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Introduction

Background

12.1 This Chapter of the Environmental Impact Assessment Report (EIAR), commissioned by SLR Consulting Ireland on behalf of Keohane Readymix, addresses the impacts on the archaeological, architectural and cultural heritage of the application site and the surrounding area of a proposal for extension of the sand & gravel pit at Kilmore, Brinny, County Cork. The site location and study area are indicated in Figure 12-1.

12.2 The existing site, operations and the proposed development are described in detail in Chapters 1 and 2 of this EIAR.

Scope of Work / Methodology

12.3 This study which complies with the requirements of Directive EIA 2014/52/EU is an assessment of the known or potential cultural heritage resource within a specified area and includes the information that may reasonably be required for reaching a reasoned conclusion on the significant effects of the project on the environment, considering current knowledge and methods of assessment. It consists of a collation of existing written and graphic information to identify the likely context, character, significance, and sensitivity of the known or potential cultural heritage, archaeological and structural resource using an appropriate methodology (EPA 2002, 2003 and 2022).

12.4 The criteria and definitions for describing effects set out below is drawn from the 2022 EPA Guidelines.

Quality of Effects	Positive A change which improves the quality of the environment.
	Neutral No effects or effects that are imperceptible, within normal bounds or variation or within the margin of forecasting error.
	Negative/adverse Effects A change which reduces the quality of the environment.
Significance of effects	Imperceptible An effect capable of measurement but without noticeable consequences.
	Not significant An effect which causes noticeable changes in the character of the environment but without noticeable consequences.
	Slight effects An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
	Moderate effects An effect that alters the character of the environment in a manner that is consistent with existing and emerging trends.
	Significant effects An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
	Very Significant effects An effect which, by its character, magnitude, duration or intensity significantly alters the majority of a sensitive aspect of the environment.
	profound effects An effect which obliterates sensitive characteristics

Describing extent and context of effects	Extent Describe the size of the area, the number of sites, and the proportion of population affected by an effect.
	Context Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions.
Describing probability of effects	Likely effects The effects can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
	Unlikely effects The effects can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Describing duration & frequency of effects	Momentary effects Effects lasting from seconds to minutes.
	Brief effects Effects lasting less than a day.
	Temporary effects Effects lasting less than a year.
	Short-term effects Effects lasting one to seven years.
	Short-term effects Effects lasting seven to fifteen years.
	Long term-term effects Effects lasting fifteen to sixty years.
	Permanent effects Effects lasting over sixty years.
	Reversible effects Effects that can be undone, for example through remediation or restoration.
	Frequency of effects Describe how the effect will occur.
Describing types of effects	Indirect effects Impacts on the environment which are directly result of the project.
	Cumulative effects The addition of minor or significant effects, including effects of other projects, to create a larger more significant effect.
	'Do-Nothing Effects' The environment as it would be in the future should the project not go ahead.
	'Worst case' effects The effects arising from a project in the case where mitigation measures substantially fail.
	Indeterminable effects When full consequences of change in the environment cannot be described.
	Irreversible effects When the character distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
	Residual effects The degree of environmental change that will, occur after the proposed mitigation measures take effect.
	Synergistic effects Where the resultant effect is of greater significance than the sum of its constituents.

12.5 The study involved detailed investigation of the archaeological and historical background of the development site, the landholding and the surrounding area extending 1km from the development boundary (Fig. 12-1). This area was examined using information from the Record of Monuments and Places of County Cork, the Cork County Development Plan, lists of excavations and cartographic and documentary sources. A field inspection was carried out on the 23rd of October 2020 to identify and assess any known archaeological sites and

previously unrecorded features and portable finds within the area of landholding. This was followed by a geophysical survey conducted by AOC in April 2023 (NMS Licence No. 23R0079), and test excavation carried out by Miriam Carroll for Tobar Archaeological Services in January 2024 (Excavation Licence No. 23E0953).

12.6 An impact assessment and mitigation strategy have been prepared. An impact assessment is undertaken to outline potential adverse impacts that the proposed development may have on the cultural resource, while a mitigation strategy is designed to avoid, reduce, or offset such adverse impacts.

12.7 The application site is in the Townland Kilmore, Co. Cork on OS Six Inch sheet No. 96, c.3.7km to the north-west of Inishannon and to the south of the L2235 road. The proposed development would involve an extension and the continuance of use of the existing operational area.

12.8 Extracts from the Record of Monuments and Places for County Cork are presented on a map of the local area around the site in Figure 12-1. RMP sites included on the Records of Monuments and Places statutory mapping are identified by black circles. The application area is shown in red.

Contributors / Author(s)

12.9 The assessment was prepared by Dr. Charles Mount who is a member of the Institute of Archaeologists of Ireland and has more than thirty years of cultural heritage assessment experience. He holds M.A. and Ph.D. degrees in archaeology as well as a professional diploma in EIA and SEA Management.

Limitations / Difficulties Encountered

12.10 No difficulties were encountered during the desktop study, field survey or in the preparation of this report.

Regulatory Background

12.11 The following paragraphs set out the regulatory background regarding cultural impact assessments in Ireland in general and the site-specific planning background relevant to this cultural impact assessment.

Legislation

12.12 No specific Irish legislation exists governing cultural heritage assessments.

Planning Policy and Development Control

12.13 The Co. Cork Development Plan 2022-2028 (CDP) is the statutory plan detailing the development objectives/policies of the local authority. The plan includes objectives and policies, relevant to this assessment, i.e. regarding cultural heritage.

Built and Cultural Heritage

12.14 Volume 1, Chapter 16 of the Cork County Development Plan sets out the policies on built and cultural heritage within the county. The Plan recognises the importance of identifying, valuing and safeguarding our archaeological, architectural and cultural heritage for future

generations through appropriate protection, management and enhancement measures or via the sensitive development of this resource.

12.15 The Council's objectives regarding archaeological heritage are to:

HE 16-2 Protection of Archaeological Sites and Monuments
Secure the preservation (i.e. preservation in situ or in exceptional cases preservation by record) of all archaeological monuments and their setting included in the Sites and Monuments Record (SMR) (see www.archaeology.ie) and the Record of Monuments and Places (RMP) and of sites, features and objects of archaeological and historical interest generally. In securing such preservation, the planning authority will have regard to the advice and recommendations of the Development Applications Unit of the Department of Housing, Local Government and Heritage as outlined in the Frameworks and Principles for the Protection of the Archaeological Heritage policy document or any changes to the policy within the lifetime of the Plan.

HE 16-3: Underwater Archaeology
Protect and preserve the archaeological value of underwater archaeological sites and associated underwater and terrestrial features. In assessing proposals for development, the development will take account of the potential underwater archaeology of rivers, lakes, wetlands, intertidal and sub-tidal environments through appropriate archaeological assessment by a suitably qualified archaeologist.

HE 16-4: Zones of Archaeological Potential in Historic Towns and Settlements
Proposed development works in Historic Towns and settlements, Zones of Archaeological Potential, Zones of Notification and the general historic environs in proximity to the zones, should take cognisance of the impact potential of the works, and all appropriate archaeological assessments employed to identify and mitigate the potential impacts.

HE 16-5: Zones of Archaeological Potential
Protect the Zones of Archaeological Potential (ZAPs) located within historic towns, urban areas and around archaeological monuments generally. Any development within the ZAPs will need to take cognisance of the upstanding and potential for subsurface archaeology, through appropriate archaeological assessment.

HE 16-6: Industrial and Post Medieval Archaeology
Protect and preserve industrial and post-medieval archaeology and long-term management of heritage features such as mills, limekilns, forges, bridges, piers and harbours, water-related engineering works and buildings, penal chapels, dwellings, walls and boundaries, farm buildings, estate features, military and coastal installations. There is a general presumption for retention of these structures and features. Proposals for appropriate redevelopment including conversion should be subject to an appropriate assessment and record by a suitably qualified specialist/s.

HE 16-7: Battlefield, Ambush and Siege Sites and Defensive Archaeology
Protect and preserve the defensive archaeological record of County Cork including strategic battlefield, ambush and siege sites, and coastal fortifications and their associated landscape due to their historical and cultural value. Any development within or adjoining these areas shall undertake a historic assessment by a suitably qualified specialist to ensure development does not negatively impact on this historic landscape.

HE 16-8: Burial Places
Protect all historical burial places and their setting in County Cork and encourage their maintenance and care in accordance with appropriate conservation principles.

HE 16-9: Archaeology and Infrastructure Schemes
All large scale planning applications (i.e. development of lands on 0.5 ha or more in area or 1km or more in length) and Infrastructure schemes and proposed roadworks are subjected to an archaeological assessment as part of the planning application process which should comply with the Department of Arts, Heritage and the Gaeltacht's codes of practice. It is recommended that the assessment is carried out following pre planning consultation with the County Archaeologist, by an appropriately experienced archaeologist to guide the design and layout of the proposed scheme/development, safeguarding the archaeological heritage in line with Development Management Guidelines.

HE 16-10: Management of Monuments within Development Sites
Where archaeological sites are accommodated within a development it shall be appropriately conservation/ protection with provision for a suitable buffer zone and long-term management plan put in place all to be agreed in advance with the County Archaeologist.

HE 16-11: Archaeological Landscapes
To protect archaeological landscapes and their setting where the number and extent of archaeological monuments are significant and as a collective are considered an important archaeological landscape of heritage value.

HE 16-12: Raising Archaeological Awareness
As part of the Heritage Plan it is an objective to develop a management plan, if resources allow, for the archaeology of County Cork, which could include an evaluation of the Historic Character Assessment of Cork County helping to identify areas for tourism potential, and strategic research while also promoting best practice in archaeology and encouraging the interpretation, publication and dissemination of archaeological findings from the development application process.

HE 16-13: Undiscovered Archaeological Sites
To protect and preserve previously unrecorded archaeological sites within County Cork as part of any development proposals. The Council will require preservation in situ to protect archaeological monuments discovered. Preservation by record will only be considered in exceptional circumstances.

12.16 The Council's objectives regarding architectural heritage are to:

HE 16-14: Record of Protected Structures
a) The identification of structures for inclusion in the Record will be based on criteria set out in the Architectural Heritage Protection Guidelines for Planning Authorities (2011).
b) Extend the Record of Protected Structures in order to provide a comprehensive schedule for the protection of structures of special importance in the County during the lifetime of the Plan as resources allow.
c) Seek the protection of all structures within the County, which are of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. In accordance with this objective,
a Record of Protected Structures has been established and is set out in Volume Two Heritage and Amenity, Chapter 1 Record of Protected Structures.
d) Ensure the protection of all structures (or parts of structures) contained in the Record of

Protected Structures.
e) Protect the curtilage and attendant grounds of all structures included in the Record of Protected Structures.
f) Ensure that development proposals are appropriate in terms of architectural treatment, character, scale and form to the existing protected structure and not detrimental to the special character and integrity of the protected structure and its setting.
g) Ensure high quality architectural design of all new developments relating to or which may impact on structures (and their settings) included in the Record of Protected Structures.
h) Promote and ensure best conservation practice through the use of specialist conservation professionals and craft persons.
i) In the event of a planning application being granted for development within the curtilage of a protected structure, that the repair of a protected structure is prioritised in the first instance i.e. the proposed works to the protected structure should occur, where appropriate, in the first phase of the development to prevent endangerment, abandonment and dereliction of the structure.

HE 16-15: Protection of Structures on the NIAH
Protect where possible all structures which are included in the NIAH for County Cork, that are not currently included in the Record of Protected Structures, from adverse impacts as part of the development management functions of the County.

HE 16-16: Protection of Non- Structural Elements of Built Heritage
Protect non-structural elements of the built heritage. These can include designed gardens/garden features, masonry walls, railings, follies, gates, bridges, shopfronts and street furniture. The Council will promote awareness and best practice in relation to these elements.

HE 16-17: Areas of Special Planning Control
Establish areas of special planning control within Architectural Conservation Areas where appropriate. These areas will include a scheme setting out objectives for the conservation and enhancement of the special character of the area, and will be based on an Architectural Appraisal of each town.

HE 16-18: Architectural Conservation Areas
Conserve and enhance the special character of the Architectural Conservation Areas included in this Plan. The special character of an area includes its traditional building stock, material finishes, spaces, streetscape, shopfronts, landscape and setting. This will be achieved by;
(a) Protecting all buildings, structures, groups of structures, sites, landscapes and all other features considered to be intrinsic elements to the special character of the ACA from demolition and nonsympathetic alterations.
(b) Promoting appropriate and sensitive reuse and rehabilitation of buildings and sites within the ACA and securing appropriate infill development.
(c) Ensure new development within or adjacent to an ACA respects the established character of the area and contributes positively in terms of design, scale, setting and material finishes to the ACA.
(d) Protect structures from demolition and non sympathetic alterations.
(e) Promoting high quality architectural design within ACAs.
(f) Seek the repair and re-use of traditional shopfronts and where appropriate, encourage new shopfronts of a high quality architectural design.
(g) Ensure all new signage, lighting advertising and utilities to buildings within ACAs are designed, constructed and located in such a manner they do not detract from the character of the ACA.

(h) Protect and enhance the character and quality of the public realm within ACAs. All projects which involve works within the public realm of an ACA shall undertake a character assessment of the said area which will inform a sensitive and appropriate approach to any proposed project in terms of design and material specifications. All projects shall provide for the use of suitably qualified conservation architects/ designers.
(i) Protect and enhance the character of the ACA and the open spaces contained therein. This shall be achieved through the careful and considered strategic management of all signage, lighting, utilities, art works/pieces/paintings, facilities etc to protect the integrity and quality of the structures and spaces within each ACA.
(j) Ensure the protection and reuse of historic street finishes, furniture and features which contribute to the character of the ACA.

HE 16-19:Vernacular Heritage
a) Protect, maintain and enhance the established character, forms, features and setting of vernacular buildings, farmyards and settlements and the contribution they make to our architectural, archaeological, historical, social and cultural heritage and to local character and sense of place.
b) Cork County Council encourages best conservation practice in the renovation and maintenance of vernacular buildings including thatched structures through the use of specialist conservation professionals and craft persons. Development proposals shall be accompanied by appropriate documentation compiled by experienced conservation consultant.
c) There will generally be a presumption in favour of the retention of vernacular buildings and encouragement of the retention and re-use of vernacular buildings subject to normal planning considerations, while ensuring that the re-use is compatible with environmental and heritage protection.

HE 16-20: Historic Landscapes
a) Recognise the contribution and importance of historic landscapes and their contribution to the appearance of the countryside, their significance as archaeological, architectural, historical and ecological resources.
b) Protect the archaeological, architectural, historic and cultural element of the historic/heritage landscapes of the County of Cork.
c) All new development within historic landscapes should be assessed in accordance with and giving due regard to Cork County Councils 'Guidance Notes for the Appraisal of Historic Gardens, Demesnes, Estates and their Settings' or any other relevant guidance notes or documents issued during the lifetime of the Plan.

HE 16-21: Design and Landscaping of New Buildings
a) Encourage new buildings that respect the character, pattern and tradition of existing places, materials and built forms and that fit appropriately into the landscape.
b) Promote sustainable approaches to housing development by encouraging new building projects to be energy efficient in their design and layout.
c) Foster an innovative approach to design that acknowledges the diversity of suitable design solutions in most cases, safeguards the potential for exceptional innovative design in appropriate locations and promotes the added economic, amenity and environmental value of good design.
d) Require the appropriate landscaping and screen planting of proposed developments by using predominantly indigenous/local species and groupings and protecting existing hedgerows and historic boundaries in rural areas. Protection of historical/commemorative trees will also be provided for.

HE 16-22: Village Design Statements
Facilitate the preparation and implementation of village design statements and other community led projects and plans to enhance village environments whilst ensuring that such initiatives are consistent with other Plan policies.

12.17 The Council's objectives regarding cultural heritage are to:

HE 16-23: Cultural Heritage
Protect and promote the cultural heritage of County Cork as an important economic asset and for its intrinsic value to identity of place and the well being of people within the County.

HE 16-24: Naming of New Developments
Promote and preserve local place names, local heritage and the Irish language by ensuring the use of local place names or geographical or cultural names which reflect the history and landscape of their setting in the naming of new residential and other developments. Such an approach will be a requirement of planning permissions for new developments.

HE 16-25: Gaeltacht Areas
Protect the linguistic and cultural heritage of the Gaeltacht areas of Cork by:
a) Encouraging development within the Gaeltacht and in the Gaeltacht Service Town of Macroom, which promotes, facilitates or complements the cultural heritage, including Irish language use;
b) Encouraging development within the Gaeltacht and the Gaeltacht Service Town of Macroom, which provides employment or social facilities, especially, but not exclusively, where these are of relevance to local young people;
c) Resisting development within the Gaeltacht, which would be likely to erode the cultural heritage (including the community use of Irish language), unless there are over-riding benefits for the long-term sustainability of the local community or for the proper planning and sustainable development of a wider area;
d) Ensuring that where the County Council erects signs within the Gaeltacht, these have Irish as their primary language, unless there are positive and over-riding reasons for doing otherwise;
e) Discouraging the exhibition of advertisements within the Gaeltacht which do not use Irish as their primary language;
f) Consider the requirement for the use of demanding linguistic impact analyses with planning applications for particular major developments. These would be cases where the potential impact of the development on the use of Irish as the community language is not immediately apparent and pivotal in the determination of the application.
g) Facilitate the preparation and implementation of local Gaeltacht Plans, Programmes and Initiatives, including Language Plans and Conservation Plans such as the Múscraí Heritage Plan, in the interests of the proper planning and sustainable development of Cork's Gaeltachts, provided that such plans are in keeping with Council policy.
h) Encourage the use of the Irish language, not just in Gaeltacht areas but throughout the County, particularly with regard to service provision, planning and development and Council initiatives/activities.
i) The use of the Irish language is promoted in the design of developments e.g. business advertising, recreational and community facilities are clearly identified and provided and shop-front signage should be in the Irish language;
j) The Plan encourages collaboration between Gaeltacht stakeholders, Gaeltacht communities and State agencies in the future planning and development projects to ensure the protection and promotion of the Irish language as the community language.

Guidelines

12.18 The report format and some of the descriptions of effects are based on the *Guidelines on the Information to be contained in Environmental Impact Assessment Reports*, published by the Environmental Protection Agency in May 2022.

Significant Risks

12.19 There are no known significant risks to human health or environmental effects, which may occur in relation to this cultural heritage assessment.

Receiving Environment

Study Area

12.20 The overall study area extends 1km from the application area and is shown in Figure 12-1.

Baseline Study Methodology

12.21 Research has been undertaken in two phases. The first phase comprised a paper survey of all available archaeological, historical, and cartographic sources. The second phase involved a field inspection and archaeological assessment of the proposed development area.

Paper Study

12.22 This is a document search. The following sources were examined and a list of sites and areas of archaeological potential compiled:

- Record of Monuments and Places County Cork
- The Sites and Monuments Record
- Available aerial photography
- Cartographic and written sources relating to the study area
- Cork County Development Plan 2022-2028
- The National Inventory of Architectural Heritage

The Record of Monuments and Places

12.23 This was established under section 12 (1) of the 1994 National Monuments (Amendment) Act and provides that the Minister shall establish and maintain a record of monuments and places where the Minister believes there are monuments, such record to be comprised of a list of monuments and relevant places and a map or maps showing each monument and relevant place in respect of each county in the State. The associated files contain information of documentary sources and field inspections where these have taken place. All available information on these sites is provided in Appendix 12-1.

12.24 Note that although the Historic and Archaeological Heritage and Miscellaneous Provisions Act 2023 was signed into law by the President on October 13, 2023, the act had not been commenced at the time this assessment was prepared. This assessment uses the National

Monuments Acts 1930-2014, which were still in force at the time the assessment was completed.

Cartographic Sources

12.25 This included seventeenth century mapping as well the 1st and 2nd editions of the Ordnance Survey six-inch maps and Documentary sources provide more general historical and archaeological background.

The County Development Plan

12.26 This notes structures listed for preservation.

Field Assessment

12.27 A field inspection was carried out on the 23rd of October 2020 to identify and assess any known archaeological sites and previously unrecorded features and portable finds within the area of landholding. This was followed by a geophysical survey conducted by AOC in April 2023 (NMS Licence No. 23R0079), and test excavation carried out by Miriam Carroll for Tobar Archaeological Services in January 2024 (Excavation Licence No. 23E0953).

Receiving Environment, Historical And Archaeological Landscape

The Landscape

12.28 The application site is in the Townland Kilmore, Co. Cork on OS Six Inch sheet No. 96, c.3.7km to the north-west of Inishannon and to the south of the L2235 road. The application site is situated in agricultural land in lowland and undulating countryside. The local soil is Coarse loamy drift with siliceous stones (http://gis.teagasc.ie/soils/map.php).

Historical and Archaeological Background

12.29 The following is a brief summation of the main types of sites and monuments that are known from the study area along with the historical development of the study area. It is intended as a guide to the types of sites and monuments that might be encountered in the study area. The application site is situated in the townland of Kilmore, in the Barony of Kinalmeaky, and the civil parish of Brinny.

The Prehistoric Period

12.30 Prehistoric activity in the study area is indicated by the presence of standing stones in Kilnagnady (CO096-024---- and CO096-077----), fulacht fia in Kilnagnady and Kilmore townlands (CO096-025----, CO096-089---- and CO096-118----).

The Early Medieval Period

12.31 In the Early Medieval period (500 AD-1170 AD) the study area formed part of the local kingdom of Cenél mBéicce (MacCotter 2008, 154). Classically settlement at this period is

indicated by the presence of enclosed farmsteads known as ringforts, when enclosed with earthen banks, and cashels when enclosed by stone walls. There are ringforts known in the study area in Kilmore (CO096-052---- and CO096-053001-) and Kilpatrick townlands(CO096-057---- and CO096-058----) that indicate early Medieval settlement in the study area. There is also a contemporary souterrain known from Kilpatrick townland (CO096-103001-).

The Later Medieval Period

12.32 In the Later Medieval period Kinalbek was held by Richard de Cogan and later formed part of the Barry Óg manor of Innishannon (MacCotter 2008, 152, 154). Manorialism describes the organisation of the feudal rural economy and society characterised by the vesting of legal and economic power in a lord supported economically from his own direct landholding and from the obligatory contributions of a legally subject part of the peasant population under his jurisdiction. In Ireland, the Lord's manor house was also often enclosed by a rectangular moat and these sites are referred to as moated sites. There are two moated sites known in the study area in Kilmore townland (CO096-054---- and CO096-088----) indicating Later Medieval settlement in the study area.

The Post-Medieval Period

12.33 The Book of Survey and Distribution records that in 1641 Kilmore townland was in the hands of David Power but by 1670 had come into the hands of Lord John Kingston, Lt. Marcus Weekes, Captain John Nicholls and Giles Barrett (http://downsurvey.tcd.ie). By the eighteenth century the application area had come into the hands of the Dukes of Devonshire. In 1837 Kilmore House, now longer extant, was noted by Lewis (1837) as the seat of William Popham and in 1851 it was leased to Michael Curtin by the Devonshire Estate (http://landedestates.nuigalway.ie/LandedEstates/jsp/property-show.jsp?id=3551).

