

**N7 Nenagh to Limerick
High Quality Dual Carriageway
Archaeological Resolution Project
E2904, Kilnacrana Site 2, Co. Tipperary**

(A026/265, 266, 267, 268, 269, 270, 271, 272, 273 & 274)

Final Archaeological Excavation Report

for

Limerick County Council

Kate Taylor

27th August 2011

J06/15

(NGR 177370 171364 to 177828 171649)

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Summary

Scheme name: N7 Nenagh to Limerick High Quality Dual Carriageway

Scheme number: A026/000

Site name: E2904, Kilnacranra Site 2, Co. Tipperary

Scheme sub number: A026/265, 266, 267, 268, 269, 270, 272, 272, 273 & 274

Record number: E2904

Townland: Kilnacranra

Parish: Kilmastulla

Barony: Owney and Arra

County: Tipperary

NGR: 177185 171300 to 177335 171390

OS 6" Sheet No: Co. Tipperary Sheet 025 & 026

Chainage: 18950-19490

Client: Limerick County Council, Mid West National Road Design Office, Lissanalta House, Dooradoyle Road, Dooradoyle, Co. Limerick

Naturally occurring geology: Mixed mid orange and grey brown silty clay with cobbles

TVAS Ireland Job No: J06/15

Licence Eligible Director: Kate Taylor

Report author: Kate Taylor

Site activity: Excavation

Site area: 7676 m²

Date of fieldwork: 29th January – 16th February 2007

Date of report: 27th August 2011

Summary of results: Six areas were investigated. Activity ranged in date from prehistoric to post-medieval. Prehistoric activity was represented by stray finds. A partial, undated enclosure was probably associated with an early medieval kiln and hearth. Isolated early medieval and medieval hearths and pits and post-medieval agricultural activity were also recorded.

Monuments identified: Undated enclosure, early medieval kiln and hearths; a late medieval pit and post-medieval ditches and furrows.

Location and reference of archive: The primary records (written, drawn and photographic) are currently held at TVAS Ireland Ltd, Ahish, Ballinruan, Crusheen, Co. Clare.

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Report edited/checked by: Graham Hull ✓10.04.2010

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E2904, Kilnacranra Site 2, Co. Tipperary
Final Archaeological Excavation Report**

Kate Taylor

Introduction

This report documents the final results of the archaeological excavation of an undated enclosure associated with early medieval features, an early medieval kiln and hearths, a late medieval pit and post-medieval ditches and furrows (site E2904) on the route of the N7 Nenagh to Limerick High Quality Dual Carriageway (HQDC), Kilnacranra Site 2, Co. Tipperary (NGR 177370 171364 to 177828 171649) (Fig. 1). The excavation described here forms part of the N7 Nenagh to Limerick HQDC Archaeological Resolution Contract.

A preliminary report on the excavation was produced in June 2008 (Taylor 2008).

The National Monuments Act 1930 (as amended) provides the legislative framework within which archaeological excavation can take place and the following government publications set out many of the procedures relating to planning/development and archaeology:

Framework and Principles for the Protection of the Archaeological Heritage (DAHGI 1999a)

Policy and Guidelines on Archaeological Excavation (DAHGI 1999b)

Code of Practice between the National Roads Authority and the Minister for Arts, Heritage, Gaeltacht and the Islands (NRA/MAHGI 2001)

The archaeological work was carried out following Ministerial Direction given under the National Monuments (Amendment) Act 2004.

Project background

The excavation was carried out on the route of the new N7 Nenagh to Limerick High Quality Dual Carriageway. The scheme starts at the existing Newport Junction in the townlands of Carrowkeel and Mountshannon, runs north-eastwards towards Nenagh (Carrigatogher) and continues to Ballintotty at the end of the Nenagh Bypass, which will be widened. The total length of the route is 35.7 km.

The archaeological work included assessment of sites previously recognised and prospection for sites without surface expression by means of mechanical test trenching. A number of archaeological sites were confirmed or recognised during this testing. As preservation *in situ* was not a reasonable option, the resolution strategy for these sites was preservation by record, i.e. full archaeological excavation.

The archaeological fieldwork and post-excavation work were funded by Limerick County Council through the National Roads Authority.

Location, topography and geology

Archaeological site E2904 was located between NGRs 177370 171364 and 177828 171649 in Kilnacranra townland, parish of Kilmastulla, barony of Owny and Arra, Co. Tipperary (Figs 1 and 2).

The route of the new Nenagh to Limerick HQDC traverses a gently undulating landscape of lowland pasture broken only by a large area of peat basin that straddles the border between Counties Limerick and Tipperary. The region is overlooked by the Silvermines Mountains to the east and the Arra Mountains to the north and west.

Kilnacranra Site 2 was located on gently sloping pasture in the Kilmastulla valley, 150 m north-west of the river itself and west of a minor road, the R499. The underlying geology observed during excavation was glacial till, specifically mixed grey and orange brown silty clay with occasional cobbles. The excavated areas lay between 52 m and 56 m above Ordnance Datum (OD).

Archaeological and historical background

A search of documentary and cartographic sources was made. Information was gathered from, amongst other sources, the Sites and Monuments Record (SMR), Record of Monuments and Places (RMP) files, The National Monument Service website www.archaeology.ie, the *Excavations* database and publications (www.excavations.ie and Bennett 1987-2008) and from holdings of the County Tipperary Local Studies Centre, Thurles.

Cartographic sources

Although the Down Survey barony map (1656) indicates some roofless, possibly medieval buildings within the townland, none were within the alignment of the new road.

There are six farmsteads and one single house marked on the 1843 1st Edition Ordnance Survey (OS) map (Fig. 3). A minor road divides the open field system. A small river runs through marshy land on the south-eastern boundary of Kilnacranra townland and another small river runs through the site location.

The 1851 Griffith Valuation map has the addition of a railway line. One of the farmsteads and the single house has been removed for the construction of the railway line. The 1901-1902 25" edition map is the same as the Griffith Valuation map with the expectation of Kilnacranra Bridge annotated where a small river crosses under the minor road.

The 3rd edition (6") revised 1904 and 1938 OS maps show no change from the 1901-1902 edition.

Sites and Monuments Record/Record of Monuments and Places

There are no recorded monuments in the townland however an earthwork (TN025:57) lies 750 m to the north-west in Gortnaskehy townland.

The Excavations database

A search of the *Excavations* database was made for the townland of Kilnacranra and the neighbouring townlands of Castlecranna, Curraheen, Gortnaskehy and Greenhall. Excavations entries are present for Kilnacranra, Castlecranna and Gortnaskehy as part of the work done on this road scheme. These are not reproduced here as they are discussed elsewhere. There was one licence issued for Killeen Bog of which Curraheen is one of the townlands the bog is situated in.

Killeen Bog, Ballintogher, Cooldine, Curraheen, Derricknew, Liskevee, Lurgoe, 06E0696

Killeen Bog was surveyed as part of the 2006 Peatland Survey for Bord Na Móna. Killeen Bog is located either side of an unclassified road that runs from Littleton to Killenaule village. The bog is 640 ha in size and is split into three production areas. Killeen 1 contained 48 production fields and no archaeological sites were recorded. Killeen 2 is east of the dry island in Lurgoe townland where the Derrynaflan Hoard was found. Ten archaeological sites were recorded, all of which were in close

proximity to the margins of the dry island. The remains of a substantial gravel and plank trackway dating to AD650–880, a short length of transverse roundwood trackway dating to AD150–430, a platform dating to 820–420BC, four sightings of archaeological wood and three platforms as well as the upper part of a rotary quern were identified. Killeen 3 contained no archaeological features (Whitaker 2006).

National Museum of Ireland Topographic Files

No stray finds are recorded on the National Museum of Ireland Topographic Files for Kilnacranna, however an early medieval bronze zoomorphic brooch (1955:14) was found ‘just below the field surface adjacent to a family well’ in Ballinteenoe townland to the west (Topographic Files).

Documentary sources

The townland name, Kilnacranna, has a number of possible Irish derivations: *Cill-na-gcrann*, the church of the trees, or *Cill Na Cranach*, the church of Cranach. An alternative possibility is *coill-na-gcrann*, the wood of the trees. The Civil Survey (1654–56) and accompanying Down Survey maps make no reference to the existence of a church within the townland.

The Civil Survey describes Killnacranagh (Kilnacranna) townland as consisting of 100 acres, comprising 68 arable acres, 2 meadow acres, 20 wood acres, 5 pasture acres and 5 shrubby wood acres, and was valued at 24 l. The proprietor of Killnacranagh in 1640 was ‘John Roch of Crannagh Gent., Irish Papist’. The townland is further described below:

The sd. pld is bounded on the East wth. the pld of Crannagh, on the West wth the pld of ffaha all in this Parish, on the South wth. the common lyne of this Parish wth. the Parish of Killoscully, and on the North wth. the lands of Gortnaskehy in this Parish. The sd. John Roch pprietor in fee by purchas of his father Thomas Roch (as wee are informed) from Teige mc. Therlagh Duffe of the sd. pld of Kilnacranagh long before the Rebellion. On the sd. pld staneth two thatcht Tennemts. & is much interlaced wth. Shrubby woods & boggs (Simington 1931, 167).

O’Donovan and Curry note in the OS Name Books that Kilnacranna translates as *Cill Na Cranagh*, ‘Church of Cranagh’, but that ‘Cranagh’ may be the name of a stream. The townland is described thus:

A Townland principally under cultivation the South end consists of marsh there is a collection of houses near the centre surrounded with planatation, and a small River forms the Southern boundary (O’Flanagan 1930, 149).

Samuel Lewis writing in the mid 19th century describes Kilmastulla parish (Lewis 1837, 176) but Kilnacranna itself is not mentioned.

In 1851 the tenants of the part of Kilnacranna townland within the road take were Denis Brien, George Boland, William Keane and James Ryan (Griffith 1851).

Environmental Impact Statement

As part of the Environmental Impact Statement (EIS) for this road project, an Architectural, Archaeological and Cultural Heritage Report (MGL 2003) was commissioned. This statement of archaeology and built/cultural heritage was based on a desktop study of published and unpublished documentary and cartographic sources, supported by a field inspection and aerial inspection of the proposed route.

In addition to the Recorded Monuments described above the report identified the following areas of potential:

A complex of farm buildings 160 m to the north of the road take, close to the townland boundary with Gortnaskehy, was identified as being of architectural merit (Property 33). The farm buildings are largely of early 20th century construction, but one of the structures is marked on the 1843 1st Edition OS map. The property is not impacted upon by road construction.

A single storey cottage with associated outbuildings (Property 34) is located 100 m north of the road alignment on the north-eastern side of the R499. The complex is marked on the 1843 1st Edition OS map and although the property is not impacted upon by road construction it is considered to be of architectural merit.

A small bridge 120 m north of Kilnacranra Site 2, E2904, is also noted in the EIS (ibid, 69).

A potential archaeological site was identified during the aerial survey of the proposed road route. This site (ID No. 2A) is located approximately 75 m north of the CPO edge east of the townland boundary with Gortnaskehy. Crop marks show a possible 25 m by 30 m enclosure, with perhaps another enclosure attached to its south-east corner.

Doonan's Hill, a natural drumlin 700 m to the west of site E2904, was identified in the EIS as being a topographical feature that might have archaeological potential (ID No. 34). The hill has impressive views overlooking the Kilmastulla valley and was thought to have potential for prehistoric settlement, funerary or ritual activity.

A possible circular feature was noted in the contour survey undertaken as part of the EIS for the scheme. This area, in the vicinity of Kilnacranra Site 2 Area A, was targeted with additional test trenches but no archaeological features were found.

Archaeological investigation on the N7 Nenagh-Limerick HQDC

Archaeological test trenching by means of mechanically excavated centre-line and offset trenching along the route of the road project was undertaken by Aegis Archaeology Ltd and Judith Carroll and Company Ltd in early 2006. Areas of potential identified in the EIS were tested more intensively where possible and at this time the watercourses and townland boundaries were also examined. Further testing was undertaken by Headland Archaeology Ltd and TVAS (Ireland) Ltd in early 2007. This further testing was targeted on previous inaccessible areas i.e. under power lines etc. The results of the testing are not discussed except where archaeological deposits were encountered.

Sites excavated nearby during this project were Ballinteenoe Site 1, E2902, an Early Bronze Age *fulacht fia*, 980 m south-west (Taylor 2010a); Gortnaskehy Site 1, E2903, that contained an isolated early medieval hearth and produced a stray find of a Late Mesolithic flint blade, 120 m south-west (Taylor 2010b); and E3266, a multi-phase enclosure site with cremation burials, metalworking and other activities 150 m north-east (MacLeod 2010).

Discussion of archaeological and historical background

The first documentary and cartographic instances of habitation in the townland of Kilnacranra are 'thatcht tennemts' or buildings that are possibly late medieval in their origin. It appears that agricultural activity was continued on in the post-medieval period. Even though the townland name begins with 'Kil' there is no evidence of a church ever standing in the townland.

Earlier test excavations

Kilnacranra Site 2 was identified during centre-line and offset testing of the road route by Judith Carroll and Company Ltd. Ten areas of potential archaeology, in addition to the examination of areas

previously indicated as areas of potential, were found in the fields between the townland boundary with Gortnaskehy to the west and the R499 to the east.

A026/265 – Area A

Two small patches of charcoal-rich soil were found, one of which was associated with a large stone. A sherd of prehistoric pottery was recovered from the surface of one of the spreads (Nylund 2006a).

A026/266 – Area B

A possible hearth measuring 0.90 m by 0.80 m was revealed. The feature was partially excavated and thought to be 0.07 m deep (Nylund 2006b).

A026/267 – Area E

A ditch or drain was revealed in two trenches and was thought to be non-archaeological (Prunty 2006a).

A026/268 – Area F

A possible archaeological feature was thought to be a non-archaeological tree-bole (Prunty 2006b).

A026/269 – Area C

Two possible pits measuring 0.50 m by 0.46 m and 0.16 m by 0.11 m were revealed in a trench but not investigated further (Prunty 2006c).

A026/270 – Area D

Three potential archaeological features were discovered. Two were somewhat amorphous whilst the third was a circular pit, 1.10 m in diameter (Nylund 2006c).

A026/271 – Area D

Initially thought to be a potential archaeological feature, this site was discovered to be a decayed stone and deemed non-archaeological (Prunty 2006d).

A026/272 – Area D

Eight potential features were clustered within 8 m of each other. Some of the features showed evidence of *in situ* burning (Nylund 2006d).

A026/273 – Area D

Two possible postholes were investigated and shown to be non-archaeological root holes (Prunty 2006e).

A026/274 – Area D

A possible feature was determined to be a non-archaeological decayed stone (Prunty 2006f).

Following the submission of reports on the testing (Nylund 2006a-d, Prunty 2006a-f) these areas were excavated together under Ministerial Directions.

