Land off Lea Road and Sidgreaves Lane
Cottam Parkway
Historic Landscape Recording, Level 1 – HLT1 and 2
July 2023

Report

Historic Landscape Recording, Level 1 – HLT1 and 2

Site

Land off Lea Road and Sidgreaves Lane, Cottam Parkway

Client

Lancashire County Council

Planning Authority

Lancashire County Council

Planning Ref

LCC/2022/0049

Grid reference

SD 49185 3141

Prepared By

Evelin Erős, Rachel Pearson and Liz Murray MCIfA

Reviewed By

Natasha Powers MCIfA FSA

Date

July 2023

Rocket Ref

RHA 23-036

Version	Comments	Revised by	Date
0.1	First issue		26/07/2023
0.2	Lancashire County Council	Rachel Pearson	01/09/2023

Contents

Figures

Plates

Executive Summary

An analytical landscape survey was carried out for Lancashire County Council in advance of the construction of the Cottam Parkway Railway Station between Lea and Cottam, to the northwest of Preston (NGR SD 4918 3141). The survey was undertaken as part of a broader package of works required to mitigate the potential impacts from the Scheme.

The aim of the survey was to create a record of the Historic Landscape Types (HLT) in their current form prior to the truncation of landscape elements during the construction of the Scheme. HLT are historic landscape parcels with a common character such as land use or field pattern.

The survey was undertaken by drone on 15 June 2023 using a Matrice 300 RTK UAV equipped with a 61MP Sony A7R IV payload for optimum data clarity. The survey was carried out with an active Real-Time Kinematic connection to ensure accurate data geolocation logging throughout.

The aerial survey was used produce a photorealistic topographic map (2D) and 3D model. Point cloud data was processed to create geolocated hill shade views which were utilised to examine and interpret the topographic data. An interpretative plan and transects were then produced to provide a permanent record prior to construction works.

The results from the survey may be further enhanced by the results of the intrusive fieldwork to be undertaken as part of the Scheme.

1. Introduction

1.1.1. This report presents the findings of an analytical landscape survey carried out for Lancashire County Council (LCC) in advance of the construction of the Cottam Parkway Railway Station between Lea and Cottam, to the northwest of Preston - herein referred to as 'the Scheme'.

1.1.2. The work was required in response to a condition proposed by LCC Archaeology for the Scheme (application ref. LCC/2022/0049) and the methodology was detailed in an approved Written Scheme of Investigation (WSI) (RHA Ltd 2023a).

1.1.3. The survey was commissioned by Lancashire County Council and was undertaken as part of a broader package of works required to mitigate the potential impacts from the Scheme, which also incorporated an earthworks survey (RHA Ltd 2023b). It should be noted that the landscape and earthwork survey are intrinsically linked and were recorded holistically to present a cohesive record of the site. The archaeological and historical background of the site has been detailed in other documents including the WSI and so has not been reproduced here.

1.1.4. The historic landscape types (HLT) to be recorded were identified as HLT 1 and HLT 2 in the baseline desk-based assessment and Environmental Statement (Chapter 7) (LCC).

2. Location, topography and geology

2.1.1. The Scheme is located off Lea Road and Sidgreaves Lane to the west of Cottam, centred around NGR SD 4918 3141 (Figure 1). It is equidistant between Cottam and the village of Lea, and about 10km from Preston City Centre in Lancashire.

2.1.2. The Scheme is situated in a parcel of land approximately 14.5ha in area, and includes fields, wooded areas and existing network rail land.. The site is predominantly in agricultural use; bound by Lea Road to the east, the Cottam Link Road to the north, Sidgreaves Lane to the west and, beyond the Preston Fylde Junction to Blackpool North line, the Ashton and Lea Golf Course to the south

2.1.3. The bedrock geology underlying the site is Sherwood Sandstone, a sedimentary bedrock that formed between 272.3 and 237 million years ago. The superficial deposits are Devensian Till, comprised of gravelly sandy silty clay (BGS).

3. Methodology

3.1.1. The survey and interpretation of the results were carried out in accordance with the scope of a Level 1 survey as defined by Historic England's Understanding the Archaeology of Landscapes: A Guide to Good Recording Practice (2017). Historic England's drawing conventions were followed during the production of the interpretative plans.