Buildings

Protected Structures

12.34 The Cork County Development Plan 2022-28 and the Record of Protected Structures was examined as part of the baseline study for this chapter of the EIAR. The review established that there are no Protected Structures situated within the application area. There are five Protected structures listed within the study area external to the application area.

No.	612
Structure type	Mill
Townland	Brinny
Designation	Protected Structure
Data source	Cork County Development Plan 2014-20 Record of Protected Structures
Perceived Significance:	Regional
Type of impact:	None

Significance & quality of impact	None
Description	Tuck Mill.

No.	614
Structure type	Rectory
Townland	Brinny
Designation	Protected Structure
Data source	Cork County Development Plan 2014-20 Record of Protected Structures
Perceived Significance:	Regional
Type of impact:	None
Significance & quality of impact	None
Description	The Old Rectory

No.	615
Structure type	Mill
Townland	Brinny
Designation	Protected Structure
Data source	Cork County Development Plan 2014-20 Record of Protected Structures
Perceived Significance:	Regional
Type of impact:	None
Significance & quality of impact	None
Description	Brinny corn mill.

No.	616
Structure type	Church
Townland	Brinny
Designation	Protected Structure
Data source	Cork County Development Plan 2014-20 Record of Protected Structures
Perceived Significance:	Regional
Type of impact:	None
Significance & quality of impact	None
Description	Church of Ireland (in ruins)

No.	618
Structure type	School
Townland	Brinny
Designation	Protected Structure
Data source	Cork County Development Plan 2014-20 Record of Protected Structures
Perceived Significance:	Regional
Type of impact:	None
Significance & quality of impact	None
Description	School (former Church of Ireland School)

12.35 The closest Protected Structure to the application area RPS 618 Brinny School is located c.0.74km to the south-east of the proposed extraction area. This is considered too far distant to be directly or indirectly impacted by the proposal. The remaining Protected Structures in the study are more distant and are all considered too far distant to be directly or indirectly impacted by the proposal.

National Inventory of Architectural Heritage

12.36 The National Inventory of Architectural Heritage (NIAH) which is maintained by the Dept. of Housing, Local Government and Heritage was examined as part of the baseline study for this chapter of the EIAR on the 9th of March 2026. The review established that there are no additional structures included in the NIAH situated within the application area. There are three additional structures included in the NIAH situated in the study area outside the application area (see below).

No.	20909622
Structure type	Bridge
Townland	Brinny
Designation	None
Data source	National Inventory of Architectural Heritage
Perceived Significance:	Regional
Type of impact:	None
Significance & quality of impact	None
Description	Double-arch road bridge, built c.1820, spanning river Briny River, having V-cutwaters to upstream and downstream elevations. Rubble stone walls with solider cappings to the parapet walls. Roughly dressed stone voussoirs to segmental-headed arches.

No.	20909628
Structure type	Rectory
Townland	Brinny
Designation	None
Data source	National Inventory of Architectural Heritage
Perceived Significance:	Regional
Type of impact:	None
Significance & quality of impact	None
Description	Detached five-bay two-storey over basement former rectory, built c.1810, now in use as private house. Hipped slate roof with overhanging timber clad eaves on paired timber brackets, having rendered chimneystacks and uPVC rainwater goods. Rendered walls with cut limestone plinth. Diminishing square-headed window openings with tooled limestone sills, having six-over-six pane timber sliding sash windows to first floor, nine-over six pane to ground floor and three-over-three pane timber sliding sash windows to basement. Round-headed stairwell window openings with stone sills to rear (north-west) elevation with nine-over-six pane timber sliding sash windows with spoked heads. Segmental-headed entrance door opening to front elevation, having carved timber doorcase with timber panelled door flanked by engaged fluted columns surmounted by cornice and decorative spoked fanlight, having limestone stepped approach. Square-headed door opening to rear with timber battened door. Multiple-bay two-storey outbuilding to rear with hipped slate roof and rubble stone walls. Square-headed window openings with fixed timber-framed windows. Square-headed door opening with timber battened door and overlight. Segmental-headed carriage arch with double-leaf timber battened door. Segmental-headed entrance arch to yard with pilasters and dressed voussoirs, square-headed pedestrian entrance to side.

No.	20909629
Structure type	Post box
Townland	Brinny
Designation	None
Data source	National Inventory of Architectural Heritage
Perceived Significance:	Regional
Type of impact:	None
Significance & quality of impact	None
Description	Wall-mounted cast-iron post box, installed c.1905, with crown and royal insignia of King Edward. Set in rubble stone pier.

12.37 The closest NIAH structure to the proposed extraction area, Ballinacurrra Bridge (NIAH 2090962), is situated c.0.45km to the north-east. The proposal will have no impact on the setting of the bridge and it is considered to be too far distant to be directly or indirectly impacted by the proposal (see Fig. 12-1). The remaining NIAH structures in the study area are more distant and are considered too far away to be directly or indirectly impacted by the proposal.

Field Inspection

12.38 On the 23rd of October 2020 fieldwork was carried out to identify any additional upstanding non-designated structures near the proposed extraction area. This involved assessing all upstanding structures that are marked on the 1904 edition of the six-inch Ordnance Survey mapping within 100m of the proposed extraction area (see Fig. 12-1). There are no structures marked on the 1904 edition situated in this area.

Archaeology

Archaeological Assessment

Recorded Monuments

12.39 Examination of the Record of Monuments and Places for Co. Cork indicated that there are no Recorded Monuments located within the application area (see Fig. 12-1 and Appendix 12-1).

12.40 The closest Recorded Monument externally to the proposed extraction area is CO096-088---- Kilmore Moated site (see Fig. 12-1, Plates 12-1 & 12-2). The monument, which is situated c.100m south of the extraction area in another field, is described in the RMP as:

In level pasture c. 50m N of River Sall. Sub-rectangular area (27.4m E-W; 22m N-S) enclosed by low earthen bank (H 0.35m); external fosse (D 0.30m) on E and S sides. Second bank (H 0.6m) outside fosse to E. Field clearance material dumped in interior and in fosse to N.

This monument will not be impacted by the proposal. The setting of the monument will be preserved by the preservation of a 100m buffer to the extraction area, the retention of the

existing field boundary with hedgerow and trees and the construction of 3.4m high perimeter soil bund between the hedgerow and the extraction area (see Plate 12-2).

12.41 The next closest Recorded Monument to the proposed extraction area externally is CO096-055---- Kilmore Mill. This is described in the RMP as:

Roadside, 3km NW of Inishannon on the Brinny river. Gabled, 5-bay, 3-storey mill with brick dressed opes; in poor condition. Two-storey addition to rear. Conglomerate millstone used as step into mill. Mill race taken from river to N; now destroyed.

This monument is situated c.0.36km north-east of the proposed extraction area and is considered to be too far distant to be directly or indirectly impacted by the proposal. It has no views of the proposed extraction area and the proposal will have no impact on the setting of the monument (see Fig. 12-1).

12.42 The remaining Recorded Monuments in the study area are situated further from the proposed extraction area and are considered too far distant to be directly or indirectly impacted by the current proposal. To here

Sites and Monuments Record

12.43 Examination of the Sites and Monuments Record (SMR) which is maintained by the Dept. of Housing, Local Government and Heritage on the 9th of March 2026 are two SMRs in the study area externally to the application area (see Fig 12-1 and Appendix 12-2). The closest SMR site to the proposed extraction area, CO096-118---- a Fulacht fia in Kilmore townland, is located c.0.75km to the north of the proposed extraction area and is considered too far distant to be directly or indirectly impacted by the proposal. The remaining SMR site in the study area is also considered too far distant to be directly or indirectly impacted by the proposal.

Cartographic Sources

12.44 The Ordnance Survey 1st and 3rd edition six-inch maps and the first edition 25-inch map of the area were examined. The analysis did not indicate any previously unrecorded archaeological sites in the application area or vicinity.

Place Name Evidence

12.45 The place names were extracted from the cartography to facilitate the search for structures and monuments and small finds, to help identify any unrecorded monuments or structures, to search for any published papers and documents related to the study area and to assist in the study of the historical development of the area. The English translations of the townland names of the study presented above below are based on Logainm.ie.

12.46

Brinny:	fairy forts or furnaces
Castlenalact:	castle of the monuments
Clashanimud:	trench or furrow of the timber
Kilmore:	great church
Kilnagnady:	unknown
Kilpatrick:	St Patrick’s church
Little silver:	place of silver birch

The placenames refer to a number of monuments. There are no known forts or furnaces in Brinny. Castlenalact refers to a demolished castle (CO096-014002-), Clashanimud refers to

a hillfort (CO096-034----), Kilmore refers to the site of a church (CO096-053002-) and Kilpatrick may refer to a burial ground (CO096-078----).

National Museum of Ireland

12.47 Examination of the finds registers and topographical files held by the National Museum of Ireland revealed that no artefact discoveries from the study area of the proposed development or vicinity have been reported to the National Museum.

12.48 The sources were supplemented by the examination of a number of standard corpus studies including: Irish battle axes Simpson 1990; An analysis of Irish early Bronze Age hoards containing copper or bronze objects O'Flaherty 1995; Hoards of the Irish Later Bronze Age Eogan 1983; La Tène in Ireland Raftery 1984; The Funerary Bowls and Vases of the Irish Bronze Age Ó Ríordáin and Waddell 1993; The axes of the Early Bronze Age in Ireland Harbison 1969 and The Bronze Age burials of Ireland Waddell 1990. No finds were noted.

Archaeological investigations in the study area

12.49 The excavations Bulletin at excavations.ie was examined to identify any licensed archaeological investigations carried out in the application area or the study area . There have been no investigations in the application area. Several investigations have been carried out in the study area that uncovered nothing of archaeological significance except an undated charcoal spread (see below).

Bord Gáis Networks Gas Main, Brinny to Innishannon No archaeological significance 10E0412
Monitoring of trenching to install a Bord Gáis pipeline (feeder main) to provide natural gas to Innishannon, Co. Cork, from their existing installation at Brinny (Brinny AGI) was undertaken from November to December 2010. From the Brinny AGI the feeder main ran along the L–2036 road to the junction of the N71 road and along the N71 to the outskirts of Innishannon village. The feeder main was installed by a combination of directional drilling and open trenching. The feeder main ran along the road, footpath and grass verges; the pipe trench was excavated to a maximum depth of 1.2m and generally 0.5m in width. No archaeological features were exposed in the course of the monitoring.

BRINNY/KILNAGNADY/CASTLENALACT/MOSKEAGH Monitoring—no archaeological significance 11E0197
Archaeological Development Services Ltd, having been commissioned by Bord Gáis Networks, conducted monitoring along the route of a proposed gas pipeline associated with a 21km gas feeder-main from Brinny AGI to the Danone Nutricia Plant at Castleview, Co. Cork.

Monitoring was required along the route but especially where the pipe trench passed through the zones of archaeological constraint relating to recorded monuments. The zones of constraint of eighteen monuments were traversed by the pipeline. Although the pipeline route had no direct impact upon these monuments, it was possible that associated archaeological features could be uncovered.

The pipeline route was divided into three sections and therefore monitoring was carried out under three licences, 11E0197, 11E0198 and 11E0199. Monitoring was carried out intermittently between May and September 2011. No deposits of archaeological potential were uncovered.

Brinny, Innishannon No archaeology found 17E0315
Monitoring of ground works associated with a development site at the MSD Plant, Brinny, Co. Cork was undertaken between 18 July and 1 August 2017 on foot of a condition of planning permission. The development comprised the construction of a contractor's compound and associated temporary car park. No finds or features of archaeological significance were uncovered on the site during monitoring. Monitoring is due to continue in 2018.

Monitoring took place of groundworks at a development site at the existing MSD Plant, Brinny, Co. Cork on 6 and 7 March 2018. This is based on a second phase of work under the same planning reference. The first phase comprised works to an existing un-serviced shell building (B21) and monitoring of the construction of a temporary contractor's compound and car park to the north-west of same (Monitoring Report, October 2017, Excavations Bulletin No. 2017:376). This report relates to the extension of the existing contractors' compound (to the south) to facilitate additional car parking spaces. Nothing of archaeological interest was found.

Brinny, Halfway Burnt spread 19E0528
Testing of a proposed development site at Brinny townland was undertaken. Eight trenches were excavated at regular intervals although the presence of a gas pipeline and 110kV overhead line meant that test trenches had to be reduced in length on the western side of the site. A burnt spread was uncovered in Trenches 2 and 3 within the area of the proposed playing pitch at 0.3m below the surface of the field. No other archaeological features were uncovered. Drainage was evident throughout the site in the form of ceramic pipes and stone drains.

In order to mitigate any potential negative impacts on the monument a number of mitigation measures will be implemented prior to and during construction to ensure the adequate protection of the monument. The burnt spread will be preserved in situ.

Cork Co. Development Plan

12.50 No sites of archaeological importance, National Monuments, or protected structures listed in the Cork Co. Development Plan 2022-28 are located within the proposed applications area.

Aerial Photographs

12.51 Examination of the Ordnance Survey 1995, 1996-7, 2001-5, 2006-12, 2011-13 and 2013-18 imagery as well as Google earth imagery from 2012, 2013, 2015, 2018, 2020, 2023 and 2025, and Bing imagery from 2016 did not indicate any additional cultural heritage sites in the application area.

Field Assessment: Initial Site visit

12.52 A field assessment of the proposed extraction area was carried out on the 23rd of October 2020 to identify any previously unknown archaeological or cultural heritage sites See plate 12-3 for the numbered fieldwork areas.

12.53 Area 1
This is the southern part of a large pentagonal-shaped field of south-east sloping pasture enclosed by banks with mature hedgerow and trees. There was no visible indication of any archaeological or cultural heritage material (see Plate 12-4).

12.54 Area 2
This is most of a large nearly rectangular-shaped field of flat to undulating pasture enclosed by banks with mature hedgerow and trees and electrified wire. There was no visible indication of any archaeological or cultural heritage material (see Plate 12-5).

Field Assessment: Geophysical Survey

12.55 A magnetic gradiometry survey was conducted by AOC in April 2023 (NMS Licence No. 23R0079) in the application area. The geophysical survey identified 15 anomalies that are summarised below in Table 1 and illustrated in Figs. 12-2 and 12-3. Note the full geophysical survey report is provided as Appendix 12-3.

Table 12-1: Summary of geophysical anomalies identified at Kilmore.

Anomaly	Description	Interpretation
1A	Linear trends	Possibly geological or relict field division
1B	Linear trends	Possibly geological or relict field division
1C	Linear trends	Possibly geological or relict field division
1D	Linear trends	Possibly geological or relict field division
1E	Linear trends	Possibly geological or relict field division
1F	Linear trends	Possibly geological or relict field division
2A & B	Collection of magnetically enhanced responses	Enclosure defined by ditch. Defined circular enclosure. Anomalies appear to co-ordinate around a central focal anomaly. These anomalies are likely to indicate infilled ditch type features, created to define space, either personal, industrial, or agricultural. They are comparable in size, at 12m x 12m and 10m x 10m in diameter, respectively, and appear to be adjoining each other.
2C	Linear trend close to 2A and B	May form a defined boundary, a stockade, in support of the enclosures mentioned above.
2D	Discrete areas of magnetic enhancement	May be anomalies associated with the creation of the boundary ditch or represent isolated areas where focused archaeological activity may have taken place.
2E	Collection of anomalies	Within an area of clear geological activity
2F	Faint linear responses,	Possibly geological or relict field division
2G	Faint linear responses,	Possibly geological or relict field division
2H	Collection of anomalies	within an area of clear geological activity
2I	Collection of anomalies	within an area of clear geological activity
2J	Parallel linear trends	Relict field enclosures or agricultural activity

Field Assessment: Test Excavation

12.56 Following the assessment of the results of the geophysical survey it was decided to commission a test excavation. This was carried out in January 2024 by Miriam Carroll for Tobar Archaeological Services (Excavation Licence No. 23E0953) with the objective of targeting all 15 geophysical anomalies as listed above and generally testing areas where ground works will be taking place.

12.57 The programme of archaeological testing comprised the excavation of 36 trenches measured between c. 26m-160m in length and were excavated using a tracked excavator equipped with a 2m wide grading (toothless) bucket (see Figs. 12-4 and 12-5). No features which appear to correspond to the anomalies noted in the northern field (anomalies 2A, 2B, 2C and 2D) were uncovered and nothing of archaeological significance was identified during archaeological test-trenching at the proposed development site.

12.58 A ditch-like feature (F1) was uncovered in Trenches 10 and 11 in the area of geophysical anomaly 2B, however, no other potential features were noted here to correspond to the remainder of the anomaly and no circular or sub-circular feature was uncovered. A linear feature, F2, was exposed in the western field (Field 1 in geophysical survey report) and corresponds to geophysical anomalies 1A and 1D. Manual investigation across this feature in Trench 22 did not produce any artefactual material which could provide a date for its use. It was exposed over a total length of c. 317m, initially having a NE/SW orientation and then turning to the NW/SE. Its length and form would suggest that it represents the remains of a boundary or field division, albeit of unknown date. It should be noted that a potentially later field boundary (indicated on the historic mapping) appeared to cut this linear in Trench 30 and may suggest that it is earlier than mid-19th century, however, this cannot be stated with certainty. A relict field boundary indicated on the first and second edition OS maps was also uncovered in Trenches 31-34 at the west side of Field 1.

12.59 No other potential features were uncovered in the 36 trenches excavated within the proposed extraction areas. The assessment noted a potential direct, negative impact to F1 and F2 in the event that the proposed development proceeds without the implementation of appropriate mitigation measures. To ameliorate such direct impacts mitigation in the form of manual investigation of a representative sample of F1 and F2 is recommended in addition to archaeological monitoring of all topsoil removal associated with the development, and associated reporting requirements (See Appendix 12-4 for the full report).

Assessment Of Potential Impacts

Direct Impacts

12.60 The proposed extraction area will be located within c.100m of RMP CO096-088---- Kilmore Moated site. This monument will not be impacted by the proposal. The setting of the monument will be preserved by the preservation of a 100m buffer to the extraction area, the retention of the existing field boundary with hedgerow and trees and the construction of 3.4m high perimeter soil bund between the hedgerow and the extraction area.

12.61 The assessment noted a potential direct, negative impact to a ditch-like feature F1 and a linear feature F2, the remains of a boundary or field division of unknown date, in the event that the proposed development proceeds without the implementation of appropriate mitigation measures.

12.62 There will be no direct impacts on any other known items of archaeology, cultural heritage, or buildings of heritage interest in the application area or the vicinity.

Indirect Impacts

12.63 There will be no indirect impacts on any known significant items of archaeology, cultural heritage, or buildings of heritage interest in the application area or the vicinity.

Interactions with Other Impacts

12.64 No interaction with other impacts have been identified.

Do Nothing Impacts

12.65 If the proposed development were not to proceed there would be no negative impact on the cultural heritage.

Worst-Case Impact

12.66 In the worst case scenario, the development might disturb previously unknown deposits or artefacts without preservation by record taking place in areas 1 and 2.

Recommendations / Proposed Mitigation Measures

Direct Impacts

12.67 The assessment noted a potential direct, negative impact to features F1 and F2 in the event that the proposed development proceeds without the implementation of appropriate mitigation measures. To ameliorate such direct impacts mitigation in the form of manual investigation of a representative sample of F1 and F2 is recommended.

12.68 Due to the possibility of the survival of previously unknown sub-surface archaeological deposits or finds within the proposed extraction area, in areas 1 and 2, all topsoil-stripping in this area should be monitored by a qualified archaeologist under license from the national Monuments service.

Indirect Impacts

12.69 No indirect impacts warranting specific mitigation were identified during the cultural heritage assessment.

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Plates

Plate 12-1: View of RMP CO096-088---- Kilmore Moated site looking east.

Plate 12-2: Panoramic view from RMP CO096-088---- Kilmore Moated site looking north-east to the application area which will be c.100m distant, showing the existing field boundary with hedgerow and trees.

Plate 12-3: Aerial image of the application area from Google earth taken during drought conditions in June 2018 showing the proposed extraction area outlined in red and numbered fieldwork areas.

Plate 12-4: Panoramic view of Area 1 looking north-east.

Plate 12-5: Panoramic view of Area 2 looking south-east.

Figures

Figure 12-1: The study area. The blue line is the land holding, and the red line is application area. RMP sites are indicated with black circles and SMR sites with green circles. Structures in the RPS are marked with purple circles, and in the NIAH with tan circles.

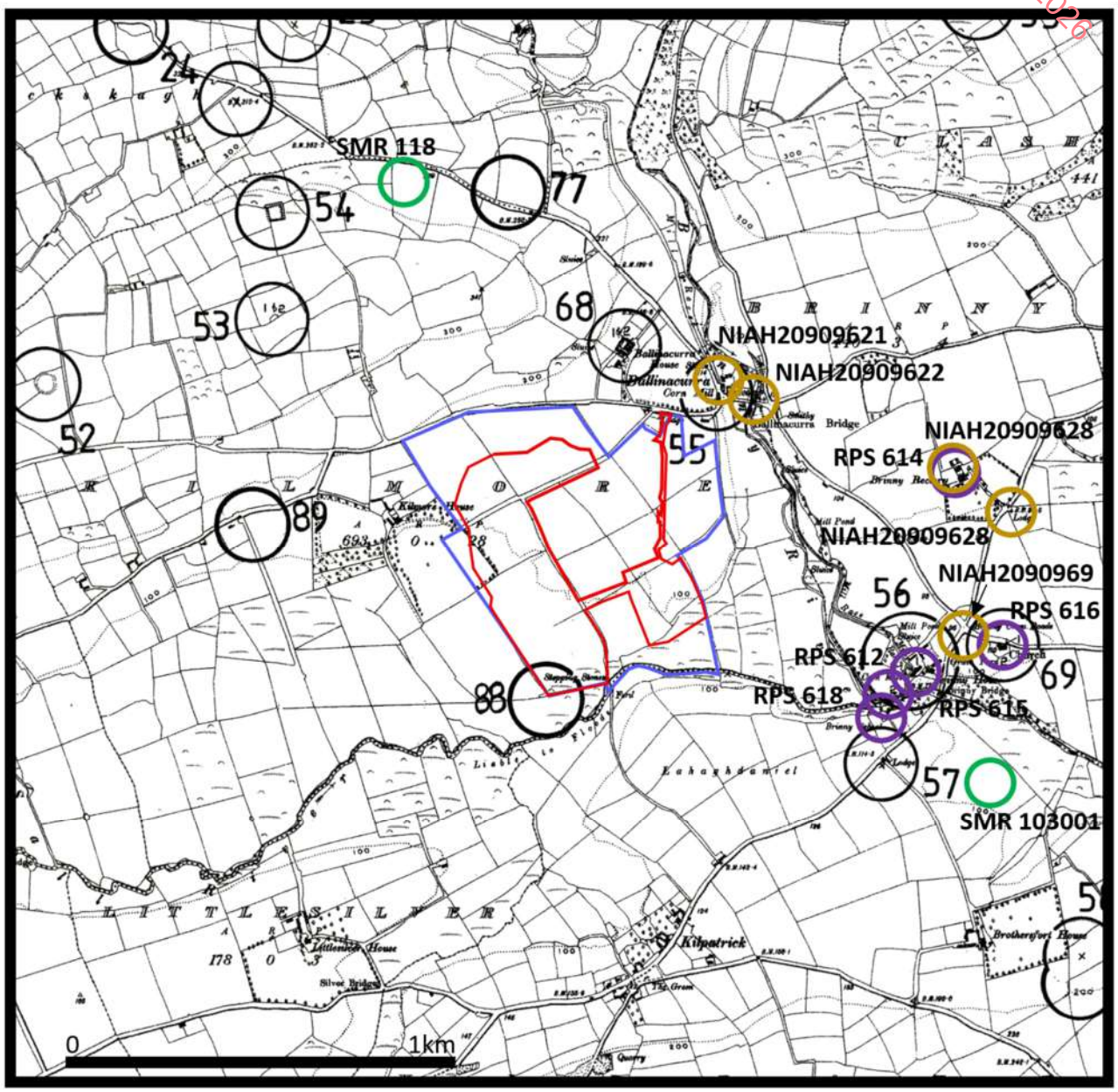

Figure 12-2: Detailed view of the geophysics results interpretation, northern area.

