pits located in areas of known archaeological potential, as demonstrated by the archaeological evaluation of 2002 (CFA 2003), will be subjected to full archaeological excavation, in accordance with the project brief. The test pits in question are located and numbered on Drawing 42605/05/247/Am0, and are listed in Table 1 below. In these areas the evaluation clearly demonstrated that significant archaeological features and deposits survive beneath the modern topsoil, and that these remains are potentially susceptible to damage or destruction by the mechanical excavation of geotechnical test pits.

Parcel No	Test Pit Nos	Totals
5	TP08/22	1
9	TP/08/28; TP08/29	2
20	TP08/37; TP08/39; TP08/40; TP08/41; TP08/42; TP08/43; TP08/44; TP08/45; TP08/46; TP08/118	10
21	TP08/49; TP08/50; TP08/51	3

36	TP08/65; TP08/66; TP08/67	3
32	TP08/69; TP08/70; TP08/71; TP08/72	4
39	TP08/73; TP08/74; TP08/75	3
41	TP08/76; TP08/77	2
42	TP08/79; TP08/80; TP08/81	3
46/47	TP08/88; TP08/89; TP08/90; TP08/91	4
Total		**35**

*Table 1: Geotechnical test pits requiring full archaeological ex*cavation

3.2.3 The site will be inspected by the supervising archaeologist prior to the commencement of machine excavation, including an examination of any available exposures. It is assumed that all issues relating to services within the area of excavation will be dealt with by the main contractor as part of their overall health and safety obligations; the main contractor will research the location of services with statutory bodies prior to the commencement of any invasive archaeological works. This information will be made available to OA North prior to the commencement of the archaeological works through a permit to dig system.

3.2.4 The evaluation (CFA 2003) indicated that modern topsoil depth within the road corridor varied from, *c* 0.2-0.35m. In most areas, the topsoil directly sealed negative archaeological features dug into the geological subsoil; in some places, however, buried soils of relatively late date lay directly beneath the modern topsoil and overlay the archaeology. Within each of the 35 test pits requiring archaeological excavation, topsoil and any other obviously recent deposits sealing archaeological levels will be removed in spits using a mechanical excavator fitted with a wide, toothless ditching bucket and working under constant archaeological supervision, in order to reduce the area of overburden to the top of the first identifiable archaeological horizon or, where such an horizon is absent, to the top of the natural, non-redeposited subsoil. As machining progresses spoil will be stored within the road footprint at a safe distance from the edge of the test pits. No provision has been made for storage beyond this. If spoil is to be stored at specific locations in defined storage areas then sufficient dumpers will be required to enable the efficient use of machinery during the stripping process.

3.2.5 Great care will have to be exercised with regard to the movement of machines across the area during topsoil removal. Where topsoil is soft, vehicles may begin to create ruts into the top of the horizon of archaeological preservation. This can cause considerable damage to archaeological remains. While haul routes can be spread across the site to avoid compression and rutting, weather will play an important part in the timing of the work and in its successful completion, and constant monitoring will be required.

3.2.6 Following the machine removal of topsoil, subsoil, and unstratified modern material, each test pit will be hand-cleaned in its entirety to define any archaeological features and deposits that may be present. A base plan of all identified features will be produced at an appropriate scale. Excavation of

identified archaeological features will proceed by hand down, in stratigraphic sequence, to the level of the non-redeposited subsoil. All faces of the test pits that require examination will be hand cleaned.

3.2.7 Archaeological remains identified following the initial machine clearance and hand-cleaning will be immediately protected from damage and delineated in such a manner as to be clearly visible to persons carrying out the works.

3.2.8 If complex archaeological remains are encountered in any of the test pits, consideration will be given to re-siting of the relevant test pits, so that the deposits can be excavated as part of the wider archaeological works prior to road construction.

3.2.9 All identified archaeological features and deposits within the areas of investigation will be archaeologically excavated by hand. All discrete negative features that will be destroyed by mechanical excavation of the test-pits will be sampled at 100% by area and volume, as will any positive features that are likely to obscure earlier features. Linear negative features will be sampled at 33% by area unless otherwise agreed with the CCCHES except at points of intersection between two or more linear features or at the terminals of linear features, which will be 100% sampled. Graves/cremations and 'structural' features, such as hearths, ovens and kilns, will always be fully excavated.

3.2.10 ***Watching brief***: the 77 test pits that lie outside areas of known archaeological potential will be subject to a permanent archaeological watching brief, in accordance with the project brief.

3.2.11 A programme of field observation will accurately and systematically examine and record the location, extent, and character of any surviving archaeological features, horizons and/or deposits revealed during the course of ground disturbance

3.2.12 During this work, recording will comprise a full description and preliminary classification of features or materials revealed, and their accurate location (either on plan and/or section, and as grid co-ordinates where appropriate). Features will be planned accurately at appropriate scales and annotated on to a large-scale plan. A photographic record of archaeological features and general working shots, utilising monochrome print and colour slide will be undertaken simultaneously.

3.2.13 A plan will be produced of the areas of groundworks showing the location and extent of the ground disturbance and one or more measured sections will be produced, regardless of the presence of archaeology.

3.2.14 Putative archaeological features and/or deposits identified during groundworks, together with the immediate vicinity of any such features, will be cleaned by hand, using either hoes, shovel scraping, and/or trowels, depending on the subsoil conditions and, where appropriate, sections will be studied and drawn.

Any such features will be sample excavated (*ie.* selected pits and postholes will normally only be half-sectioned, linear features will be subject to no more than a 10% sample, and extensive layers will, where possible, be sampled by partial rather than complete removal).

3.2.15 It is assumed that OA North will have the authority to stop the works for a sufficient time period to enable the recording of important deposits. It may also be necessary to call in additional archaeological support if a find of particular importance is identified or a high density of archaeology is discovered, but this would only be called into effect in agreement with the Client and CCCHES.

3.2.16 ***On-site recording methodology:*** a detailed record will be made of the stratigraphic sequence in each of the test pits, in accordance with IFA and English Heritage guidelines (*Section 3.1*). All on-site recording will be undertaken in accordance with the requirements of the OA Field Manual (Wilkinson 1992), a copy of which accompanies this Project Design (*Appendix 1*). An up-to-date copy of the OA Field Manual will be deposited with CCCHES before the archaeological work commences. Primary records will be available for inspection at all times.

3.2.17 Context recording will operate a continuous unique numbering system. Written descriptions will be recorded on pro-forma sheets comprising factual data and interpretative elements. A unique alpha-numeric project code will appear on all records. A Harris matrix will be compiled during the course of the excavation.

3.2.18 All features and deposits will be recorded in plan and section, as appropriate. Planning will generally use digital technology (see below); plans will normally be drawn at 1:50 but some complex areas or features may benefit from planning by hand at larger scales (up to 1:10) as appropriate. Any such plans will be surveyed to the site grid and digitised to provide an overall CAD plan that can be imported to a Geographical Information System (GIS) for interpretation. A register of plans will be kept.

3.2.19 Long sections of trenches showing layers will be drawn at 1:50 or 1:20. Sections of features or short lengths of trenches will be drawn at 1:20 or 1:10. All sections will be tied in to Ordnance Datum and a register of sections will be kept.

3.2.20 A full black and white and colour (35mm transparency) photographic record, illustrating in both detail and general context the principal features and finds discovered will be maintained. The photographic record will also include working shots to illustrate more generally the nature of the archaeological work. Digital photographs will also supplement this record. Photographs will be recorded on OA Photographic Record Sheets.

3.2.21 ***Artefactual sampling strategies*:** all finds visible during the fieldwork programme will be collected, processed and stored in accordance with current best practice as set out in the relevant guidelines issued by the IFA, English

Heritage, UKIC and others (IFA nd; English Heritage 1991; UKIC 1983; 1990; Watkinson and Neal 1998). Copies of OA's Field Manual and Finds Manual are appended to this Project Design (*Appendices 1-2*). A register of small finds will be maintained.

3.2.22 Artefact assemblages will be recovered to assist in dating stratigraphic sequences and for obtaining ceramic assemblages for comparison with other sites. All artefacts will be retained from excavated contexts unless they are of recent origin. In these cases sufficient material will be retained to date and establish the function of the feature from which they came. Unstratified recent material will not be retained. Certain classes of building material or post medieval pottery may sometimes be discarded after recording if an appropriate sample is retained.. However, any such decisions would not be taken until after the post-excavation assessment is completed.