Excavation Aims and Methodology

The aims of the excavation were to:

- 1) Preserve by record all archaeological deposits and features within the excavation area
- 2) Produce a high quality report of the findings

The fieldwork took place between 29th January and 16th February 2007 and was directed by Kate Taylor, supervised by Marcin Makus, Fiona McAuliffe and Adrian McCarthy and assisted by Robert Alkiewicz, Lukasz Balaga, Edel Barry, Ana Belen Colen, Lluís Bermudo Ferrer, Tom Byrne,

Maurizio Campanelli, Joe Cassin, Agnieszka Chabimska, Mariusz Chabimski, Adam Chudy, Paolo Ciuchini, Marcin Czaja, Charlotte Comyns, Borbala Dios, Hollee Hibberson, Michael Hulak, Lukasz Jaworski, Marcin Jedrzejczak, Joanna Jezierska, Tomasz Kaczmarczyk, Michelle Kane, Patrycja Kolon, Dorota Krenc, Mary-Clare Linnane, Anna Lukasz, Alberto Martinez Gago, Fintan McCarthy, Tomasz Neyman, Karolina Oleksiek, Dorota Piechocka, Carles Plana Lorenzo, Pawel Pobudkiewicz, Rafal Pobudkiewicz, Waldemar Podlecki, Artur Rosiek, Monika Rosiek, Mario Sanchez Canadas, Iwona Sliwka, Andrew Smith, Jerzy Spyra, Slawomir Stawicki, Roman Szajna, Rafal Szydlowski, Jaroslaw Szymonski, Marceli Warmuz, Barbara Wdowiak and Szymon Wojciechowski.

Six areas were examined (A-F). Area A was initially rectangular but was extended to the south to investigate potential archaeological features and ultimately covered a 52 m by 43 m (maximum) area (1495 m²). Two trenches were excavated to the east of the stripped area to further investigate the possible earthwork identified in the EIS; these trenches examined an additional 302 m². Area B was extended in several directions and was an irregular shape (1007 m²). Areas C and D were rectangular and measured 21 m by 22 m (477 m²) and 57 m by 73 m (4195 m²), respectively. Area E was targeted on a possible ditch found during testing and was an irregular shape (159 m²), while Area F was a single trench 21 m long and 1.95 m wide (41 m²). The total area examined was 7676 m².

Topsoil was removed by a 20 tonne tracked mechanical excavator fitted with 6-foot (1.80 m) toothless grading bucket and operated under direct and continuous archaeological supervision. The spoil was visually scanned for artefacts.

The areas were hand cleaned and the archaeological features were excavated by hand.

A full written, drawn and photographic record was made according to the TVAS (Ireland) Ltd Field Recording Manual (First Edition 2003). The site was tied into the National Grid using a Global Positioning System (GPS) unit.

Geophysical survey

Following the completion of the excavation, an archaeological geophysical survey was carried out in the field adjacent to Area A in order to investigate the possible continuation of the enclosure (Nicholls and Shiel 2007). Although two sets of cultivation features were revealed, parallel to those excavated in the site, no evidence was seen of the enclosure. This is probably because the feature was shallow and disturbed. Other potential archaeological anomalies were also seen in the survey, not obviously associated with the features recorded in the excavated site.

Excavation results (Figs 4-14, Plates 1-8)

The excavation has revealed evidence of a partial enclosure, a kiln, hearths, pits, ditches and post-medieval agricultural activity. The excavation is described by area as no continuity was seen within the site itself, possibly as the areas were so far apart from each other. However five phases of activity have been revealed: prehistoric activity is represented by stray finds, there are two early medieval phases, a later medieval phase and a post-medieval phase, along with undated and non-archaeological features.

All features and contexts are listed in Appendix 1.

Area A (Figs 4-8, Plates 1-4)

Although not the largest, this was the most significant area excavated as part of Kilnacranna Site 2. Part of a ditched enclosure, kiln and hearth were amongst the features revealed (Fig. 4) and where dated, they are from the early medieval period.

Phase 1: Prehistoric

Two pieces of struck chert from the topsoil (50) are diagnostically prehistoric. Their presence suggests activity in the area, although no features are assigned to this phase.

Phase 3: Early medieval AD 750-1000

Enclosure

A portion of a ditched enclosure was recorded at the north-western edge of the site (Fig. 4, Plate 1). The enclosure had internal dimensions of 25 m by 7 m within the excavated area and extended outside the CPO into the field to the north-west. At the south-west the ditch formed an almost 90° corner, whilst at the east the bend was more gradual. A 2.10 m wide entrance faced south-east.

The enclosure ditch (Group 6) was recorded for a length of 35 m within the site and eight slots were excavated (4, 5, 14, 17, 18, 19, 20, 23), revealing it to be 1.00-2.75 m wide and 0.18-0.35 m deep with a shallow concave profile (Fig. 6, Plate 2). Once the slots were recorded, the ditch was fully excavated.

The ditch fill was mid brown silty clay with occasional pebbles and charcoal flecking. Artefacts from the ditch were two pieces of corroded iron, a clay tobacco pipe stem and fragments of bone. It is highly possible that, given the shallow nature of the ditch and the disturbance from later furrows, that some if not all of these items are intrusive. No material suitable for radiocarbon dating was recovered from the ditch and the enclosure is included in this phase of activity because of its association with the kiln and hearth.

Kiln

A kiln (Group 1) was excavated towards the centre of the site (Fig. 5); this was one of the features identified in testing. The kiln was keyhole-shaped, 3.75 m long and a maximum of 1.40 m wide with the chamber to the north-west end (Plate 3). The chamber (7) was 1.40 m in diameter and 0.30 m deep with concave sides and a flat base (Fig. 7). The flue (2) was 1.20 m long, 0.60 m wide and 0.20 m deep with a concave profile. The south-eastern fire-box (3) was broadly circular, 0.90 m in diameter and 0.16 m deep with a flat base. There was limited evidence of *in situ* burning in the flue with small patches of oxidised natural geological deposits in the base.

The chamber and most of the flue were lined with rough stones (79) and, although only a single course of unbonded stone was recorded *in situ*, the presence of a large number of stones in the kiln flue suggests that the lining was originally more substantial.

At the south-eastern end the lower fill (55) of the fire-box was soft dark grey silt. In the flue and the fire-box dark brown sandy silt with charcoal inclusions (51) formed the secondary fill. Above the stones in the chamber was a similar deposit (60) that also contained a large number of stones that had presumably collapsed from the lining.

These silty deposits were overlain by fairly sterile mid yellowish brown silty clay (54 at the south-east, 53/59 at the north-west), not dissimilar to the surrounding natural geology. Finally a charcoal-rich blackish brown deposit (58) with stone inclusions was recorded in the top of the chamber.

Sample 8 from the chamber (7) of the kiln produced a date of cal. AD 782 to 983 (UBA-13281, 1139±31 BP).

Hearth

Hearth 10 was oval in plan, located immediately to the east of the kiln, measured 1.80 m by 0.80 m and was 0.16 m deep (Figs 5 & 8, Plate 4). The base was red oxidised natural silty clay (66) representing *in situ* burning and above this was a deposit of black charcoal-rich silty material (52) (Plate 4). Charcoal from the hearth produced a radiocarbon date of cal. AD 780-979 (UBA-13280, 1145±33 BP), very close to that from the kiln. Although both dates were from oak charcoal, and therefore could potentially suffer from the 'old wood' effect, it is possible that these features were contemporary.

Undated features

Beneath the lower fill of the kiln flue, positioned centrally within the feature, was a posthole. It is not clear whether this feature relates to the kiln or whether it predates it and the positioning was entirely coincidental. The posthole (22) had a diameter of 0.35 m and was 0.40 m deep with a tapering profile. The posthole fill (76) was sterile orange brown silty clay and it seems unlikely that the feature could have been in use during the lifetime of the kiln without accruing some charcoal.

Pit 13 was located beside the hearth (10) and was also an oval feature measuring 1.15 m by 0.90 m and was 0.25 m deep with a bowl-shaped profile (Fig. 8). The single fill (62) was a sterile mid brown silty clay with occasional pebble inclusions.

Phase 5: Post-medieval, AD 1600 to present

Ditch

In the north-eastern corner of the site a ditch (Group 16) was investigated (Figs 4 & 8). The ditch was aligned south-east to north-west and was 1.40-1.58 m wide and 0.26-0.33 m deep with an irregular concave profile. Three slots were excavated (11, 12, 15) totalling 2.70 m in length and as the ditch was felt to be of no great antiquity the baulks were not removed. The ditch fill was mid brown silty clay with occasional pebbles and it produced a piece of corroded iron.

Furrows

Two sets of furrows crossed the site. At the east, these furrows were aligned south-east to north-west, parallel to, and either side of, ditch 16. The western furrows were perpendicular to those at the east. Both sets truncated the top of enclosure ditch 6. The furrows were recorded in a number of locations (21, 24, 25) and were shown to be up to 0.20 m deep in places.

Artefacts

In addition to the artefacts mentioned above, post-medieval pottery and clay tobacco pipe fragments were recovered from the topsoil (50).

Non-archaeological features

A spread of stones (8) and a roothole (9) were also recorded but were not thought to be of any archaeological significance.

Test trenches

Two trenches excavated to the south-west of Area A and were targeted on a possible circular feature identified from the contour survey (Fig. 2). No archaeological features or deposits were revealed.

Area B (Figs 9-10, Plate 5)

Phase 4: Late medieval, AD 1300-1600

A single pit was excavated in Area B (Fig. 9); the feature had been identified during test trenching. The pit (400) measured 1.33 m by 1.02 m and was 0.60 m deep with near-vertical sides and an unusual base with depressions in the four corners, perhaps to hold timber posts (Plate 5).

Four fills were identified within the pit (Fig. 10). The lower (453) was similar to the underlying natural geological deposits, being mixed pale grey and orange silty clay with occasional large stones that showed no sign of having been burnt. These stones could possibly represent displaced post-packing material. Above this was a similar layer (452) with more charcoal flecking. A more brownish grey layer (451) overlay this again and was in turn overlain by the upper fill (450), loose black silty clay with a high charcoal content. It was this upper fill that had been identified during the testing and charcoal from this deposit produced a 14th to 15th century date (UBA-13282, 501±31 BP).

No artefacts were recovered from the feature.

Area C (Fig. 2)

This rectangular trench on steeply sloping ground overlooking a stream was found to contain no archaeological features (Fig. 2). The two possible pits were shown to be non-archaeological stone sockets.

Area D (Figs 11-12, Plates 6-7)

A large area was stripped to examine a number of potential archaeological features identified in the test trenching. These features had variously been thought to be pits, hearths, decayed stones and root holes. Whilst a large number of potential features were observed, investigation proved that, as had been suggested by the testing, most of these, despite evidence of burning, were non-archaeological. Five archaeological features were identified (Fig. 11).

Phase 1: Prehistoric

A piece of struck flint from the topsoil (550) has characteristics that suggest a prehistoric origin, suggesting activity in the area around the excavation.

Phase 2: Early medieval, AD 450 – 650

Hearth 504 was the most convincing archaeological feature excavated in Area D and has been dated to the early medieval period, cal AD 555-644 (UBA-13283, 1465±26 BP). The hearth was circular with a diameter of 1.20 m and was 0.17 m deep with a bowl-shaped profile (Fig. 12, Plate 6). The lower fills (555 and 556) were located around the edges of the pit and were mid grey brown silty clays. Above these, the main pit fill (554) was black silty clay with a large charcoal component that was in turn overlain by a mid brown silty clay that sealed the feature. There was slight evidence of *in situ* burning in the base of the feature.

Phase 5: Post-medieval, AD 1600 – present

A piece of post-medieval pottery was recovered from the topsoil (550), indicating activity in the area.

Undated features

Pit 500 was an irregular elongated shape in plan, measured 1.68 m by 0.60 m and was 0.10 m deep with an irregular shallow profile (Fig. 12). The single fill (551) was black silty clay with a high charcoal content and a concentration of large rounded stones, some of which had been heat-affected.

Pit 502 was also elongated with an irregular shape. This feature measured 2.10 m by 1.42 m and was up to 0.42 m deep with an irregular profile – the south-east end was a deep bowl, whilst the north-west end was shallower and concave (Fig. 12). A small deep hole was located in the centre, perhaps representing a posthole, or alternatively root disturbance of the pit. The lower fill (552) was a soft grey brown sandy clay that was overlain by a mixed deposit of oxidised natural silty clay (not *in situ*) with occasional charcoal and stone inclusions (558). A lens of charcoal was also recorded at the southern end of the feature (559).

Two features showing evidence of intense burning were excavated in the centre of Area D. Fireplace 506 was circular with a diameter of 0.70 m and was 0.19 m deep with a steep concave profile. The fill (561) was entirely composed of oxidised natural silty clay with rare charcoal flecks (Plate 7). It was not clear whether deposit 561 was a fill of a cut feature or whether it was a product of *in situ* burning in this location. Pit 507 was oval, measured 0.54 m by 0.38 m and was 0.09 m deep with a bowl-shaped profile. The fill (562) was mixed red oxidised silty clay with charcoal inclusions. Again it was not clear if this was a product of *in situ* burning or had been moved from elsewhere.

Area E (Figs 13-14, Plate 8)

Undated features

An area was stripped around the feature that had been identified during test trenching as a non-archaeological drain (Fig. 13). A large ditch (Group 601) was revealed and three slots were excavated to examine the feature (602-604) (Fig. 14, Plate 8). The ditch was aligned south-east to north-west and was 26 m long within the excavated area but continued in both directions. The excavated slots revealed that the ditch was 1.40-1.80 m wide and 0.40-0.50 m deep with a steep-sided concave profile. The ditch was filled with fairly sterile firm mid brown silty clay.

No artefacts were recovered and there is no evidence to suggest a date for the feature which is most likely a boundary ditch.

A small pit (605) to the north of the ditch had been disturbed by a drain. The pit measured 0.20 m by 0.15 m and was 0.15 m deep with an irregular profile. The pit fill (653) was dark brown clayey silt with some charcoal inclusions (Fig. 14). This feature did not appear to be of any great antiquity.

Area F (Fig. 2)

A trench was excavated to further examine the tree-bole identified during testing (Fig. 2). The location was being used as a bridging point for mechanical plant to cross the stream and had been heavily disturbed. No archaeological features were revealed.

Finds

The site produced thirteen archaeological artefacts (Appendix 2). Three parts of clay tobacco pipe were recovered from Area A, two from the topsoil and one from a ditch slot. Two pieces of chert from Area A and a piece of flint from Area D were all recovered from topsoil. Sherds of post-medieval pottery were recovered from the topsoil in Areas A and D. Four small pieces of corroded iron were found in two ditches in Area A. A small assemblage of bone fragments was retrieved from the enclosure ditch in Area A. Due to the acidic nature of the soil in this area these fairly fresh pieces of bone are probably not particularly old.

Clay tobacco pipe by Edel Ruttle

Five pieces of clay tobacco pipe were examined (Table 1). The material was collected by hand from contexts 50 (topsoil) and 69 (ditch fill) in Area A. A maximum number of three clay tobacco pipes are represented in this assemblage.

There is just one bowl fragment in the assemblage, E2904:50:2 (Fig. 15). The bowl is incomplete and has a flat pedestal spur.

The stem finds (E2904:50:1 & 69:1) have been broken from their bowls and have no diagnostic features.

Table 1: Catalogue of clay tobacco pipe

Find no.	Cut	Deposit	Identification	Dimensions (mm)							Pcs	Wgt (g)	Comment
				L	H	Cross-sec	Bore	Bowl		Spur			
								Th	Diam	L			
E2904:50:1	-	50	Stem fragment	37		oval 10 x 7	2.50				1	3	
E2904:50:2a-c	-	50	Stem with bowl fragments	77	20	circular 8	3	3		3	3	7	Co-joining, spur
E2904:69:1	14	69	Stem fragment	47		oval 11 x 9	2.50				1	5	

Discussion

The earliest development of the spur is in the late 17th century (Ayto 2002). Considering that the only dateable clay pipe comes from topsoil one can only conclude that that find dates from, at the earliest, late 17th century to early 20th century. The stems finds remain undated.