Figure 12-3: Detailed view of the geophysics results interpretation, southern area.

Figure 12-4: Trench layout in relation to geophysical anomalies northern area.

Figure 12-5: Trench layout in relation to geophysical anomalies southern area.

Appendix 12-A Sites in the Record of Monuments and Places

CO096-024---- Kilnagnady Standing stone
In flat pasture. Rectangular stone (H 1.2m; 1m x 0.45m).

CO096-025---- Kilnagnady Fulacht fia
In reclaimed pasture, in stream valley. Spread of burnt material (L 11m; D 0.15m) visible in stream section to N (original course of stream was to S). According to local information a mound was levelled c. 1977.

CO096-052---- Kilmore Ringfort – rath
On high ground, overlooking Sall river valley to S. Roughly circular area (44.7m N-S; 41m E-W) enclosed by two earthen banks with intervening fosse. Banks stone-faced in parts; inner bank (H 1.1m); outer bank (H 0.6m) incorporated into field fence system to N. Gaps, with causeway to NNE (Wth 8m), stone-faced on S side; to SSE (Wth 4m); to SW (Wth 5m).

CO096- 053001- Kilmore Ringfort – rath
On top of a hill. Landowner remembers "small fort" on site. According to Ó Riordain an old church (CO096-053002-) was 'on a high site in this townland'; field known as 'The Graveyard Field'. No visible surface trace.

CO096- 053002- Kilmore Church
On top of a hill. Landowner remembers "small fort" on site. According to Ó Riordain an old church (CO096-053002-) was 'on a high site in this townland'; field known as 'The Graveyard Field'. No visible surface trace.

CO096-054---- Kilmore Moated site
In pasture, on E-facing slope. Described by Ó Riordain as rectangular lios, 31 yards by 35 yards. Enclosure now levelled; defined by slight rise to E and W, probably indicating line of bank.

CO096-055---- Kilmore Mill-corn NIAH 20909621
Roadside, 3km NW of Inishannon on the Brinny river. Gabled, 5-bay, 3-storey mill with brick dressed opes; in poor condition. Two-storey addition to rear. Conglomerate millstone used as step into mill. Mill race taken from river to N; now destroyed.

CO096-056001- Brinny Mill-corn
Indicated as L-shaped flour mill on 1842 OS 6-inch map. Weather slated 6-bay,4-storey structure (long axis NE-SW) built on gentle SW-facing slope. Gabled extension to rear, NW end. Late 19th century addition at NE end is 3-bay, 3-storey with same roofline as original mill. According to local information, waterwheel and internal gearing and fittings removed in late 1960s and replaced with modern milling machinery. Intact mill race (dry) approaches mill from N; taken from Brinny river. Millstones lying nearby. To rear of mill an inscribed stone with inscription 'To the prosperity of Nash 1776 D.H. Bulle' was removed from Brinny house which stood immediately to SE during its demolition in 1982.

CO096-056002- Brinny Inscribed stone
To the rear of a corn mill (CO096-056001-) is an inscribed stone with the following inscription: 'To the prosperity of Nash 1776 D.H. Bulle' . The stone was removed from Brinny house, which stood immediately to SE, during its demolition in 1982.

CO096-057---- Kilpatrick Ringfort – rath
In pasture, on S bank of Sall river. Arc of bank marked on 1st. ed. O.S. map, survives as gentle scarp. This monument is depicted as a circular earthwork and is named 'Danes Fort' on a map entitled - 'Survey of the Bandon and Western Districts in the baronies of Killinamakey, East

Carbery, Musgerry, Barrets and Barryroe and County of Cork. The estate of his Grace the Duke of Devonshire by Bernard Scalé, 1775'.

CO096-058---- Kilpatrick Ringfort – rath
In pasture, on N-facing slope of E-W ridge. Circular enclosure (diam. c. 32m) on OS 6-inch map (1842). No visible surface trace.

CO096-068001- Kilmore Country house
Nothing online

CO096-068002- Kilmore Mill-unclassified
In farmyard of Ballinacurra House, near Brinny river. Wheel pit along gable of farm building with breastshot cast iron waterwheel in position, segment wheel attached to shrouding.

CO096-069002- Brinny Church NIAH 20909631
On S side of road, E of Brinny crossroads; pentagonal-shaped graveyard (c. 40m N-S; c. 50m E-W) enclosing site of ancient parish church (CO096-069001-) of Brinny. Church rebuilt in 1730s and enlarged in 1813 (Brady 1863, vol. 1, 45). Rectangular nave; three windows in both N and S walls, each has two round-arched lights divided by mullion; two windows with quatrefoil over mullion on W gable. Chancel to E with large E window similar to those on W gable of nave, small, paired lancets in N and S walls. Slim 3-storey tower with gabled roof added at NW corner in 1883 (Cole 1903, 27), door on N wall. Inscribed headstones date from 19th century to present day.

CO096-069002- Brinny Graveyard NIAH 20909631
On S side of road, E of Brinny crossroads; pentagonal-shaped graveyard (c. 40m N-S; c. 50m E-W) enclosing site of ancient parish church (CO096-069001-) of Brinny. Church rebuilt in 1730s and enlarged in 1813 (Brady 1863, vol. 1, 45). Rectangular nave; three windows in both N and S walls, each has two round-arched lights divided by mullion; two windows with quatrefoil over mullion on W gable. Chancel to E with large E window similar to those on W gable of nave, small, paired lancets in N and S walls. Slim 3-storey tower with gabled roof added at NW corner in 1883 (Cole 1903, 27), door on N wall. Inscribed headstones date from 19th century to present day.

CO096-077---- Kilnagnady Standing stone
In level pasture, overlooking the Brinny river valley to NE. Upright stone (H 2.3m; 0.68m x 0.47m) leaning slightly to SSE; long axis NE-SW.

CO096-078---- Kilpatrick Burial ground
Tradition of burial ground and cill in field known as "Tadg na Reilige". No visible surface trace.

CO096-085---- Kilnagnady Burial ground
In pasture. Local tradition of graveyard (CMSS). No visible surface trace.

CO096-088---- Kilmore Moated site
In level pasture c. 50m N of River Sall. Sub-rectangular area (27.4m E-W; 22m N-S) enclosed by low earthen bank (H 0.35m); external fosse (D 0.30m) on E and S sides. Second bank (H 0.6m) outside fosse to E. Field clearance material dumped in interior and in fosse to N.

CO096-089---- Kilmore Fulacht fia
On S-facing slope overlooking Sall River valley. Spread of burnt material (20m N-S; 18m E-W) visible in ploughed field.

Appendix 12-B Sites in the Sites and Monument Record

CO096-103001- Kilpatrick Souterrain
In tillage, on a slight NE-facing slope. This souterrain was discovered in 1994 when the ground collapsed during beet harvesting. The collapsed opening (diam. 0.75m) revealed a circular earth-cut shaft (D c. 1.5m) at the base of which a narrow creepway opened to the NE. Further investigation was not possible due to inaccessibility. In 2000 the only visible evidence of the souterrain was a slight N-S depression (6m N-S; 1.2m E-W; D 0.15m).

CO096-118---- Kilmore Fulacht fia
No information provided online.

Appendix 12-C Geophysical Survey Report

KRL Quarry Extension
County Cork

Archaeological Geophysical Survey

National Grid Reference: 150531 059636
AOC Project No: 40521
Date: 20 April 2023

License number: 23R0079

AOC Archaeology Group

ARCHAEOLOGY | HERITAGE | CONSERVATION

KRL Brinny Quarry Extension, Munster, Cork

Archaeological Geophysical Survey

On Behalf of:	**SLR Consulting Ireland** **7 Dundrum Business Park** **Windy Arbour** **Dublin 14** **Dublin** **Ireland**
National Grid Reference (NGR):	**150531 059636**
AOC Project No:	**40521**
License Number:	**23R0079**
OASIS IC	**TBC**
Prepared by:	**Chris Sykes**
Illustrations by:	**Chris Sykes**
Date of survey:	**28/03/2023- 01/04/2023**
Surveyors:	**Dan Shiel and Claire Stephens**

This document has been prepared in accordance with AOC standard operating procedures.

Author: Chris Sykes	**Date: 20 April 2023**
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Non-Technical Summary

AOC Archaeology Group was commissioned by SLR Consulting Ireland to undertake an archaeological geophysical survey, using the magnetic gradiometry method, to investigate the potential for buried archaeological remains prior to a proposed quarry extension centred at KRL Brinny Quarry Extension, Munster, Cork, Ireland NGR 150531 059636.

The Site is located on land at Munster, Cork, Ireland approximately 20km south-west of Cork, Ireland. The survey area is situated across agricultural land which is located to the west of the L2235, and approximately 0.5km to the north of the River Brinny.

Isolated evidence of archaeological features has been identified. They comprise a number of magnetically enhanced anomalies which form a clearly defined space, adjoining each other, within a defined larger landscape.

Associated with these features, but with a weaker magnetic enhancement than the clear archaeological anomalies, a linear trend has been identified as possible archaeology. Whilst it is likely to be archaeological in nature, only a possible interpretation has been reached, due to the the weak nature of the magnetic response.

Across the survey area there is evidence of unclear trends, defined by their weaker magnetism and the lack of clear association with archaeological assets.

Furthermore anomalies of an unclear origin, have also been detected, which, located within an area of high density geological activity, may be either archaeological or geological in origin, most notably in Field 1.

There are geological anomalies within the survey area, which in Field 2 are fragmentary which may obscure archaeological features as a result of the similarity in magnetic signature. Similarly agricultural activity in the area may have further dissipated the geological material.

Linear trends, along the eastern boundary of Field 1, have been categorised as ploughing trends, an indication of the former regimes which this land may have been subjected to.

Anomalies identified as magnetic disturbance are considered to be associated with telegraph poles or watering troughs.

A number of isolated ferrous dipolar responses have been identified and are not considered to be archaeological in nature and are thought to represent small magnetically enhanced material on the site.

Therefore the archaeological potential of the survey area, is considered to be low.

1 Introduction

1.1 AOC Archaeology Group was commissioned by SLR Consulting Ireland to undertake an archaeological geophysical survey using magnetic gradiometry of an area of land at KRL Brinny Quarry Extension, Munster, Cork, Ireland. The survey was commenced on 28/03/2023 and completed on 01/04/2023 as part of a wider scheme of archaeological assessment in advance of the proposed development of the site. The planned survey area was approximately 10ha, of which all was completed.

1.2 Archaeological geophysical survey uses non-intrusive and non-destructive techniques to determine the presence or absence of anomalies likely to be caused by archaeological features, structures or deposits, as far as is reasonably possible (CIfA, 2014). It is therefore a common component of the process of evaluating the impact of development on the historic environment. It is also a key tool in archaeological research as it is non destructive and able to cover large areas, to allow below ground interventions to be appropriately targeted.

1.3 This survey was carried out to provide information on the presence, character and extent of potential buried archaeological remains within the proposed development site. The significance of any such remains can only be determied with reference to further information; as such this report may form part of an assessment of significance, but cannot stand alone as such.

2 Survey Area Location and Description

2.1 The proposed development site (hereafter 'the survey area') is located at Munster, Cork, Ireland approximately 20km south west of Cork, Ireland (NGR 150531 059636). The Site is situated across agricultural land which is located to the west of the L2235, and approximately 0.5km to the north of the River Brinny

2.2 The survey area covers approximately 10 ha across two fields (Figure 2). The ground level within the site is gently undulating and level, situated at around 51m above Ordnance Datum (aOD) in the northwest corner of the northern field, sloping to above 30m along the southern boundary of this field. In the southern field it is consistently level at c.28m aOD.

2.3 Numerous bands of bedrock underlie the survey area. To the north, Narrow Cove Member (Kinsale Formation) (KNnc) a sandstone and mudstone abuts Pigs Cove Member (KNpc), which in turn abuts Courtmacsherry Formation (CY) a calcareous mudstone with limestone inclusions. Finally the southern tip of the survey area comprises of the Lispatrick Formation (LP) a Pyritic cherty mudstone with dolomite. The site is located on Rush Conglomerate Formation – Shale Limestone, overlying Carlyan Limestone Sedimentary bedrock formed during the Carboniferous period. (GSI, 2023).

2.4 The soils within the survey area are classed as belonging to the Straffan group fine loamy drifts with limestones (Cranfield University, 2023).

2.5 Gradiometer survey is suggested to provide a variable response over sedimentary rocks; for example the results can be good over certain sandstones and average over mudstones and the drift / alluvium deposits may also have an effect (David *et al.* 2008, 15).

3 Archaeological Background

3.1 The following is a brief summation of the main types of sites and monuments that are known from the study area along with the historical development of the study area. It is intended as a guide to the types of sites and monuments that might be encountered in the study area. The application site is situated in the townland of Kilmore, in the Barony of Kinalmeaky, and the civil parish of Brinny.

Prehistoric (500,000 BC – AD 43)

3.2 Prehistoric activity in the study area is indicated by the presence of standing stones in Kilnagnady (CO096-024---- and CO096-077----), fulacht fia in Kilnagnady and Kilmore townlands (CO096-025--, CO096-089---- and CO096-118).

Medieval (AD 410 – AD 1540)

3.3 In the Early Medieval period (500 AD-1170 AD) the study area formed part of the local kingdom of Cenél mBéicce (MacCotter 2008, 154). Classically settlement at this period is indicated by the presence of enclosed farmsteads known as ringforts, when enclosed with earthen banks, and cashels when enclosed by stone walls. There are ringforts known in the study area in Kilmore (CO096-052---- and CO096-053001-) and Kilpatrick townlands (CO096-057---- and CO096-058) that indicate early Medieval settlement in the study area. There is also a contemporary souterrain known from Kilpatrick townland (CO096-103001).

3.4 In the Later Medieval period Kinalbek was held by Richard de Cogan and later formed part of the Barry Óg manor of Innishannon (MacCotter 2008, 152, 154). Manorialism describes the organisation of the feudal rural economy and society characterised by the vesting of legal and economic power in a lord supported economically from his own direct landholding and from the obligatory contributions of a legally subject part of the peasant population under his jurisdiction. In Ireland, the Lord's manor house was also often enclosed by a rectangular moat and these sites are referred to as moated sites. There are two moated sites known in the study area in Kilmore townland (CO096-054---- and CO096-088----) indicating Later Medieval settlement in the study area.

Post medieval – Industrial Period (AD 1540 – 1901)

3.5 The Book of Survey and Distribution records that in 1641 Kilmore townland was in the hands of David Power but by 1670 had come into the hands of Lord John Kingston, Lt. Marcus Weekes, Captain John Nicholls and Giles Barrett (http://downsurvey.tcd.ie). By the eighteenth century the application area had come into the hands of the Dukes of Devonshire. In 1837 Kilmore House, now longer extant, was noted by Lewis (1837) as the seat of William Popham and in 1851 it was leased to Michael Curtin by the Devonshire Estate. (http://landedestates.nuigalway.ie/LandedEstates/jsp/property-show.jsp?id=3551).

4 Aims

4.1 The aim of the geophysical survey was to identify anomalies that suggest the presence of archaeological remains, in order to enhance the current understanding of the historical environment within the survey area.

4.2 Specifically, the aims of the gradiometer survey were;

- To locate, record and characterise any potential surviving sub-surface archaeological remains within the survey area, as part of a broader archaeological evaluation
- To produce a comprehensive site archive (Appendix 1) and report

5 Methodology

5.1 The geophysical survey was undertaken between 28/03/2023 and 01/04/2023.

5.2 All geophysical survey work was carried out in accordance with recommended good practice specified in the EAC guideline documents published by Historic England (Schmidt et al. 2016) and the Chartered Institute for Archaeologists Standard and Guidance for archaeological geophysical survey (2014).

5.3 Parameters and survey methods were selected that were suitable for the prospective aims of the survey and in accordance with recommended professional good practice (Schmidt et al. 2016).

5.4 Digital photographs of every survey parcel were taken before, during and after geophysical survey to show any changes to field conditions following the programme of works. The photos were downloaded and stored off site, and relevant examples are included as Plates 1 and 2 in this report.

5.5 The gradiometer survey was carried out using Bartington Grad601-2 fluxgate gradiometers (see Appendix 2). The survey was conducted within a grid system, across grids measuring 30m by 30m which were marked out using temporary markers at each grid node.

5.6 Grid nodes were set out and recorded using a Trimble R8 / R10 dGPS with an error no greater than +/- 0.05m. The GPS system uses the Trimble “VRS Now” service to provide instant access to real-time kinematic (RTK) corrections enabling an accuracy of < 2cm. It was connected via a SIM card run on the Vodafone network with good cellular signal in the survey areas, meaning a repeater was not required.

5.7 Data was collected in the field on an east-west alignment using zig-zag traverses, with a sample interval of 0.25m and a traverse interval of 1m. A total of approximately 10ha was surveyed.

5.8 Before each session of use, each gradiometer was balanced around a single set up point within the survey area specifically chosen for use by all instruments used in the survey. This point is magnetically quiet and balancing the machine around this point, produces a more uniform dataset throughout and allows all data to be plotted with ease within a standard range as appropriate to the survey environment. Striping of the data may occur due to instrument drift; it is decided in the field if this is within a sensible and acceptable limit; if it is not, the grid(s) in question are re-collected.

5.9 Care was also taken to attempt to avoid metal obstacles present within the survey area, such as metal objects within and adjacent to the survey area as gradiometer survey is affected by ‘above-ground ferrous disturbance’ and avoiding these improves the overall data quality and results obtained.

5.10 The gradiometer data were downloaded using Bartington Grad601 PC Software v313 and processed using Geoscan Geoplot v4.0, the details of which can be found in Appendices 2 and 3. Data processing, storage and documentation were carried out in accordance with the good practice

specifications detailed in the guidelines issued by the Archaeology Data Service (Schmidt and Ernenwein, 2009).

5.11 Interpretations of the data were created as layers in ArcGIS Pro and the technical terminology used to describe the identified features can be found in Appendix 4.

6 Results and Interpretation

6.1 The magnetic survey results have been visualised as greyscale plots, with the processed data plotted at -1nT to 2nT as seen in Figures 3, 5.1 and 5.2. An interpretation of the data can be seen in Figures 4, 6.1 and 6.2 and an individual characterisation of the numbered identified anomalies of interest is given below. Figures 7.1 and 7.2 shows minimally processed data plotted as XY traces plotted at 50nT/cm at A3.

6.2 Appendix 4 contains a guide to the interpretation categories employed and the logic used to assign anomalies to specific classes, as well as a short discussion of how past human activity results in these anomalies, however some important points are noted below:

6.3 The classes have three sub-types (generally); anomalies (typically indicated by a solid colour polygon), spreads (a stippled polygon) and trends (a line with a colour matching the polygon colour). *Anomalies* refer to distinct changes in the survey data which suggest an abrupt boundary between materials below ground, such as a cut feature with a magnetically contrasting fill. *Spreads* of enhanced material refer to diffuse areas of altered magnetic contrast which suggest a localised spread of material with a magnetic contrast within the topsoil or ploughzone. Linear *trends* are less distinct and are typically visible as linear patterning in the overall texture of the data. A common example of these is the striping effect caused by recent ploughing.

6.4 Anomalies placed in the 'uncertain' class may have an archaeological origin, but other explanations are equally likely. Where any particular interpretation is *more* likely than others, the anomaly is assigned to that class.

6.5 The definite 'Archaeology' class is only used for anomalies with no other possible explanation, either due to their diagnostic characteristics or because they are corroborated by other sources such as previous interventions within the survey area. Anomalies with magnetic characteristics or morphologies that suggest an archaeological origin with generally be assigned to the 'Possible Archaeology' class.

6.6 The anomaly type 'ferrous spike' is assigned to strong dipolar anomalies which cover a small spatial area and have a characteristic appearance in the XY traces of the survey data. These are strongly likely to be of recent origin in the form of magnetic or ferrous debris within the topsoil; 'spikes' of other origin will be assigned to their appropriate classification.

6.7 A distinction is made between modern *disturbance* from strongly ferrous materials within or adjacent to the survey area, such as the strong dipolar 'halos' produced by services like gas mains, and spreads of material within the topsoil causing noise which is assumed to have a recent origin. Generally speaking, '*modern disturbance'* occurs at a distance from magnetic source, whereas *modern magnetic spreads/debris* are related to material directly at that location.

6.8 Generally, only anomalies (or groups thereof) of a likely archaeological or historical origin have been assigned an anomaly number on the interpretation figures. However, anomalies interpreted as resulting from other processes that are integral to the discussion of the results have also been assigned anomaly numbers.

6.9 Overall, the results are noisy. Whilst this might be related to the of the underlying geology (discussed below), the noise may also be potential evidence of "green wasting" – the dispersal of material, across the site to assist in fertilisation. This material is likely to contain enhanced magnetism material, with the most notable example of this in Field 1.

6.10 The geology of the survey areas comprises a number of mudstones of different types and variations which might explain the difference in the magnetic strength of the geological anomalies identified and the difference in their patterns, with broad and flowing bands in Field 1, with more tightly spaced and sinuous responses in Field 2. It is this underlying strength and form of geology which may obscure some of the more subtle, nuanced and ephemeral responses.

Archaeology

6.11 A collection of magnetically enhanced responses have been identified within Field 2 of the survey area and appear to form a defined circular enclosure (Fig. 6.1).