3.2.23 OA employs artefact specialists with considerable expertise in the investigation, excavation and management of sites of all periods and types, who are readily available for consultation. In cases where in-house expertise is not available, external specialist advice will be sought, as appropriate.

3.2.24 A suitably qualified specialist will scan the finds assemblage to assess the date range, with particular reference to the pottery. All retained bulk finds will be washed and, with the exception of animal bones, marked in a manner that is indelible and irremovable by abrasion. Bulk finds will be appropriately bagged and boxed and box lists of material will be compiled. Small finds will be recorded individually (Individually Registered Finds, or IRFs), and appropriately packaged.

3.2.25 Deposition and disposal of artefacts will be agreed with the legal owner and the recipient museum prior to the commencement of the works. All retained artefacts will be cleaned and packaged in accordance with the requirements of the recipient museum.

3.2.26 In the event of the recovery of any intrinsically valuable artefacts, the terms of the Treasure Act 1996 will be followed with regard to any finds that might fall within its purview. Any such finds will be removed to a safe place and reported to the local coroner as required by the procedures as laid down in the *Code of practice* (DCMS 2002). Where removal of intrinsically valuable objects cannot be effected on the same working day as the discovery, suitable security measures will be taken to protect the finds from theft. It should be noted that *there is a presumption that objects of treasure found during the course of archaeological excavations will be kept with the rest of the archaeological archive*.

3.2.27 In certain circumstances where unusual or extremely fragile and delicate objects are found, their recovery may be undertaken by appropriate specialists. Provision will be made for on-site conservation measures to be undertaken by specialists, as required. The objects will be exposed, lifted, cleaned,

conserved, marked, bagged and boxed in accordance with the guidelines set out by the United Kingdom Institute of Conservation (UKIC 1983; 1990), and in *First aid for finds* (Watkinson and Neal 1998). They will be stored in a secure, controlled environment, and storage conditions will be subject to regular monitoring. OA maintains close relationships with Ancient Monuments Laboratory staff at the University of Durham and, in addition, employs in-house artefact specialists, with considerable expertise in the investigation, excavation, and finds management of sites of all periods and types, who are readily available for consultation. Finds storage during fieldwork and any site archive preparation will follow professional guidelines. Emergency access to conservation facilities is maintained by OA North with the Department of Archaeology, University of Durham.

3.2.28 Where required, preliminary conservation and stabilisation of objects will be undertaken as soon as practicable during, or upon completion of, the fieldwork Particularly vulnerable materials requiring conservation will be transported to appropriate facilities without delay.

3.2.29 ***Palaeoenvironmental sampling strategies***: it may be possible to retrieve bulk samples from securely stratified archaeological deposits within the excavated test pits. Adequate provision for environmental sampling will therefore be included in the programme of work. Samples will be taken in accordance with current best practice, using the methodologies outlined by English Heritage (English Heritage 2002). A copy of OA's Environmental Procedures Manual is appended to this Project Design (*Appendix 3*). A register of environmental samples will be maintained. In the event of environmental/organic deposits being present within the areas of watching brief, it would be necessary to discuss and agree a programme of palaeoenvironmental sampling and or dating with CCCHES.

3.2.30 OA employs palaeoenvironmental specialists with considerable expertise in the investigation, excavation and management of sites of all periods and types, who are readily available for consultation. The advice of OA's environmental department will be sought for the recovery of the following sample types: bulk samples (charred plant remains, cremation burials, waterlogged remains, bones and artefacts); series samples (waterlogged plant remains, snails); monolith samples (palynology, soil micromorphology); or for analysis of diatoms (pedology, metalworking and chemicals). English Heritage's Regional Science Advisor will also be consulted where appropriate.

3.2.31 A suitably qualified specialist will assess the environmental potential of the site through the examination of suitable deposits, enabling the formulation of an approved overall sampling strategy, to be agreed with the English Heritage Regional Science Advisor. Some or all of the following analyses may form part of the archaeological works, as appropriate:

- soil pollen analysis and the retrieval of charred plant macrofossils and land molluscs from former dry-land palaeosols and cut features;

- the retrieval of plant macrofossils, insect, molluscs and pollen from waterlogged deposits;
- advice will be sought from the English Heritage Regional Science Advisor, and OA faunal specialists on the potential of the site for producing bones of fish and small mammals. If there is potential, a sieving programme will be undertaken. Faunal remains, collected by hand and sieved, are to be assessed and analysed, if appropriate;
- advice will be sought from OA's geo-archaeology department on whether a soil micromorphological study or other analytical techniques will enhance understanding of site formation processes on the site. If so, analysis will be undertaken.

3.2.32 The environmental sampling strategies employed will vary according to the perceived importance of the strata under investigation. For bulk samples, a minimum of 10 litres, but up to 40 litres if possible, will be taken for flotation for charred plant remains. Bulk samples will be taken from any waterlogged or mineralised deposits in order to recover any preserved macroscopic plant remains or insect remains. Columns for pollen analysis will be taken if appropriate, and mollusc samples will be collected if present. Other bulk samples for small animal bones, metallurgical debris (micro-slags and so on), and other small artefacts will be taken if suitable contexts are identified. All samples will be treated in a proper manner and to standards agreed in advance with the approved recipient museum.

3.2.33 Any waterlogged organic materials will be dealt with in accordance with the relevant English Heritage guidelines (English Heritage 1995; 1996).

3.2.34 ***Scientific dating strategies:*** it is anticipated that the site may yield material suitable for either high precision dating or AMS dating if systematically sampled for carbonised plant remains. Material will be collected specifically for this purpose and suitable stratigraphic sequences will be targeted, together with material in primary positions that is associated with other datable material, such as pottery. OA has procedures for sampling and processing samples for radiocarbon dating and has established relationships with reputable dating laboratories. Other absolute dating methods may include thermoluminescence dating of pottery and daub, archaeomagnetic dating of hearths, and dendrochronology. Samples will be taken as appropriate.

3.2.35 ***Human remains***: these are not expected to be present, but if they are found during the archaeological works the client, English Heritage and the coroner will be informed immediately. Human remains will always be treated with respect. If removal is essential, it will only take place under appropriate Home Office and environmental health regulations. A Home Office licence will be obtained before human remains are disturbed. The CCCHES and the local Coroner will be informed immediately human remains are discovered. All burials requiring excavation will be adequately recorded prior to careful removal for further scientific study. Where human remains are encountered, the

post-excavation assessment will contain a statement concerning the future retention of the assemblage, including options for reburial.

3.3 HEALTH AND SAFETY

3.3.1 OA North provides a Health and Safety Statement for all projects and maintains a Safety Policy. All site procedures are in accordance with the guidance set out in the *Health and Safety manual* compiled by the Standing Conference of Archaeological Unit Managers (SCAUM 1997). OA North will liaise with Birse Civils, who will be the principal contractor under CDM regulations, to ensure all current and relevant health and safety regulations are met.

3.3.2 A risk assessment will be completed in advance of any on-site works. OA North staff will be equipped with the appropriate PPE; Birse Civils have agreed to provide welfare facilities on-site.

3.3.3 OA North has professional indemnity to a value of £2,000,000, employer's liability cover to a value of £10,000,000 and public liability to a value of £15,000,000. Written details of insurance cover can be provided if required.

3.3.4 OA North will not be responsible for the provision of Health and Safety logistical support; this will be provided by Birse Civils or their subcontractor, who will also be responsible for the provision of site security including secure offices.

3.4 OTHER MATTERS

3.4.1 OA North will provide an archaeological team to attend to all archaeological works associated with the excavation of test pits as part of the CNDR project. The archaeologists will work the same hours as the geotechnical team. All overtime will be charged at the rates separately supplied.

3.4.2 Access to the site will be arranged *via* Birse Civils or their subcontractor.

3.5 POST-EXCAVATION ASSESSMENT AND ARCHIVE PRODUCTION

3.5.1 ***Post-excavation:*** immediately following completion of the fieldwork, a client report will be produced collating the results of the archaeological works within the geotechnical test pits. The results of the excavations will be included within the post-excavation assessment report for the project as a whole, which will be deposited with the CCCHER, and copies will be provided for English Heritage. The assessment report will provide an overview of the results of the archaeological works and will present an assessment of the potential of the data (stratigraphic, artefactual, and environmental) recovered during the CNDR project to advance archaeological knowledge and to address current research aims. It will also present, through an updated project design, a series of research aims and objectives that can potentially be addressed by the data, and

will provide fully costed proposals, accompanied by a method statement, task list and gantt chart, for a detailed programme of analysis and dissemination (publication).