Data Capture

3.1.2. The survey was undertaken on 15 June 2023 by Josh Blackwell of Rotoris Ltd. The data was captured using a DJI Matrice 300 enterprise Unmanned Aerial Vehicle (UAV) equipped with a Sony A7R IV sensor (35mm lens) with a gimbal integrated Global Positioning Satellite (GPS) device logging the orientation of the camera during capture. The UAV was connected to the local Real-Time Kinematic Positioning (RTK) Base station throughout all flights for accurate logging of aircraft geolocation throughout the mapping mission, such as aircraft altitude and orientation.

3.1.3. Seven Ground Control Points were placed and measured around the perimeter of the survey area along with two Check Points in the central portion of the survey area. The ground control and check points were measured using an Emlid Reach RX GNSS receiver, connected to the same local base station as the UAV via RTK. Each ground control and check point coordinate was then exported to a CSV file ready for post processing.

3.1.4. To capture the 2D deliverables, such as the GeoTIFF file/orthomosaic, the sensor was positioned 90 degrees down at all times, capturing the surface from directly above (from an approximate height of 65 metres). The image capture frequency was set to be carried out within the camera's parameters.

3.1.5. To capture the 3D deliverables and higher density point cloud, oblique missions were also carried out at the same altitude. Missions captured the same survey site at varying angles along predetermined flight paths with the sensor set at 45 degrees. This allowed for the facades, contours and features of the landscape to be captured more accurately and with more detail.

3.1.6. The ground control points and check points were then collected.

Post-Processing

3.1.7. The 2D deliverables were processed in a desktop photogrammetry application Pix4D Matic (no cloud processing), all images, ground control points and check points were imported into the programme and were allowed to carry out their initial processing stage. Once initially processed, the ground control points and check points were calibrated using the coordinates captured on site with the Global Navigation Satellite System (GNSS) receiver. The drone image coordinates are converted from World Geodetic System 1984 (WGS84) to Ordnance Survey of Great Britain 1936 (OSGB36) in this step, all GNSS captured coordinates are captured in OSGB36.

3.1.8. The 2D deliverables were then processed by the software once all data had been calibrated and verified to be without errors.

3.1.9. Once the orthomosaic (GeoTIFF) file and DSM had been processed, they were exported.

3.1.10. The data was checked for errors by the system comparing the check points against the ground control points for errors.

3.1.11. The 3D deliverables were processed in another desktop photogrammetry application better suited to 3D deliverables: Agisoft Metashape Professional. The same process was carried out, but the data was processed further to produce a 3D mesh and Textured mesh. This 3D model was then exported and uploaded to Nira.app portal for viewing (see link in bibliography).

Interpretation

3.1.12. The DSM file was imported by Rocket Heritage and Archaeology Ltd into Geographical Information Systems (GIS). Hill shades were produced with various azimuths and altitudes. A hill shade with a Z-Factor of 1, a scale of 1, an azimuth of 0 and an altitude of 45 was primarily used for interpretation.

3.1.13. This data, in combination with the 3D model produced by Rotoris Ltd, were examined in detail to identify landscape features. The Profile Tool Plugin was used to create profiles to better understand the elevation of these features. Images of this data were then exported to be annotated in Inkscape.

Plate 1: Oblique aerial view of survey area (not to scale) (Rotoris Ltd 2023)

4. Results

4.1.1. The limited extent of HLT 1: Ancient Enclosure within the survey area means that there is relatively little to interpret (Figure 3).

4.1.2. The area within the Scheme consists of two roughly rectangular fields. That to the north, may have been subject to clearance and levelling at some point as it was devoid of notable features.

4.1.3. The eastern edge of the field to the south has a slightly sinuous quality (meaning that it has many curves and turns), reflected in Sidgreaves Lane's road layout, that may indicate medieval land use practices. An east-west linear drainage ditch through the middle of the field is the location for a number of mature trees and is likely to represent the location of a former field boundary (Figure 3; Plate 2).

Plate 2: Drainage ditch (former field boundary) in HLT 1. Looking northwest from east edge of field (RHA Ltd 2023).

4.1.4. The remainder of the Scheme area falls within HLT 2: Post-medieval enclosure. This can be noted through the presence of a series of regular enclosures with straight boundaries, which encompass traces of some of the earlier HLTs.