6.12 Individually, these enclosures (**2A** and **2B**, Fig. 6.1) appear to co-ordinate around a central focal anomaly. These anomalies are likely to indicate infilled ditch type features, created to define space, either personal, industrial, or agricultural. They are comparable in size, at 12m x 12m and 10m x 10m in diameter, respectively, and appear to be adjoining each other.

Possible Archaeology

6.13 Located within Field 2, and with close association with enclosures 2A and 2B mentioned above, a linear trend (**2C**) has been identified which may form a defined boundary, a stockade, in support of the enclosures mentioned above.

Unclear Origins

6.14 Within the dataset there are a number of unclear linear trends, defined by their weak, or fragmentary, magnetic signature. There is no clear association with other, more clearly defined and stronger responses in the dataset and they may simply represent changes in the topography, where soils are naturally thinner. Equally they may represent well-worn and defined trackways in nature, where prolonged use has caused compaction and therefore a faint magnetic enhancement (Figs 6.1 and 6.2).

6.15 Discrete areas of magnetic enhancement (**2D**) in Field 2, enclosed by 2C, may be anomalies associated with the creation of the boundary ditch, or represent isolated areas where focused archaeological activity may have taken place. As such only an unclear interpretation has been reached.

6.16 To the north of circular features 2A and 2B, a collection of anomalies (**2E**, **2H** and **2I**) have been categorised as unclear in origin, within an area of clear geological activity. Whilst the strength of their magnetic enhancement is similar to that of the geological anomalies, their shape and character do not create a cohesive archaeological form and therefore have been categorised as unclear.

6.17 Linear trends (**2F** and **2G**) are faint linear responses, which are likely to be associated with geological and topographical variations in the landscape. This is applicable to similar features in Field 1 (**1A** – **1F**) yet they may also represent previously unchronicled field system of an unknown date.

6.18 Parallel linear trends (**2J**) in the southeast corner of Field 2 could potentially also be part of the postulated former field system, although they could also be related to modern agricultural activity in the field.

Historical Features

6.19 Prevalent in the dataset for Field 1 are a number of historic features. These are identified by the nature of the anomalies; rigidly straight and with two enhanced magnetic anomalies, in parallel, suggesting former field boundaries. These are recorded on early mapping of the area, yet the date of their removal is unclear.

Agricultural

6.20 There is some evidence of a ploughing regime in the survey area, identified by the linear responses, most notable in Field 1 and suggestive of a formal arable use for the land.

Non – Archaeology

6.21 Evidence of the underlying geology in the survey area has been detected throughout the dataset, characterised by the distinctive form of the anomalies, and supported by the strength of these responses in comparison to those identified as archaeological or unclear in origin.

6.22 The difference in the responses – broad bands of material in Field 1, with more fragmentary striations in Field 2 – may be an indication of the topography of the landscape, or a ploughing regime which might have taken place in Field 2, where ploughing has brought geological material closer to the surface and subsequently scattered across the landscape.

6.23 Anomalies of a magnetic disturbance origin have been detected within the dataset. These correspond with the location of telegraph poles and water troughs in the field.

7 Conclusion

7.1 Anomalies of an archaeological nature have been identified in the dataset, which may be contemporary with the known archaeology in the area, most notably the moated site (CO096-088). This collection of anomalies suggest adjoining circular features contained within a larger enclosure identified as possible archaeology. Located at the bottom of a south-facing slope, the suggestion is that this may represent an archaeological farmstead.

7.2 Unclear linear anomalies have been identified within the dataset which might indicate a remnant field system, but it is likely that these are natural scars in the landscape, rather than features of an archaeological origin.

7.3 Geological anomalies and spreads of material, suggestive of magnetic disturbance, have also been detected within the dataset. Given the broad nature and extent of the magnetic enhancement, other alternatives are not considered possible. However, the more fragmentary geological responses in the north, may conceal subtle and ephemeral archaeological responses.

7.4 Historical features and magnetic disturbance has been identified throughout the dataset.

7.5 In assessing the results of the geophysical survey against the specific aims set out in Section 4;

- The survey has succeeded in locating, recording and characterising surviving sub-surface remains within the Site, though more remains may be present that are not suitable for detection through gradiometry;
- The survey will help in determining the next stage of works as it has provided evidence that remains of an uncertain origin are most likely present on site, and has provided a target for further investigation;
- The survey has resulted in a comprehensive report and archive.

8 Statement of Indemnity

8.1 Although the results and interpretation detailed in this report have been produced as accurately as possible, it should be noted that the conclusions offered are a subjective assessment of collected data sets.

8.2 The success of a geophysical survey in identifying archaeological remains can be heavily influenced by several factors, including geology, seasonality, field conditions and the properties of the features being detected. Therefore, the geophysical interpretation may only reveal certain archaeological features and not produce a complete plan of all the archaeological remains within a survey area.

9 Archive Deposition

9.1 In accordance with professional standard practice an 'Online Access to the Index of archaeological investigations' ('OASIS') record will be completed for submission to the HER and Archaeological Data Service (ADS) (Appendix 2).

9.2 One digital and hard copy of the report and data will be submitted to the relevant Historic Environment Record (HER) at the Client's discretion.

9.3 A digital copy of the report and data will also be submitted to the ADS at the Client's discretion.

10 Bibliography

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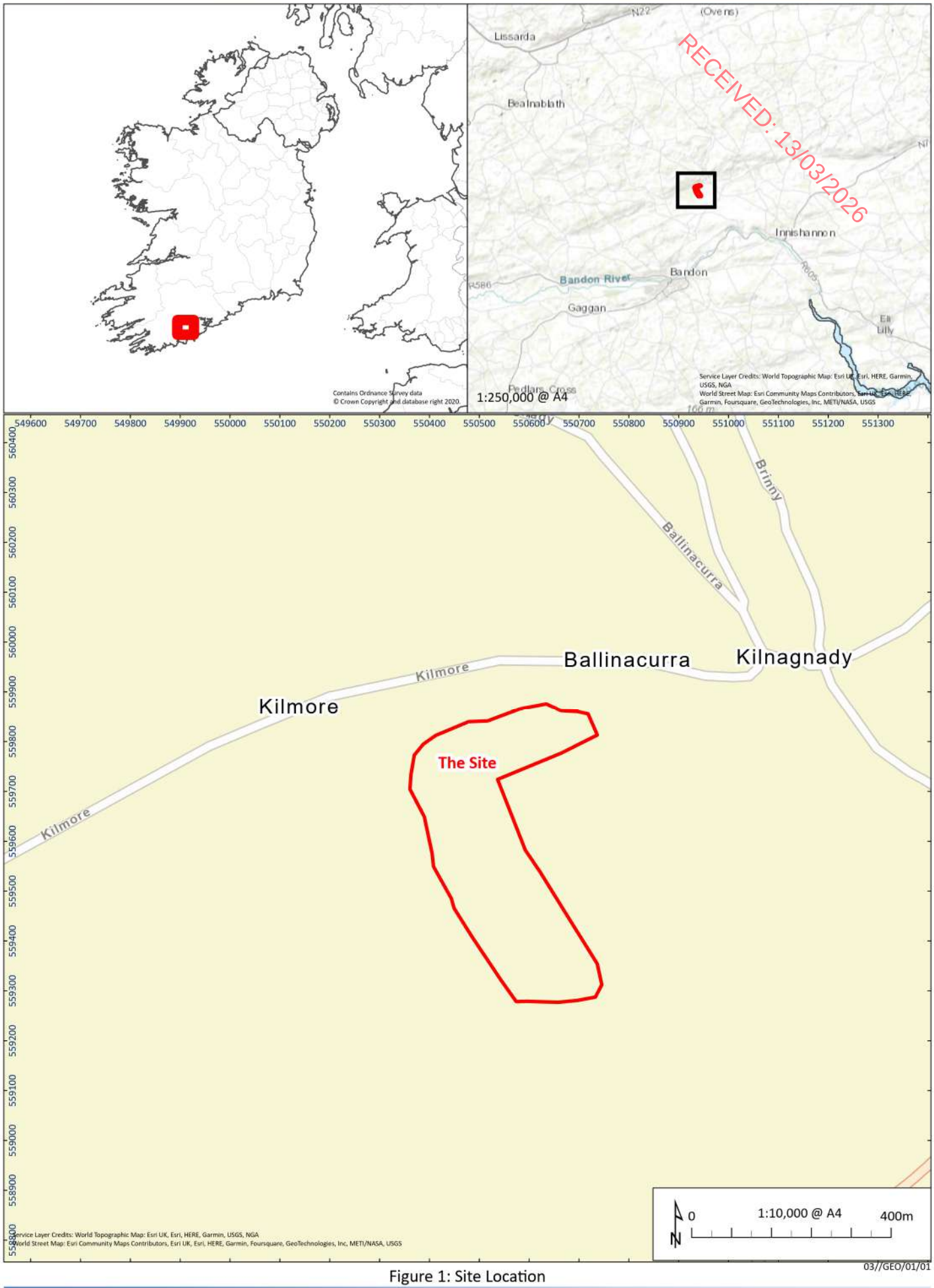
*denotes a reference that occurs in Appendix 2 rather than the main body of this report.

11 Plates

Plate 1: Field 1, looking east, from the southeast corner

Plate 2: Field 2, working shot, from the southeast corner, facing northwest

12 Figures



03//GEO/01/01

Figure 1: Site Location

Survey areas

Figure 02

Red Line Boundary
Field Areas

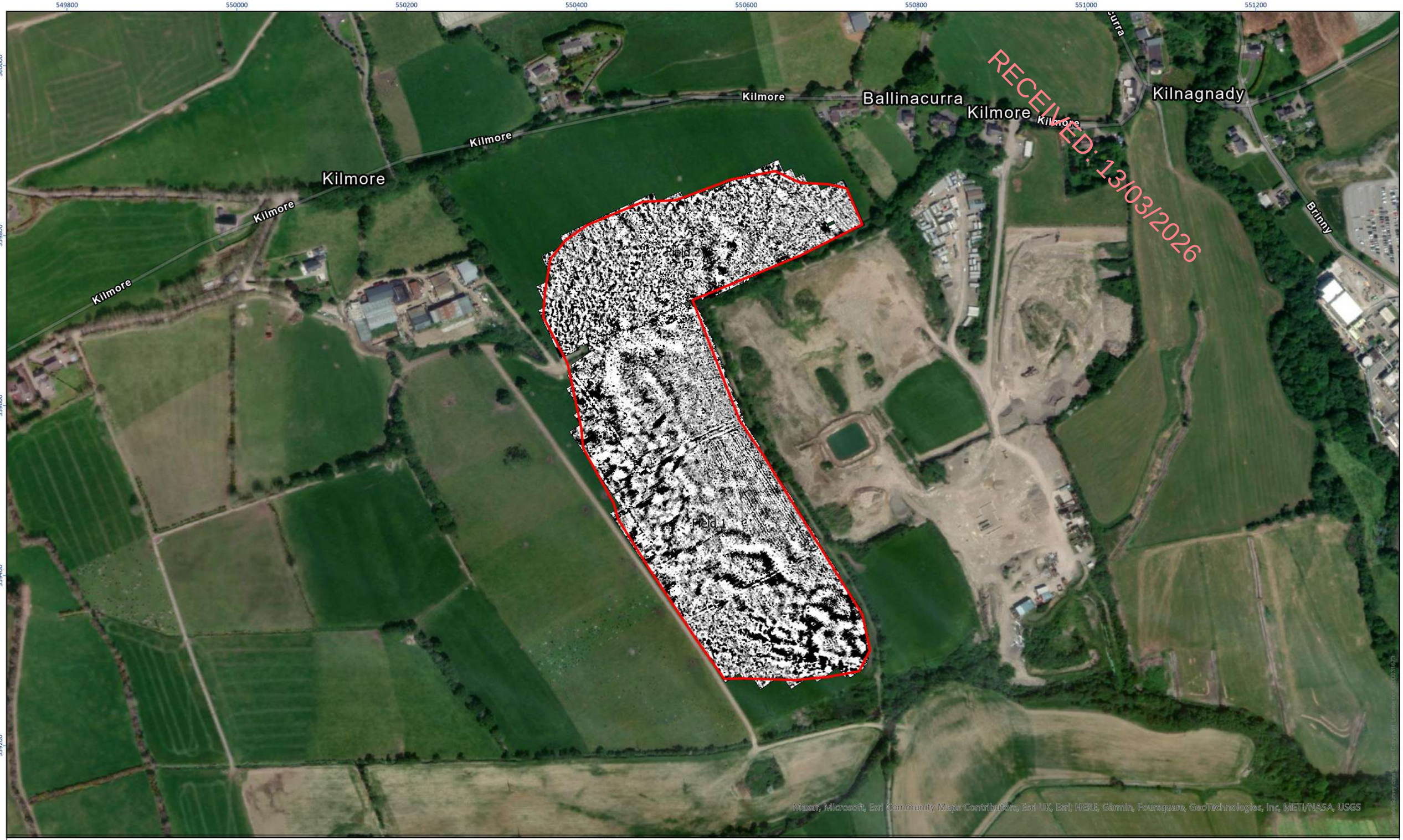
N

0 60m

Scale: 1:4,000 @ A3

Drawing Number:	05/40521/GEO/02/01
Created by: CS	Date: 20/04/2023
Checked by: SO	Date: 20/04/2023
Approved by: SO	Date: 20/04/2023

AOC Archaeology Group



Overview processed greyscale of gradiometry data

Figure 03

2nT
-1nT

Red Line Boundary

N

0 60m

Scale: 1:4,000 @ A3

Drawing Number: 05/40521/GEO/03/01	
Created by: CS	Date: 20/04/2023
Checked by: SO	Date: 20/04/2023
Approved by: SO	Date: 20/04/2023

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Overview interpretation of gradiometry data

Figure 04

- Red Line Boundary
- Ferrous Anomalies/Iron Spike
- Linear Trend (Possible Archaeology)
- Linear Trend (Unclear Origin)
- Anomaly (Probable Archaeology)
- Anomaly (Unclear Origin)
- Spread (Unclear Origin)
- Anomaly (Geology/Natural)
- Spread (Magnetic Disturbance)
- Spread (Ferrous/Iron Spike)

N

0 60m

Scale: 1:4,000 @ A3

Drawing Number:	05/40521/GEO/04/01
Created by: CS	Date: 20/04/2023
Checked by: SO	Date: 20/04/2023
Approved by: SO	Date: 20/04/2023

AOC Archaeology Group

Processed greyscale of gradiometry data

Figure 5.1

2nT
-1nT

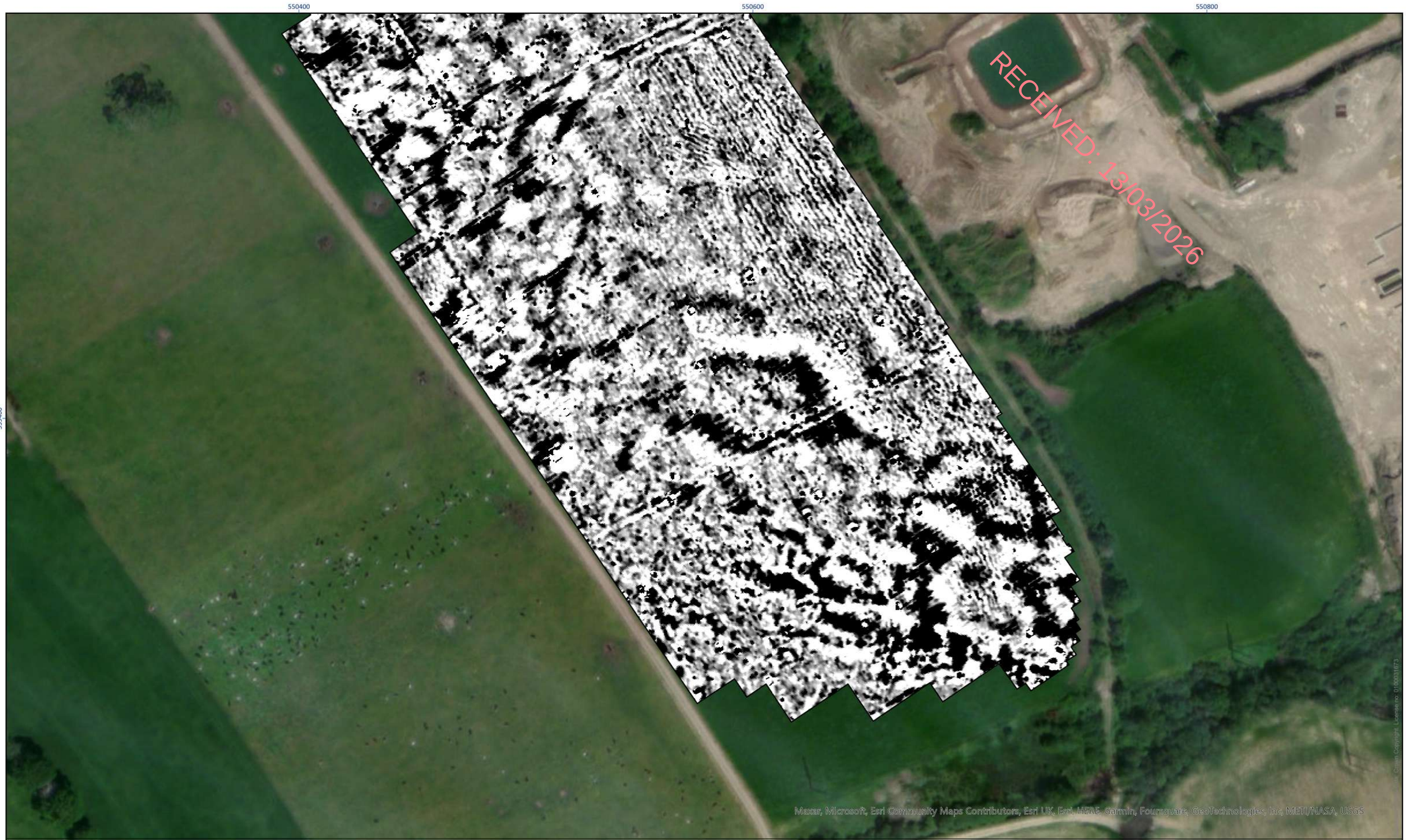
N

0 60m

Scale: 1:1,500 @ A3

Drawing Number: 05/40521/GEO/5.1/01	
Created by: CS	Date: 20/04/2023
Checked by: SO	Date: 20/04/2023
Approved by: SO	Date: 20/04/2023

AOC Archaeology Group



Processed greyscale of gradiometry data

Figure 5.2

2nT
-1nT

N

0 60m

Scale: 1:1,500 @ A3

Drawing Number: 05/40521/GEO/5.2/01	
Created by: CS	Date: 20/04/2023
Checked by: SO	Date: 20/04/2023
Approved by: SO	Date: 20/04/2023

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550400 550600 550800

559800 559600

2E 2E 2E 2E 2E 2F 2G 2H 2H 2I 2I 2J 2J 2A 2A 2A 2B 2B 2C 2C 2D 2D 1A 1B 1C

Maxar, Microsoft, Esri Community Maps Contributors, Esri UK, Esri, HERE, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS

Interpretation of gradiometry data

Figure 6.1

- Anomaly (Probable Archaeology)
- Anomaly (Unclear Origin)
- Spread (Unclear Origin)
- Anomaly (Geology/Natural)
- Spread (Magnetic Disturbance)
- Spread (Ferrous/Iron Spike)
- Linear Trend (Historic Feature)
- Linear Trend (Agricultural, Ploughing)

N

0 60m

Scale: 1:1,500 @ A3

Drawing Number: 05/40521/GEO/6.1/01	
Created by: CS	Date: 20/04/2023
Checked by: SO	Date: 20/04/2023
Approved by: SO	Date: 20/04/2023

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Interpretation of gradiometry data

Figure 6.2

- Spread (Unclear Origin)
- Anomaly (Geology/Natural)
- Spread (Magnetic Disturbance)
- Linear Trend (Historic Feature)
- Linear Trend (Agricultural, Ploughing)

N

0 60m

Scale: 1:1,500 @ A3

Drawing Number:	05/40521/GEO/6.2/01
Created by: CS	Date: 20/04/2023
Checked by: SO	Date: 20/04/2023
Approved by: SO	Date: 20/04/2023

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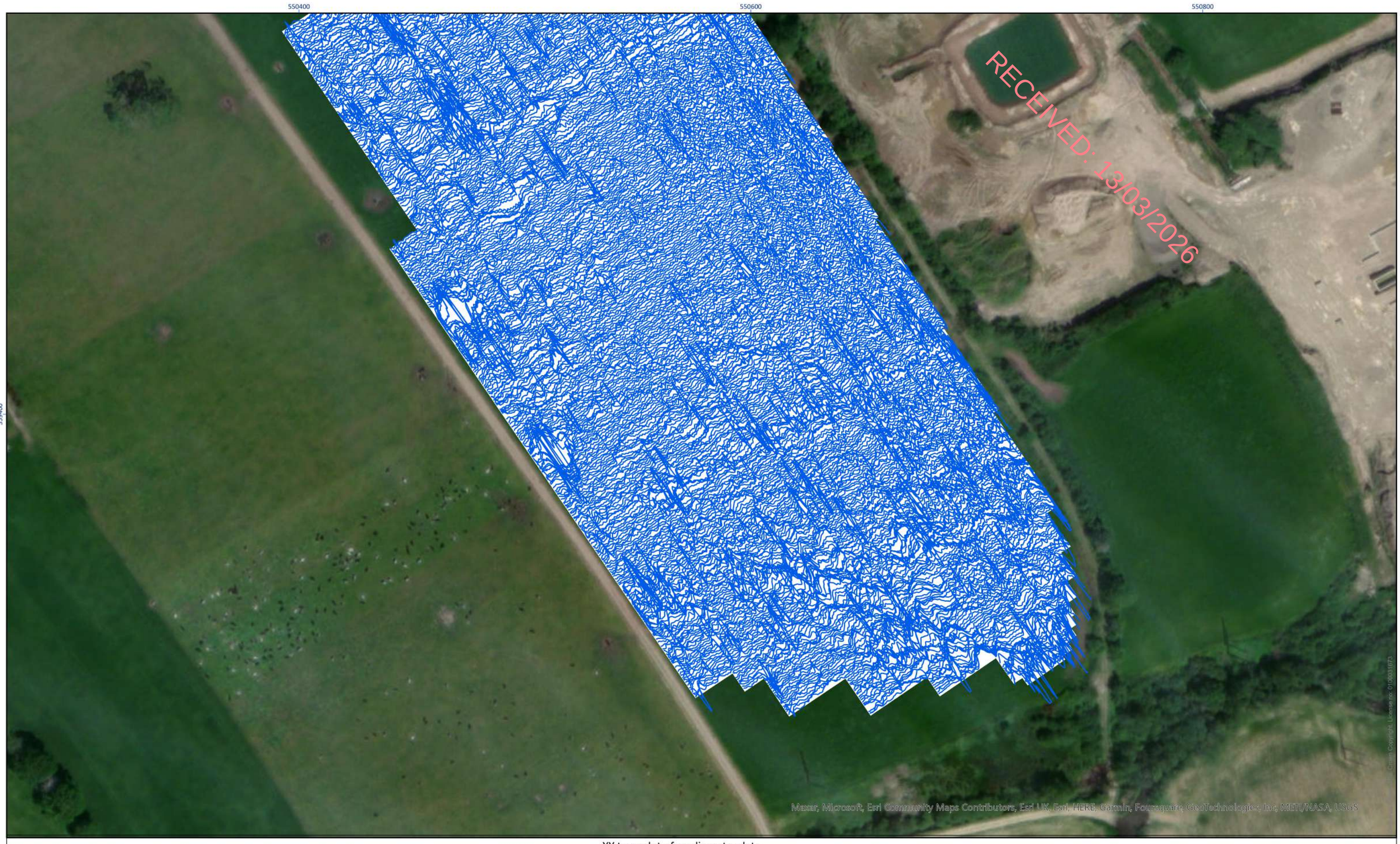
XY traceplot of gradiometry data