3.5.2 ***Archive:*** the results of the archaeological works within the geotechnical test pits will form part of the project archive, produced to professional standards and in accordance with current best practice, as set out in *MAP 2, Appendix 3* (English Heritage 1991), in the guidelines produced by the United Kingdom Institute for Conservation (UKIC 1990), and the Archaeological Archives Forum's *Guide to Best Practice* (Brown 2007). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. The IFA's Code of Conduct (IFA 2002) makes it clear that the deposition of a properly ordered and indexed project archive in an appropriate repository is an essential and integral element of all archaeological projects. A summary of the archive will be prepared and provided to all interested parties, following which the archive will be deposited with Tullie House Museum and Art Gallery, Carlisle.

3.5.3 ***Confidentiality:*** the final report is designed as a document for the specific use of the client, and should be treated as such; it is not suitable for publication as an academic report, or otherwise, without amendment or revision. Any requirement to revise or reorder the material for submission or presentation to third parties beyond the project brief and project design, or for any other explicit purpose, can be fulfilled, but will require separate discussion and funding.

4 WORK TIMETABLE

4.1 Present timetabling suggests that the work will commence on the 23rd June but this could change subject to land access agreements.

5 STAFFING PROPOSALS

5.1 The project will be under the overall charge of **Fraser Brown, BA** (OA North Senior Project Manager) to whom all correspondence should be addressed.

5.2 An OA North Project Officer, suitably qualified to direct and supervise the day-to-day archaeological works, will lead the archaeological team on site. In addition to the Project Officer, the team will comprise archaeological assistants and supervisors, as appropriate for the excavation and watching brief aspects of the work.

5.3 Assessment of finds from the excavation will be undertaken by OA North's in-house finds specialist **Christine Howard-Davis BA, MIFA** (OA North Finds Manager).

5.4 Assessment of palaeoenvironmental samples will be undertaken by **Elizabeth Huckerby**, **BA MSc** (OA North Environmental Manager), for the botanical remains, **Denise Druce, BA PhD** (OA North Environmental Project Officer), for the charcoal, and **David Smith**, **MA, PhD**, or **Emma Tetlow**, **PhD** (Institute of Archaeology and Antiquity, University of Birmingham) for the insect remains. Animal bones will be assessed by **Lena Strid** (OA Archaeozoologist).

6 MONITORING

6.1 Written notice, two weeks prior to the commencement of the works, will be given to CCCHES. A timetable will be provided to Mark Brennand, Cumbria County Archaeologist, in order that a CCCHES representative can have the opportunity to inspect and advise on the works. No work will take place until this Project Design has been submitted to and approved by the CCCHES.

6.2 OA North will ensure that any significant results are brought to the attention of Birse Civils and the CCCHES as soon as is practically possible.

7 REFERENCES

British Geological Survey 1982 *Solid geology*, 1:250 000 map, sheet 54° N 04° W

Brown, D H, 2007 *Archaeological archives: a guide to best practice in creation, compilation, transfer and curation*, Archaeological Archives Forum http://www.archaeologists.net/modules/icontent/inPages/docs/pubs/Archives_Best_Practice.pdf

CFA, 2003 *Carlisle Northern Development Route: archaeological evaluation,* unpubl rep

Countryside Commission, 1998 *Countryside character Volume 2: North West. The character of England's natural and man-made landscape*, Cheltenham

DCMS, 2002 *Treasure Act 1996, Code of practice*, revised edn http://www.culture.gov.uk/NRrdonlyres/C1027393-6D96-4B2A-86EF-DC1021117190/0/Treasure_Act_P0164.pdf

English Heritage, 1991 *Management of archaeological projects*, 2nd edn, London

English Heritage, 1995 *Guidelines for the care of waterlogged archaeological leather*, London

English Heritage, 1996 *Waterlogged wood: guidelines on the recording, sampling, conservation and curation of waterlogged wood*, London

English Heritage, 2002 *Environmental archaeology: a guide to the theory and practice of methods, from sampling and recovery to post-excavation* (http://194.164.61.131/Filestore/archaeology/pdf/enviroarcg.pdf)

IFA, 2000 *Code of approved practice for the regulation of contractual arrangements in field archaeology*, revised edn, Reading

IFA, 2001 *Standard and guidance for archaeological excavation*, revised edn, Reading

IFA, 2002 *Code of Conduct*, revised edn, Reading

IFA, nd *IFA guidelines for finds work*, Reading

OA North 2008a *Carlisle Northern Development Route: Outline Archaeological Strategy (Project Design 001)*, unpubl rep

OA North 2008b *Carlisle Northern Development Route: Project Design for watching briefs (Project Design 002)*, unpubl rep

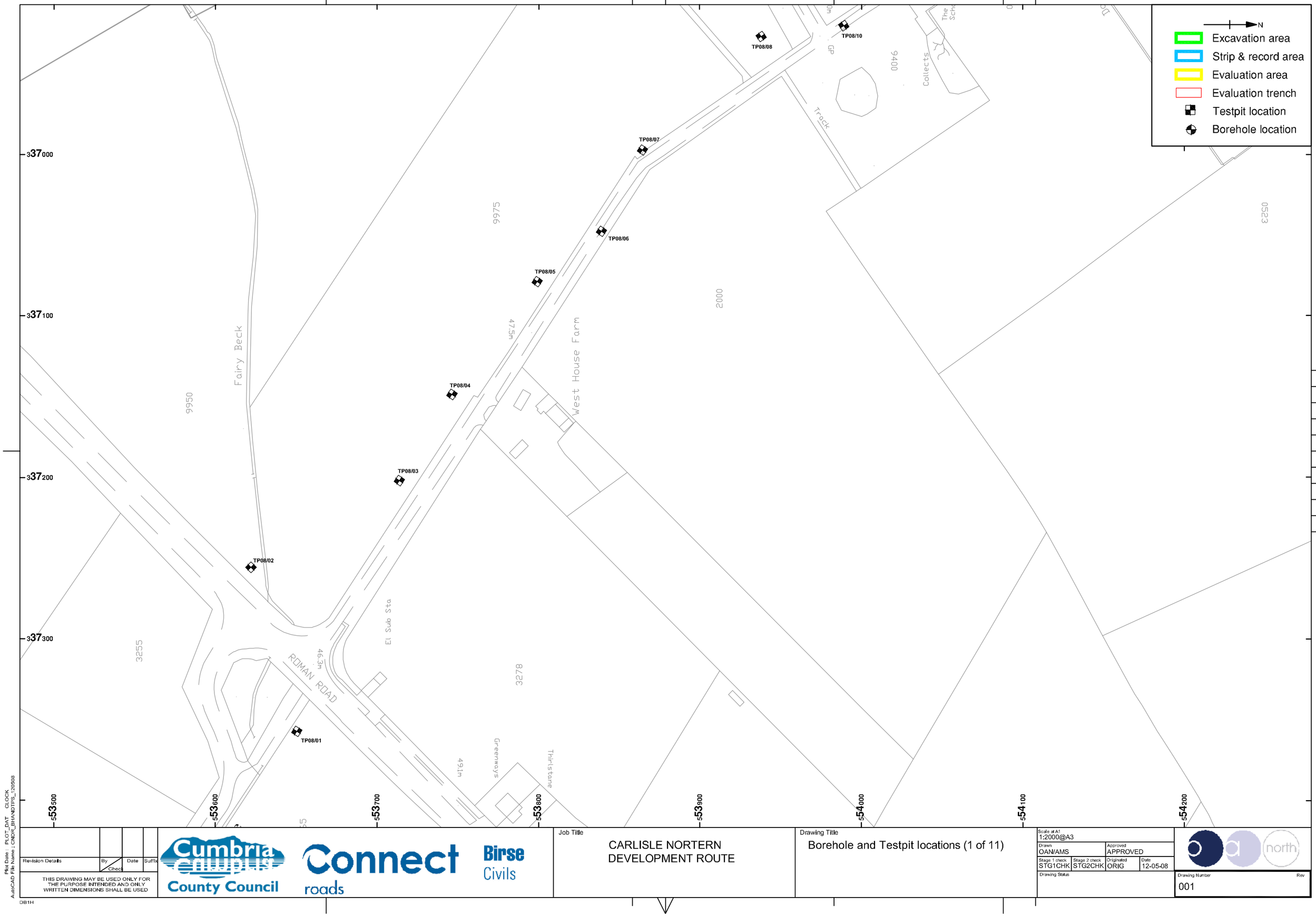
SCAUM, 1997 *Health and Safety manual*, Poole