Lithic by Joanna Nolan

Introduction

This report details the analysis of three lithic artefacts recovered on the excavations of site E2904 on the Tipperary section of the N7 Nenagh to Limerick High Quality Dual Carriageway. Two of the items are of chert and one is of flint. The details of the artefacts were catalogued on a Filemaker pro database.

The area in which these excavations were carried out is characterised by bedrock geology of Carboniferous Limestones, Devonian Sandstone and Silurian Greywackes, the sequence details refer to upper layers of shaley cherty fossiliferous Limestones (McCarthy Hyder 2001). The chert used in this assemblage corresponds with these characteristics; it is likely that locally available chert was the predominant raw material used.

The source of the flint raw material is less obvious. The flake is probably too large to have been struck from a drift derived nodule which would have been available in the glacial gravels at this site and probably represents importation of this raw material.

Results

Three lithic items were recovered (Table 2). This group of material was recovered from two contexts, the first, context 50 in Area A, is topsoil and the two items recorded as surface finds. The third piece was recovered from topsoil in Area D.

Table 2: Lithic material

Find no.	Item	L (mm)	W (mm)	T (mm)	Retouch	Raw Material
50:3	Flake	19.85+	15.66	05.01	No	Chert
50:4	Flake	27.88	18.47	03.81	No	Chert
550:2	Flake	35.81	26.89	03.88	No	Flint

Flakes 50:3 (Fig. 16) and 50:4, which derive from topsoil, have quite similar characteristics. The two items are both small slightly irregular flakes which were probably produced by indirect percussion. The flakes were made from different chert nodules; 50:3 is a nice very black fine-grained chert whereas 50:4 is a coarser black/grey chert.

Find 550:2 is from topsoil in Area D. This is quite a large flint flake but is extremely irregular. It terminates in a hinge fracture which has caused it to splay lopsidedly at the distal end. It was probably produced using soft hammer percussion. It is likely that all items were waste flakes produced during knapping.

All three of these items display knapping characteristics that could be interpreted as later prehistoric, however as their find circumstances appear to have been disturbed contexts, they can only be viewed as individual finds.

Post-medieval pottery by Edel Ruttle

A total of two sherds were presented for study. The material was collected by hand from topsoil in Area A (deposit 50) and Area D (deposit 550).

Methodology

The sherds were identified visually and the results are shown in Table 3. The identification of each sherd has been entered on a database table. The database shows the *licence*, *context* and *finds* number; the *identification* of the fabric type; the diagnostic *description* i.e. rim, handle etc; the *link* of certain sherds within and with other contexts and a *date*. The database is easily searchable for particular types of pottery, vessels parts etc.

Discussion

Two groups of pottery emerged from the study; creamware and black glazed ware. This is very much a domestic assemblage.

Creamware

This ware was made in factories in the United Kingdom, mainly in Staffordshire, from the late 18th century and was developed by Josiah Wedgwood to compete with porcelain. This mass produced tableware replaced tin glazed earthenware as the everyday tableware (Savage and Newman 1985, 88). Its proliferation in the archaeological record indicates that it was easily obtainable and inexpensive (Meenan 2007). There is one piece of creamware represented (E2904:550:1) and is a thin, rim sherd.

Black glazed ware

Black glazed wares were produced in the Buckley region of North Wales in the 18th and 19th century (Davey 1975) and also in Lancashire and there are occasional productions sites in Ireland. They are red fired clay with a black glaze, caused from iron added to the lead glaze. There is one sherd of black glazed ware represented (E2904:50:50) and consists of base and body section, possibly a storage jar.

Table 3: Identification of post-medieval pottery

Find No.	Cut	Deposit	Identification	Description	Link	Date
E2904:50:5		50	Black glazed ware	Body with base section		18 th / 19 th c
E2904:550:1		550	Creamware	Rim		18 th c

Metal by Miriam Carroll and Annette Quinn

Introduction

Four ferrous artefacts (E2904:56:1, E2904:69:2, E2904:70:1 and E2904:70:2) were recovered from the excavations at Kilnacranra Site 2, Co. Tipperary. The assemblage is comprised of an iron nail shaft (E2904:56:1) and three miscellaneous items (E2904:69:2, E2904:70:1 and E2904:70:2) (Table 4). The latter are listed under miscellaneous as they are not readily classifiable or are of unknown function. The items are listed below with a basic description followed by a catalogue.

Nails

A small iron nail shaft (E2904:56:1) was recovered from the fill of the enclosure ditch (Group 6) at Kilnacranra. The shaft is rectangular in section and tapers towards a slightly curved tip. The nail head is not extant. While different nail types can be identified through their distinct heads and/or size (e.g. horseshoe nails), little can be said of the typological development of nails with rectangular or circular

heads which continued in use from the medieval period through to the 19th century. Most nails are likely to have been used as structural ironwork in timber structures or objects.

Miscellaneous

Three miscellaneous items form part of the ferrous assemblage from Kilnacranra. A highly corroded object (E2904:69:2) was recovered from the fill of the enclosure ditch (Group 6) but does not retain any distinguishable features to allow for further classification. The remaining items (E2904:70:1 and 2) came from the fill of another ditch (Group 16) and are also undiagnostic.

Table 4: Catalogue of metal

Find no.	Cut	Deposit	Metal	Dimensions (mm)	Weight (g)	Description
56:1	4	56	Fe (iron)	L 27.10 x W 6.60 x Th 3	0.70	Incomplete nail shaft, rectangular in cross section. Tapers to a rounded point, slightly bent. Conserved.
69:2	14	69	Fe (iron)	L 69 x W 49.30 x Th 10.30	90.1	Incomplete highly corroded iron object with stone and earth accretions. Flat object with protrusion on one surface, possible nail? Undiagnostic.
70:1	15	70	Fe (iron)	L 16.10 x W 13.70 x Th 8.50	1.80	Incomplete small lump of corroded metal. Possible nail head.
70:2	15	70	Fe (iron)	L 53.40 x W 35.70 x Th 11.90	26.10	Highly corroded iron object. Undiagnostic.

Bone by Fiona Beglane

Introduction

This report details the small faunal assemblage from the N7 Nenagh to Limerick dual carriageway at Kilnacranra Site 2, Co. Tipperary. The material was recovered from Area A where it was found within an enclosure ditch of possible early medieval date.

Methodology

Contexts were described on the basis of the stratigraphic information supplied by the excavator. Remains were identified using comparative collections held by the author and by reference to Hillson (1992) and Schmid (1972). Approximate size ranges for the contents of each sample were estimated and notable fragments were measured to an accuracy of 0.10 mm using a digital calliper. Burnt material was classified as singed for bone with only partial blackening, burnt for blackened bones or calcinated for those bones that were predominantly white/blue-grey in colour.

The bone could not be identified to element or species however some classification could be undertaken. In an Irish context ‘large mammal’ (lm) includes cattle and horse, ‘medium mammal’ (mm) includes sheep, goat, pig and larger dogs, with ‘small mammal’ (sm) including species such as hare, cat, fox, small dog etc. Human bone would fall into the category of large or medium mammal depending on the element of the body. Cortical bone is the dense bone that makes up the shaft of a long bone, and has high strength in compression. Trabecular or cancellous bone is honeycombed in form and found at the ends of long bones, inside the flat bones such the pelvis and inside the vertebrae. This type of bone is light in weight but not as strong.

Results

Results are summarised in Table 5. The bone fragments came fill 73 of the enclosure ditch in Area A. Unfortunately they could not be identified to species. The fragments were unburnt, with several pieces that could be identified as cortical bone fragments from a large mammal and other fragments of trabecular bone, including one that appears to come from the end of a long bone. The bone fragments were light in both colour and weight, indicative of poor preservation and it is unlikely that this bone contains sufficient collagen to facilitate radiocarbon dating.

Table 5: Bone identification

Cut	Deposit	Find No.	Weight (g)	No of fragments	Notable fragments	Typical fragment size	Smallest fragment size	Identifications
19	73	73:1	5	ca 15		10-15mm	Dust	Mainly cortical bone fragments, with some trabecular bone fragments
					31.60x23.70x4mm			Cortical long bone fragment from a large mammal.
					29.30x15.20x5.30mm			Cortical long bone fragment from a large mammal.
					32.70x17.30x7.80mm			Trabecular bone fragment from large mammal. Outer surface intact, shape suggests part of long bone.

Samples

Twenty-five samples were taken from a range of deposits across site. Seventeen of these have been floated and wet sieved through a 300 micron mesh and then through a 2 mm mesh in order to recover charred plant material and small artefacts. A catalogue of samples and results is given as Appendix 3.

Carbonised plant remains by Mark Robinson

Five areas were excavated at Kilnacranra (N7 Site E2904) and archaeological contexts containing carbonised remains were found in three of them. The contexts in Area A included an early medieval corn-drying kiln and a hearth, a pit was found in Area B, and several hearths and a pit were found in Area D. Samples were floated in water for carbonised remains and the results of the ten to contain charcoal are given in Table 6. Samples were floated onto a 0.30 mm mesh and the dried flots were scanned under a binocular microscope for charcoal, seeds, chaff etc. A representative range of charcoal was picked out, broken transversely and examined at x50 magnification, enabling ring-porous taxa to be identified. When a fragment of diffuse-porous charcoal was noted, it was broken in the appropriate planes and examined by high-power incident-light microscopy at magnifications of up to x400. An estimate was made of the abundance of each taxon of charcoal. In addition, a fragment of *Corylus avellana* (hazel) nut was found in Sample 2 and two nuts of *C. avellana* were found in Sample 40.

Despite the kiln in Area A being interpreted as a corn-dryer, cereal remains were absent from Samples 2, 4, 8 and 14, the samples from this structure. They all, however, contained charcoal of *Quercus* sp. (oak) which was presumably from the fuel. Sample 1, from the hearth, likewise contained much *Quercus* sp. charcoal.

Sample 40 from a pit in Area B had a high concentration of *Alnus glutinosa* (alder) charcoal along with a couple of nuts of *C. avellana*.

The hearths of Area D (Samples 51, 52 and 54) boasted a range of fuels including *Prunus* sp. (sloe, cherry etc), Pomoideae (hawthorn, apple etc) and *Quercus* sp. Sample 50, from a pit, contained much charcoal of *C. avellana*.

The results for Areas A and B suggested woodland was being exploited for fuel and there was at least limited collection of hazel nuts. In contrast the results from Area D suggested that fuel was being obtained from thorn scrub as well as woodland.

Table 6: Charcoal identification

	Area	A	A	A	A	A	B	D	D	D	D
	Feature	10	2	3	7	3	400	504	500	502	506
	Context	52	51	54	58	55	450	554	551	559	561
	Sample	1	2	4	8	14	40	50	51	52	54
	Sample volume (litres)	2	2	2	1.5	1.5	4	4	4	3	2
<i>Prunus</i> sp.	Sloe, cherry etc	-	-	-	-	-	-	-	++	-	-
Pomoideae indet.	Hawthorn, apple etc	-	-	-	-	-	-	-	+++	-	-
<i>Alnus glutinosa</i> (L.) Gaert.	Alder	-	-	-	-	-	++++	-	-	-	-
<i>Corylus avellana</i> L.	Hazel	-	-	-	-	-	-	+++	+	-	-
<i>Quercus</i> sp.	Oak	+++	+	+	++	++	-	-	-	++++	+

+ present, ++ some, +++ much, ++++ very much

Radiocarbon Dates

Four radiocarbon determinations were made by Queens University Belfast (Table 7, Fig. 17). The calibration curve used was IntCal09 (Reimer et al 2009) and the plot was created with OxCal v4.1.4 (Bronk Ramsey 2009).

Table 7: Radiocarbon determination

Lab code	Cut	Deposit	Sample no.	Sample material	Radiometric age	Calendrical calibrations
UBA-13280	10	52	1	<i>Quercus</i> sp. – charred	1145±33 BP	2 sigma (95.4%) Cal AD 780-792 Cal AD 804-979 1 sigma (68.3%) Cal AD 830-837 Cal AD 868-905 Cal AD 912-970
UBA-13281	7	58	8	<i>Quercus</i> sp. – charred	1139±31 BP	2 sigma (95.4%) Cal AD 782-789 Cal AD 809-983 1 sigma (68.3%) Cal AD 880-906 Cal AD 911-971
UBA-13282	400	450	40	<i>Alnus glutinosa</i> (L.) Gaert. - charred	501±31 BP	2 sigma (95.4%) Cal AD 1331-1337 Cal AD 1397-1448 1 sigma (68.3%) Cal AD 1413-1437
UBA-13283	504	554	50	<i>Corylus avellana</i> L. - charred	1465±26 BP	2 sigma (95.4%) Cal AD 555-644 1 sigma (68.3%) Cal AD 575-624 Cal AD 627-631

Sample 50 from hearth 504, in Area D, produced the earliest date for the site at the start of the early medieval period. Samples 1, from hearth 10, and 8, from kiln 7, both in Area A produced contemporary early medieval dates. Sample 40, from pit 400, in Area B produced a later medieval 14th/15th century date.

Discussion

The excavation of Kilnacranra Site 2, Co. Tipperary has revealed evidence of prehistoric activity in the form of stray finds, early medieval activity including an enclosure, a kiln and two hearths, a later medieval pit and a number of post-medieval features and furrows.

Area A

Area A contained an early medieval kiln and hearth adjacent to an undated enclosure, pit and posthole and elements of a post-medieval agricultural system.

The small part of enclosure ditch visible within the excavated area showed it to be at least 25 m across and sub-rectangular or sub-circular in plan. Unfortunately geophysical survey in the adjacent field did not reveal the shape of the remainder of the enclosure. Presumably the monument was originally a ditched feature with an internal bank. No internal features were recorded within the excavated area and the function is unknown. The shape and size of the enclosure (extrapolating beyond the CPO) are

suggestive of an early medieval example, however the shallow nature of the ditch itself is unusual and without a complete plan of the monument it is difficult to draw parallels with other sites. Despite the discovery of a number of artefacts in the enclosure ditch fills (metal, clay tobacco pipe and bone) it is thought that all of these items could be intrusive as the feature was shallow and there was severe disturbance from post-medieval agricultural activity. Unfortunately no dateable material was recovered either during excavation or from sieving of bulk soil samples and there is no mechanism to obtain an absolute date for the feature.

The kiln and hearth are not out of place within an early medieval site. The kiln was a classic keyhole shape; the chamber was located to the north-west end. The chamber and flue were both stone lined. The fuel used was oak, which burns well and reaches high temperatures. No cereal grains were retrieved from the kiln and, although it is possible that the kiln was carefully cleaned of burnt grain, it might not have been used to dry crops and its function remains unknown. The hearth was adjacent to the kiln and may have functioned in tandem with it. A similarly dated kiln was excavated at Cooleen Site 1 as part of this road scheme (McNamara 2010) and later medieval examples were excavated at Carrigatogher (Harding) Site 6 (Taylor 2011) and Ballywilliam Site 1 (McNamara, Ruttle and Taylor 2011).

The field boundary ditch and furrows are part of a post-medieval agricultural system. Ditch 16 is roughly parallel to the nearby road and the furrows are all either parallel or perpendicular to this ditch, indicating a pattern of ploughing in fields smaller than those extant today. The earliest available detailed map of the area (the 1843 1st Edition OS (Fig. 3)) does not show a field division in this location so presumably this boundary fell out of use prior to the mid 19th century.