Figure 7.1	50nT / -50nT		N; 0 60m; Scale: 1:1,500 @ A3	Drawing Number: 05/40521/GEO/7.1/01 Created by: CS Date: 20/04/2023 Checked by: SO Date: 20/04/2023 Approved by: SO Date: 20/04/2023	AOC Archaeology Group



XY traceplot of gradiometry data

Figure 7.2

50nT
-50nT

N

0 60m

Scale: 1:1,500 @ A3

Drawing Number: 05/40521/GEO/7.2/01	
Created by: CS	Date: 20/04/2023
Checked by: SO	Date: 20/04/2023
Approved by: SO	Date: 20/04/2023

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Appendix 1: Survey Metadata

Oasis ID: TBC

Field	Description
Surveying Company	AOC Archaeology Group
Data collection staff	Dan Shiel and Claire Stephens
Client	SLR Consulting Ireland
Site name	KRL Brinny Quarry Extension, Munster, Cork
County	Munster
NGR	150531 059636
Land use/ field condition	Pasture
Duration	28/03/2023 -01/04/2023
Weather	Overcast
Survey type	Gradiometer Survey
Instrumentation	Gradiometer survey: Trimble GXOR system, Bartington Grad 601-2
Area covered	10ha
Download software	Grad601 PC Software v313
Processing software	Geoplot v3.0 / v4.0
Visualisation software	ArcGIS Pro
Geology	A sandstone and mudstone with a calcareous mudstone with limestone inclusions
Soils	Straffan group fine loamy drifts with limestones
Scheduled Ancient Monument	NO
Known archaeology on site	N/A
Historical documentation/ mapping on site	N/A
Report title	KRL Brinny Quarry Extension, Munster, Cork: Archaeological Geophysical Survey
Project number	40521
Report Author	Chris Sykes
Quality Checked by	Susan Ovenden

Appendix 2: Archaeological Prospection Techniques, Instrumentation and Software Utilised

Gradiometer Survey

Gradiometer surveys measure small changes in the earth's magnetic field. Archaeological materials and activity can be detected by identifying changes to the magnetic values caused by the presence of weakly magnetised iron oxides in the soil (Aspinall et al., 2008, 23; Sharma, 1997, 105). Human habitation often causes alterations to the magnetic properties of the soils and sediments present in the area (Aspinall et al, 2008, 21). There are two physical transformations that produce a significant contrast between the magnetic properties of archaeological features and the surrounding soil: the enhancement of magnetic susceptibility and thermoremanent magnetization (Aspinall et al., 2008, 21; Heron and Gaffney 1987, 72).

Ditches and pits can be easily detected through gradiometer survey as the topsoil within and around settlements generally has a greater magnetisation than the subsoil; caused by human activity. This enhanced material accumulates in cut features such as ditches and pits. Areas of burning or materials which have been subjected to heat commonly also have high magnetic signatures, such as hearths, kilns, fired clay and mudbricks (Clark 1996, 65; Lowe and Fogel 2010, 24).

It should be noted that negative anomalies can also be useful for characterising archaeological features. If the buried remains are composed of a material with a lower magnetisation compared to the surrounding soil, the feature in question displaying a negative signature. For example, stone- built structures that are composed of sedimentary rocks are frequently non-magnetic and so will appear as negative features within the dataset if the local soils and sediments are at all magnetised.

Ferrous objects – i.e. iron and its alloys - are strongly magnetic and are typically detected as high-value peaks in gradiometer survey data; small (in spatial terms) spikes are generally assumed to derive from ferrous material of recent origin (e.g. stray bits of farm equipment) in the topsoil, though archaeological sources cannot be ruled out. Broader dipolar anomalies and those with diagnostic characteristics of form will be assigned to other classifications based on their character, which might include archaeology, burning, modern ferrous or uncertain.

Although gradiometer surveys have been successfully carried out in all areas of the United Kingdom, the effectiveness of the technique is lessened in areas with complex geology, particularly where igneous and metamorphic bedrock is present or there are layers of alluvium or till between the surface and the layers of interest. All magnetic geophysical surveys must therefore take the effects of background geological and geomorphological conditions into account.

Gradiometer Survey Instrumentation and Software

AOC Archaeology's gradiometer surveys are carried out using Bartington Grad601-2 magnetic gradiometers. The Grad601-2 is a high-stability fluxgate magnetic gradient sensor, which uses a 1m sensor separation. The detection resolution is from 0.03 nT/m to 0.1nT/m, depending on the sensor parameters selected, making the Grad601-2 an ideal instrument for prospective survey of large areas as well as detailed surveys of known archaeology. The instrument stores the data collected on an on-board data-logger, which is then downloaded as a series of survey grids for processing.

Following the survey, gradiometer data is downloaded from the instrument using Grad601 PC Software v313. Survey grids are then assembled into composites and enhanced using a range of processing techniques using Geoscan Geoplot v3.0 / v4.0 (see Appendix 3 for a summary of the processes used in Geoplot to create final data plots).

Appendix 3: Summary of Data Processing

Process	Effect
Clip	Limits data values to within a specified range
De-spike	Removes small spatial scale exceptionally high readings in the data. In resistivity survey, these can be caused by poor contact of the mobile probes with the ground. In gradiometer survey, these can be caused by highly magnetic items such as buried modern ferrous objects.
De-stagger	Corrects a misalignment of data when the survey is conducted in a zig-zag traverse pattern.
High pass filter	Removes low-frequency, large spatial scale variance in order to remove background trends in the data, such as variations in geology.
Interpolate	Increases the resolution of a survey by interpolating new values between surveyed data points, creating a smoother overall effect.
Low Pass filter	Uses a Gaussian filter to remove high-frequency, small spatial scale variance, typically for smoothing the data.
Periodic Filter	Used to either remove or reduce the appearance of constant and reoccurring features that distort other anomalies, such as recent plough lines.
Zero Mean Grid	Resets the mean value of each grid to zero, in order to counteract grid edge discontinuities in composite assemblies.
Zero Mean Traverse	Resets the mean value of each traverse to zero, in order to address the effect of striping in the data and counteract edge effects.

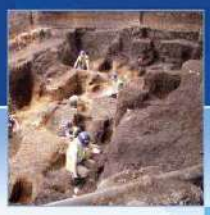
Processing Steps

Gradiometer survey	
Process	**Extent**
Zero Mean Traverse	All LMS =on, threshold -5 to 5
De-spike	X=1 Y=1 Thr = 3 Repl = Mean
De-stagger	All grids dir Shift = 2 Line Pattern 34-78 Dual-DS
Low Pass filter	X=1 Y=1 Wt=G
Interpolate	Y, Expand – Expand –SinX/X x2
Palette Scale	Grey08 Min= -1nT Max= 2nT

Appendix 4: Technical Terminology

Type of Anomaly	Description of Type/Class and rationale for interpretation
Anomaly	Usually linear / curvilinear / rectilinear / discrete anomalies characterised by a sharp-edged increase or decrease in values compared to the magnetic background. Some interpretation classes may have more gradual transitions in magnetic character- this is noted as part of the classification process.
Spread	Spreads of enhanced material refer to diffuse areas of altered magnetic character, which suggest a localised spread of material with a magnetic contrast within the topsoil or ploughzone or a generalised enhancement of the magnetic properties over a specific area. These anomalies do not have the high dipolar response characteristic of ferrous material anomaly unless specifically classified as a spread of ferrous debris.
Linear Trend	Linear trends are less distinct and are typically visible as linear patterning in the overall texture of the data. A common example of these is the striping effect caused by recent ploughing.

Class of Anomaly	Description
Probable Archaeology	Interpretation is supported by the presence of known archaeological remains or by other forms of evidence such as HER records, LiDAR data or cropmarks identified through aerial photography. OR the data contains diagnostic anomalies in terms of character or morphology which allow a secure interpretation. Anomalies typically have well defined edges with abrupt transitions indicative of cut features with magnetically enhanced fills, such as ditches. Discrete anomalies will be checked on XY traces for their magnetic character; discrete anomalies in this class likely to be cut features such as pits; anomalies indicating high temperature processes will alternatively classified as 'burned area' - see below. Ferrous material creates distinct 'spikes' and is classified as such.
Possible Archaeology	Anomalies are interpreted as likely to have an archaeological origin, though other explanations are also possible, but less likely. Anomalies typically have well defined edges with abrupt transitions indicative of cut features with magnetically enhanced fills, such as ditches. Discrete anomalies checked on XY traces; discrete anomalies in this class likely to be cut features such as pits; anomalies indicating high temperature processes classified as 'burned area' - see below.
Burned Area	An anomaly with a form on the XY trace plot that is characteristic of high temperature activity such as a kiln or hearth. Should be considered as possible archaeology and should be assigned an anomaly number if a more specific interpretation is possible based on the anomaly characteristics (for example, a clear kiln) so that this can be discussed in text.
Historical Features	Features observed on historical mapping that correspond with anomalies in the data. Linear anomalies caused by removed field boundaries often exhibit distinct characteristics related to the removal process. Areas of enhanced magnetism in this class could relate to former buildings, trackways, quarries or ponds and their nature should be clarified with the use of anomaly numbers and discussion in the results section.
Unclear Origin	These anomalies are (often) magnetically weak and discontinuous or isolated making their context difficult to ascertain. OR they are indistinct for other reasons such as magnetic disturbance in their vicinity. Anomalies in this category have no more likely explanation than another, so whilst an archaeological origin is possible, an agricultural, geological, or modern origin is also equally likely.
Agricultural	Anomalies associated with agricultural activity, either historical (unless shown on a map, then classed as a historical feature) or modern. Usually, this interpretation is arrived at due to on the ground observations of (for example) ploughing, access tracks and the like, or from observation of recent aerial images of the survey area. Recent ploughing is shown as a dashed line and Ridge and Furrow ploughing is shown as a solid line.
Ridge and Furrow / Rig and Furrow	A series of regular linear or slightly curvilinear anomalies which are broad and usually have diffuse edges, either composed of an increased or decreased magnetic response compared to background values. Wide regular spacing between the anomalies is consistent with that of a ridge and furrow / rig and furrow ploughing regime, and the regime may also have a degree of sinuosity characteristic of certain types of ridge and furrow cultivation. Often, multiple directions will be present, with distinct headlands in between. The pattern might follow the general landscape organisation, or it may radically differ from it, depending on the local sequence of inclosure. The anomalies often present as a positive 'ridge' anomaly adjacent to a negative 'furrow' anomaly.
Ploughing Trends	A series of regular linear anomalies or changes in the texture of the survey data, either composed of an increased or decreased magnetic response compared to background values. Anomalies seen parallel to field edges are representative of headlands caused by ploughing.
Drains	A series of magnetic linear anomalies (often with a characteristic alternating positive-negative pattern, which indicates a ceramic drain) of an indeterminate date, usually with a regular dendritic or herringbone patterning which reflects the topography of the survey area.
Geology / Natural	An area of enhanced magnetism that is composed of irregular (usually) weak increases or decreases in magnetic values, frequently with gradual transitions in character, compared with background readings. These are likely to indicate natural variations in soil composition or reflect variations in the bedrock or superficial geology. In areas where former water courses were present, paleochannels may present as distinct curving and banded or braided linear anomalies.
Service	Strong linear anomalies often composed of contrasting high positive and negative dipolar values, with a halo of magnetic disturbance extending from the causative body. Such anomalies are characteristic of below-ground services.
Magnetic Disturbance	A zone of strong magnetic response (usually alternating between positive and negative with abrupt transitions) that has been caused by modern infrastructure or ferrous material within or adjacent to the survey area, such as metallic boundary fencing, gateways. The magnetic haloes around services and changes in the background texture of the data resulting from overhead power lines also fall into this class. These haloes are strong enough to obscure other anomalies (including those of possible archaeological interest) in the area they affect.
Ferrous Anomalies / Ferrous (iron spikes) and ferrous or debris spreads	A response caused by ferrous materials on the ground surface or within the subsoil, which causes a strong but localised dipolar response in the data. These generally represent modern material often re-deposited during manuring, rubbish at field edges and spreads of debris or building material used to surface tracks or left behind following demolition. Distinct from magnetic disturbance, these anomalies relate to material at their spatial location, rather than an effect occurring at a distance from the material responsible.
Free Category for custom use	A category which may be employed to denote specifically identified anomalies related to known past activity within the area, for example those definitely associated with a former airfield, or mapped former mineral extraction.









AOC Archaeology Group

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Appendix 12-D Archaeological Testing Report

An Roinn Cultúir,
Oidhreachta agus Gaeltachta
Department of Culture,
Heritage and the Gaeltacht

2	3	E	0	9	5	3	X

RECEIVED: 13/03/2026

Site Owner: Keohane Readymix Ltd

Address: C/O SLR Consulting Ireland,

Unit 7 Dundrum Business Park,

Windy Arbour, Dublin 14

Planning Authority: Cork County Council

Planning Reg. No.: 23/6313

Excavation Type: Testing

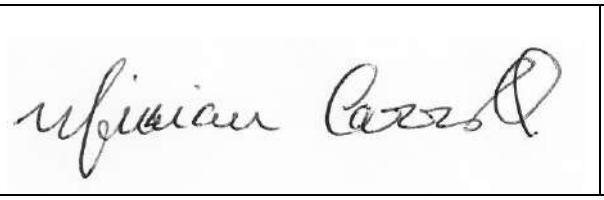
[as per licence application]

Contractor/Developer: As Above

Address: As Above

Background to excavation:

Pre-development archaeological testing

Signed:		**Date:**	**09/02/2024**

Proposed extension to a Sand and Gravel Pit at Kilmore Td., Brinny, Co. Cork

Archaeological Testing Report (Final) – Part 2

Author: Miriam Carroll, BA, MA, MIAI

Excavation Licence No. 23E0953 X

Planning Ref: 23/6313

Client: Keohane Readymix Ltd

Date: 09/02/2024

Contents

1. REPORT DETAILS

Excavation report	Final Report
Excavation Licence No.	**23E0953 X**
Licensee:	Miriam Carroll
Planning Ref:	23/6313
Townland:	Kilmore
County:	Cork
ITM Coordinates (Centre point)	ITM E550566 N559516
Planning Status:	Further Information

2. INTRODUCTION

2.1 Scope of Work

Tobar Archaeological Services Ltd was engaged by Keohane Readymix Ltd. to carry out pre-development archaeological testing of a proposed extension to a sand and gravel pit at Kilmore townland, Brinny, Co. Cork. The lands in question are located immediately adjacent to an existing sand and gravel pit at Brinny. Pre-development archaeological testing of the proposed extension area including geophysical anomalies therein was carried out on foot of a request for Further Information (FI) which has issued from Cork County Council (Pl. Ref. 23/6313). The testing was carried out in January 2024 under excavation licence 23E0953 and involved the excavation of 36 test trenches within the proposed development site.

2.2 Development Description and Site Location

The proposed development comprises the extension of an existing sand and gravel pit over an extraction area of c. 10.8 hectares at Kilmore, Brinny, Co. Cork. The proposed extraction area is located immediately to the north and west of an existing sand and gravel pit which is situated c. 3.7km north-west of the village of Innishannon (Figure 1). The proposed extraction area comprises pastureland divided into two large fields, one of which is located to the north of the existing pit (Field 2 in geophysical survey report) and one to the west (Field 1 in geophysical survey report)(Figure 2). An overhead line extends through the southern end of the western field.

Figure 1: Site location.

Figure 2: Proposed extraction area on aerial background.

2.3 Previous Work Carried Out on the Site

2.3.1 Geophysical Survey

In accordance with the FI request a geophysical survey was carried out in the proposed development lands by AOC Archaeology Group under licence 23R0079. The geophysical survey identified 15 anomalies that are summarised below:

Anomaly	Description	Interpretation
1A	Linear trends	Possibly geological or relict field division
1B	Linear trends	Possibly geological or relict field division
1C	Linear trends	Possibly geological or relict field division
1D	Linear trends	Possibly geological or relict field division
1E	Linear trends	Possibly geological or relict field division
1F	Linear trends	Possibly geological or relict field division
2A & B	Collection of magnetically enhanced responses	Enclosure defined by ditch. Defined circular enclosure. Anomalies appear to co-ordinate around a central focal anomaly. These anomalies are likely to indicate infilled ditch type features, created to define space, either personal, industrial, or agricultural. They are comparable in size, at 12m x 12m and 10m x 10m in diameter, respectively, and appear to be adjoining each other.
2C	Linear trend close to 2A and B	May form a defined boundary, a stockade, in support of the enclosures mentioned above.
2D	Discrete areas of magnetic enhancement	May be anomalies associated with the creation of the boundary ditch or represent isolated areas where focused archaeological activity may have taken place.
2E	Collection of anomalies	within an area of clear geological activity

2F	Faint linear responses,	Possibly geological or relict field division
2G	Faint linear responses,	Possibly geological or relict field division
2H	Collection of anomalies	within an area of clear geological activity
2I	Collection of anomalies	within an area of clear geological activity
2J	Parallel linear trends	Relict field enclosures or agricultural activity

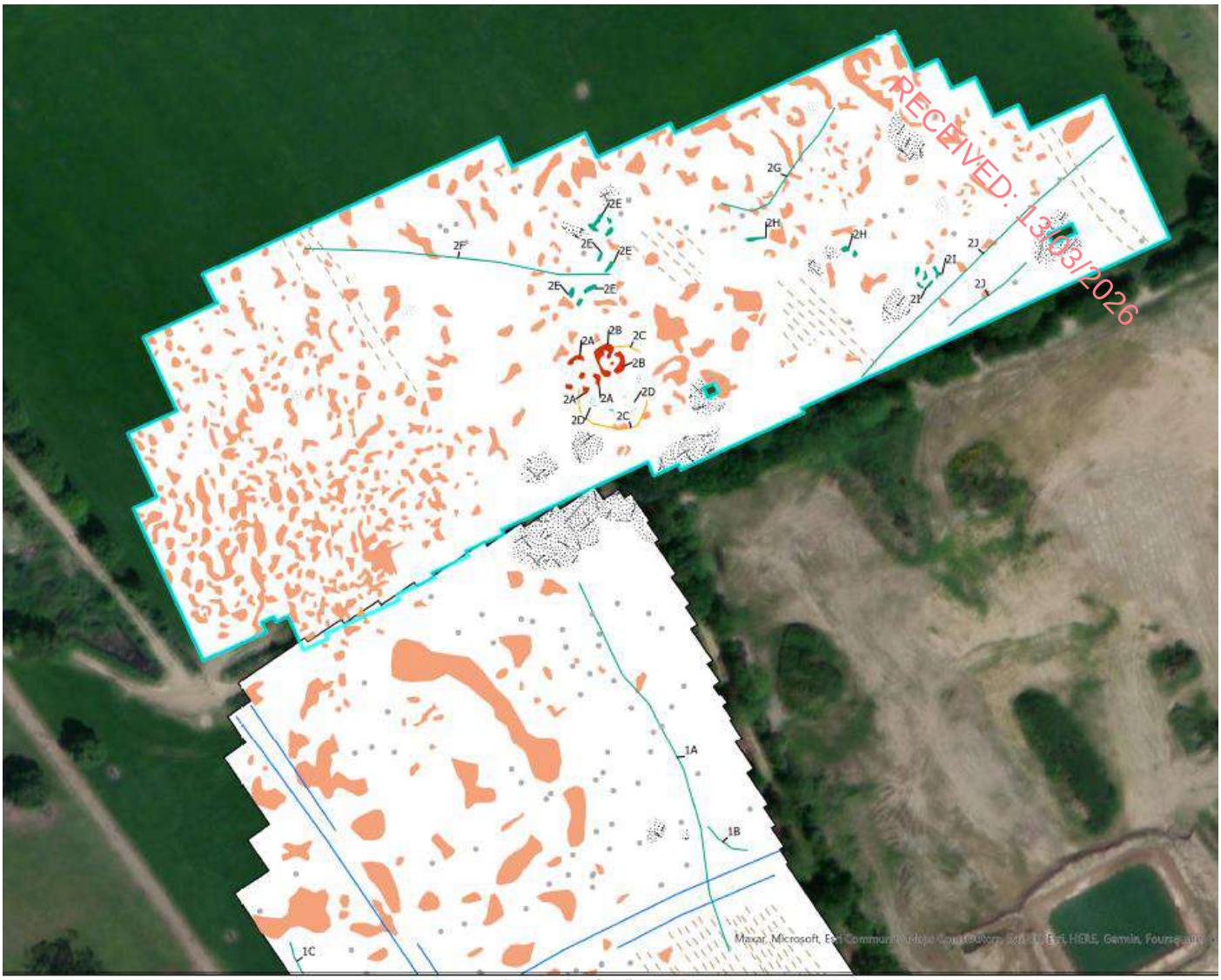


Figure 3: Geophysical anomalies detected within the proposed extraction area (AOC Archaeology Group 2023).