UKIC, 1983 *Conservation guidelines No. 2: packaging and storage of freshly excavated artefacts from archaeological sites*, London

UKIC, 1990 *Guidelines for the preparation of archives for long term storage*, London

Watkinson, D, and Neal, V (eds), 1998 *First aid for finds: a practical guide for archaeologists*, 3rd edn, London

Wilkinson, D, 1992 *Oxford Archaeology Field Manual*, unpubl doc



Plot Date : PLOT_DAT CLOCK
AutoCAD File Name : CNDR_BHANDTPS_120508

Revision Details	By / Check	Date	Suffix

THIS DRAWING MAY BE USED ONLY FOR THE PURPOSE INTENDED AND ONLY WRITTEN DIMENSIONS SHALL BE USED

Cumbria County Council

Connect roads

Birse Civils

Job Title: CARLISLE NORTERN DEVELOPMENT ROUTE

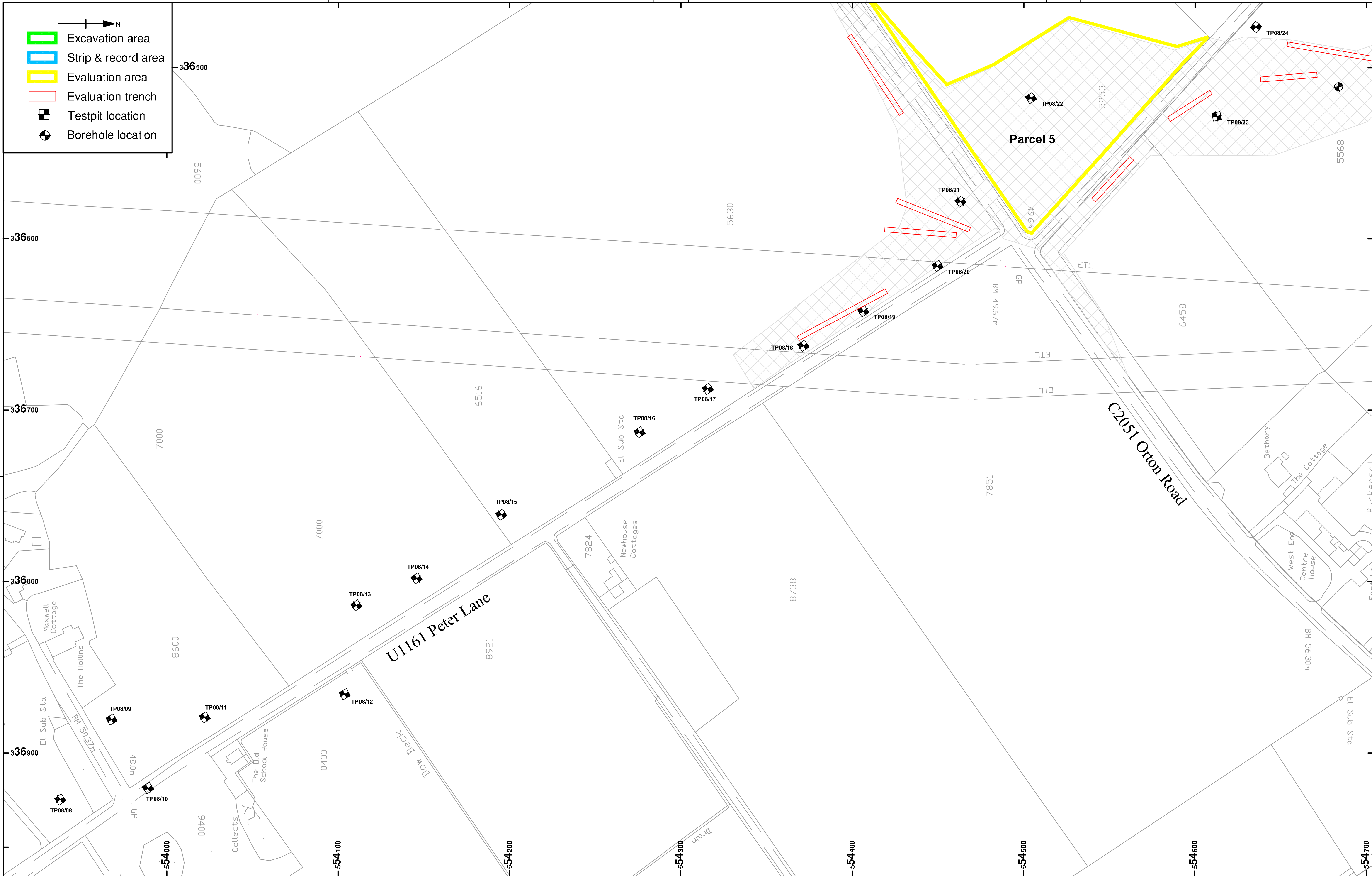
Drawing Title: Borehole and Testpit locations (1 of 11)

Scale at A1			
1:2000@A3			
Drawn: OAN/AMS		Approved: APPROVED	
Stage 1 check: STG1CHK	Stage 2 check: STG2CHK	Originated: ORIG	Date: 12-05-08
Drawing Status			

north

Drawing Number: 001 Rev

DB1H



N
Excavation area
Strip & record area
Evaluation area
Evaluation trench
Testpit location
Borehole location
Parcel 5
U1161 Peter Lane
C2051 Orton Road
TP08/08
TP08/09
TP08/10
TP08/11
TP08/12
TP08/13
TP08/14
TP08/15
TP08/16
TP08/17
TP08/18
TP08/19
TP08/20
TP08/21
TP08/22
TP08/23
TP08/24
336500
336600
336700
336800
336900
554000
554100
554200
554300
554400
554500
554600
554700

Revision Details	By	Check	Date	Suffix

THIS DRAWING MAY BE USED ONLY FOR THE PURPOSE INTENDED AND ONLY WRITTEN DIMENSIONS SHALL BE USED

Cumbria County Council

Connect roads

Birse Civils

Job Title

CARLISLE NORTERN DEVELOPMENT ROUTE

Drawing Title

Borehole and Testpit locations (2 of 11)

Scale at A1			
1:2000@A3			
Drawn		Approved	
OAN/AMS		APPROVED	
Stage 1 check	Stage 2 check	Originated	Date
STG1CHK	STG2CHK	ORIG	12-05-08
Drawing Status			

oa north

Drawing Number: 001

Rev

Plot Date : PLOT_DAT CLOCK
AutoCAD File Name : CNDR_BHANDTPS_120508

DB1H

N

Excavation area
Strip & record area
Evaluation area
Evaluation trench
Testpit location
Borehole location

336200
336300
336400
336500
336600

U1124 to Little Orton

Parcel 9

TP08/23
TP08/24
TP08/25
TP08/26
TP08/27
TP08/28

1777
44.9m
47.9m
3885
2916
3530
4461
Fairfield
4478
4400
4817
4732
5568
5489
6500
SANDSFIELD ROAD

554700
554800
554900
555000
555100
555200
555300

Revision Details	By / Check	Date	Suffix

THIS DRAWING MAY BE USED ONLY FOR THE PURPOSE INTENDED AND ONLY WRITTEN DIMENSIONS SHALL BE USED

Cumbria County Council
Connect roads
Birse Civils

Job Title
CARLISLE NORTERN DEVELOPMENT ROUTE

Drawing Title
Borehole and Testpit locations (3 of 11)