Area B

A single isolated pit, with a rich upper fill containing alder charcoal and some hazel nuts, was dated to the 14th/15th century. It is not clear what activity this feature represents, although it is possible that depressions in the four corners were postholes and that stones in the fill were for packing around timber posts. The posts could potentially have supported a super-structure that held a raised fire place or brazier, the waste from which collected in the top of the pit below.

Area C

No archaeological features or deposits were identified in this area, despite its location overlooking the stream.

Area D

An early medieval hearth and four other undated pits were excavated in Area D. The circular hearth had evidence of *in situ* burning and contained hazel. The four other pits were also associated with burning, either in the form of charcoal rich fills or oxidised natural geological deposits. The charcoal evidence from the four pits included *Prunus* sp. (sloe, cherry etc), Pomoideae (hawthorn, apple etc) and oak which suggests missed scrub was used as fuel. The pits were isolated and there is no clear purpose. Presumably they indicate nearby habitation or use in an agricultural setting, at a distance from the nearest settlement.

Area E

A ditch and pit were investigated in this area. The pit is undated but the ditch is likely to represent a post-medieval field boundary. Whilst the ditch does not line up with any current field boundaries it is parallel to the edge of a field to the north. There is no boundary marked in this location on the earliest available detailed map of the area, the 1843 OS First Edition (Fig. 3). It is therefore likely that the ditch represents a field boundary that fell out of use prior to the mid 19th century.

Area F

No archaeological features or deposits were identified in this area.

Further work

The enclosure in Area A appears to continue beyond the limit of the excavated area into the adjacent field to the north-west. Extrapolation of the shape of the monument suggests that less than half has been revealed in the excavation. It is recommended that the portion of the enclosure that continues outside the CPO on the north-western side of Area A (NGR 177800 171670) be entered into the RMP for County Tipperary. This area was the subject of a geophysical survey (Nicholls and Shiel 2007) and, although no evidence was seen of the enclosure, other potential archaeological anomalies were recorded.

The results of this excavation will be published as part of a scheme monograph, hopefully in 2011-2012.

A summary of the findings of the excavation has been submitted to *Excavations 2007*.

An accessible archive of primary records (Appendix 4) has been prepared for long term storage and will be kept at the offices of TVAS (Ireland) Ltd until such time as a State archive repository becomes available.

The finds have been cleaned, numbered and labelled, and will be properly packed and deposited with the National Museum of Ireland in accordance with *Advice Notes for Excavators* (NMI 2010).

Kate Taylor
TVAS Ireland Ltd
27th August 2011

References

- Ayto, E, 2002 3rd edition, *Clay tobacco pipes*, Shire album 37, Shire Publications Ltd, Buckinghamshire, 4
- Bennett, I (ed), 1987-2008, *Excavations*, Wordwell, Bray and www.excavations.ie
- Bronk Ramsey, C, 2009, 'Bayesian analysis of radiocarbon dates', *Radiocarbon* **51**(1), 337-360
- DAHGI, 1999a, Framework and Principles for the Protection of the Archaeological Heritage, Department of Arts, Heritage, Gaeltacht and the Islands, Govt. of Ireland, Stationery Office, Dublin
- DAHGI, 1999b, Policy and Guidelines on Archaeological Excavation, Department of Arts, Heritage, Gaeltacht and the Islands, Govt. of Ireland, Stationery Office, Dublin
- Davey, P, 1975, *Buckley pottery*, Buckley Clay Industries Research Committee, Shotton
- Griffith, R, 1851, *Primary Valuation of Ireland, Co. Tipperary*, Valuation maps for Kilnacranra townland, Sheets 25 and 26, Surveyed 1850, Published 1851, www.askaboutireland.ie/griffith-valuation/index.xml
- Hillson, S W, 1992, *Mammal bones and teeth*, Institute of Archaeology, University College London, London
- Lewis, S, 1837, *A Topographical Dictionary of Ireland*, Volume II, London
- MacLeod, R, 2010, N7 Nenagh to Limerick High Quality Dual Carriageway, Archaeological Resolution Project, Kilnacranra Site 1, E3266, Co. Tipperary, Final Excavation Report, Unpublished report by Headland Archaeology (Ireland) Ltd. for Limerick County Council
- Margaret Gowen and Co. Ltd., 2003, N7 Nenagh to Limerick High Quality Dual Carriageway, Environmental Impact Statement Volume 4B, Architectural Heritage Archaeological Heritage Cultural Heritage, Margaret Gowen & Co Ltd, RPS-MCOS Scetauroute
- McCarthy Hyder Consultants, 2001, N7 Castletown to Nenagh – Route Corridor Selection Report, Section 19.0 geology and hydrogeology
- McNamara, M, 2010, N7 Nenagh to Limerick High Quality Dual Carriageway, E3370, Cooleen Site 1, Co. Tipperary, Final archaeological excavation report, unpublished TVAS (Ireland) Ltd report
- McNamara, M, Ruttle, E and Taylor, K, 2011, N7 Nenagh to Limerick High Quality Dual Carriageway, E2479, Ballywilliam Site 1, Co. Tipperary, Final archaeological excavation report, unpublished TVAS (Ireland) Ltd report
- Meenan, R, 2007, 'Post-medieval pottery in Ireland', in A Horning, R Ó Baoill, C Donnelly and P Logue *The Post-Medieval Archaeology of Ireland 1550-1850*, Wordwell, Dublin, 399-400
- Nicholls, J and Shiel, D, 2007, Killalane Group 12, Kilnacranra Group 16, Tullahedy, Group 17, N7 Nenagh to Limerick Dual Carriageway, Co. Tipperary, Geophysical Survey, unpublished Target Archaeological Geophysics report 07/104
- NMI, 2010, Advice Notes for Excavators, unpublished guidelines, National Museum of Ireland, Dublin

- NRA/MAHGI, 2001, Code of Practice between the National Roads Authority and the Minister for Arts, Heritage, Gaeltacht and the Islands
- Nylund, S, 2006a, N7 Limerick-Nenagh High Quality Dual Carriageway, Contract 3, Scheme Number: A026/265, Preliminary report, unpublished Judith Carroll & Co. Ltd report
- Nylund, S, 2006b, N7 Limerick-Nenagh High Quality Dual Carriageway, Contract 3, Scheme Number: A026/266, Preliminary report, unpublished Judith Carroll & Co. Ltd report
- Nylund, S, 2006c, N7 Limerick-Nenagh High Quality Dual Carriageway, Contract 3, Scheme Number: A026/270, Preliminary report, unpublished Judith Carroll & Co. Ltd report
- Nylund, S, 2006d, N7 Limerick-Nenagh High Quality Dual Carriageway, Contract 3, Scheme Number: A026/272, Preliminary report, unpublished Judith Carroll & Co. Ltd report
- O'Flanagan, M, 1930, *Ordnance Survey Name Books 1840, Tipperary North*, Vol. 5
- Prunty, E, 2006a, N7 Limerick-Nenagh High Quality Dual Carriageway, Contract 3, Scheme Number: A026/267, Preliminary report, unpublished Judith Carroll & Co. Ltd report
- Prunty, E, 2006b, N7 Limerick-Nenagh High Quality Dual Carriageway, Contract 3, Scheme Number: A026/268, Preliminary report, unpublished Judith Carroll & Co. Ltd report
- Prunty, E, 2006c, N7 Limerick-Nenagh High Quality Dual Carriageway, Contract 3, Scheme Number: A026/269, Preliminary report, unpublished Judith Carroll & Co. Ltd report
- Prunty, E, 2006d, N7 Limerick-Nenagh High Quality Dual Carriageway, Contract 3, Scheme Number: A026/271, Preliminary report, unpublished Judith Carroll & Co. Ltd report
- Prunty, E, 2006e, N7 Limerick-Nenagh High Quality Dual Carriageway, Contract 3, Scheme Number: A026/273, Preliminary report, unpublished Judith Carroll & Co. Ltd report
- Prunty, E, 2006f, N7 Limerick-Nenagh High Quality Dual Carriageway, Contract 3, Scheme Number: A026/274, Preliminary report, unpublished Judith Carroll & Co. Ltd report
- Reimer, P J, Baillie, M G L, Bard, E, Bayliss, A, Beck, J W, Blackwell, P G, Bronk Ramsey, C, Buck, C E, Burr, G S, Edwards, R L, Friedrich, M, Grootes, P M, Guilderson, T P, Hajdas, I, Heaton, T J, Hogg, A G, Hughen, K A, Kaiser, K F, Kromer, B, McCormac, F G, Manning, S W, Reimer, R W, Richards, D A, Southon, J R, Talamo, S, Turney, C S M, van der Plicht, J and Weyhenmeyer, C E, 2009, 'IntCal09 and Marine09 radiocarbon age calibration curves, 0-50,000 years cal BP', *Radiocarbon* **51**(4), 1111-1150
- Savage, G and Newman, H, 1985, *An illustrated dictionary of ceramics*, Thames and Hudson, London
- Schmid, E, 1972, *Atlas of Animal Bones*, Elsevier, Amsterdam
- Simington, R C, 1931, *The Civil Survey AD 1654-1656 County Of Tipperary*, Vol.2, Eastern and Southern Baronies, Irish Manuscripts Commission, The Stationary Office, Dublin, 167
- Taylor, K, 2008, N7 Nenagh to Limerick High Quality Dual Carriageway, E2904, Kilnacranra Site 2, Co. Tipperary, Preliminary archaeological excavation report, unpublished TVAS (Ireland) Ltd report
- Taylor, K, 2010a, N7 Nenagh to Limerick High Quality Dual Carriageway, E2902, Ballinteenoe Site 1, Co. Tipperary, Final archaeological excavation report, unpublished TVAS (Ireland) Ltd report

Taylor, K, 2010b, N7 Nenagh to Limerick High Quality Dual Carriageway, E2903, Gortnaskehy Site 1, Co. Tipperary, Final archaeological excavation report, unpublished TVAS (Ireland) Ltd report

Taylor, K, 2011, N7 Nenagh to Limerick High Quality Dual Carriageway, E2286, Carrigatogher (Harding) Site 6, Co. Tipperary, Final archaeological excavation report, unpublished TVAS (Ireland) Ltd report

Whitaker, J, 2006, '06E0696 Killeen Bog, Ballintogher, Cooldine, Curraheen, Derricknew, Liskevee, Lurgoe' in I Bennett (ed) *Excavations 2006*, Wordwell, Bray, entry 1805

Appendix 1: Catalogue of features and deposits

Area	Cut	Deposit	Group No	Type	Finds	Samples	Phase
A		50		Topsoil	Clay tobacco pipe, lithic, pottery	-	-
A			1	Kiln	-	-	3
A	2	51, 53, 79	1	Kiln flue	-	2, 3	3
A	3	51, 54, 55	1	Kiln box	-	4, 14	3
A	4	56	6	Ditch slot	Metal	-	3
A	5	57	6	Ditch slot	-	-	3
A			6	Enclosure ditch		-	3
A	7	58, 59, 60, 79	1	Kiln chamber	-	8	3
A	8	64		Stone feature	-	-	-
A	9	65, 67		Root hole	-	5, 6	-
A	10	52, 66		Hearth	-	1	3
A	11	68	16	Ditch slot	-	9	5
A	12	61	16	Ditch slot	-	-	5
A	13	62		Pit	-	7	?
A	14	69	6	Ditch slot	Clay tobacco pipe, metal	10	3
A	15	70	16	Ditch slot	Metal	11	5
A			16	Ditch		-	5
A	17	71	6	Ditch slot	-	12	3
A	18	72	6	Ditch slot	-	13	3
A	19	73	6	Ditch slot	Bone	-	3
A	20	74	6	Ditch slot	-	-	3
A	21	75		Furrow	-	-	5
A	22	76	?1	Posthole	-	15	?
A	23	63	6	Ditch slot	-	-	3
A	24	77, 78		Furrow	-	-	5
A	25	77		Furrow	-	-	5
B	400	450, 451, 452, 453		Pit	-	40	4
D		550		Topsoil	Pottery, lithic	-	-
D	500	551		Pit	-	51	?
D	502	552, 558, 559		Pit	-	52, 53	?
D	504	553, 554, 555, 556		Hearth	-	50	2

Area	Cut	Deposit	Group No	Type	Finds	Samples	Phase
D	506	561		Fireplace	-	54	?
D	507	562		Pit	-	-	?
E	602	650	601	Ditch slot	-	60	?
E	603	651	601	Ditch slot	-	61	?
E	604	652	601	Ditch slot	-	62	?
E	605	653		Pit	-	63	?

Appendix 2: Catalogue of finds

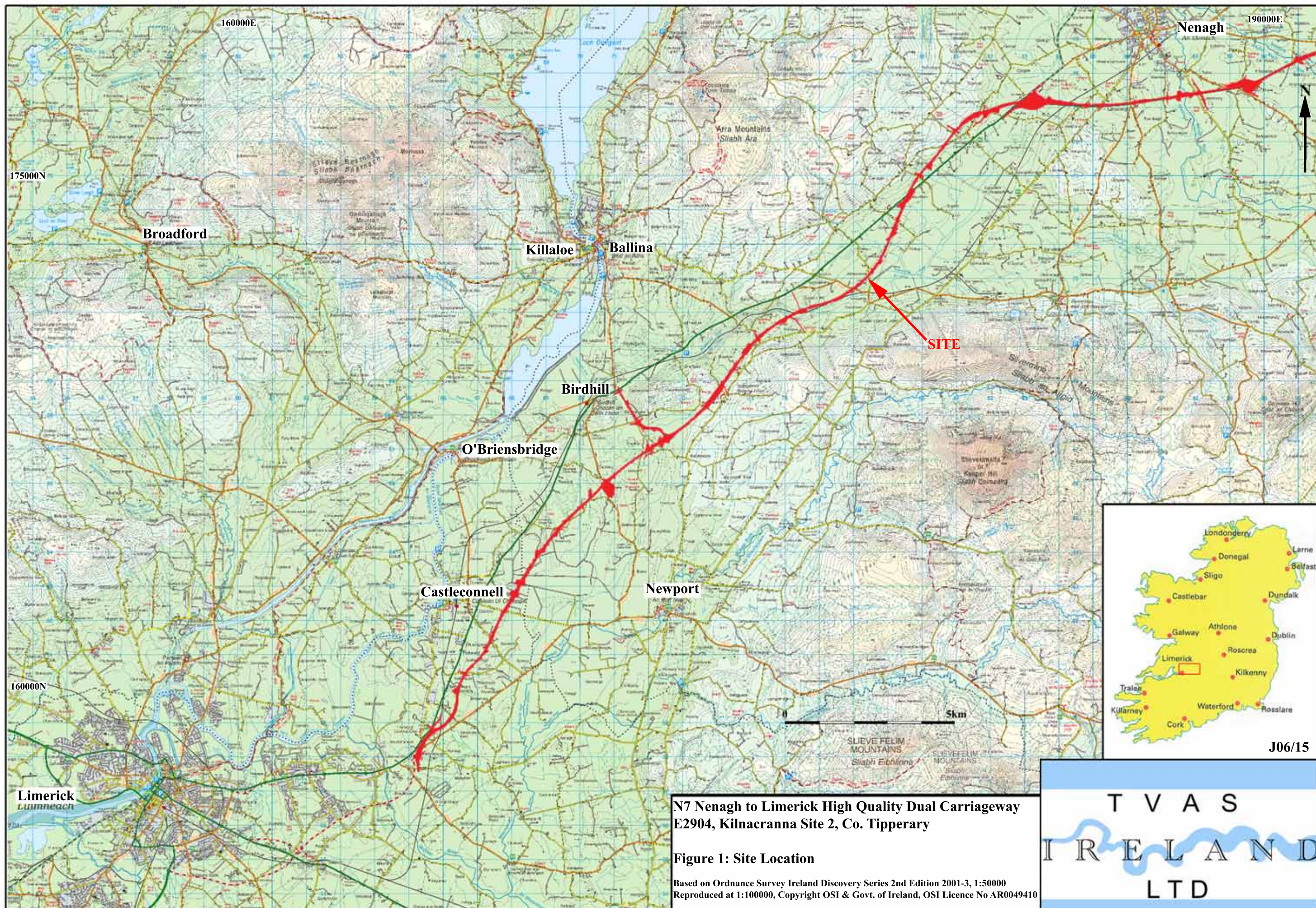
Find No	Cut	Deposit	Group No	Area	Sample No	Category	Description	No pieces	Weight (g)
50:1	-	50	-	A	-	Clay tobacco pipe	Stem fragment	1	3
50:2	-	50	-	A	-	Clay tobacco pipe	Stem with bowl fragments, 3 pieces co-joining	3	7
50:3	-	50	-	A	-	Lithic	Chert flake	1	<1
50:4	-	50	-	A	-	Lithic	Chert flake	1	<1
50:5	-	50	-	A	-	Pottery	Black glazed ware body with base section	1	19
56:1	4	56	6	A	-	Metal	Incomplete iron nail shaft	1	0.70
69:1	14	69	6	A	-	Clay tobacco pipe	Stem fragment	1	5
69:2	14	69	6	A	-	Metal	Incomplete highly corroded iron object	1	90.1
70:1	15	70	16	A	-	Metal	Incomplete small lump of corroded metal	1	1.8
70:2	15	70	16	A	-	Metal	Incomplete highly corroded iron object	1	26.1
73:1	19	73	6	A	-	Bone	Cortical and trabecular bone fragments	ca 15	5
550:1	-	550	-	D	-	Pottery	Creamware rim sherd	1	3
550:2	-	550	-	D	-	Lithic	Flint flake	1	3