4.1.5. To the south of the canal, and west of Sidgreaves Lane are two broadly rectangular fields with an east-west field boundary marked by a quickset hedge. Visible in the northern field is Asset 9, an area of ridge and furrow, within which a roughly circular marl pit, now flooded, is located (Asset 10). It is delineated to the west by a ditch, which may indicate the location of a former field boundary. The ditch is approximately 105m long, 3m wide and 20cm deep.

4.1.6. To the east of Sidgreaves Lane, modern fenced field boundaries are present, but these can be seen to overlie ditched field boundaries perpendicular to Sidgreaves Lane (Figure 5). The ditched boundaries, containing occasional veteran trees, separate smaller semi-regular strip fields and may pre-date the post-medieval enclosure. Asset 8 is clearly visible as a relatively narrow but pronounced strip of ridge and furrow (Plate 3). The earthworks continue from Sidgreaves Lane until they meet a small watercourse at the east.

Plate 3: The furrows of Asset 8 in field to east of Sidgreaves Lane. Looking east from road (RHA Ltd 2023)

4.1.7. A linear strip of land, aligned northeast-southwest, bounded by ditches appears to represent a former trackway into the field and still aligns with a field gate present on Lea Road (Plate 4; Plate 5; Figure 5). Southeast of this are further small parcels of ridge and furrow, although these have again been truncated by the cutting for the railway. The most complete parcel measures approximately 90m square and has northwest-southeast aligned ridges, 3-3.5m in width. These small parcels are divided by a pond, which represents the location of Assets 49-51, the sites of former clamp kilns.

4.1.8. An area at the end of this potential trackway immediately to the north of the railway line is surrounded by a curved ditch. The area within the ditch is devoid of earthworks which may indicate that it once served as a building platform (Figure 3).

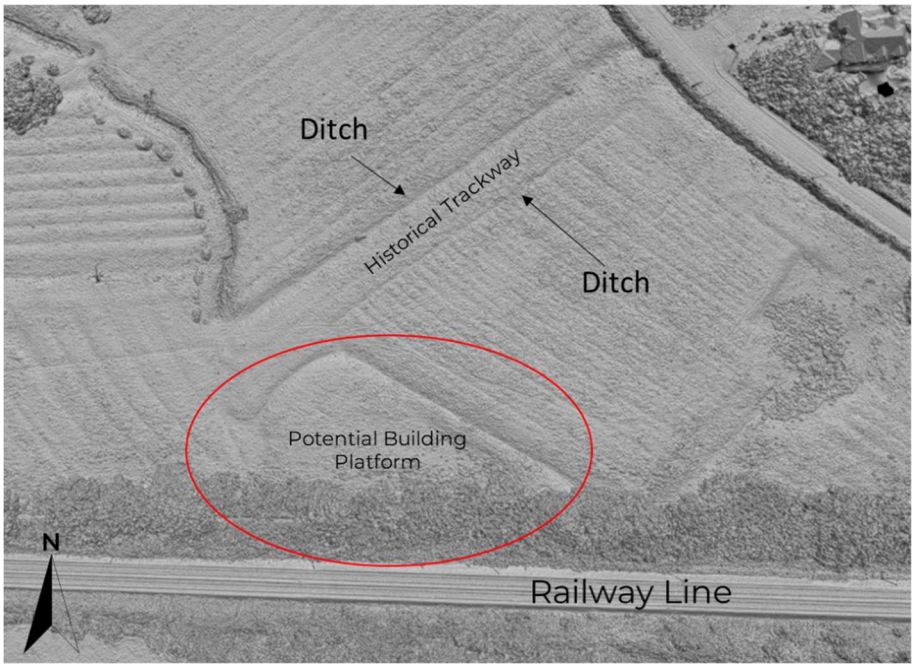


Plate 4: Potential building platform and historical trackway in HLT 2 visible with hillshade (Rotoris Ltd 2023)

Plate 5: Northern ditch of former potential trackway in HLT 2. View looking northwest from edge of field near railway line (RHA Ltd 2023).

4.1.9. To the south of Asset 8, the survey has highlighted a number of other features, now bisected by the railway and also partially truncated by small paddocks to the south of the railway (Figure 5 and Figure 6).