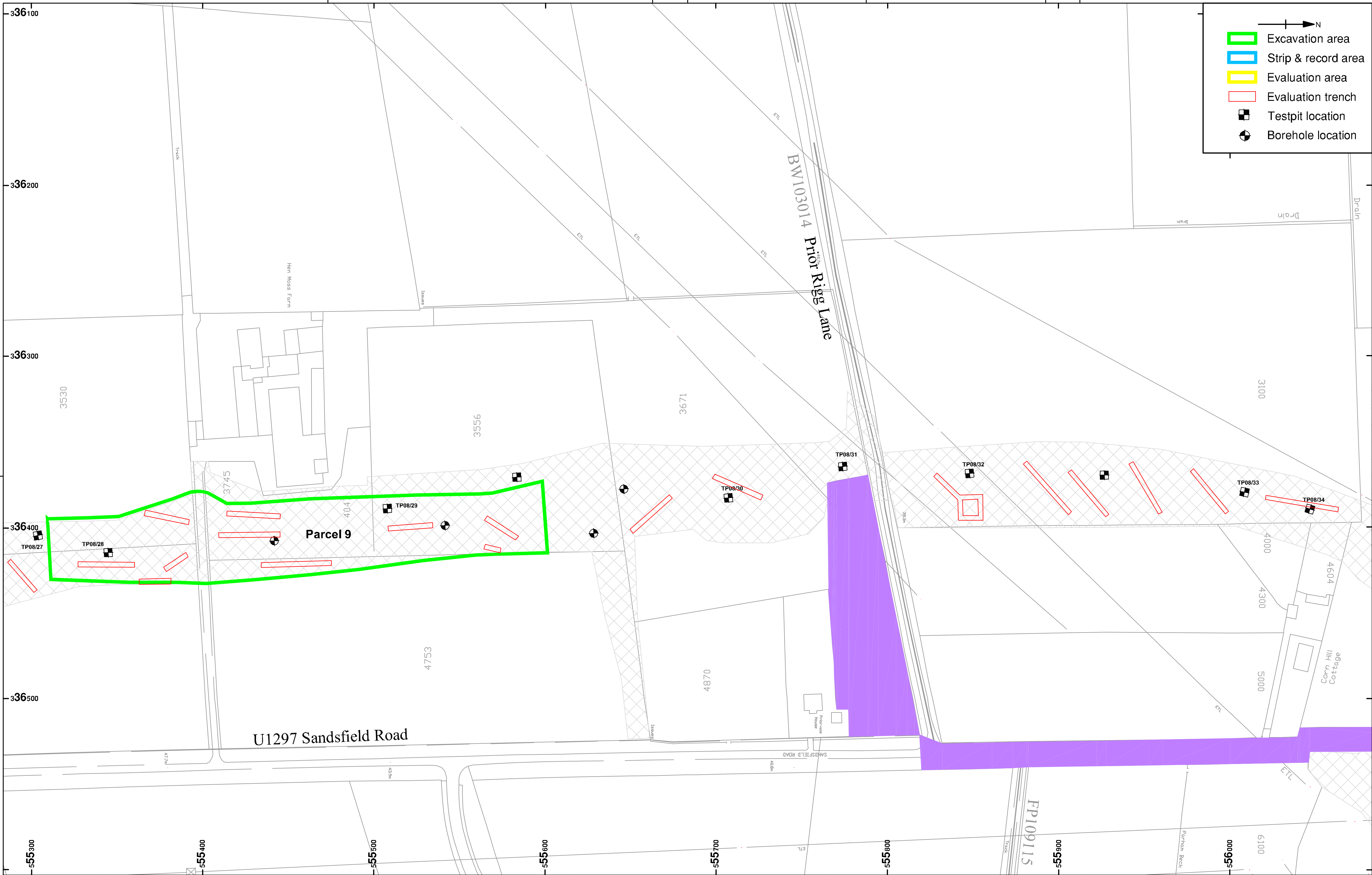
Scale at A1			
1:2000@A3			
Drawn		Approved	
OAN/AMS		APPROVED	
Stage 1 check	Stage 2 check	Originated	Date
STG1CHK	STG2CHK	ORIG	12-05-08
Drawing Status			

north

Drawing Number: 001
Rev:

Plot Date : PLOT_DAT CLOCK
AutoCAD File Name : CNDR_BHANDTPS_120508

DB1H



Revision Details	By	Check	Date	Suffix

THIS DRAWING MAY BE USED ONLY FOR THE PURPOSE INTENDED AND ONLY WRITTEN DIMENSIONS SHALL BE USED

Cumbria County Council | Connect roads | Birse Civils

Job Title: CARLISLE NORTERN DEVELOPMENT ROUTE

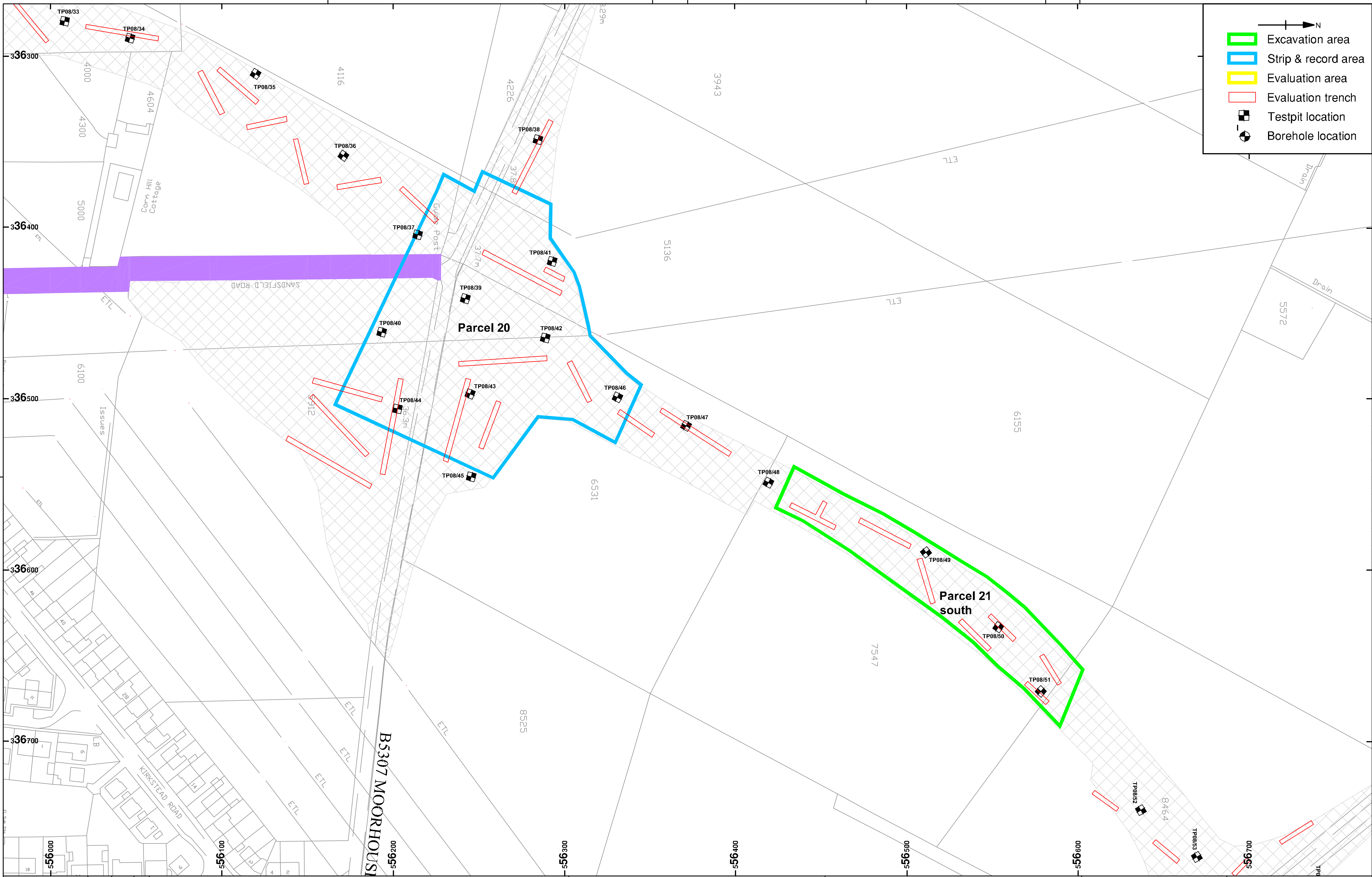
Drawing Title: Borehole and Testpit locations (4 of 11)