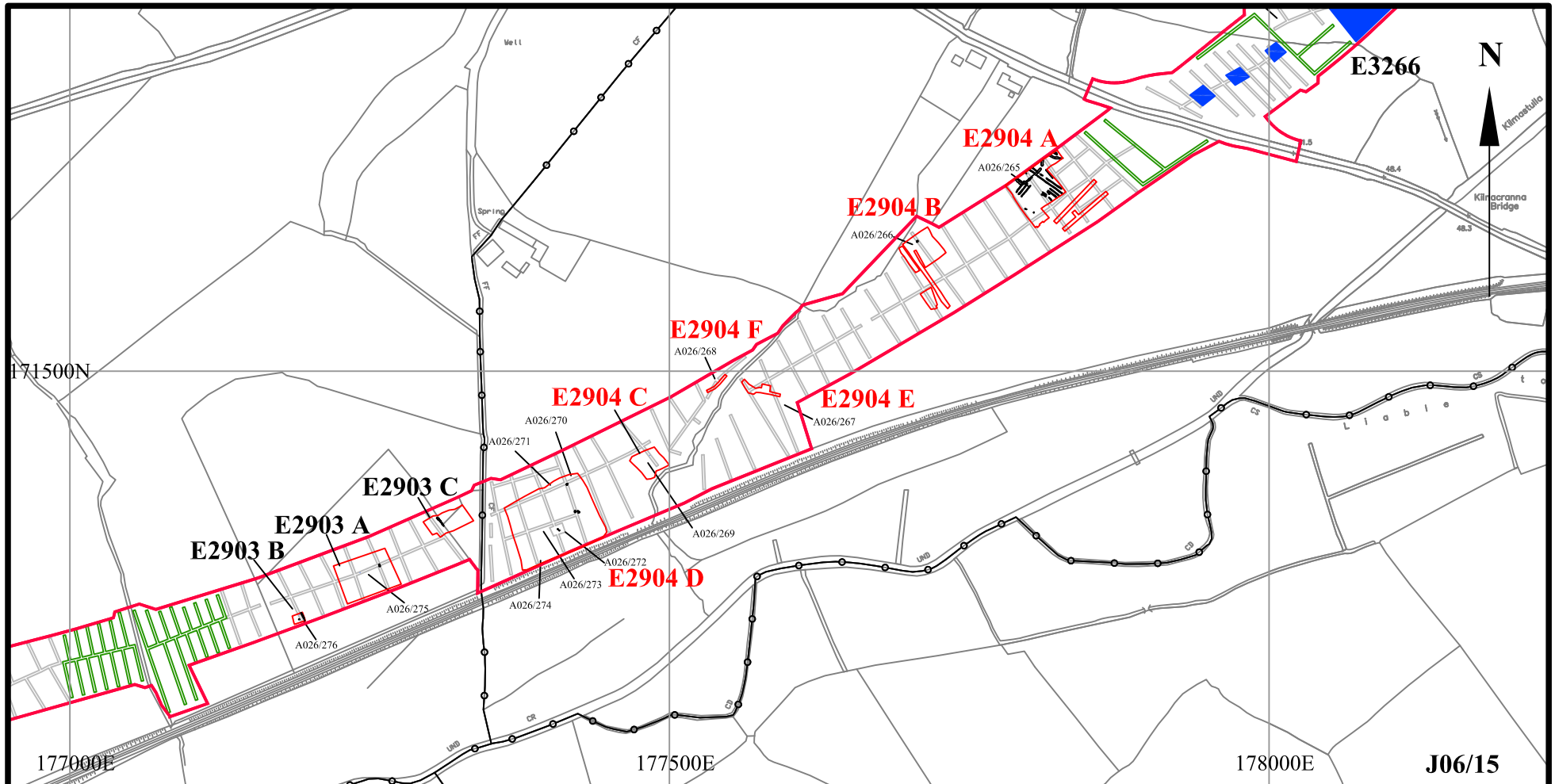
Appendix 3: Catalogue of samples

Sample No	Cut	Deposit	Group No	Area	Volume sieved (L)	Volume floated (L)	Findings	Charred plant remains
1	10	52		A	2	2	N	Y
2	2	51	1	A	2	2	N	Y
3	2	53	1	A	2	2	N	N
4	3	54	1	A	2	2	N	Y
5	9	65		A	-	-	-	-
6	9	67		A	-	-	-	-
7	13	62		A	1.5	1.5	N	N
8	7	58	1	A	1.5	1.5	N	Y
9	11	68	16	A	-	-	-	-
10	14	69	6	A	1.5	1.5	N	N
11	15	70	16	A	-	-	-	-
12	17	71	6	A	1.5	1.5	N	N
13	18	72	6	A	1.5	1.5	N	N
14	3	55	1	A	1.5	1.5	N	Y
15	22	76	?1	A	0.25	0.25	N	N
40	400	450		B	4	4	N	Y
50	504	554		D	4	4	N	Y
51	500	551		D	4	4	N	Y
52	502	559		D	3	3	N	Y
53	502	558		D	-	-	-	-
54	506	561		D	2	2	N	Y
60	602	650	601	E	2	2	N	N
61	603	651	601	E	-	-	-	-
62	604	652	601	E	-	-	-	-
63	605	653		E	-	-	-	-

Appendix 4: Archive contents

Category	Item	Quantity	Condition
Paper records	Number allocation sheet	2	Good
	Context index sheets	9	Good
	Context sheets	84	Good
	Section index sheets	4	Good
	Plan keys	2	Good
	Sample index sheets	4	Good
	Level sheets	12	Good
	Field record sheets	2	Good
	Finds register sheets	2	Good
Plans	1:20 pre-ex plans (A2)	0	Good
	1:20 mid-ex plans (A2)	4	Good
	1:20 post-ex plans (A2)	29	Good
	1:200 pre-ex plans (A2)	1	Good
	1:200 post-ex plans (A2)	2	Good
Sections	Section sheets (A2)	7	Good
	1:10 section drawings (on those sheets)	34	Good
Photographs	Digital photographs	104	Digitally stored & backed-up





**N7 Nenagh-Limerick HQDC
E2904, Kilnacranra Site 2, Co. Tipperary**

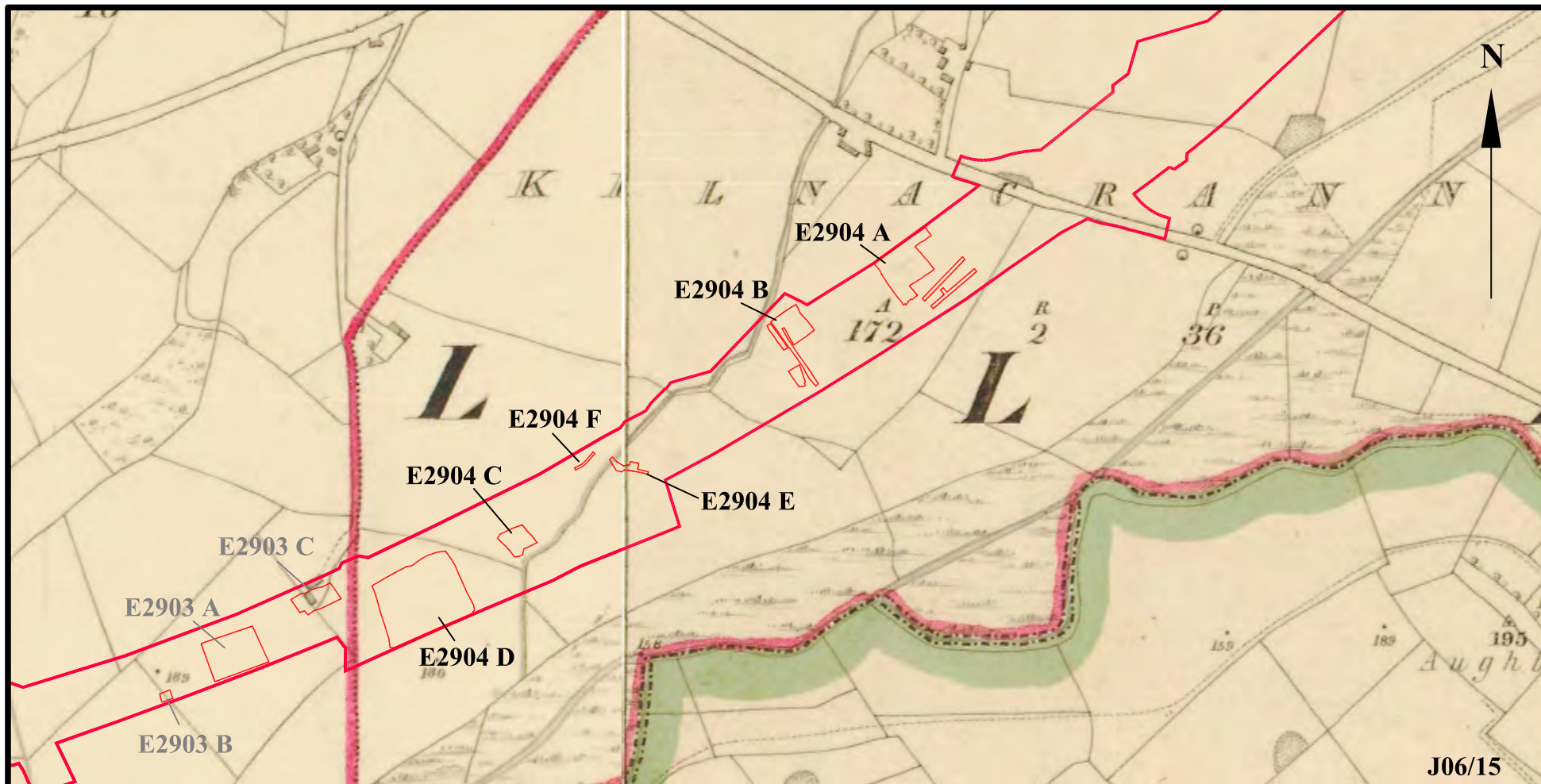
Figure 2: Site location and test trenches

Scale 1:5000

Based on Ordnance Survey Ireland digital mapping

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T V A S
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L T D