4.1.10. A small area immediately adjacent to Sidgreaves Lane, measuring 72m x 26m, is clear of other earthworks and may be a building platform (Figure 5; Plate 6). Areas of ploughing to the south and east of this platform, separated by a ditched boundary, are more sinuous and irregular in nature and may represent the remnants of medieval ridge and furrow.

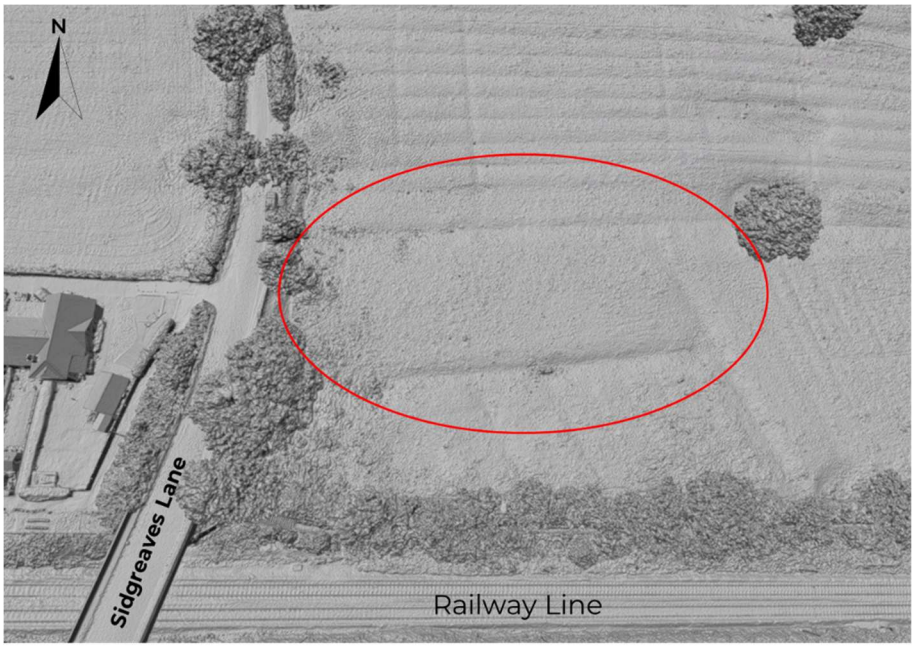


Plate 6: Second potential building platform in HLT 2 visible with hillshade (Rotoris Ltd 2023)

4.1.11. The boundary, running northwest to southwest, continues south of the railway cutting, extending to a belt of mature vegetation at the south (bordering Ashton and Lea Golf Club), although the presence of any ridge and furrow earthworks is less clear south of the railway (Figure 6). The triangular piece of land to the south of the railway line, which is

classified as HLT 2, is divided into four paddocks at the north and two fields to the south. The southern fields are separated by a modern post and wire fence. Immediately adjacent to this fence to the southwest is a drainage ditch which may mark a historical field boundary. The western field contains ploughing marks which, judging by their size, may be ridge and furrow. The eastern field contains a drainage ditch as well as the larger continuous boundary ditch described above.

5. Conclusions

5.1.1. A permanent record has been made of the historic landscape character areas and confirms their initial interpretation. On the basis that areas of the landscape may represent building platforms, it may be prudent to undertake intermittent watching briefs during initial groundworks on those areas. Although, no specific features were noted in the geophysical survey.

6. OASIS

6.1.1. An OASIS (Online AccesS to the Index of archaeological investigationS) form will be completed for the project. After validation by the Historic Environment Record (HER) the project report will become a publicly accessible document.

7. Copyright

7.1.1. Copyright in this project report will rest with RHA Ltd unless specific arrangements are made for its assignment elsewhere. The Lancashire County Council Historic Environment Team (LCCHET) will have permission to use the report for the purposes of the HER. This may include provision of copies to third parties. Copyright of the written archive will be vested in the project archive repository at such a time that deposition is possible.

Sources

On-line

British Geographical Survey Geology Viewer (Accessed 11/04/2023) - https://geologyviewer.bgs.ac.uk

Bibliographic Sources

Historic England, 2017, Understanding the archaeology of Landscapes: A guide to good recording practice.