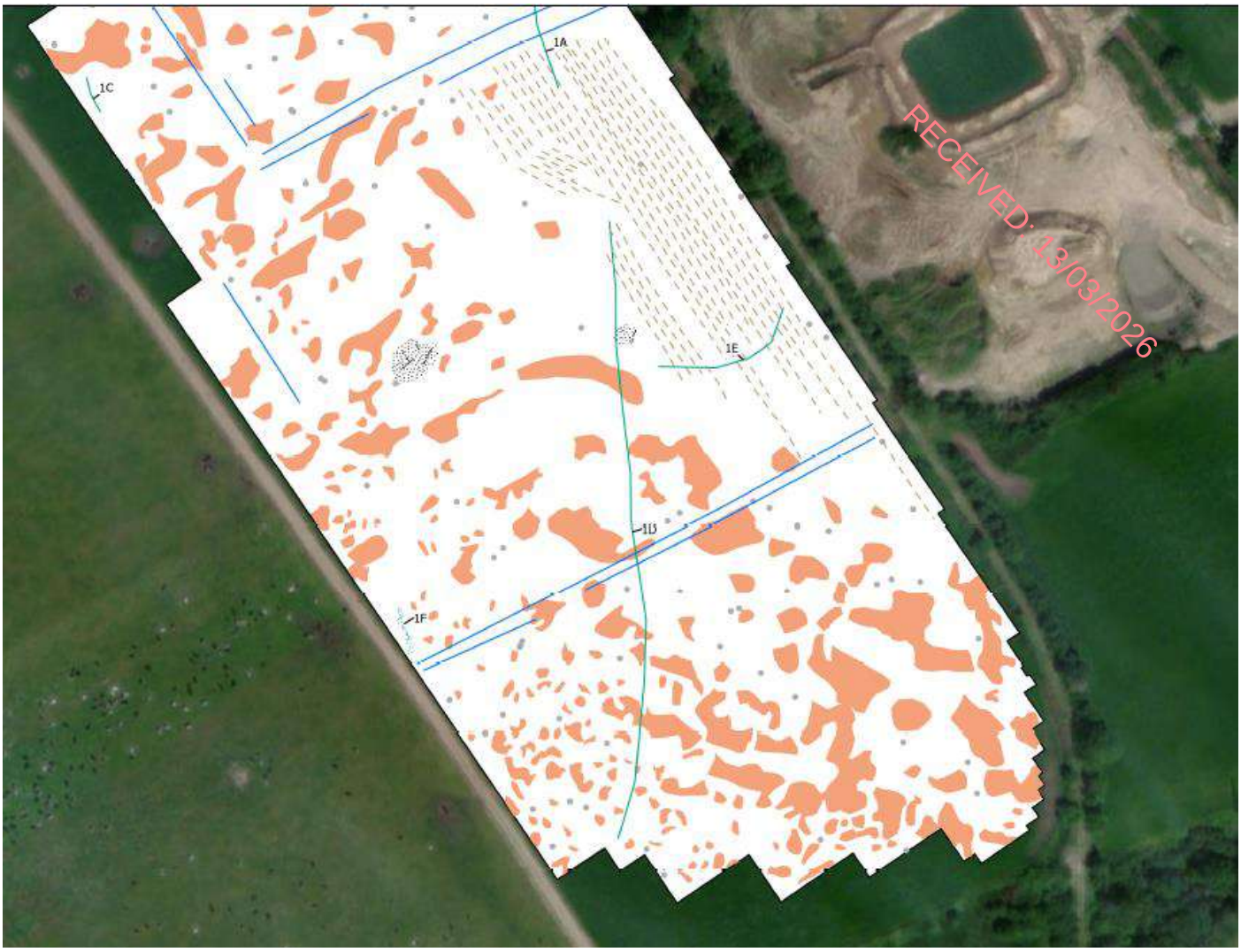


Figure 4: Geophysical anomalies detected within the proposed extraction area (AOC Archaeology Group 2023).

2.4 Methodology

The testing methodology was agreed with the National Monuments Service (NMS) through the licensing system. A series of test trenches were excavated across the permitted development area targeting all 15 geophysical anomalies as listed above and generally testing areas where ground works will be taking place. A total of 36 trenches were excavated within the proposed development site in January 2024. They measured between c. 26m-160m in length and were excavated using a tracked excavator equipped with a 2m wide grading (toothless) bucket. The trenches were set out using a a mm accurate GNSS Leica GPS and were excavated to the top of the underlying subsoil. A photographic and descriptive record was made of each trench.

3. STATUTORY CONTEXT

3.1 Current Legislation

Archaeological monuments are safeguarded through national and international policy, which is designed to secure the protection of the cultural heritage resource. This is undertaken in accordance with the provisions of the European Convention on the Protection of the Archaeological Heritage (Valletta Convention). This was ratified by Ireland in 1997.

Both the National Monuments Acts 1930 to 2004 and relevant provisions of the Cultural Institutions Act 1997 are the primary means of ensuring protection of archaeological monuments, the latter of which includes all man-made structures of whatever form or date. There are a number of provisions under the National Monuments Acts which ensure protection of the archaeological resource. These include the Register of Historic Monuments (1997 Act) which means that any interference to a monument is illegal under that Act. All registered monuments are included on the Record of Monuments and Places (RMP).

The Record of Monuments and Places (RMP) was established under Section 12 (1) of the National Monuments (Amendment) Act 1994 and consists of a list of known archaeological monuments and accompanying maps. The Record of Monuments and Places affords some protection to the monuments entered therein. Section 12 (3) of the 1994 Amendment Act states that any person proposing to carry out work at or in relation to a recorded monument must give notice in writing to the Minister (Environment, Heritage and Local Government) and shall not commence the work for a period of two months after having given the notice. All proposed works, therefore, within or around any archaeological monument are subject to statutory protection and legislation (National Monuments Acts 1930-2004).

Under the Heritage Act (1995) **architectural heritage** is defined to include '*all structures, buildings, traditional and designed, and groups of buildings including street-scapes and urban vistas, which are of historical, archaeological, artistic, engineering, scientific, social or technical interest, together with their setting, attendant grounds, fixtures, fittings and contents…*'. A heritage building is also defined to include '*any building, or part thereof, which is of significance because of its intrinsic architectural or artistic quality or its setting or because of its association with the commercial, cultural, economic, industrial, military, political, social or religious history of the place where it is situated or of the country or generally*'.

The Planning and Development Act 2000 (as amended), sets out the legal framework for the protection of buildings/structures which are of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. Such protection is afforded through the mechanism of the Record of Protected Structures (RPS). In relation to a protected structure or proposed protected structure, the term 'structure' includes the interior of the structure, the land lying within the curtilage of the structure, any other structures lying within that curtilage and their interior, and all fixtures and features which form part of the interior or exterior of that structure. The protection also extends to any features specified as being in the attendant grounds.

4. ARCHAEOLOGICAL PLANNING REQUIREMENTS

A request for Further Information has issued from Cork County Council (Pl. Ref. 22/6313) point no. 7 of which states the following in relation to archaeology.

'7. You shall engage the services of a suitably qualified archaeologist (licensed under the National Monuments Acts 1930–2004) to carry out a geophysical survey by a suitably qualified archaeologist followed up by a program of archaeological testing (licensed under the National Monuments Acts 1930–2004) across the site and targeting the results of the geophysical survey in order to establish the location and extent of any subsurface archaeological sites and features. The result of the geophysical shall be submitted to the Planning Authority with a testing strategy for written approval prior to applying for a licence to test the site. No sub-surface work shall be undertaken in the absence of the archaeologist without his/her express consent. Where archaeological material is shown to be present, avoidance, preservation in situ will be the preferred option, and monitoring may be required and the Planning Authority and National Monuments Service of the Department of Housing, Local Government and Heritage) will advise you with regard to these matters. The consultant archaeologist is advised to contact the National Monuments Service and Local Authority Archaeologist to agree a mitigation strategy. No site preparation or construction work shall be carried out until after the archaeologist's report has been submitted and permission to proceed has been granted.'

Proposed extension to a Sand and Gravel Pit at Kilmore Td., Brinny, Co. Cork

Archaeology Testing Report Part 1 - Final

Author: Miriam Carroll, BA, MA, MIAI

Excavation Licence No. 23E0953

Date: 09/02/2024

5. ARCHAEOLOGICAL BACKGROUND

5.1 Recorded Monuments

No recorded monuments are located on the proposed development site at Kilmore. The nearest recorded monument comprises a moated site CO096-088---- which is located c. 90m to the south-west, outside the proposed development boundary and c. 118m south-west of the proposed extraction area (Figure 5). It is described on the Historic Environment Viewer (HEV) as follows:

CO096-088---- : Moated site : KILMORE (Kinalmeaky By.)
Description: In level pasture c. 50m N of River Sall. Sub-rectangular area (27.4m E-W; 22m N-S) enclosed by low earthen bank (H 0.35m); external fosse (D 0.30m) on E and S sides. Second bank (H 0.6m) outside fosse to E. Field clearance material dumped in interior and in fosse to N. The above description is derived from the published 'Archaeological Inventory of County Cork. Volume 1: West Cork' (Dublin: Stationery Office, 1992). In certain instances the entries have been revised and updated in the light of recent research. Date of upload/revision: 14 January 2009

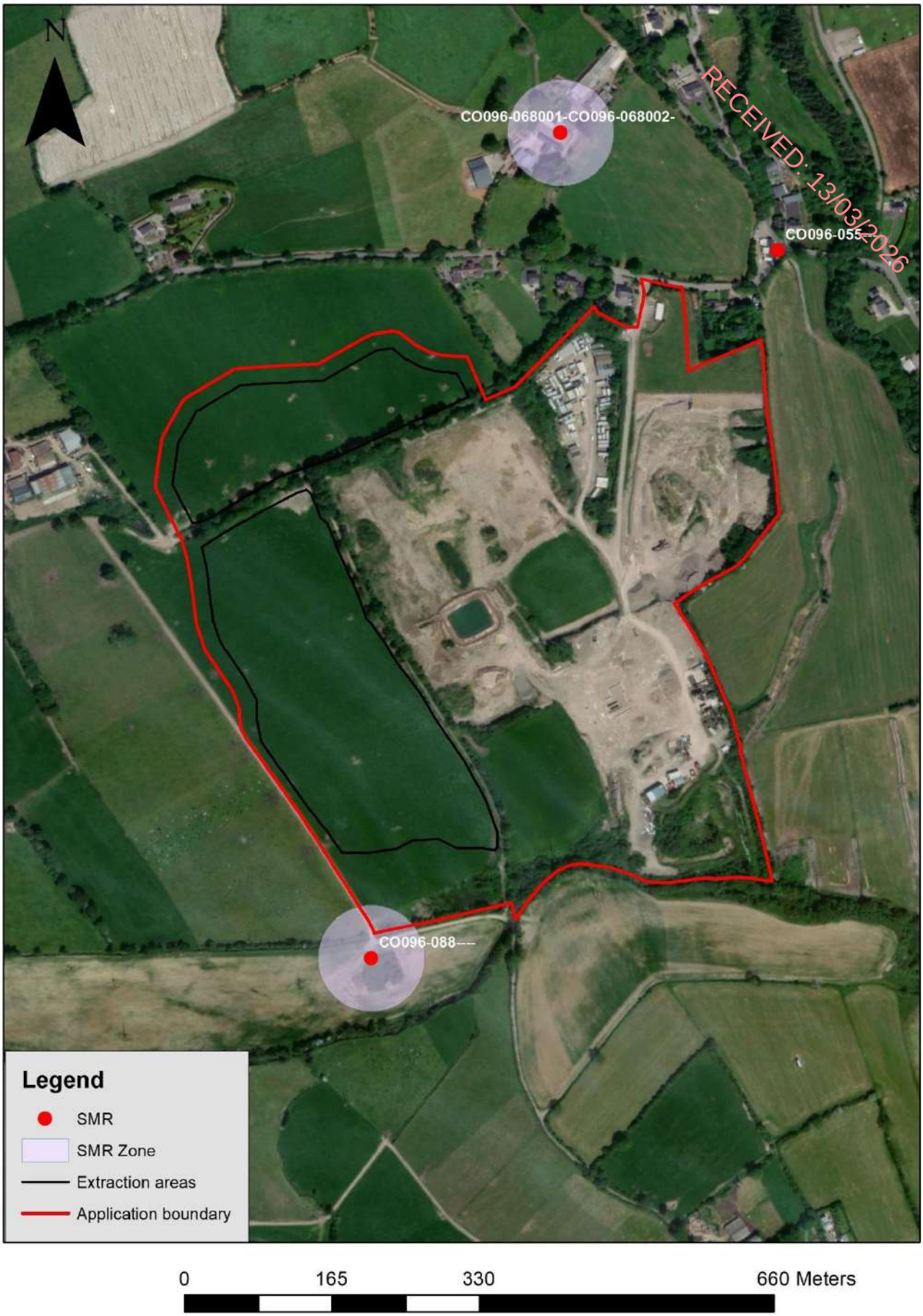


Figure 5: Planning application boundary and proposed extraction area in relation to nearest recorded monuments.

6. RESULTS OF ARCHAEOLOGICAL TESTING

A total of 36 trenches were excavated across the proposed extraction area targeting the 15 geophysical anomalies detected as a result of the geophysical survey and also generally testing the remainder of the proposed development area (Figure 6 and Figure 7). The trenching was carried out in mixed weather conditions in January 2024. All trenches were set out using a mm accurate Leica GPS CS20 Field Controller and GS16 antenna. The stratigraphy varied somewhat throughout the proposed extraction area but generally comprised 0.3-0.5m of sod and topsoil over a beige-orange stoney subsoil. A slightly greater depth of overburden was noted in some trenches where the sod and topsoil overlay a mid-brown subsoil, which in turn overlay the beige-orange natural. In some areas the subsoil was very stoney with pockets of gravel apparent in many trenches.

The majority of trenches excavated did not contain any potential archaeological features. A linear feature (F2) comprising a possible boundary of unknown date extended through a number of trenches in the western field (Field 1 in geophysical survey report) and appears to roughly correspond to geophysical anomaly 1A and 1D. Manual investigation of this feature did not reveal any artefactual material which could suggest a date for same. It is not indicated on the first or second edition OS mapping. A field boundary indicated on both editions of the historic mapping at the west side of this field was also evident in trenches 31-34. Recent agricultural activity in the form of plough furrows was also apparent in the majority of test trenches.

The test trenches are described below and listed in Table 1.

Table 1: Test trench details

Test trench No.	Length	Width	Archaeology Present
1	35m NW/SE	2.1m	No
2	41m NW/SE	2.1m	No
3	68m NW/SE	2.1m	No
4	87m NW/SE	2.1m	No
5	84m NW/SE	2.1m	No
6	81m NW/SE	2.1m	No
7	78m NW/SE	2.1m	No
8	72m NW/SE	2.1m	No
9	82m NW/SE	2.1m	No
10	95m NW/SE	2.1m	F1
11	30m NE/SW	2.1m	F1
12	106m NW/SE	2.1m	No
13	110m NW/SE	2.1m	No

14	102m NW/SE	2.1m	No
15	104m NW/SE	2.1m	No
16	95m NW/SE	2.1m	No
17	86m NW/SE	2.1m	No
18	65m NW/SE	2.1m	No
19	71m NE/SW	2.1m	No
20	146m NE/SW	2.1m	No
21	160m NE/SW	2.1m	No
22	160m NE/SW	2.1m	F2
23	160m NE/SW	2.1m	F2
24	160m NE/SW	2.1m	F2
25	26m NW/SE	2.1m	No
26	160m NE/SW	2.1m	F2
27	160m NE/SW	2.1m	F2
28	160m NE/SW	2.1m	F2
29	142m NE/SW	2.1m	F2
30	142m NE/SW	2.1m	F2 and field boundary
31	150m NE/SW	2.1m	F2 and field boundary
32	148m NE/SW	2.1m	F2 and field boundary
33	130m NE/SW	2.1m	Field boundary
34	150m NE/SW	2.1m	F2 and field boundary
35	138m NE/SW	2.1m	F2
36	99m NE/SW	2.1m	No

Figure 6: Trench layout.

Figure 7: Trench layout.

Figure 8: Trench layout in relation to geophysical anomalies (please see geophysical survey report for detail of anomalies).

Figure 9: Trench layout in relation to geophysical anomalies.

6.1 Trench 1

Trench 1 was excavated at the east side of the northern field across geophysical anomaly 2J. The stratigraphy consisted of c. 0.45m of sod and topsoil over a beige orange stoney subsoil. No potential archaeological features were uncovered.

Plate 1: Trench 1, looking NW.

6.2 Trench 2

Trench 2 was excavated to the south-west of Trench 1 in the same field and across geophysical anomaly 2J. The stratigraphy consisted of c. 0.45m of sod and topsoil over a beige orange stoney subsoil. No potential archaeological features were uncovered.

Plate 2: Trench 2, looking NW.

6.3 Trench 3

Trench 3 was excavated to the south-west of trench 2 across geophysical anomaly 2J. The stratigraphy comprised 0.4-0.45m of sod and topsoil over a beige orange stoney subsoil. Numerous plough furrows were apparent, however, no potential archaeological features were uncovered.

Plate 3: Trench 3, looking NW.

6.4 Trench 4

Trench 4 was excavated to the south-west of Trench 3 also across geophysical anomaly 2J. The stratigraphy comprised c. 0.45m of sod and topsoil over a beige-orange stoney subsoil with frequent parallel plough furrows. No archaeological finds or features were uncovered.

Plate 4: Trench 4, looking NW.

6.5 Trench 5

Trench 5 was excavated SW of and parallel to Trench 4 in the same field. The stratigraphy comprised 0.45m of sod and topsoil over a slightly varied beige-orange subsoil with plough furrows. No archaeological finds or features were uncovered.

Plate 5: Trench 5, looking NW.

6.6 Trench 6

Trench 6 was excavated to the SW of Trench 5 across geophysical anomaly 2G. The stratigraphy comprised 0.4m of sod and topsoil over a beige-orange subsoil with plough furrows. No archaeological finds or features were uncovered.

Plate 6: Trench 6, looking NW.

6.7 Trench 7

Trench 7 was excavated to the south-west of Trench 6 also across geophysical anomaly 2G. The stratigraphy comprised c. 0.4m of sod and topsoil over a beige orange subsoil and shallow plough scars. No archaeological finds or features were uncovered.

Plate 7: Trench 7, looking NW.

6.8 Trench 8

Trench 8 was excavated to the south-west of trench 7. The stratigraphy comprised 0.45m of overburden at the north-west end of the trench and 0.35m at the south-east end, which overlay a beige orange subsoil with furrows. No archaeological finds or features were uncovered.

Plate 8: Trench 8, looking NW.

6.9 Trench 9

Trench 9 was excavated south-west of Trench 8. The stratigraphy comprised 0.35-0.45m of sod and topsoil over a beige-orange subsoil and plough scars. No archaeological finds or features were uncovered.

Plate 9: Trench 9, looking NW.

6.10 Trench 10

Trench 10 was excavated to the south-west of Trench 9 across geophysical anomalies 2F, 2B and 2C. The stratigraphy comprised c. 0.4-0.45m of sod and topsoil over a beige-orange subsoil with plough furrows. One ditch-like linear feature (F1) was exposed towards the south-east end of the trench in the area of geophysical anomaly 2B but did not correspond to the latter in form or orientation. It was also exposed in Trench 11 and measured 5m in length NE/SW (not fully exposed) x c. 2m in width. It appeared to be filled with a mid-brown stoney material and was not investigated.

Plate 10: F1 in Trench 10 and Trench 11, looking SW.

6.11 Trench 11

Trench 11 was excavated perpendicular to Trench 10 across geophysical anomalies 2B and 2C. The stratigraphy comprised 0.4m of sod and topsoil over a beige-orange subsoil. As outlined above, F1 was partially exposed in this trench and appeared to terminate here as it was not exposed across the full width of the trench. No archaeological finds or features were uncovered.

Plate 11: Trench 11, looking NE.

6.12 Trench 12

Trench 12 was excavated to the south-west of Trench 10 across geophysical anomaly 2C. The stratigraphy comprised c. 0.4m of overburden over a varied subsoil which for the majority of the trench consisted of a beige-orange material becoming stoney at the SE end. No archaeological finds or features were uncovered.

Plate 12: Trench 12, looking NW.

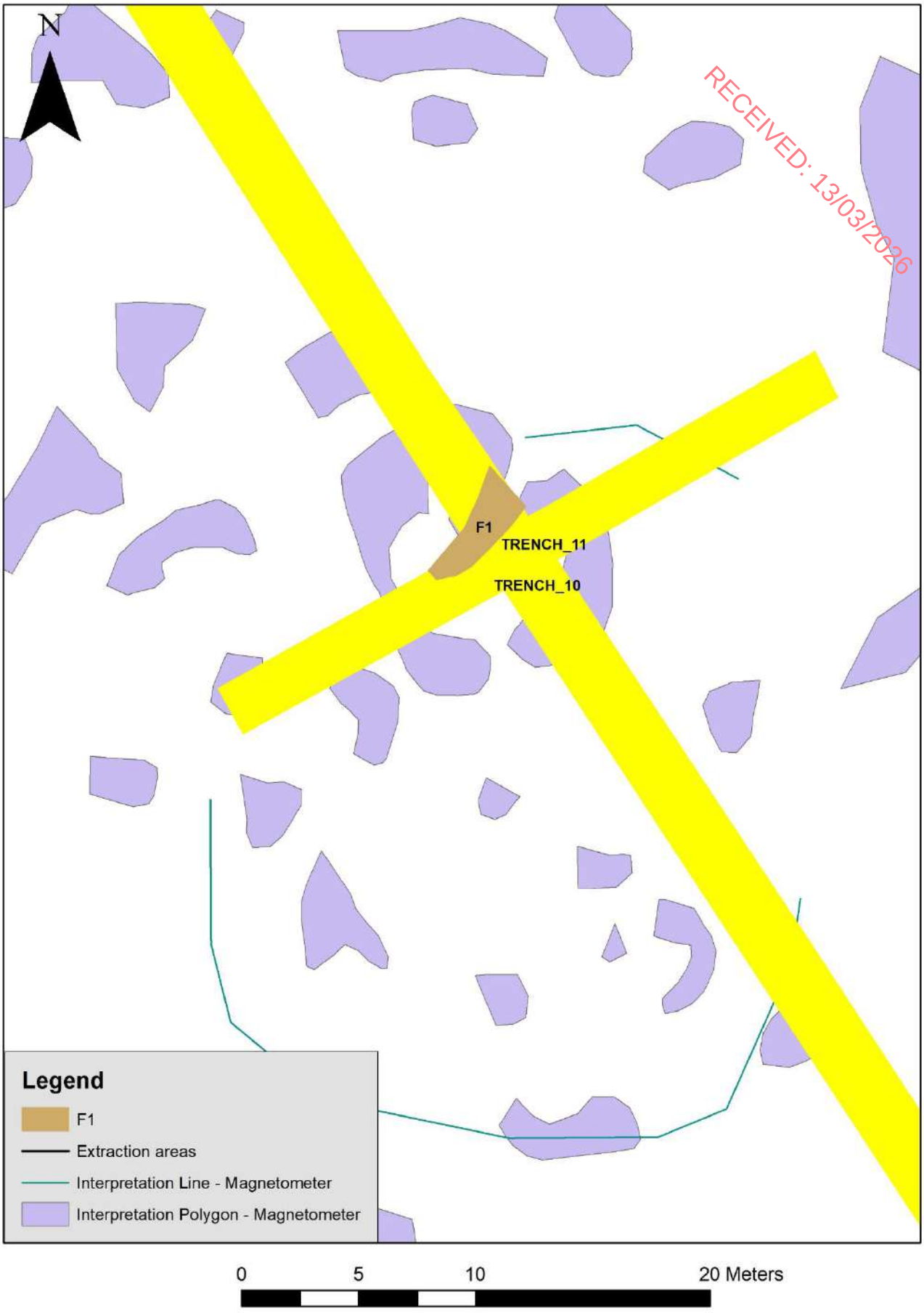


Figure 10: F1 in Trenches 10 and 11 in relation to geophysical anomalies.