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0 250m

N7 Nenagh-Limerick HQDC
E2904, Kilnacranra Site 2, Co. Tipperary

Figure 3: Ordnance Survey 1st Edition Map, 1843

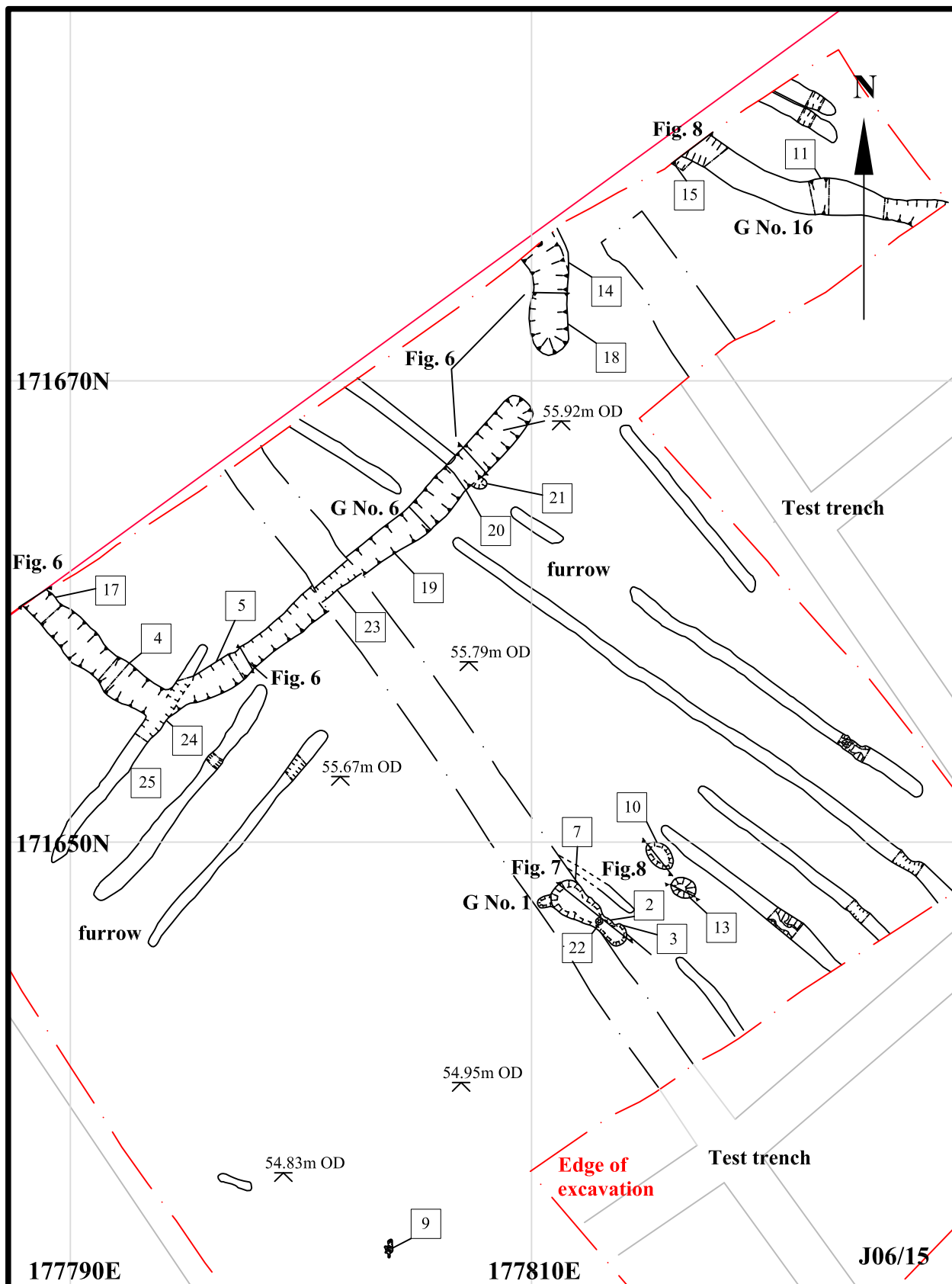
Scale 1:5000

Based on OS 1st Edition, Co. Tipperary Sheet 25 & 26, 6" to mile

LCCPermit: 2010/09/CCMA/Tipperary County Council

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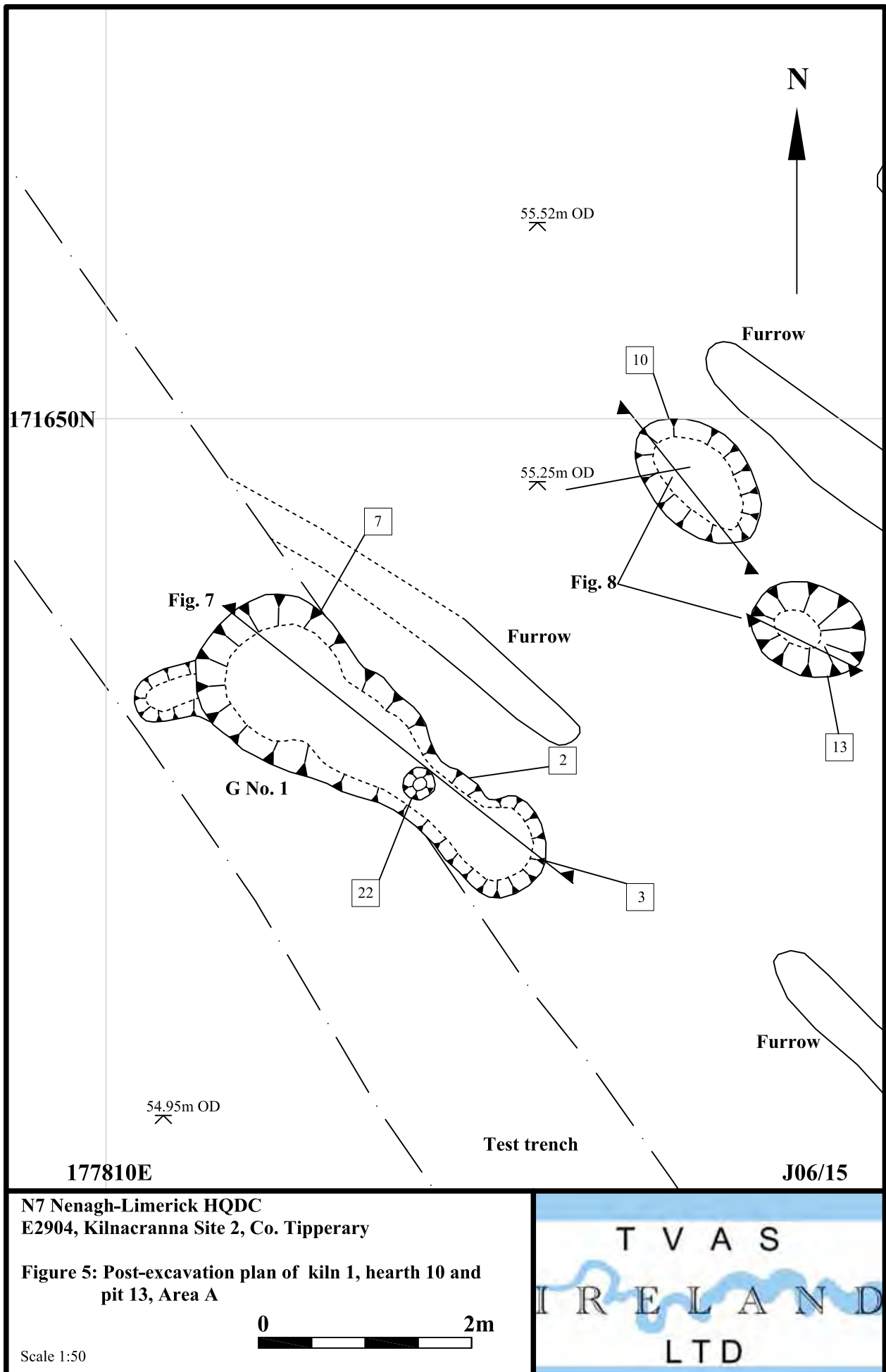
N7 Nenagh-Limerick HQDC
E2904, Kilnacranra Site 2, Co. Tipperary

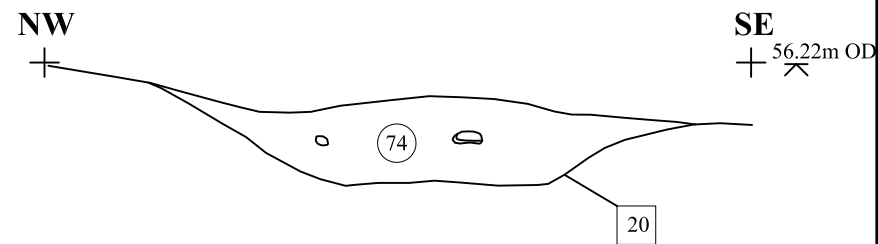
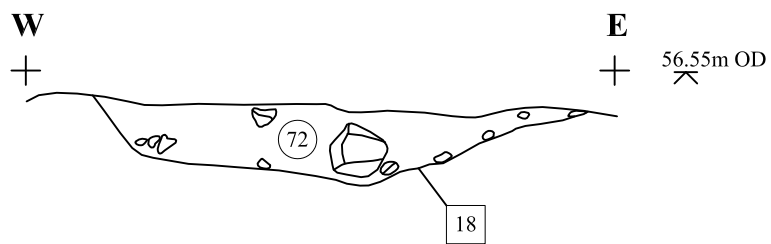
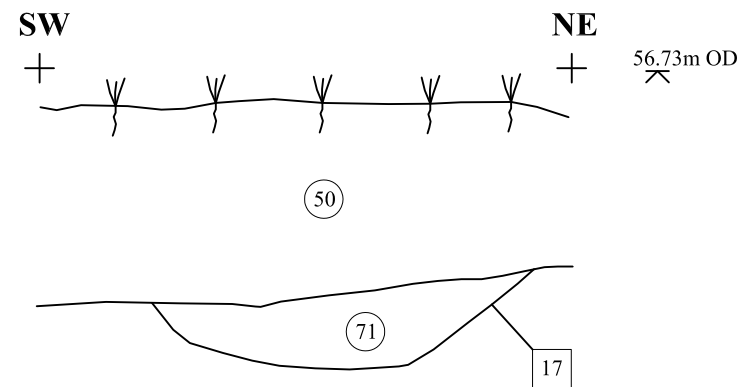
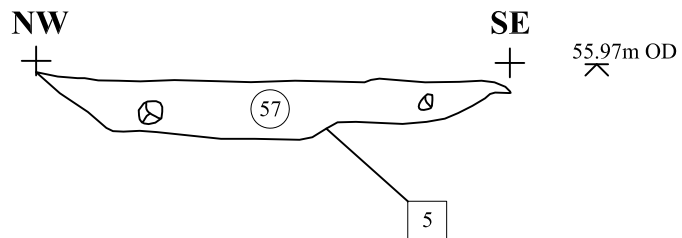
Figure 4: Post-excavation plan of Area A

Scale 1:250

0 5m

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IRELAND
LTD





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0 1m

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E2904, Kilnacranra Site 2, Co. Tipperary

Figure 6: Sections of slots 5, 17, 18 and 20 through
enclosure ditch 6, Area A

Scale 1:20

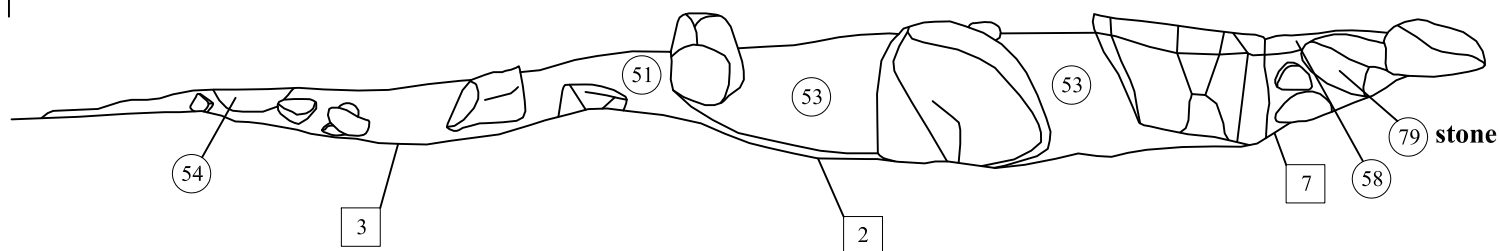
T V A S
I R E L A N D
L T D

SE



NW

+ 55.48m OD
X



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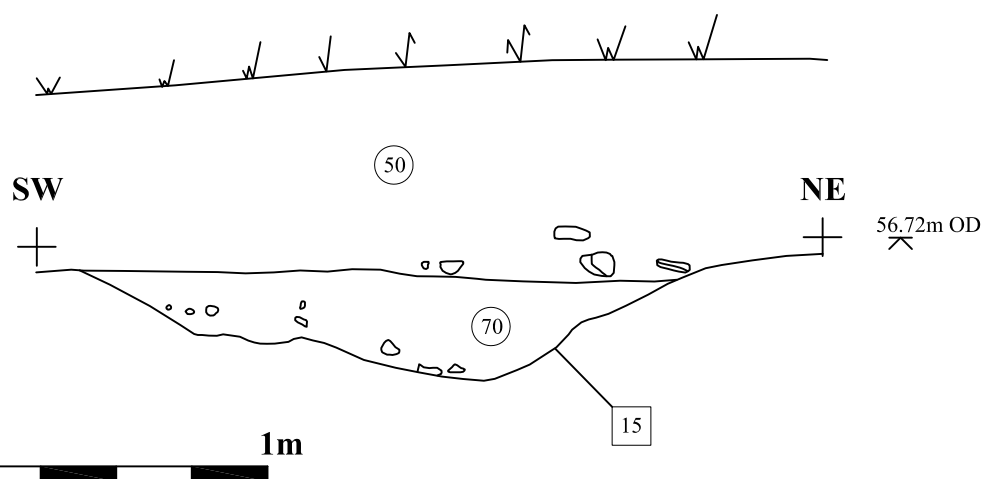
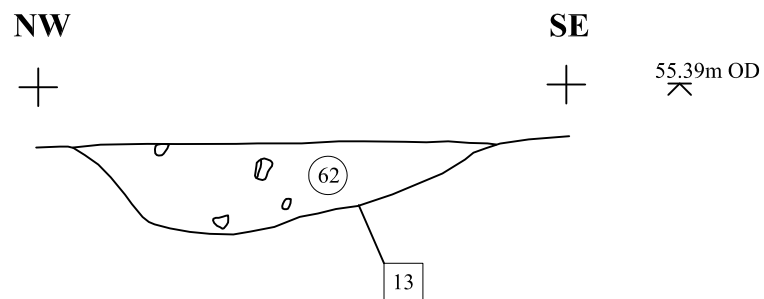
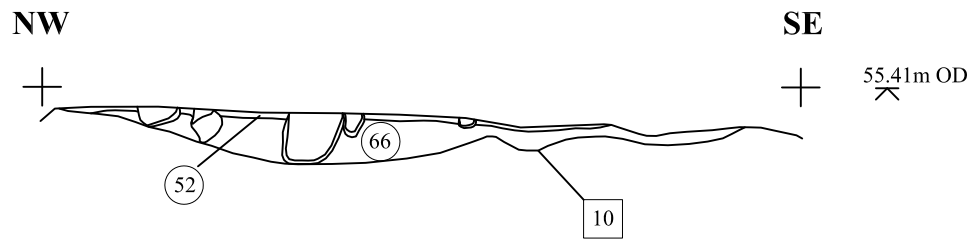
0 1m

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E2904, Kilnacranra Site 2, Co. Tipperary