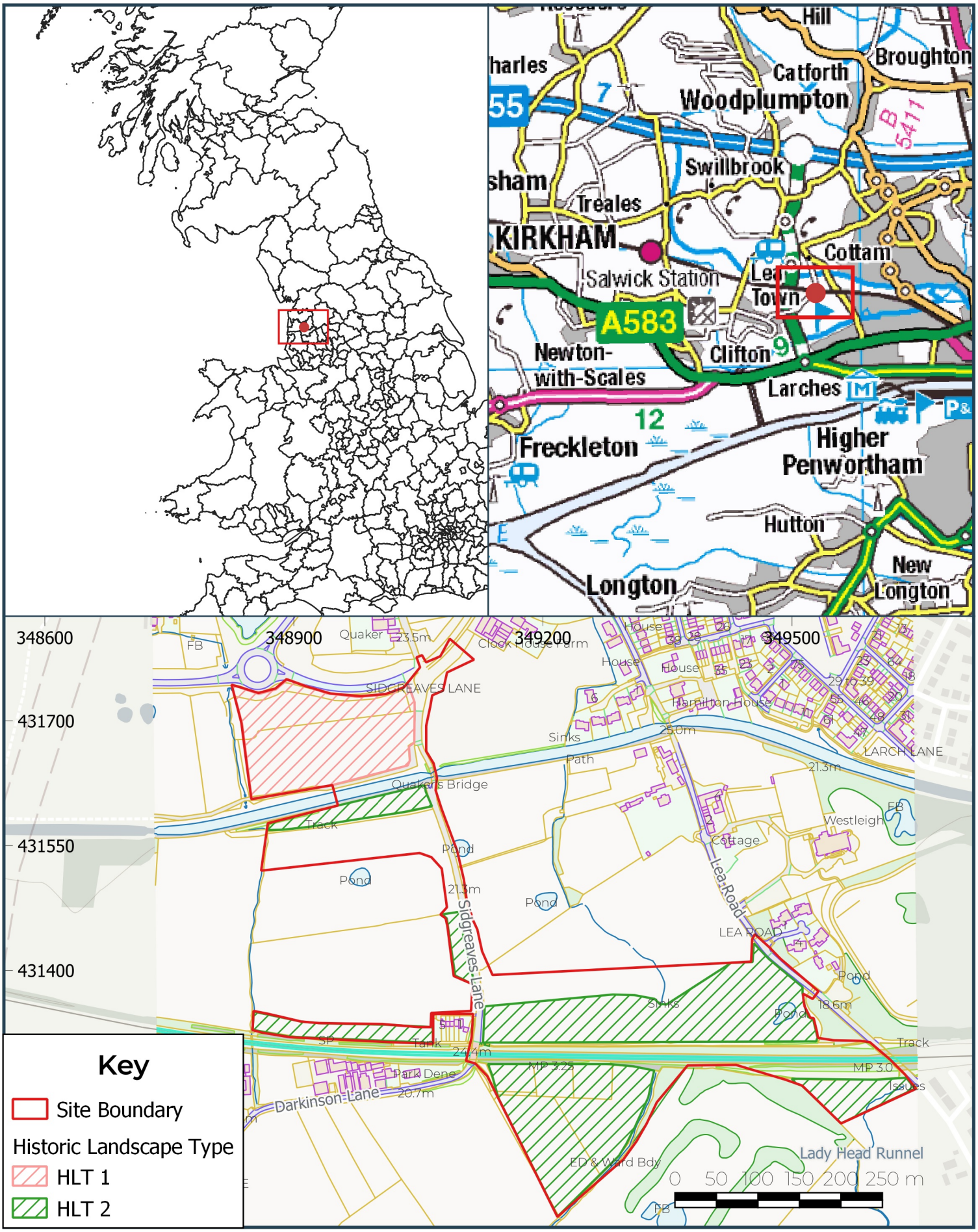
Lancashire County Council (LCC), 2022a, *Cottam Parkway Railway Station Cultural Heritage Desk-Based Study,* unpublished report

Lancashire County Council (LCC), 2022b, *Cottam Parkway Railway Station Environmental Statement,* Volume 2: Main Statement, Chapter 7: Cultural Heritage, unpublished report