Scale at A1	1:2000@A3
Drawn	OAN/AMS
Approved	APPROVED
Stage 1 check	STG1CHK
Stage 2 check	STG2CHK
Originated	ORIG
Date	12-05-08
Drawing Status	
Drawing Number	001
Rev	

oa north

Plot Date : PLOT_DAT CLOCK
AutoCAD File Name : CNDR_BHANDTPS_120508

DB1H



Excavation area
Strip & record area
Evaluation area
Evaluation trench
Testpit location
Borehole location
N
Parcel 20
Parcel 21
south
TP08/33
TP08/34
TP08/35
TP08/36
TP08/37
TP08/38
TP08/39
TP08/40
TP08/41
TP08/42
TP08/43
TP08/44
TP08/45
TP08/46
TP08/47
TP08/48
TP08/49
TP08/50
TP08/51
TP08/52
TP08/53
SANDSFIELD ROAD
B5307 MOORHOUSE
KIRKSTEAD ROAD
Corn Hill Cottage
336300
336400
336500
336600
336700
556000
556100
556200
556300
556400
556500
556600
556700

Revision Details	By	Check	Date	Suffix

THIS DRAWING MAY BE USED ONLY FOR THE PURPOSE INTENDED AND ONLY WRITTEN DIMENSIONS SHALL BE USED

Cumbria County Council

Connect roads

Birse Civils

Job Title

CARLISLE NORTERN DEVELOPMENT ROUTE

Drawing Title

Borehole and Testpit locations (5 of 11)

Scale at A1: 1:2000@A3

Drawn: OAN/AMS

Approved: APPROVED

Stage 1 check: STG1CHK

Stage 2 check: STG2CHK

Originated: ORIG

Date: 12-05-08

Drawing Status

Drawing Number: 001

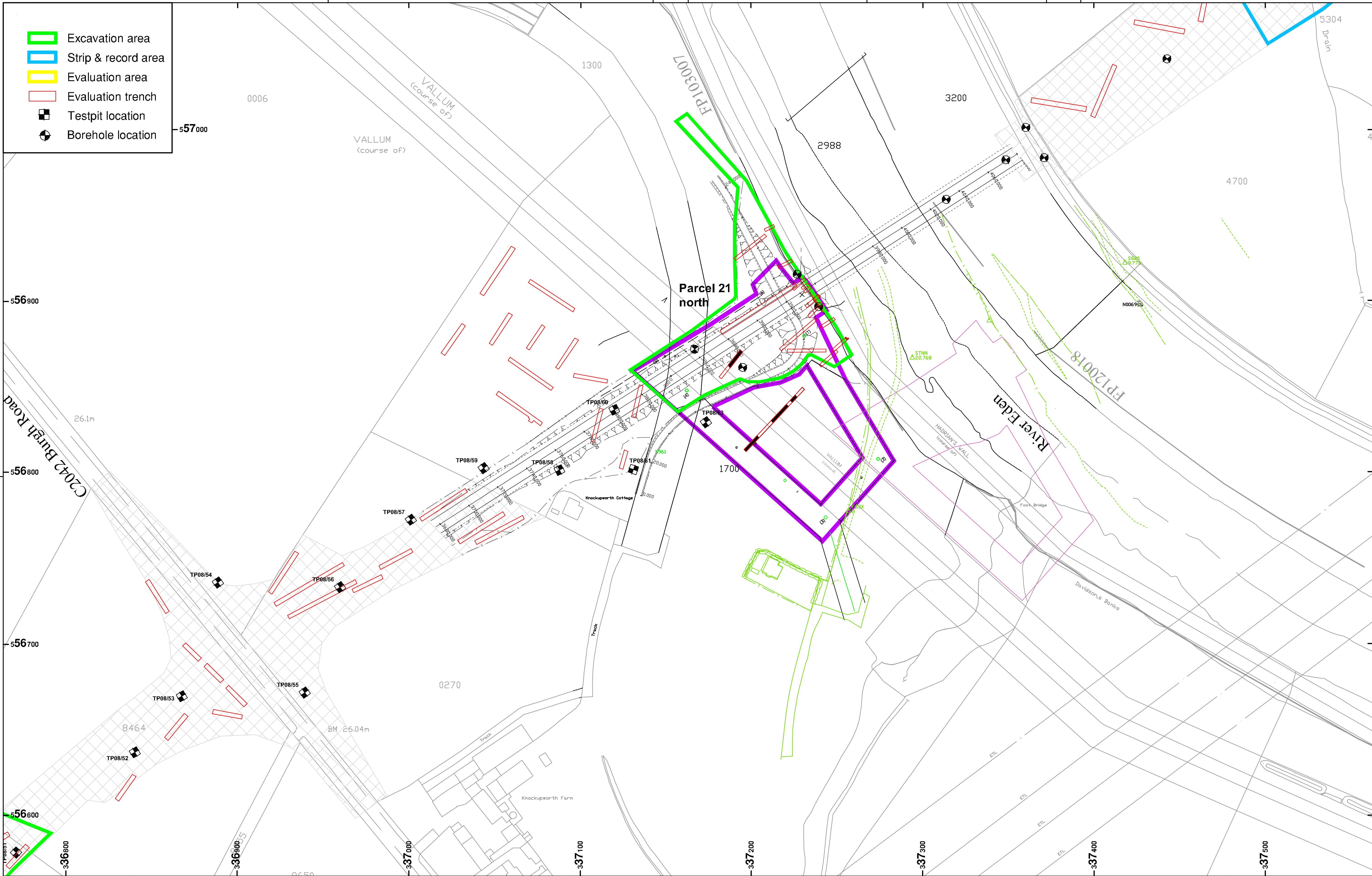
Rev

oa north

Plot Date : PLOT_DAT CLOCK

AutoCAD File Name : CNDR_BHANDTPS_120508

DB1H



Excavation area
Strip & record area
Evaluation area
Evaluation trench
Testpit location
Borehole location
557000
556900
556800
556700
556600
336800
336900
337000
337100
337200
337300
337400
337500
VALLUM (course of)
VALLUM (course of)
1300
0006
3200
2988
4700
5304
Drain
FP103007
FP120018
Parcel 21 north
River Eden
C2042 Burgh Road
26.1m
TP08/60
TP08/59
TP08/58
TP08/57
TP08/61
TP08/62
TP08/54
TP08/56
TP08/55
TP08/53
TP08/52
1700
Knockupworth Cottage
Knockupworth Farm
0270
8464
BM 26.04m
Track
HADRIAN'S WALL (course of)
Foot Bridge
Davidson's Banks
ETL

Revision Details	By	Check	Date	Suffix

THIS DRAWING MAY BE USED ONLY FOR THE PURPOSE INTENDED AND ONLY WRITTEN DIMENSIONS SHALL BE USED

Cumbria County Council

Connect roads

Birse Civils

Job Title

CARLISLE NORTERN DEVELOPMENT ROUTE

Drawing Title

Borehole and Testpit locations (6 of 11)

Scale at A1			
1:2000@A3			
Drawn		Approved	
OAN/AMS		APPROVED	
Stage 1 check	Stage 2 check	Originated	Date
STG1CHK	STG2CHK	ORIG	12-05-08
Drawing Status			

oa north

Drawing Number: 001

Rev

DB1H

Plot Date : PLOT_DAT CLOCK
AutoCAD File Name : CNDR_BHANDTPS_120508

N

Excavation area
Strip & record area
Evaluation area
Evaluation trench
Testpit location
Borehole location

Powlees Lane
FP120020
ETL
Drain
Greystone Lane
Parcel 32
Parcel 36
Parcel 27
TP08/65
TP08/66
TP08/67
TP08/68
TP08/69
TP08/70
TP08/71
5644
7945
0047
4534
7233
0032
6224
4121
7017
4514
7613
0003
5304
6000
7000
4700
Croft House Farm
15.3m
16.1m
557400
557300
557200
557100
337400
337500
337600
337700
337800
337900
338000
338100

Revision Details	By / Check	Date	Suffix	

THIS DRAWING MAY BE USED ONLY FOR THE PURPOSE INTENDED AND ONLY WRITTEN DIMENSIONS SHALL BE USED

Cumbria County Council
Connect roads
Birse Civils

Job Title
CARLISLE NORTERN DEVELOPMENT ROUTE

Drawing Title
Borehole and Testpit locations (7 of 11)