Figure 7: North-east facing section through kiln 1, Area A

Scale 1:20

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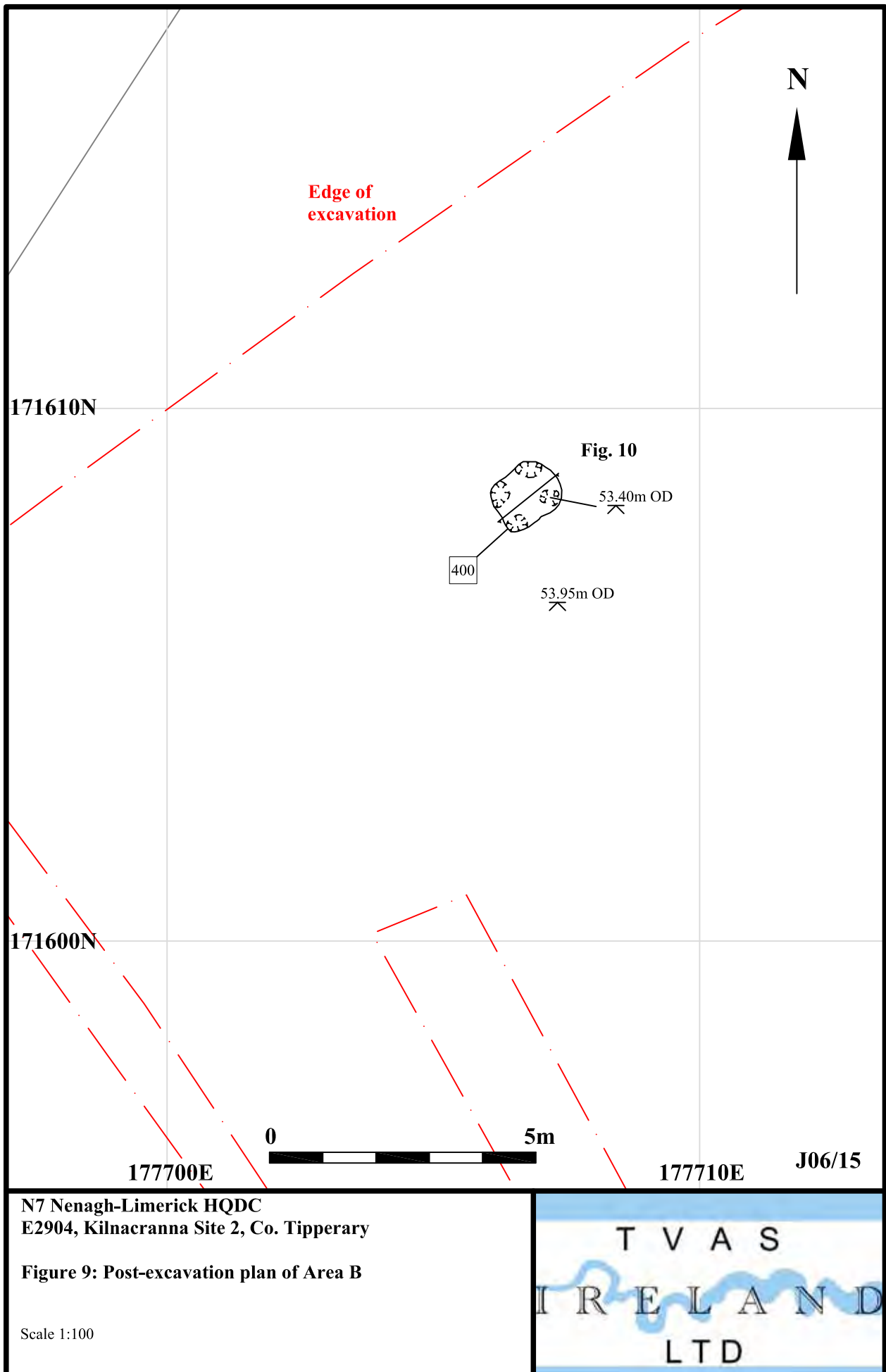
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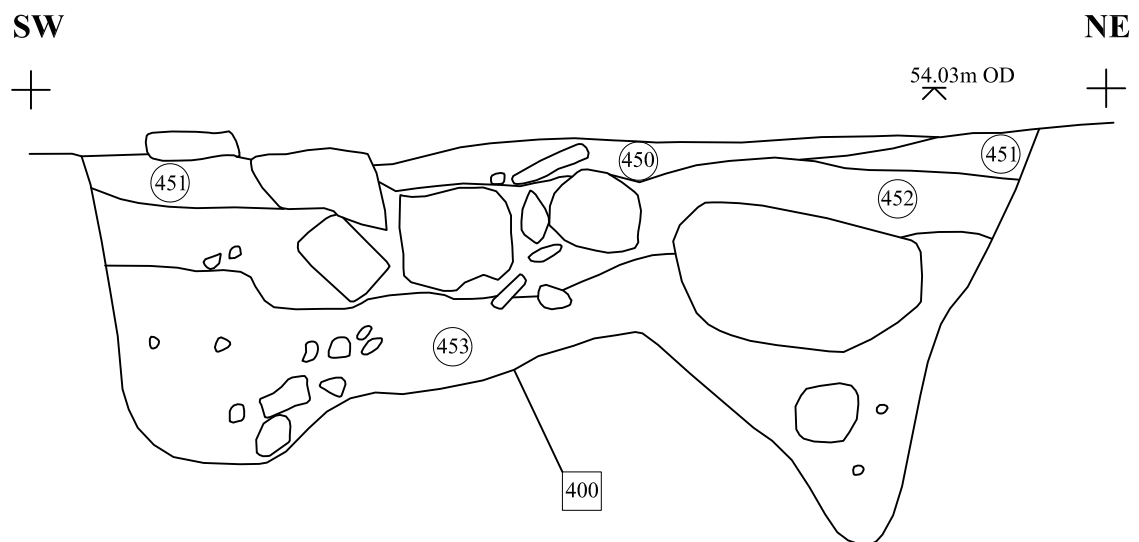
N7 Nenagh-Limerick HQDC
E2904, Kilnacranra Site 2, Co. Tipperary

Figure 8: Sections of hearth 10, pit 13, and slot 15
through ditch 16, Area A

Scale 1:20

T V A S
I R E L A N D
L T D





0 0.5m

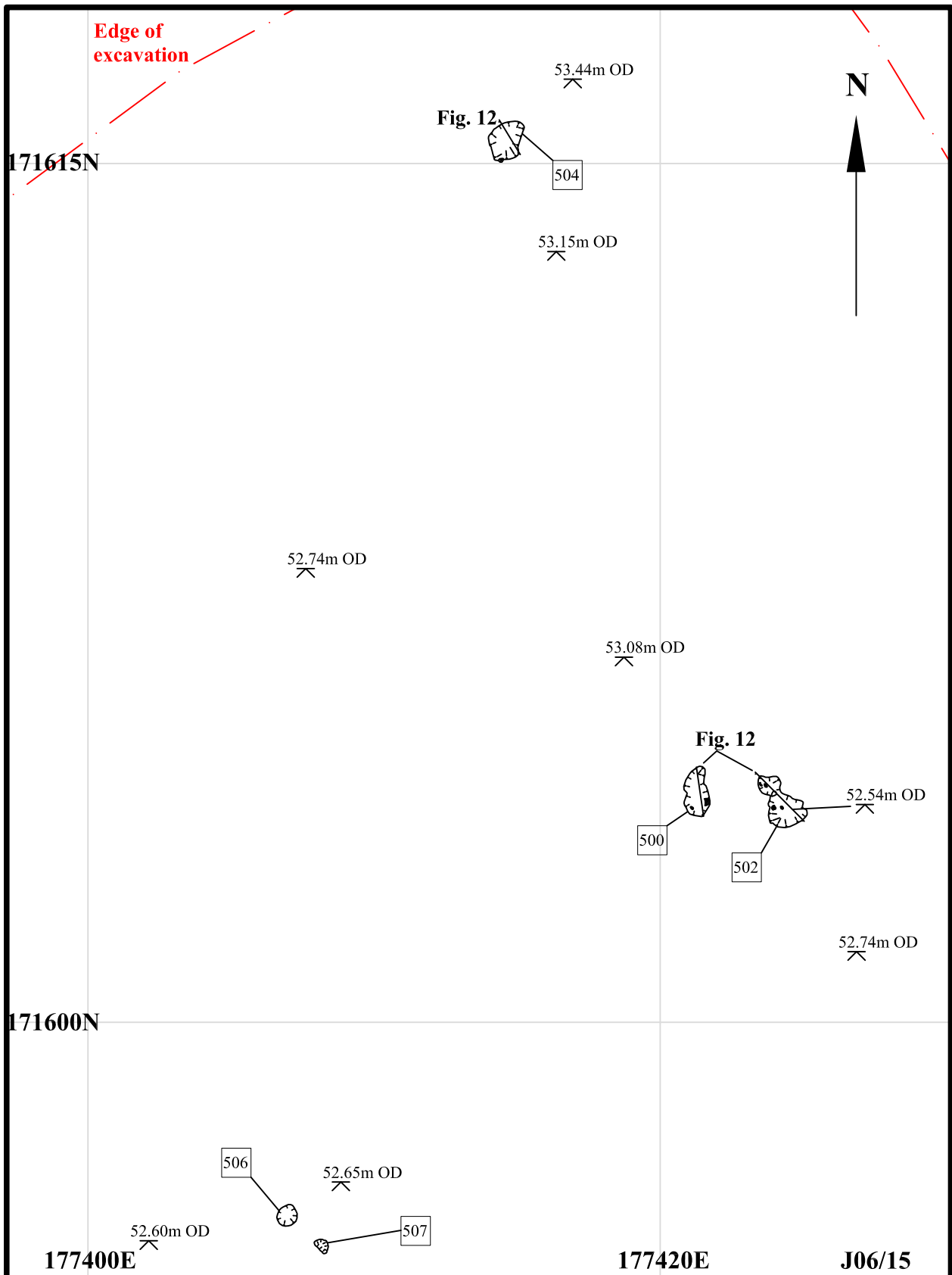
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Figure 10: South-east facing section through pit 400, Area B

Scale 1:10

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L T D

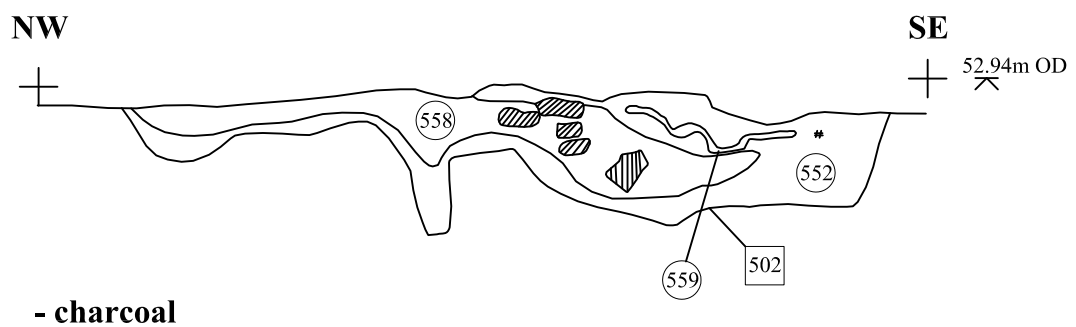
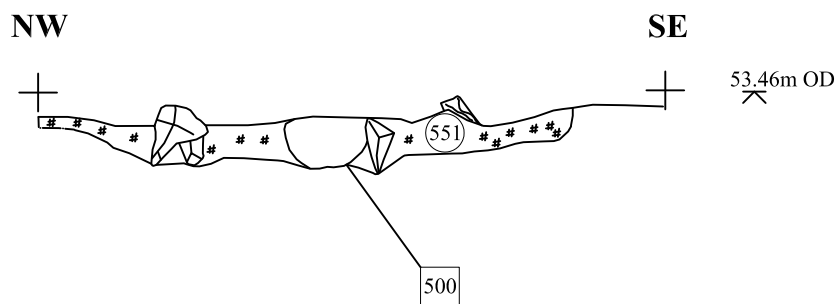
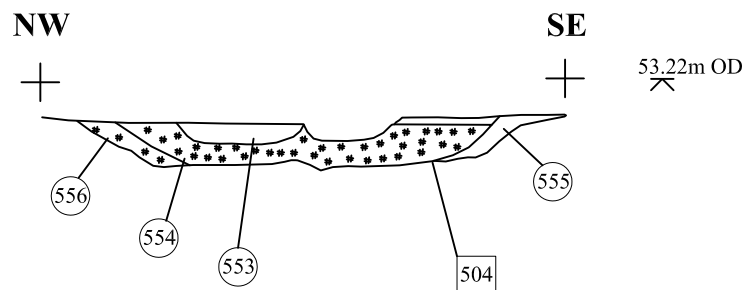


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Figure 11: Post-excavation plan of Area D

Scale 1:200





- charcoal

0 1m

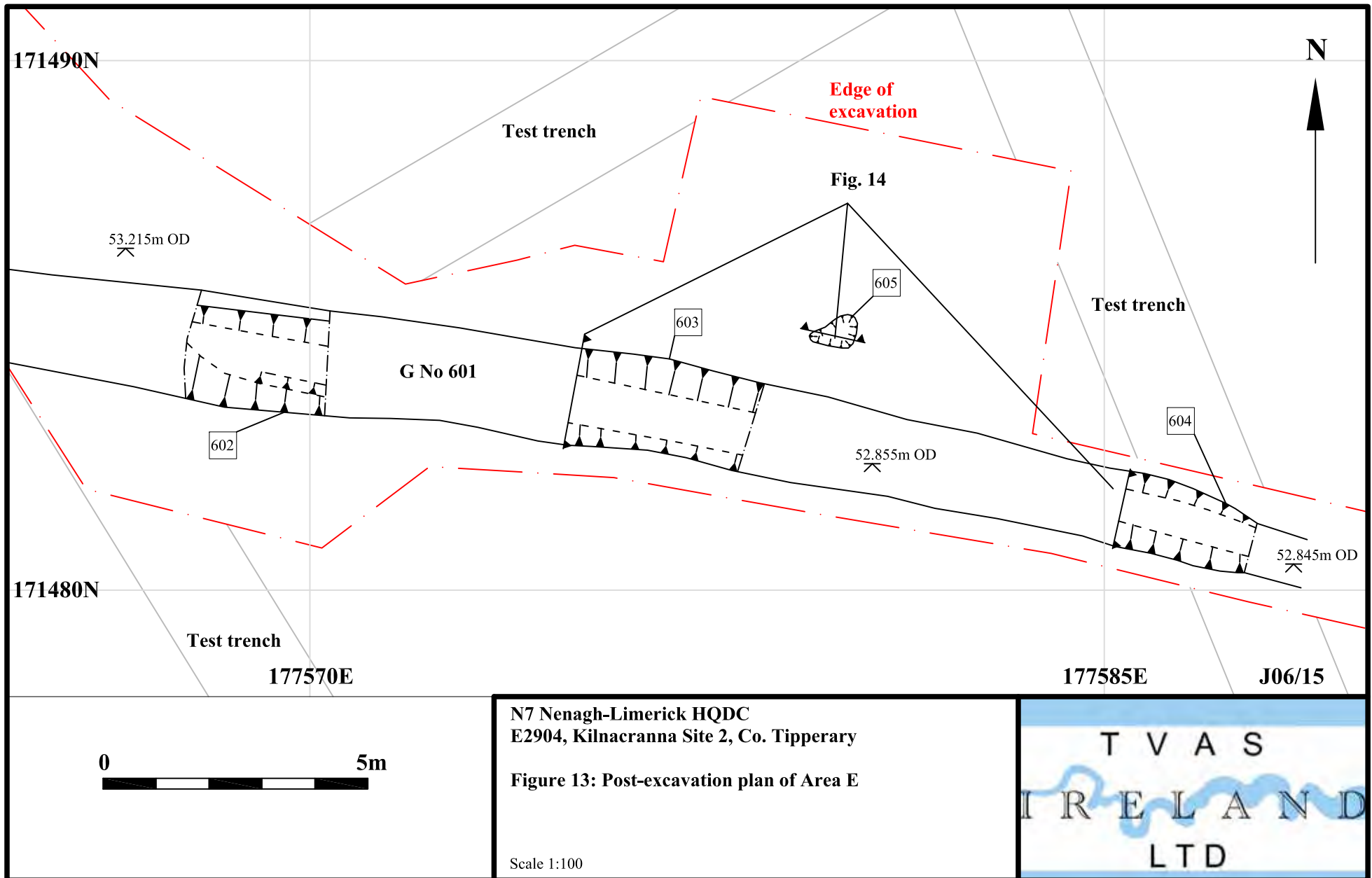
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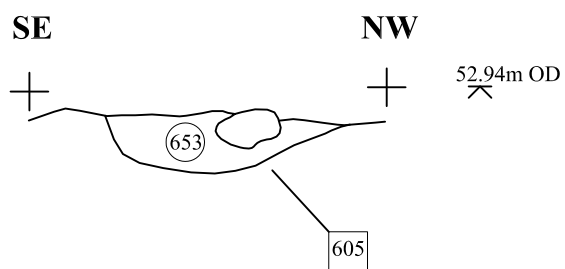
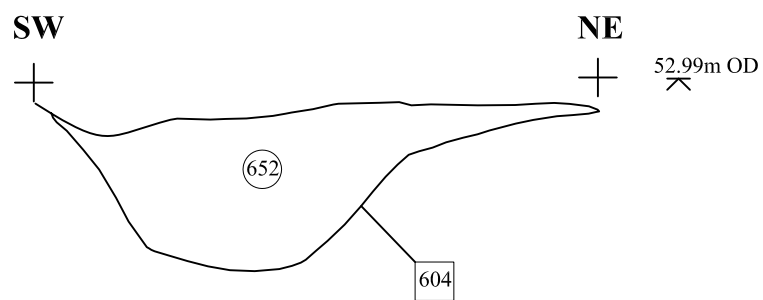
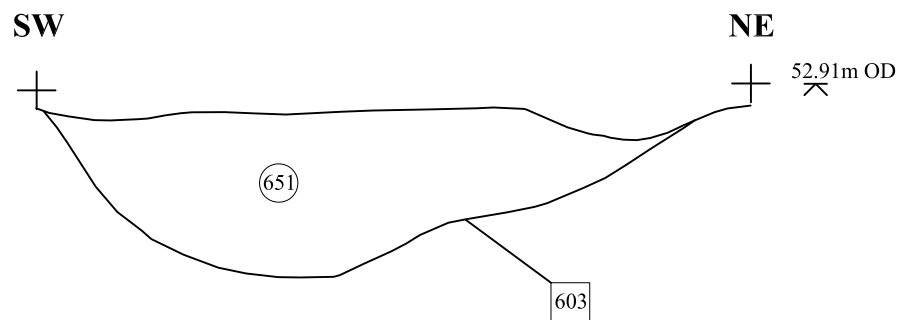
N7 Nenagh-Limerick HQDC
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Figure 12: South-west facing sections through hearth 504
and pits 500 & 502, Area D