RHA Ltd, 2023a, *Land off Lea Road and Sidgreaves Lane – Cottam Parkway: Written Scheme of Investigation*

RHA Ltd, 2023b, *Land off Lea Road and Sidgreaves* Lane – Cottam Parkway: Archaeological Earthwork Survey

Appendix 1: Figures



Title:
Figure 1: Site Location Plan
Address:
Cottam Parkway, Land off Lea Road and Sidgreaves Lane, Preston

N

Rocket Heritage & Archaeology

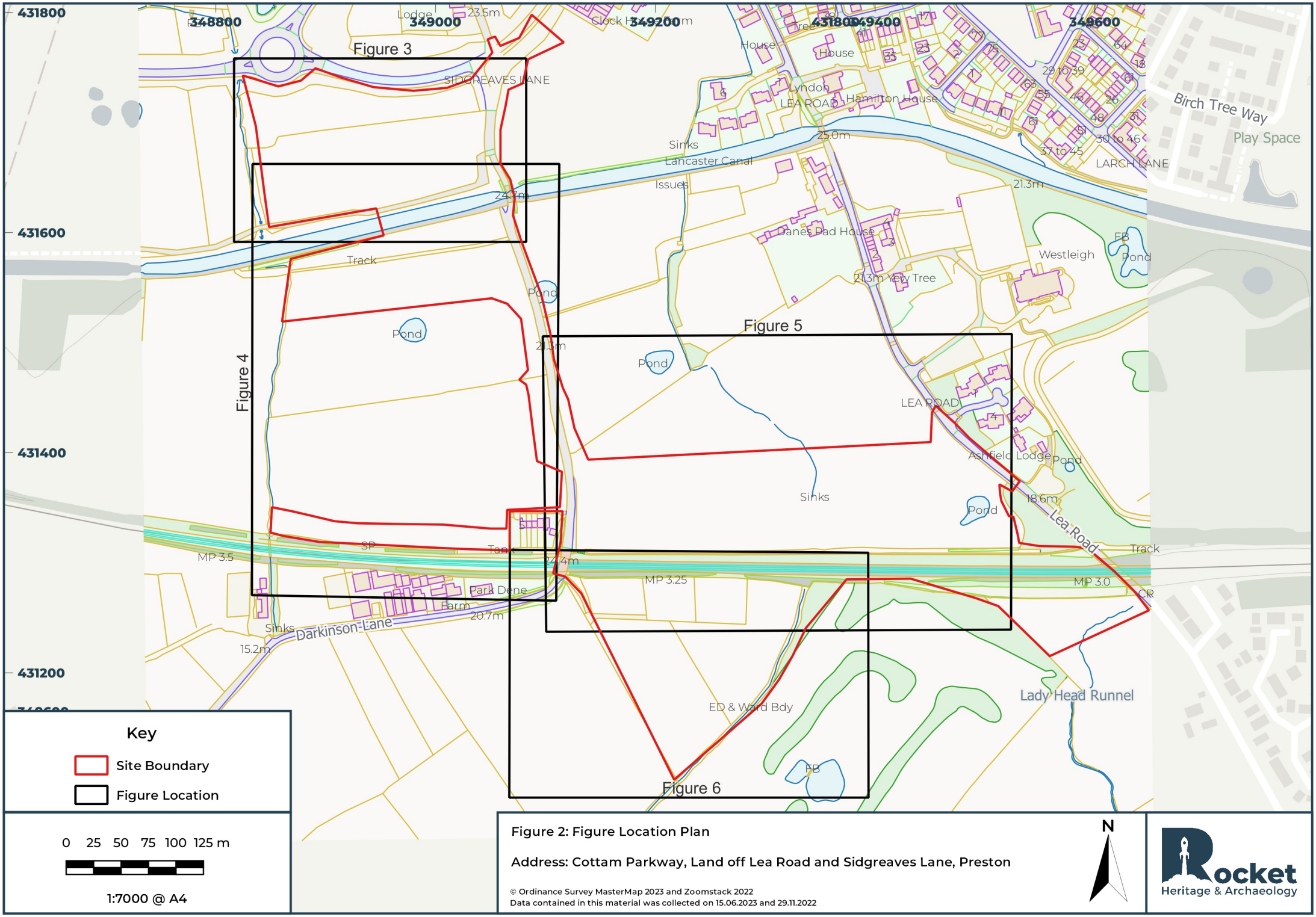


Figure 2: Figure Location Plan

Address: Cottam Parkway, Land off Lea Road and Sidgreaves Lane, Preston

Data contained in this material was collected on 15.06.2023 and 29.11.2022

Rocket Heritage & Archaeology