6.13 Trench 13

Trench 13 was excavated to the south-west of trench 12 in the same field, crossing geophysical anomaly 2F towards the NW end of the trench. The stratigraphy comprised 0.2m of sod and topsoil over 0.25m of mid-brown subsoil which in turn overlay a varied natural, stoney at the SE end. While numerous plough furrows were apparent, no potential archaeological features were uncovered.

Plate 13: Trench 13, looking NW.

6.14 Trench 14

Trench 14 was excavated to the south-west of trench 13. The stratigraphy comprised c. 0.4-0.45m of overburden overlying a bright beige-orange subsoil with brown plough furrows visible along the length of the trench. No potential archaeological finds or features were uncovered.

Plate 14: Trench 14, looking NW.

6.15 Trench 15

Trench 15 was excavated to the south-west of trench 14. The stratigraphy comprised c. 0.35-0.4m of sod and topsoil over a beige-orange subsoil. No archaeological finds or features were uncovered.

Plate 15: Trench 15, looking NW.

6.16 Trench 16

Trench 16 was excavated to the south-west of trench 15 in the same field. The stratigraphy comprised 0.4-0.45m of sod and topsoil over an orange-beige subsoil. A square stone-filled feature which may be a geotechnical trial pit was noted towards the south-east end of the trench. No potential archaeological features were uncovered.

Plate 16: Trench 16, looking NW.

6.17 Trench 17

Trench 17 was excavated to south-west of trench 16 towards the south-west side of the field. The stratigraphy comprised c. 0.3-0.4m of sod and topsoil over a beige-orange subsoil and plough furrows. No potential archaeological features were uncovered.

Plate 17: Trench 17, looking NW.

6.18 Trench 18

This trench was excavated to the south-west of trench 17 and was the last trench excavated in this field at the south-west end of same. The stratigraphy comprised 0.3-0.4m of sod and topsoil over a beige-orange subsoil and plough furrows. No potential archaeological features were uncovered.

Plate 18: Trench 18, looking NW.

6.19 Trench 19

Trench 19 was excavated at the south-east end of the western field (Field 1 in geophysical survey report). The stratigraphy here comprised 0.4m of sod and topsoil over a stoney orange subsoil. Frequent narrow parallel linear features were apparent at the north-east end of the trench and appear to represent the remains of agricultural activity. A section was manually excavated across one of these showing it to have a broad shallow cut measuring c. 0.46m in width x 0.08m in depth. It was filled with a loose stoney brown sandy silt, and no artefactual material was recovered. No potential archaeological finds or features were uncovered.

Plate 19: Trench 19, looking SW.

Plate 20: Linear in trench 19 after manual investigation, looking S.

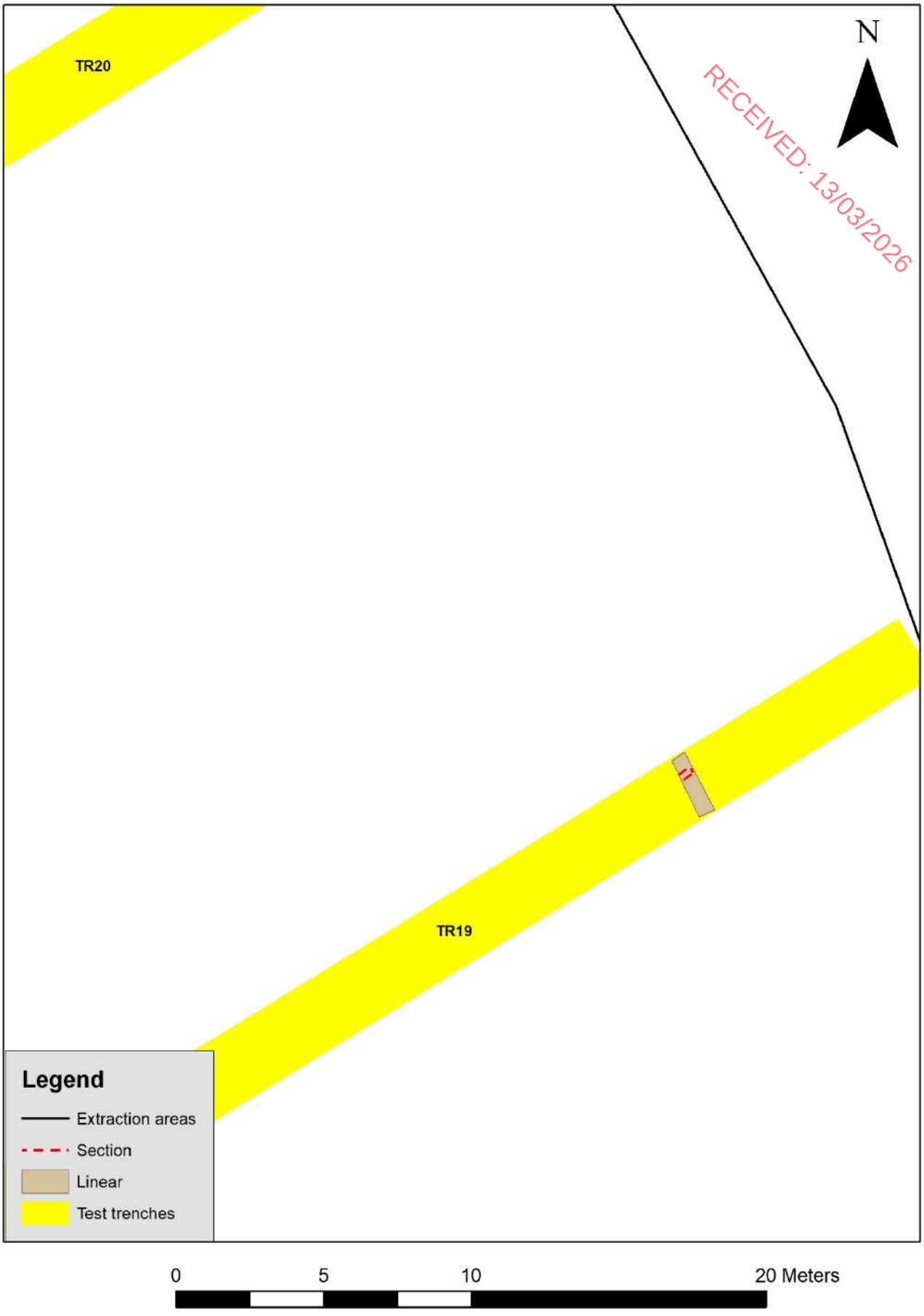


Figure 11: Linear in Trench 19, probable plough furrow.

6.20Trench 20

Trench 20 was excavated to the north-west of trench 19 across geophysical anomaly 1D. The stratigraphy comprised 0.4m of sod and topsoil over a stoney orange subsoil and frequent narrow parallel linear features, probable plough furrows. A slightly wider linear was noted towards the south-west end of the trench and was manually investigated. It was filled with a loose grey stoney sandy silt and measured 0.76m in width x 0.14m in depth. The cut had a broad U-shaped profile. No artefactual material was recovered.

Plate 21: Trench 20, looking SW.

Plate 22: Linear after manual investigation, looking SSE.

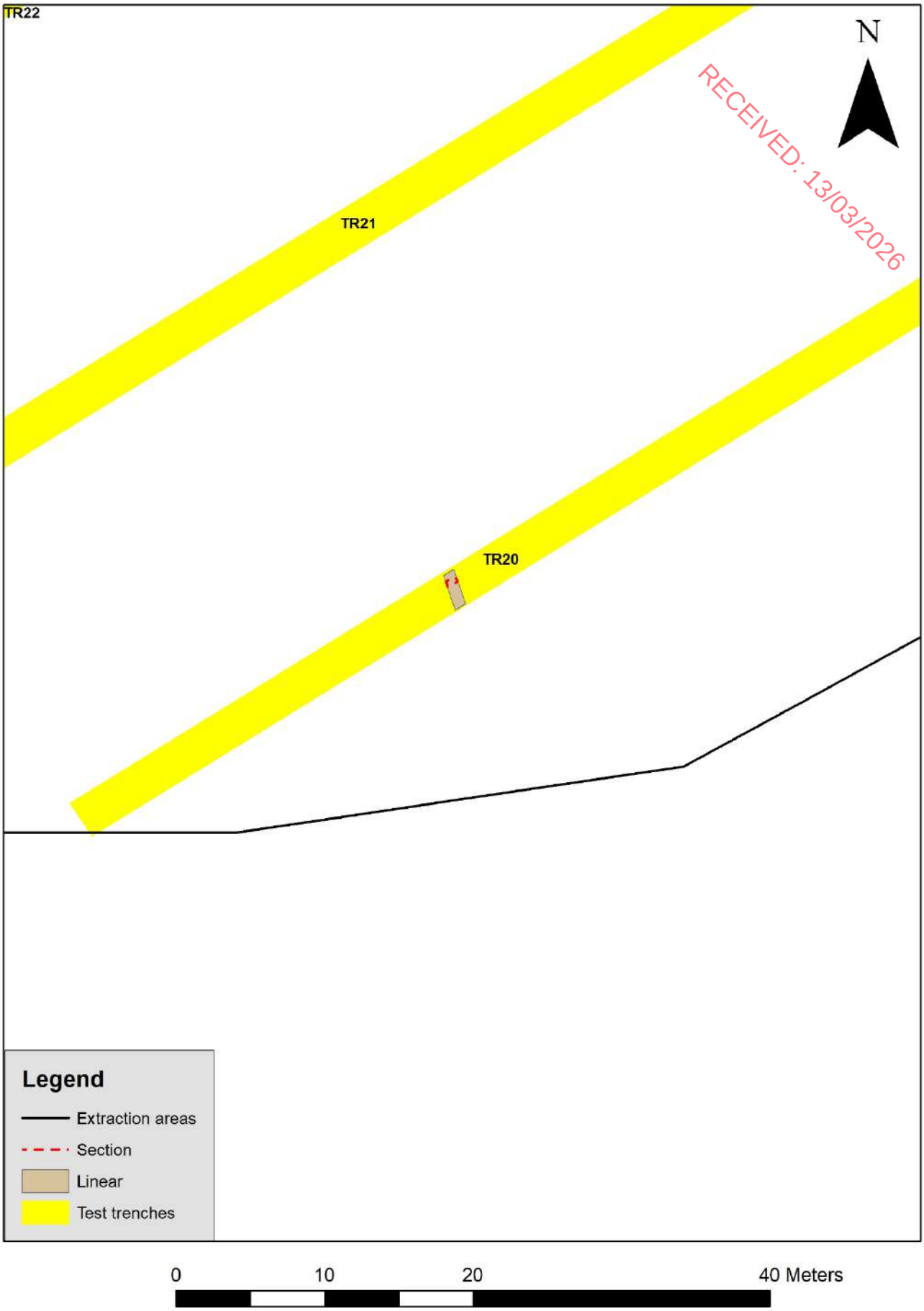


Figure 12: Linear (probable furrow) in Trench 20.

6.21Trench 21

Trench 21 was located to the north-west of trench 20 and was excavated across geophysical anomaly 1D. The stratigraphy comprised 0.35-0.4m of sod and topsoil over a stoney orange subsoil with frequent parallel plough furrows. No archaeological finds or features or anything corresponding to the geophysical anomaly were uncovered.

Plate 23: Trench 21, looking NE.

6.22Trench 22

Trench 22 was excavated to the north-west of Trench 21 across geophysical anomaly 1D. The stratigraphy in this trench comprised 0.35-0.4m of sod and topsoil over a stoney orange subsoil with frequent parallel plough furrows. A water pipe was present towards the NE end of the trench and a gap was left for same. Further to the south-west a wide linear feature (F2) was exposed and roughly corresponds to the geophysical anomaly, although it is located c. 6m NE of same. A section was manually excavated across the linear showing it to contain at least two fills. The upper fill comprised a mixed grey orange stoney material (1.6m in width x 0.2m in thickness) which overlay a grey sandy silt with frequent stone inclusions (1.2m in width x 0.35m in thickness). Only very occasional charcoal flecks were visible. The cut had a broad U-shaped profile with a sharp break of slope at top and steep sides which gradually sloped in to a narrow but rounded base. No artefactual material was recovered. A continuation of this feature was exposed further to the north in trenches 23, 24, 26, 27, 28, 29, 30, 31 and 32. It may represent the remains of a relict field division albeit of unknown date.

Plate 24: Trench 22, looking SW.

Plate 25: Linear feature (F2) exposed in Trench 22, looking SE.

Plate 26: F2 after manual investigation, looking SE.

Plate 27: As above, looking NW.

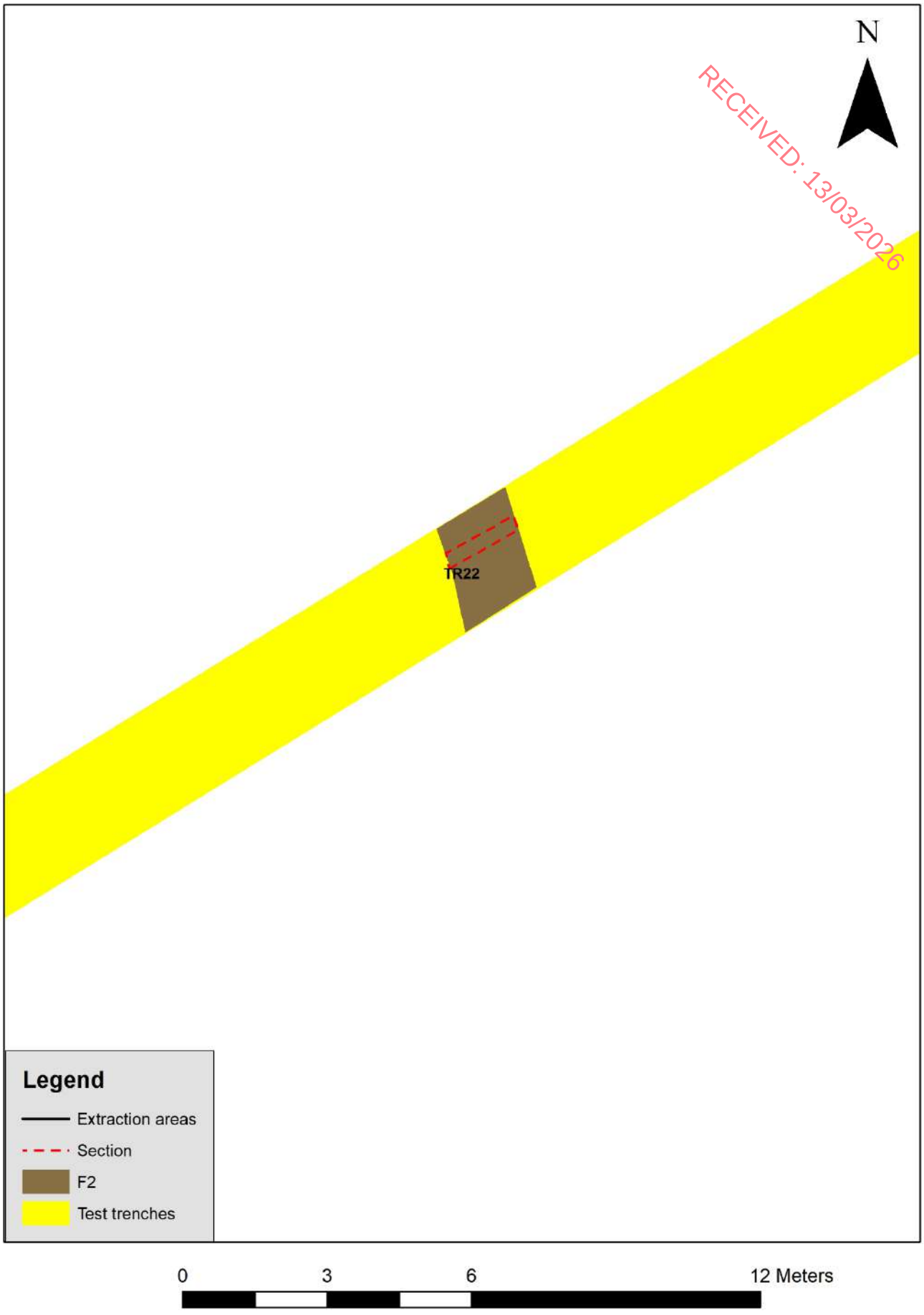


Figure 13: F2 in Trench 22 showing section manually excavated across same.

6.23Trench 23

Trench 23 was located to the north-west of trench 22 and excavated across the same linear geophysical anomaly 1D. The stratigraphy comprised 0.35-0.4m of sod and topsoil over a stoney orange subsoil with frequent parallel plough furrows. The continuation of the linear feature (F2) investigated in Trench 22 was exposed in this trench. It measured c. 1.7m in width and appeared to be filled with a grey-brown slightly stoney material (not investigated). No other potential features were uncovered in the trench.

Plate 28: Trench 23, looking NE.

Plate 29: Continuation of linear feature (F2) in Trench 23, looking S.

6.24Trench 24

Trench 24 was excavated NW of Trench 23 across linear anomaly 1D. The stratigraphy comprised 0.35-0.45m of sod and topsoil over a varied gravelly orange subsoil. As per the previous trenches numerous parallel cultivation features were apparent throughout the length of trench as well as the continuation of the linear feature (F2) noted in the previous trenches. In this trench it measured c. 1.4m in width and was much closer to the geophysical anomaly, being only c. 0.7m east of same. It appeared to be filled with a grey-brown material and was not investigated.

Plate 30: Linear feature(F2) in Trench 24, looking N.

Plate 31: Trench 24, looking NE.

6.25Trench 25

Trench 25 was excavated perpendicular to Trench 26 across geophysical anomaly 1E which was located towards the east side of this field. The stratigraphy consisted of 0.45m of sod and topsoil over an orange slightly gravelly subsoil. Cultivation furrows were evident but nothing to correspond to the anomaly was noted.

Plate 32: Trench 25, looking NW.

6.26Trench 26

Trench 26 was located to the north-west of trench 25 and again extended across linear geophysical anomaly 1D. The stratigraphy here consisted of 0.35-0.45m of overburden over a varied orange subsoil, gravelly in places. Numerous cultivation furrows were apparent, particularly towards the north-east end of the trench. The linear feature (F2) corresponding to the anomaly also continued in this trench and measured c. 1.8m in width (not investigated).

Plate 33: Trench 26, looking NE.

6.27Trench 27

Trench 27 was excavated to the north-west of trench 26 in the same field and again extended over the linear geophysical anomaly 1D. The stratigraphy comprised 0.35-0.45m of overburden over a varied gravelly orange subsoil with frequent cultivation furrows. A sherd of white glazed crockery was visible in the fill of one of these. The linear feature (F2) corresponding to the anomaly also continued in this trench and measured c. 1.4m in width. It appeared to be filled with a mixed grey-brown material and was not investigated.

Plate 34: Linear feature (F2) in Trench 27, looking S.

Plate 35: Crockery sherd in cultivation furrow, Trench 27.

Plate 36: Trench 27, looking NE.

6.28Trench 28

Trench 28 was located to the north-west of Trench 27. While the linear geophysical anomaly was not shown here, the continuation of F2 was exposed in the trench after the removal of c. 0.4m of sod and topsoil. It measured c. 1.6m in width and appeared to be filled with a brown sandy silt with stone inclusions (not investigated). No other potential archaeological features were uncovered.

Plate 37: Continuation of linear feature (F2) in Trench 28, looking N.

Plate 38: Trench 28, looking NE.

6.29 Trench 29

Trench 29 was excavated to the north-west of Trench 28. Similarly, the geophysical anomaly was not shown here, however, the corresponding linear feature (F2) continued through this trench. It measured c. 1.6m in width and appeared to be filled with a mixed grey-brown sandy silt (not investigated). No other potential features were uncovered.

Plate 39: Continuation of linear feature (F2) in Trench 29, looking SE.

Plate 40: Trench 29, looking NE.

6.30Trench 30

Trench 30 was excavated in the same field to the north-west of Trench 29. It extended across linear geophysical anomaly 1A which appears to be a continuation of anomaly 1D. The stratigraphy comprised 0.35-0.4m of sod and topsoil over a varied gravelly orange-brown subsoil. Towards the north-east end of the trench a possible relict field boundary orientated NE/SW was exposed and comprised a band of brown stoney material measuring c. 1.2m in width. It appeared to obscure the continuation of F2 (anomaly 1A) and while it was not investigated would seem to be later than the latter. It is likely to relate to a boundary indicated on both editions of the historic OS mapping in this area. On the first edition map it comprises a laneway which extended up to Kilmore House which was situated c. 300m to the north-west. On the later second and last editions the laneway is not indicated, however, a single field boundary still remained at that time.

Plate 41: Trench 30, looking NE.

Plate 42: Possible relict field boundary extending across the continuation of F2 in Trench 30, looking NE.

6.31Trench 31

Trench 31 was excavated to the north-west of Trench 30 across linear geophysical anomaly 1A and a curvilinear anomaly 1B. The stratigraphy again comprised c. 0.35-0.4m of sod and topsoil over a gravelly orange-brown subsoil. No evidence for a possible feature was noted in the area of anomaly 1B. Further to the west the possible continuation of linear F2 was noted but appears narrower and potentially shallower than in the previous trenches. It measured c. 1.3m in width and appeared to be filled with a light brown-grey stoney material (not investigated). At the south-west end of the trench a double ditch feature which corresponds to a field boundary indicated on the first, second and third editions of the OS map was exposed and is likely to be 19th century in date. This boundary was also

exposed in Trenches 32-34 (see below). As per the previous trenches numerous narrow cultivation furrows were also apparent along the length of the trench.

Plate 43: Continuation of linear feature F2 (anomaly 1A) towards NE end of Trench 31, looking N.

Plate 44: Trench 31, looking SW.

6.32Trench 32

Trench 32 was excavated to the north-west of Trench 31 across geophysical anomaly 1A at the north-east, and across the relict field boundary at the south-west. The stratigraphy comprised c. 0.35-0.4m of sod and topsoil over a gravelly orange subsoil. The linear feature F2 corresponding to anomaly 1A was again exposed towards the north-east end of the trench. It measured c. 1.9m in width and appeared to be filled with a grey-brown stoney material. Narrow cultivation furrows were clearly visible extending across the top of this feature which would suggest that it is earlier in date than that agricultural activity.

At the south-west end of the trench the double-ditch corresponding to the 19th century field boundary was exposed. The ditches measured c. 1.7-2.2m in width and appeared to be filled with a mid-brown material.

Plate 45: Linear feature(F2) and later plough furrows at NE end of Trench 32, looking NNE.

Plate 46: Double ditch comprising remains of relict field boundary at SW end of Trench 32, looking NE.