Scale 1:20

T V A S
I R E L A N D
L T D





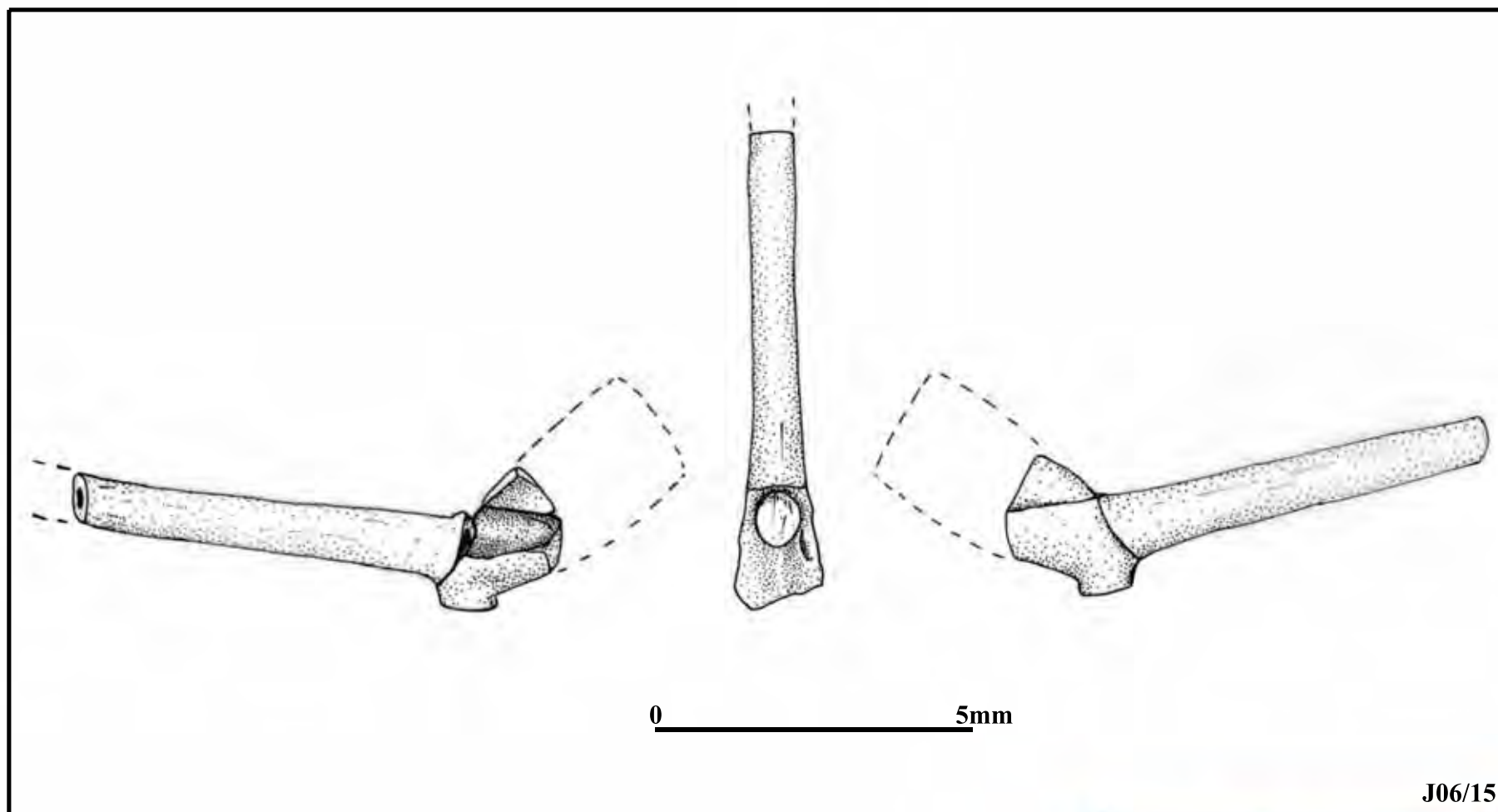
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Figure 14: Sections through slots 603 and 604 through
ditch 601 and pit 605, Area E

Scale 1:20



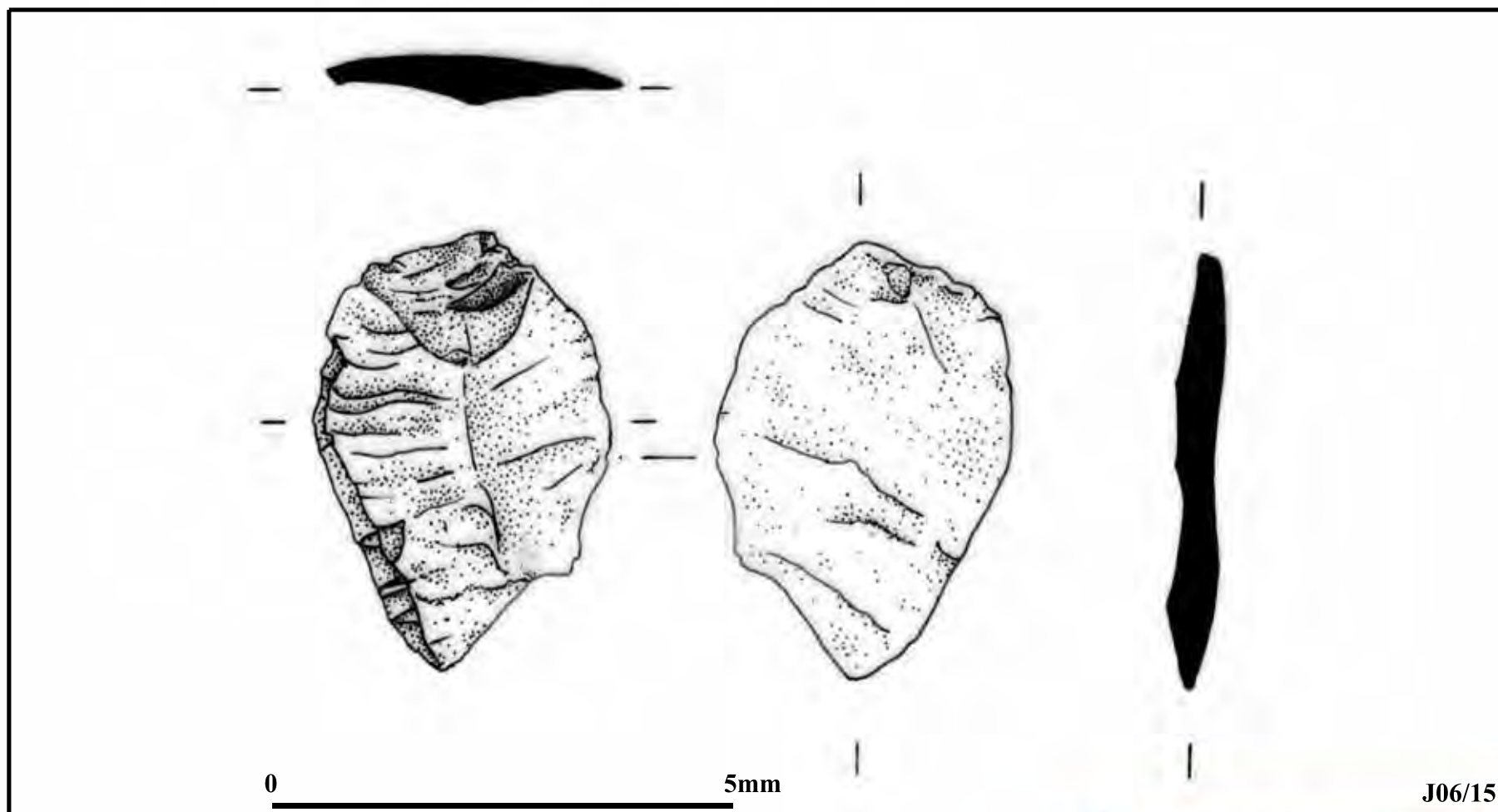


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Figure 15: Find E2904:50:2, clay tobacco pipe

Drawn by Astrid Nathan





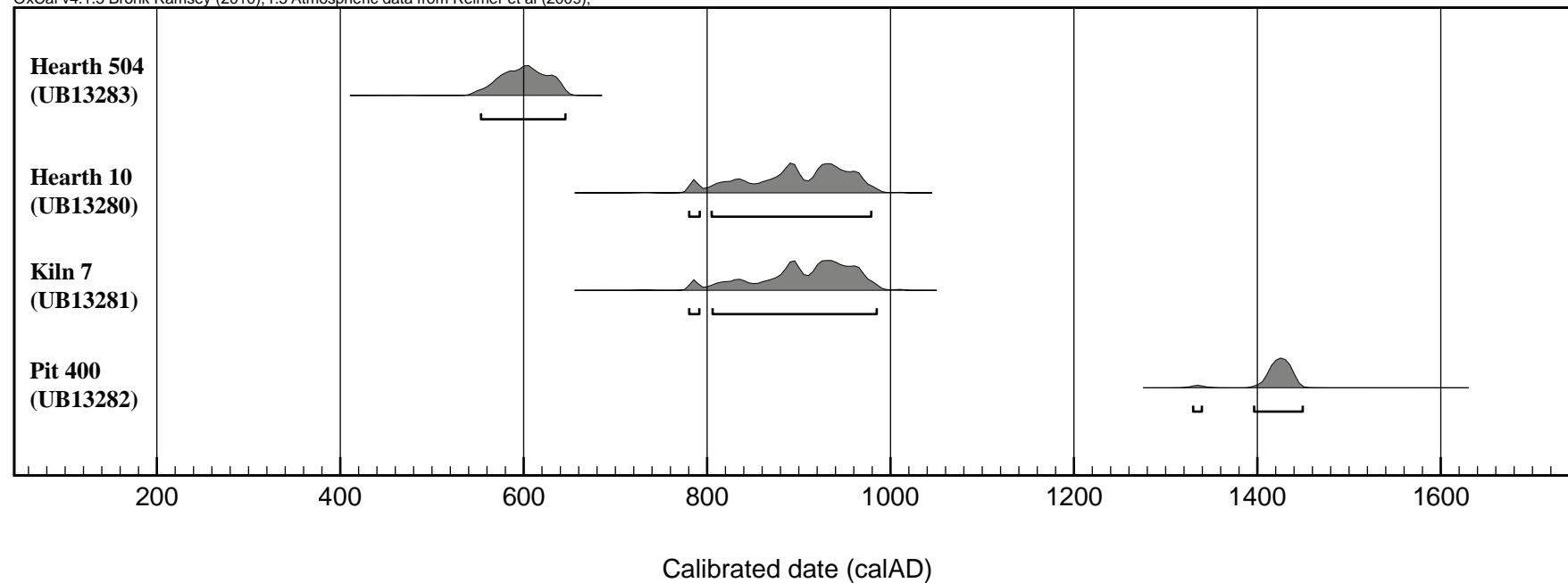
N7 Nenagh to Limerick HQDC, E2904, Kilnacrana Site 2, Co. Tipperary

Figure 16: Find E2904:50:3, chert flake

Drawn by Astrid Nathan



OxCal v4.1.5 Bronk Ramsey (2010); r:5 Atmospheric data from Reimer et al (2009);



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E2904, Kilnacranra Site 2, Co. Tipperary

Figure 17: Calibrated radiocarbon dates

T V A S
I R E L A N D
L T D



**Plate 1: Area A. Enclosure 6 fully excavated.
Looking west. Scale 1m**



**Plate 2: Area A. Slot 17 through enclosure ditch 6.
Looking north-west. Scales 2m & 0.3m**



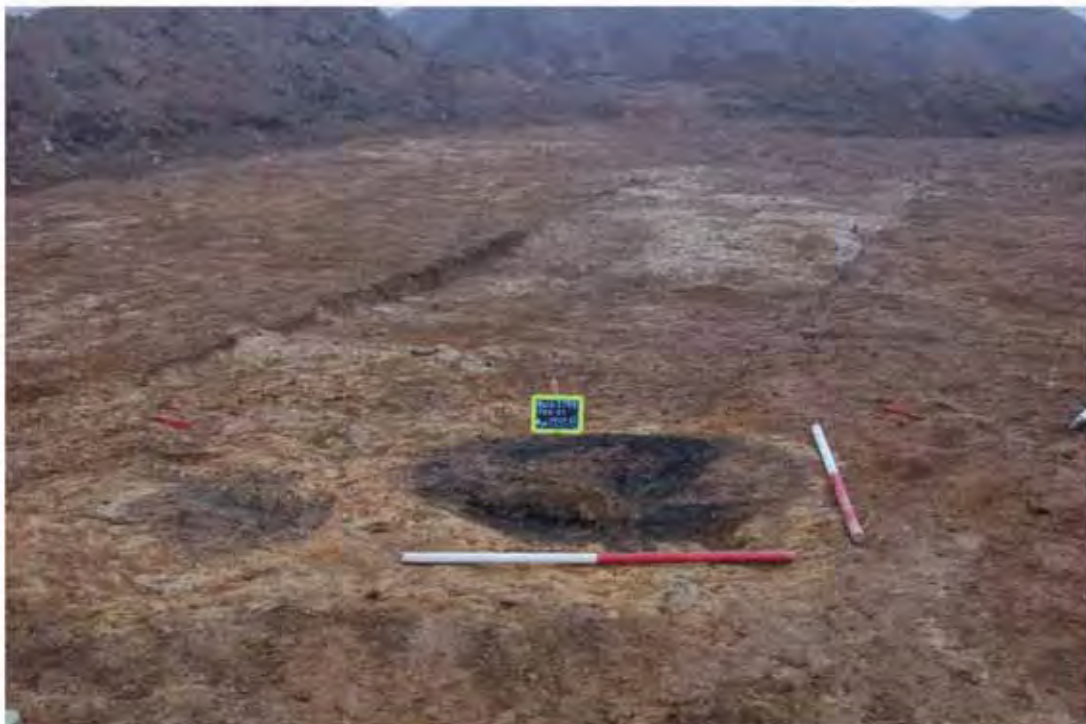
**Plate 3: Area A. Kiln 1, partially excavated.
Looking north-west. Scales 2m & 1m**



**Plate 4: Area A. Hearth 10, pre-excavation.
Looking north. Scales 2m & 1m**



**Plate 5: Area B. Pit 400, half-sectioned.
Looking north-west. Scales 1m & 0.3m**



**Plate 6: Area D. Hearth 504, prior to excavation.
Looking north-east. Scales 1m**



**Plate 7: Area D. Fireplace 506, half-sectioned.
Looking north-east. Scales 1m**



**Plate 8: Area E. Ditch 601. Looking south-east.
Scales 2m, 1m & 0.3m**