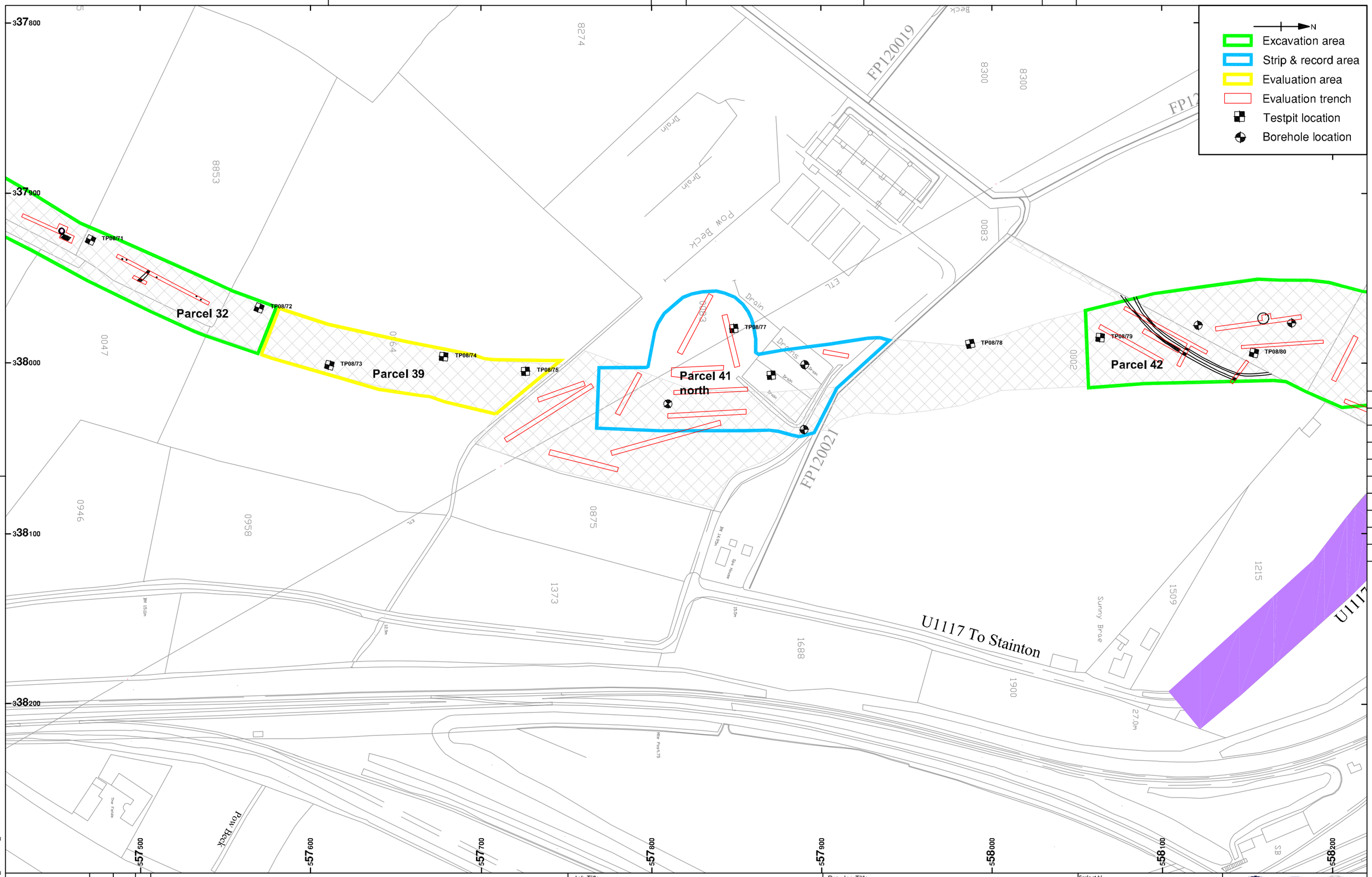
Scale at A1: 1:2000@A3			
Drawn: OAN/AMS		Approved: APPROVED	
Stage 1 check: STG1CHK	Stage 2 check: STG2CHK	Originated: ORIG	Date: 12-05-08
Drawing Status			

north

Drawing Number: 001
Rev

Plot Date : PLOT_DAT CLOCK
AutoCAD File Name : CNDR_BHANDTPS_120508

DB1H



Revision Details	By Check	Date	Suffix		

THIS DRAWING MAY BE USED ONLY FOR THE PURPOSE INTENDED AND ONLY WRITTEN DIMENSIONS SHALL BE USED

Cumbria County Council | Connect roads | Birse Civils

Job Title: CARLISLE NORTERN DEVELOPMENT ROUTE

Drawing Title: Borehole and Testpit locations (8 of 11)

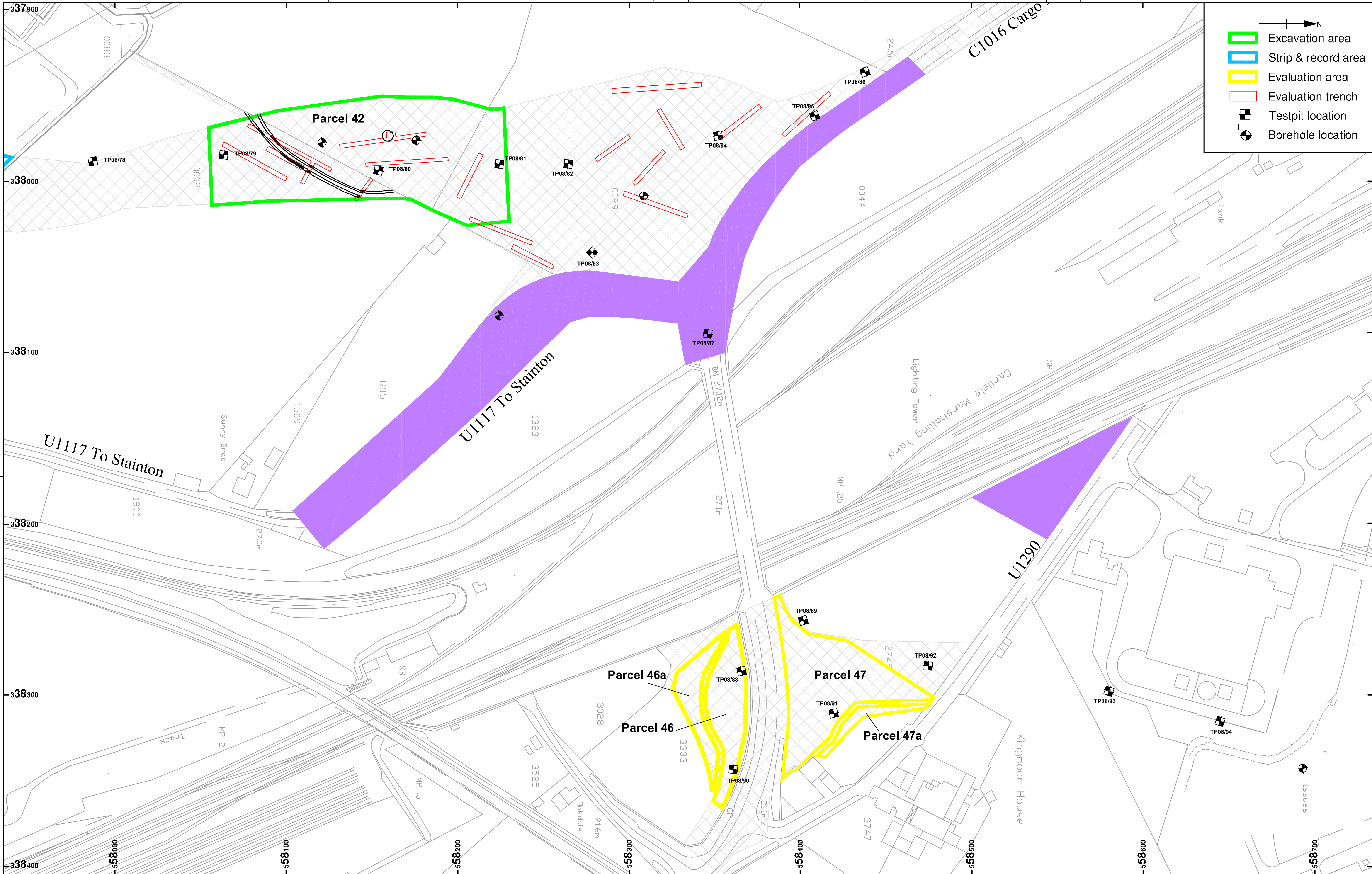
Scale at A1: 1:2000@A3			
Drawn: OAN/AMS		Approved: APPROVED	
Stage 1 check: STG1CHK	Stage 2 check: STG2CHK	Originated: ORIG	Date: 12-05-08
Drawing Status			