Plate 47: Trench 32, looking NE.

6.33Trench 33

Trench 33 was located to the north-west of Trench 32. The relict field boundary exposed in the previous trenches was again uncovered towards the south-west end of this trench after the removal of c. 0.4-0.45m of sod and topsoil. An orange gravelly subsoil and frequent plough furrows were exposed along the remainder of the trench and no potential archaeological finds or features were noted.

Plate 48: Trench 33, looking SW.

Plate 49: Relict field boundary at SW end of Trench 33, looking NE.

6.34Trench 34

Trench 34 was excavated to the north-west of trench 33 across geophysical anomaly 1A at the north-east and across the relict field boundary at the south-west. The stratigraphy comprised 0.35m of sod and topsoil over a stoney orange-grey subsoil. The linear feature (F2) corresponding to anomaly 1A was apparent towards the NE end of the trench as a grey-brown feature which measured c. 1.6m in width (not investigated). At the south-west end, as per the previous trenches, the relict field boundary was apparent as a double ditch. No other potential archaeological features were exposed.

Plate 50: Linear feature (F2) corresponding to anomaly 1A, looking NE.

Plate 51: Relict field boundary at SW end of Trench 34, looking NE.

Plate 52: Trench 34, looking SW.

6.35Trench 35

Trench 35 was excavated to the north-west of Trench 34 towards the NW end of the field. At the NE it crossed geophysical anomaly 1A. The stratigraphy comprised 0.35-0.4m of overburden over a gravelly orange subsoil and frequent plough furrows. The linear feature (F2) corresponding to the anomaly was present at the NE end of the trench and measured c. 1.5m in width. It appeared to be filled with a

lighter brown material and was slightly less obvious than in previous trenches. No other potential archaeological features were uncovered.

Plate 53: Linear feature F2 corresponding to anomaly 1A in Trench 35, looking NE.

Plate 54: Trench 35, looking NE.

6.36Trench 36

Trench 36 was the final trench excavated in this field at the north-west end of same. The stratigraphy consisted of c. 0.4m of sod and topsoil over an orange, slightly gravelly subsoil and plough furrows. No potential archaeological finds or features were uncovered.

Plate 55: Trench 36, looking SW.

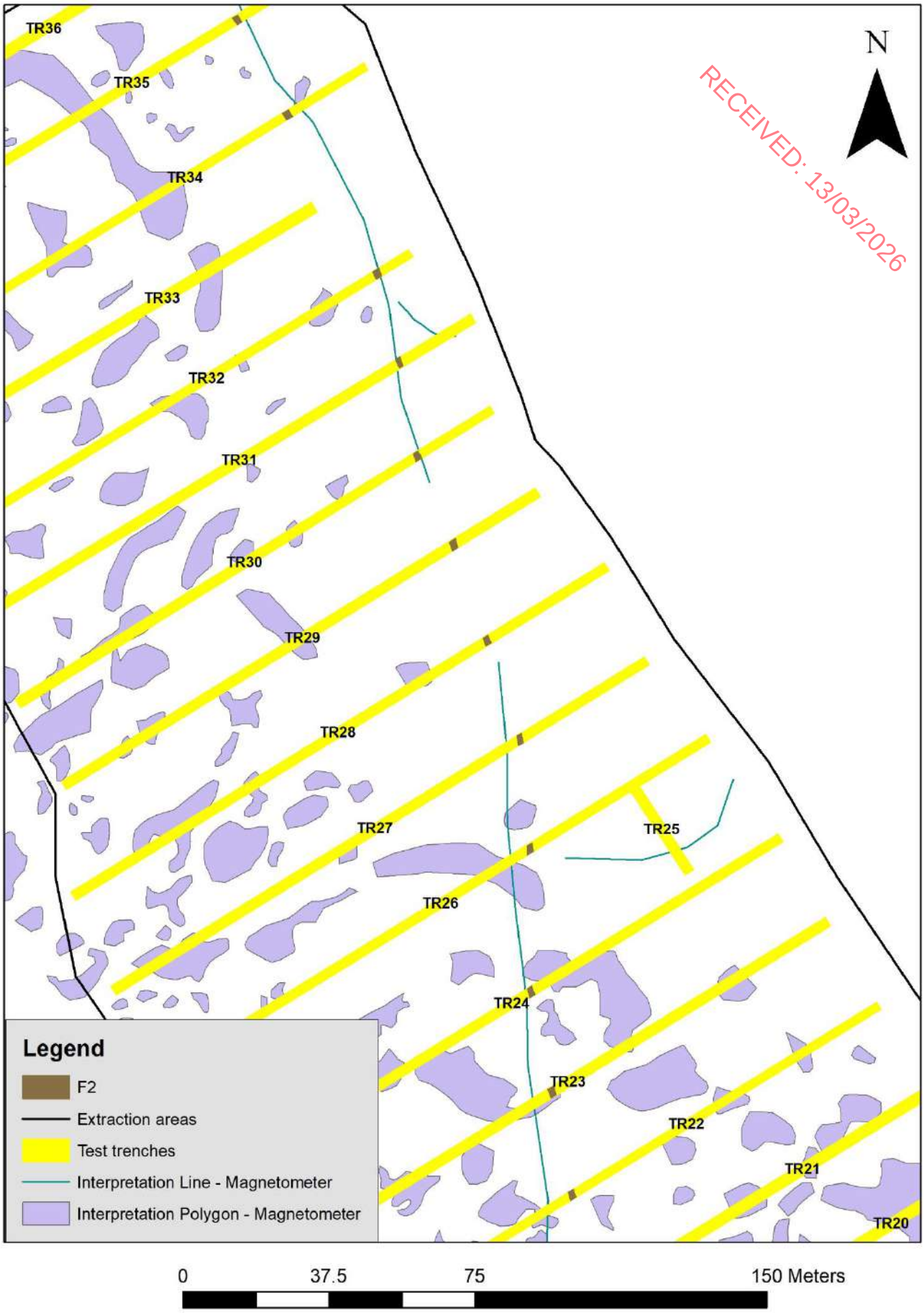


Figure 14: Overview of F2 in trenches 22-35.

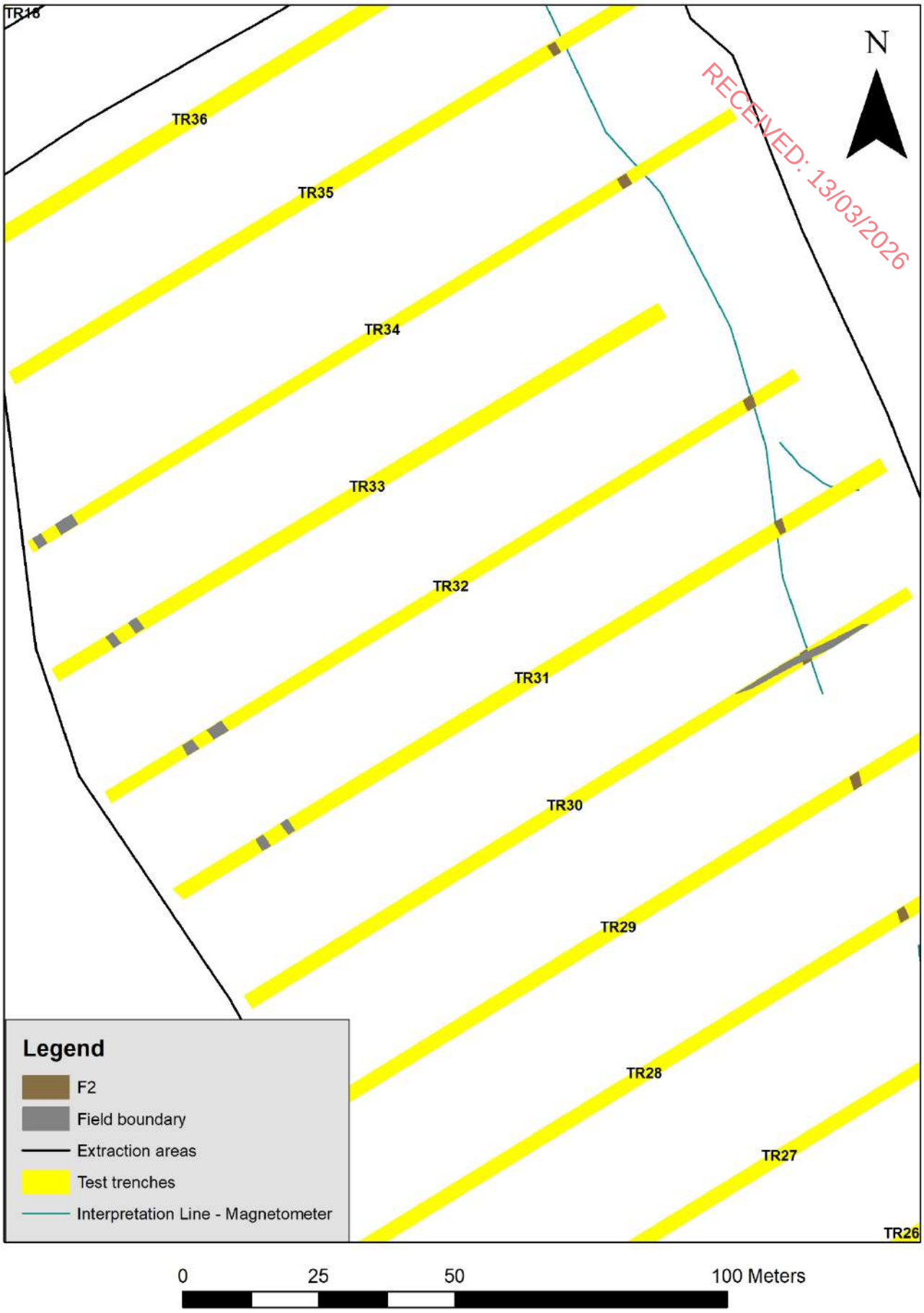


Figure 15: F2 and later field boundaries exposed in test trenches.

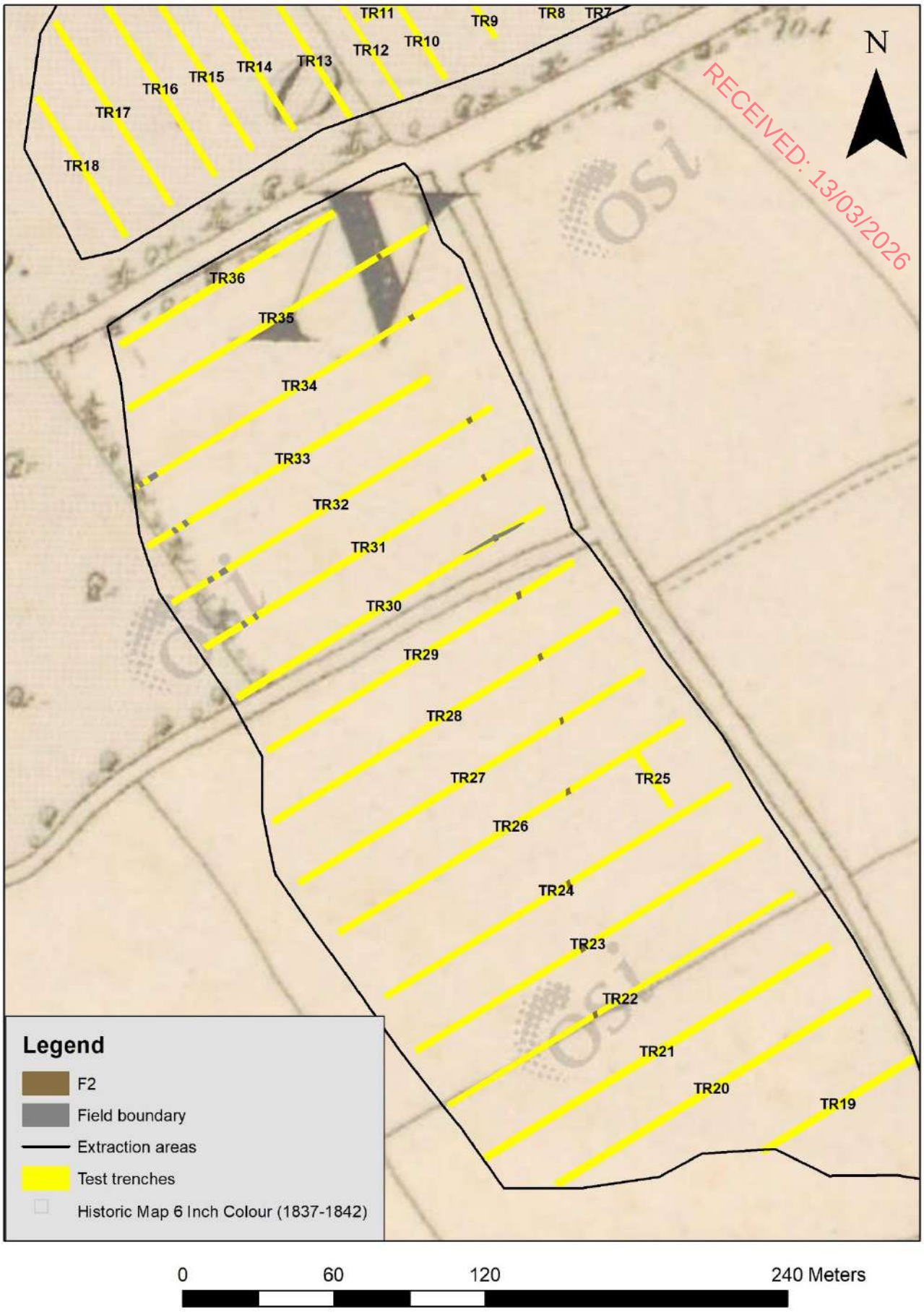


Figure 16: F2 and later field boundaries on first edition OS background.

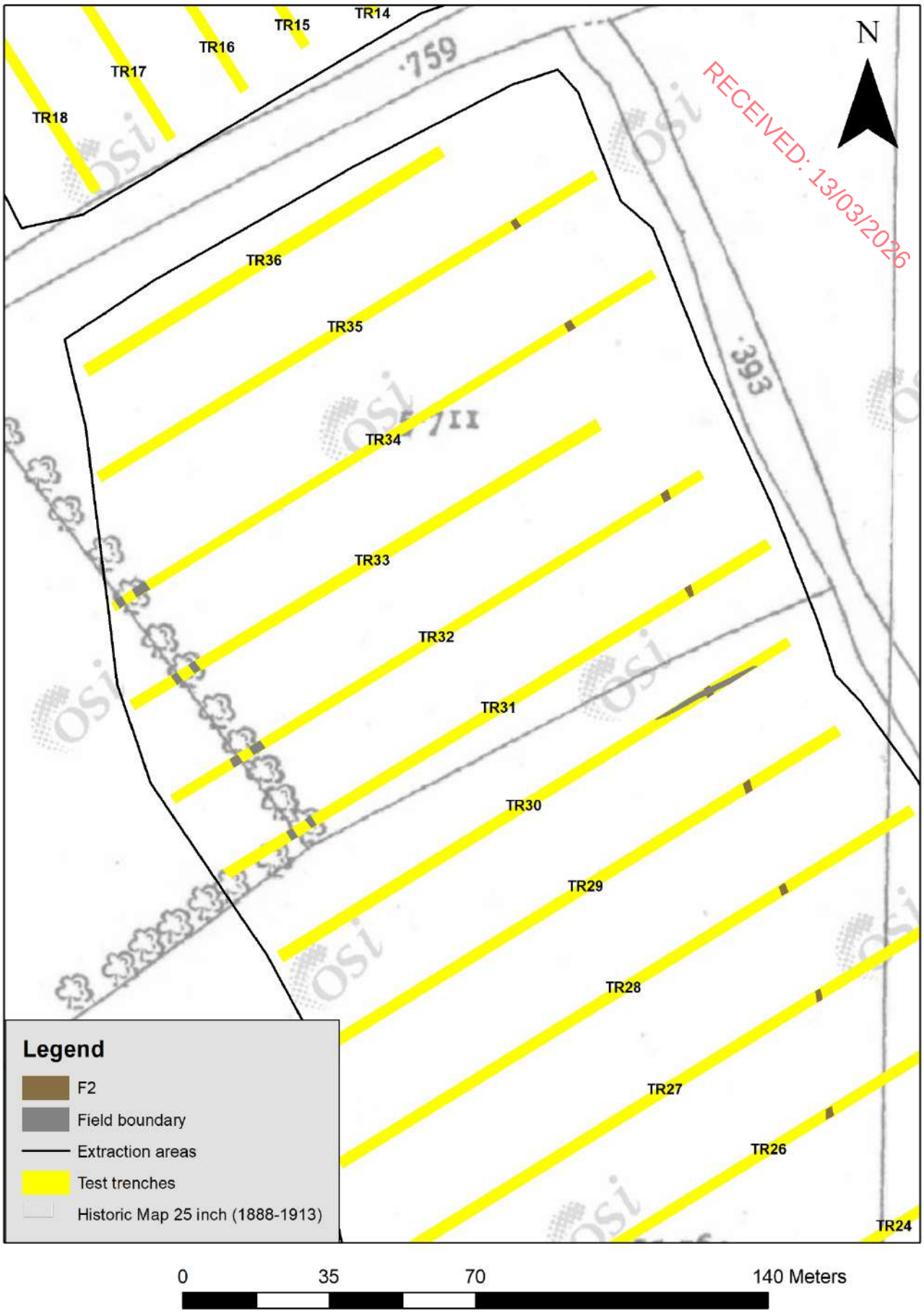


Figure 17: F2 and later field boundaries on second edition OS background.

7. POTENTIAL IMPACTS

7.1 Direct Impacts to Potential Sub-surface Archaeology

A total of 36 test trenches were excavated across the proposed development site at Kilmore, Brinny, Co. Cork. Pre-development archaeological testing of the proposed extraction area and of geophysical anomalies detected was carried out on foot of a request for Further Information (See Section 4 above). The aim of the testing was to establish the nature of the anomalies and determine if archaeological features were present within the proposed development site. In general, potential archaeological features were not identified in the majority of trenches. No features which appear to correspond to the anomalies noted in the northern field were uncovered. A ditch-like feature (F1) was uncovered in Trenches 10 and 11 in the area of geophysical anomaly 2B, however, no other potential features were noted here to correspond to the remainder of the anomaly and no circular or sub-circular feature was uncovered. A linear feature, F2, was exposed in the western field (Field 1 in geophysical survey report) and corresponds to geophysical anomalies 1A and 1D. Manual investigation across this feature in Trench 22 did not produce any artefactual material which could provide a date for its use. It was exposed over a total length of c. 317m, initially having a NE/SW orientation and then turning to the NW/SE. Its length and form would suggest that it represents the remains of a boundary or field division, albeit of unknown date. It should be noted that a potentially later field boundary (indicated on the historic mapping) appeared to cut this linear in Trench 30 and may suggest that it is earlier than mid-19th century, however, this cannot be stated with certainty. A relict field boundary indicated on the first and second edition OS maps was also uncovered in Trenches 31-34 at the west side of Field 1. No other potential features were uncovered in the 36 trenches excavated within the proposed extraction areas.

7.1.1 Pre-mitigation Impact

Should the permitted development proceed without the implementation of any mitigation measures, ground works associated with the extraction of sand and gravel has the potential to directly impact on the linear feature(F2) identified in Trenches 22-24, 26-32 and 34-35 and on F1 in trenches 10 and 11. This would result in a direct, permanent negative impact to this resource. While these features may be agricultural in origin (possible field divisions/boundaries) they are of unknown date.

7.1.2 Mitigation

Framework and Principles for the Protection of the Archaeological Heritage (1999, 24) states the following in relation to the overall approach to the protection of archaeological heritage in the context of development:

'*Whenever the archaeological heritage is affected, or proposed to be affected, by development the approach to be followed must be preservation in-situ or preservation by record through archaeological excavation and recording.*'

Similarly one of the Agreed Actions of the Irish Concrete Federation (ICF) Code of Practice between the ICF and the Department of the Environment, Heritage and Local Government (2009) is as follows:

'6. *Where it cannot be reasonably avoided, excavate and record all known monuments or archaeological sites or parts of such, that are impacted by the construction works, in accordance with agreed methodologies and allow sufficient time for such recording to be carried out to the satisfaction of the Minister.*'

In this regard the following mitigation measures are proposed based on the findings of the archaeological testing at Kilmore, Brinny, Co. Cork.

- Manual investigation of a sample of the linear feature (F2) and possible ditch (F1) noted within the proposed extraction area should be carried out in advance of any ground works. The investigation should seek to determine the nature and date of the linear features, the results of

which will determine if full preservation by record of same is required. The investigation will be carried out under licence from and subject to the agreement of the National Monuments Service, Dept. of Housing, Local Government and Heritage (DHLGH).

- The methodology for the investigation should be agreed between the project archaeologist, the appointed archaeological consultant and the National Monuments Service.
- A report on any excavation undertaken will be compiled detailing the results of same and be illustrated with drawings, photographs and any specialist reports required, in compliance with the terms of the excavation licence.
- Archaeological monitoring of all topsoil removal associated with the proposed development should it proceed. A report on the monitoring will be compiled on completion of the work and submitted to the relevant authorities. It should be noted that archaeological features and deposits may be uncovered during the course of archaeological monitoring of topsoil removal. Additional mitigation in the form of preservation in situ, preservation by record or appropriate buffer zones may be required should such features be uncovered.

8. CONCLUSION

Tobar Archaeological Services Ltd was engaged by Keohane Readymix Ltd. to carry out pre-development archaeological testing of a proposed extension to a sand and gravel pit at Kilmore townland, Brinny, Co. Cork. The testing was carried out on foot of request for Further Information and subsequent to a geophysical survey of the proposed extraction area which resulted in the detection of a number of geophysical anomalies. A total of 36 test trenches were excavated within the proposed development site and targeted those geophysical anomalies as well as generally testing the remainder of the proposed extraction area. A linear feature (F2) and a possible ditch-like feature (F1) were noted within the excavated trenches. F2 generally corresponds to a linear geophysical anomaly and may represent the remains of a field boundary or division of unknown date.

A potential direct, negative impact to F1 and F2 has been identified in the event that the proposed development proceeds without the implementation of appropriate mitigation measures. To ameliorate such direct impacts mitigation in the form of manual investigation of a representative sample of F1 and F2 is recommended in addition to archaeological monitoring of all topsoil removal associated with the development, and associated reporting requirements.[1]

9. BIBLIOGRAPHY

- Code of Practice between the Department of the Environment, Heritage and Local Government and the Irish Concrete Federation, 2009.
- Record of Monuments and Places (RMP) for County Cork.
- Department of Arts, Heritage, Gaeltacht and the Islands, 1999, Framework and Principles for the Protection of the Archaeological Heritage, 1999.
- Geophysical Survey Report, 2023. AOC Archaeology Group.

www.heritagedata.maps.arcgis.com

[1] *All recommendations are subject to the approval of the Planning Authority and the National Monuments Service.*