oa north

Drawing Number: 001 Rev

Plot Date : PLOT_DAT CLOCK
AutoCAD File Name : CND\R_BHANDTPS_120508

DB1H



N
Excavation area
Strip & record area
Evaluation area
Evaluation trench
Testpit location
Borehole location
Parcel 42
Parcel 46a
Parcel 46
Parcel 47
Parcel 47a
C1016 Cargo
U1117 To Stainton
U1117 To Stainton
U1290
TP08/78
TP08/79
TP08/80
TP08/81
TP08/82
TP08/83
TP08/84
TP08/85
TP08/86
TP08/87
TP08/88
TP08/89
TP08/90
TP08/91
TP08/92
TP08/93
TP08/94
Carlisle Marshalling Yard
Lighting Tower
Kingmoor House
Tank
Issues
Sunny Brae
Oakdale
Track
337900
338000
338100
338200
338300
338400
358000
358100
358200
358300
358400
358500
358600
358700

Revision Details	By	Check	Date	Suffix

THIS DRAWING MAY BE USED ONLY FOR THE PURPOSE INTENDED AND ONLY WRITTEN DIMENSIONS SHALL BE USED

Cumbria County Council

Connect roads

Birse Civils

Job Title

CARLISLE NORTERN DEVELOPMENT ROUTE

Drawing Title

Borehole and Testpit locations (9 of 11)

Scale at A1: 1:2000@A3

Drawn: OAN/AMS

Approved: APPROVED

Stage 1 check: STG1CHK

Stage 2 check: STG2CHK

Originated: ORIG

Date: 12-05-08

Drawing Status

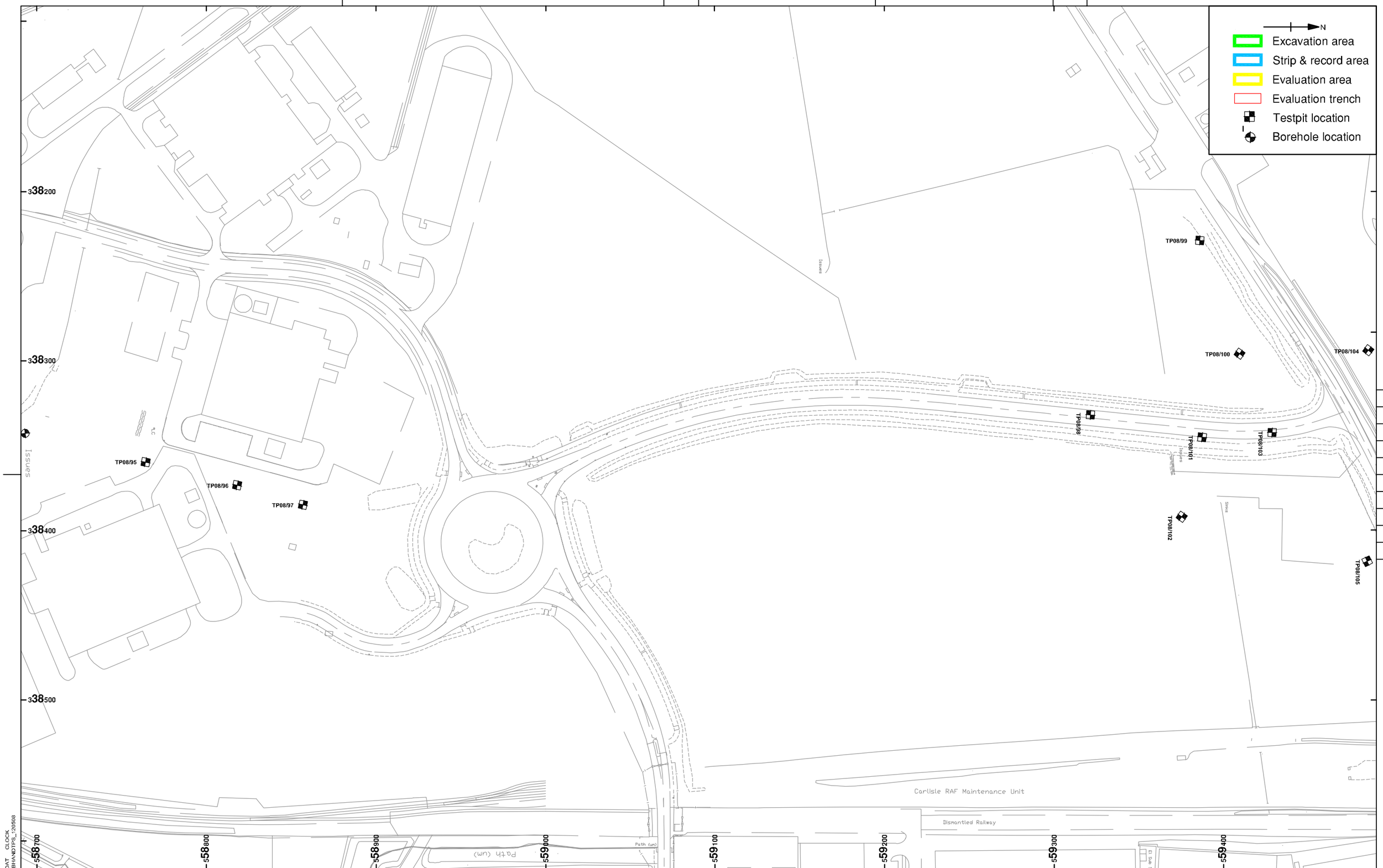
Drawing Number: 001

Rev

oa north

Plot Date : PLOT_DAT CLOCK
AutoCAD File Name : CNDR_BHANDTPS_120508

DB1H



Revision Details	By / Check	Date	Suffix		
THIS DRAWING MAY BE USED ONLY FOR THE PURPOSE INTENDED AND ONLY WRITTEN DIMENSIONS SHALL BE USED					

Cumbria County Council

Connect roads

Birse Civils

Job Title: CARLISLE NORTERN DEVELOPMENT ROUTE

Drawing Title: Borehole and Testpit locations (10 of 11)

Scale at A1: 1:2000@A3			
Drawn: OAN/AMS		Approved: APPROVED	
Stage 1 check: STG1CHK	Stage 2 check: STG2CHK	Originated: ORIG	Date: 12-05-08
Drawing Status:			

north

Drawing Number: 001 Rev

Plot Date : PLOT_DAT CLOCK
AutoCAD File Name : CNDR_BHANDTPS_120508

DB1H

N

- Excavation area
- Strip & record area
- Evaluation area
- Evaluation trench
- Testpit location
- Borehole location

559700
559600
559500
559400
559300

338400 338500 338600 338700 338800 338900 339000 339100

TP08/98
TP08/101
TP08/102
TP08/103
TP08/105
TP08/106
TP08/107
TP08/108
TP08/109
TP08/110
TP08/111

Carlisle RAF Maintenance Unit
Dismantled Railway
King Moor
FP109001
BW120033
Hypermarket
L Tower
Tanks
Lorry Park
Kingstown Industrial Estate
Level Crossing
Sinks
Issues
El Sub Sta
Tank
Automobile Association Headquarters
BLACKDYKE ROAD
KINGSTOWN BROADWAY
CARLISLE
KINGSTOWN
PETERMIRE

Revision Details	By / Check	Date	Suffix

THIS DRAWING MAY BE USED ONLY FOR THE PURPOSE INTENDED AND ONLY WRITTEN DIMENSIONS SHALL BE USED

Cumbria County Council | Connect roads | Birse Civils

Job Title: CARLISLE NORTERN DEVELOPMENT ROUTE

Drawing Title: Borehole and Testpit locations (11 of 11)

Scale at A1			
1:2000@A3			
Drawn: OAN/AMS		Approved: APPROVED	
Stage 1 check: STG1CHK	Stage 2 check: STG2CHK	Originated: ORIG	Date: 12-05-08
Drawing Status			

Drawing Number: 001 Rev

Plot Date : PLOT_DAT CLOCK
AutoCAD File Name : CND_BHANDTPS_120508

DB1H