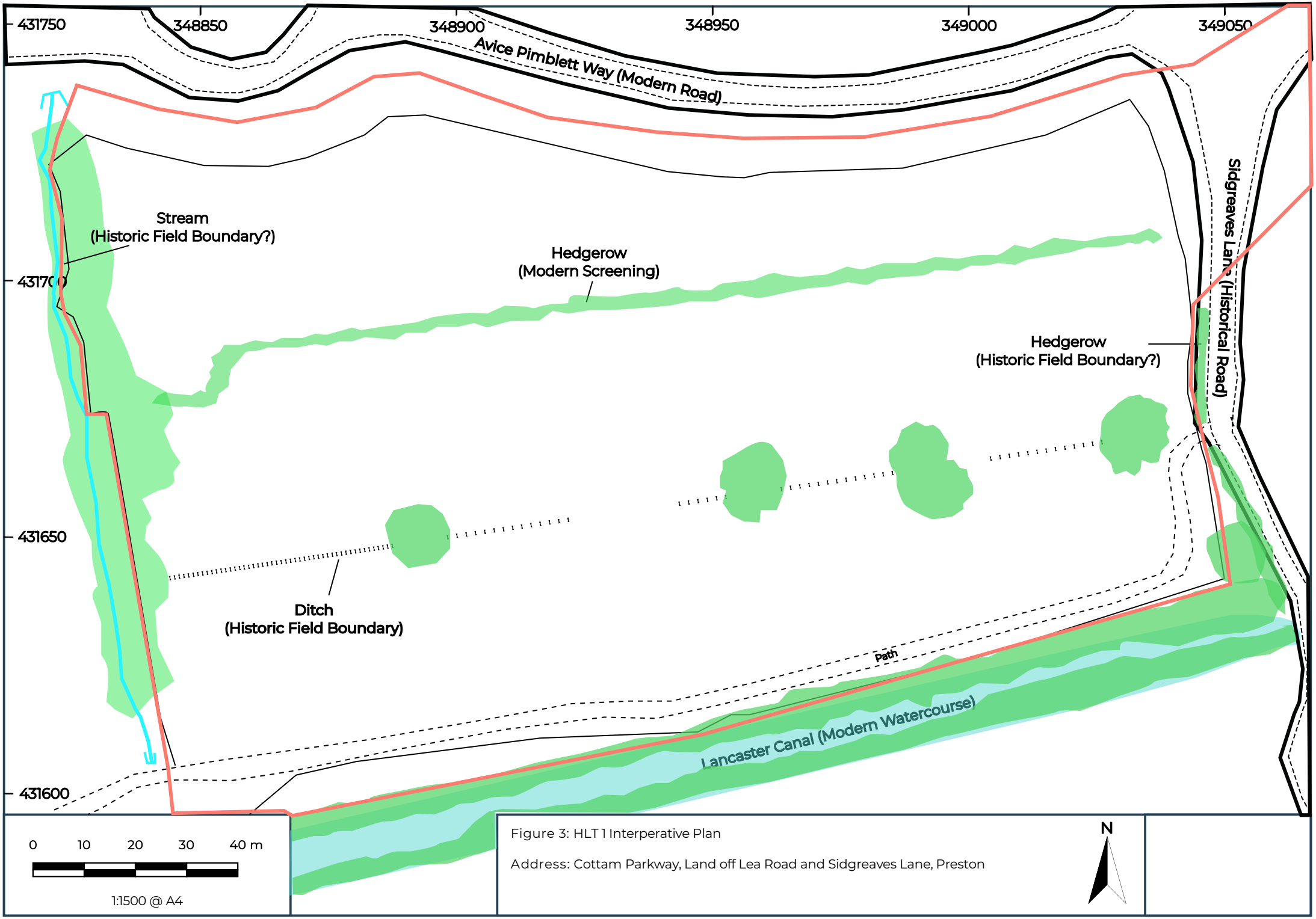
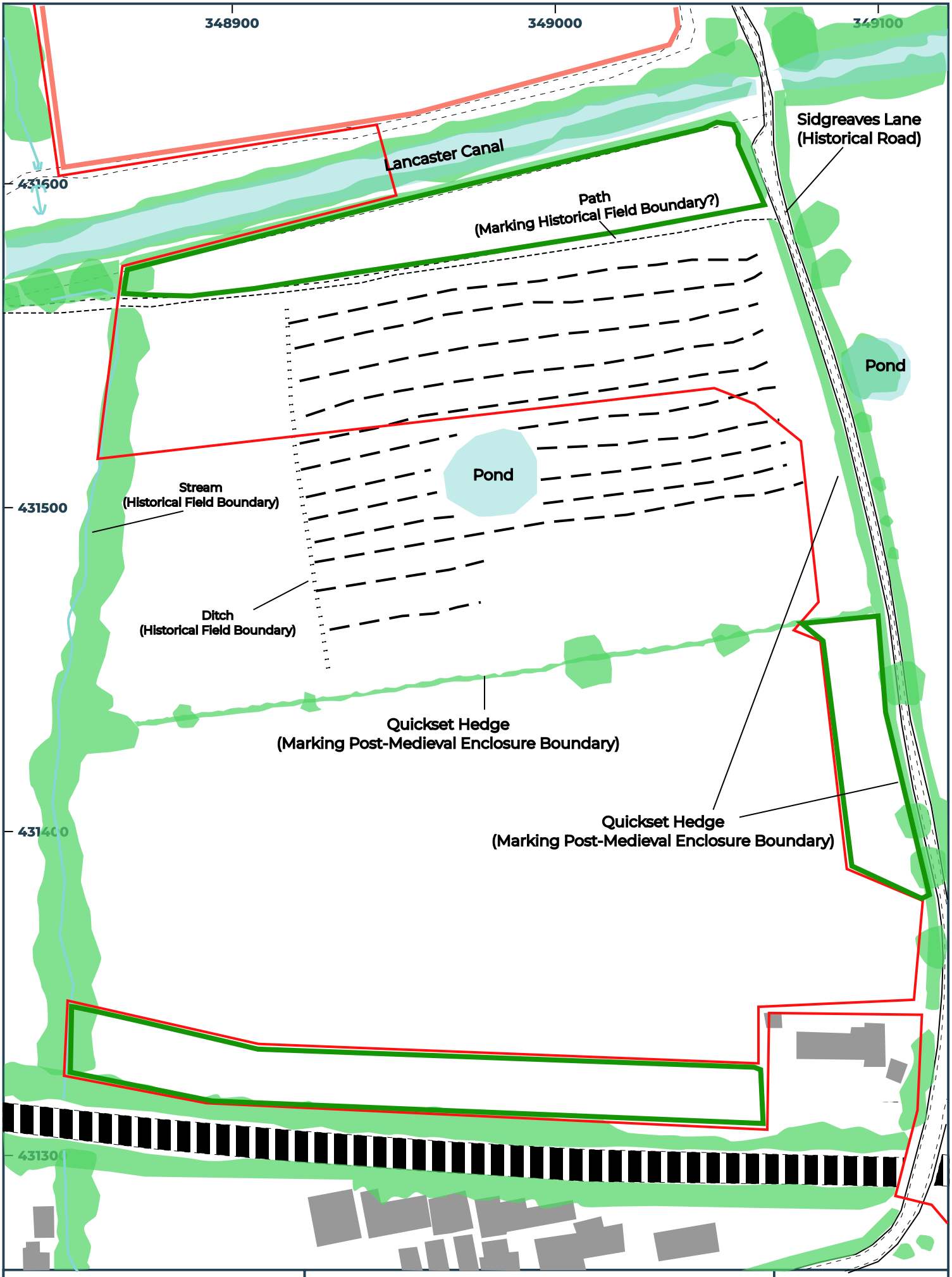


Figure 3: HLT 1 Interperative Plan

Address: Cottam Parkway, Land off Lea Road and Sidgreaves Lane, Preston



0 10 20 30 40 50 m

1:2500 @ A4

Figure 4:HLT 2 Interpretative Plan (West)

Address: Cottam Parkway, Preston

N

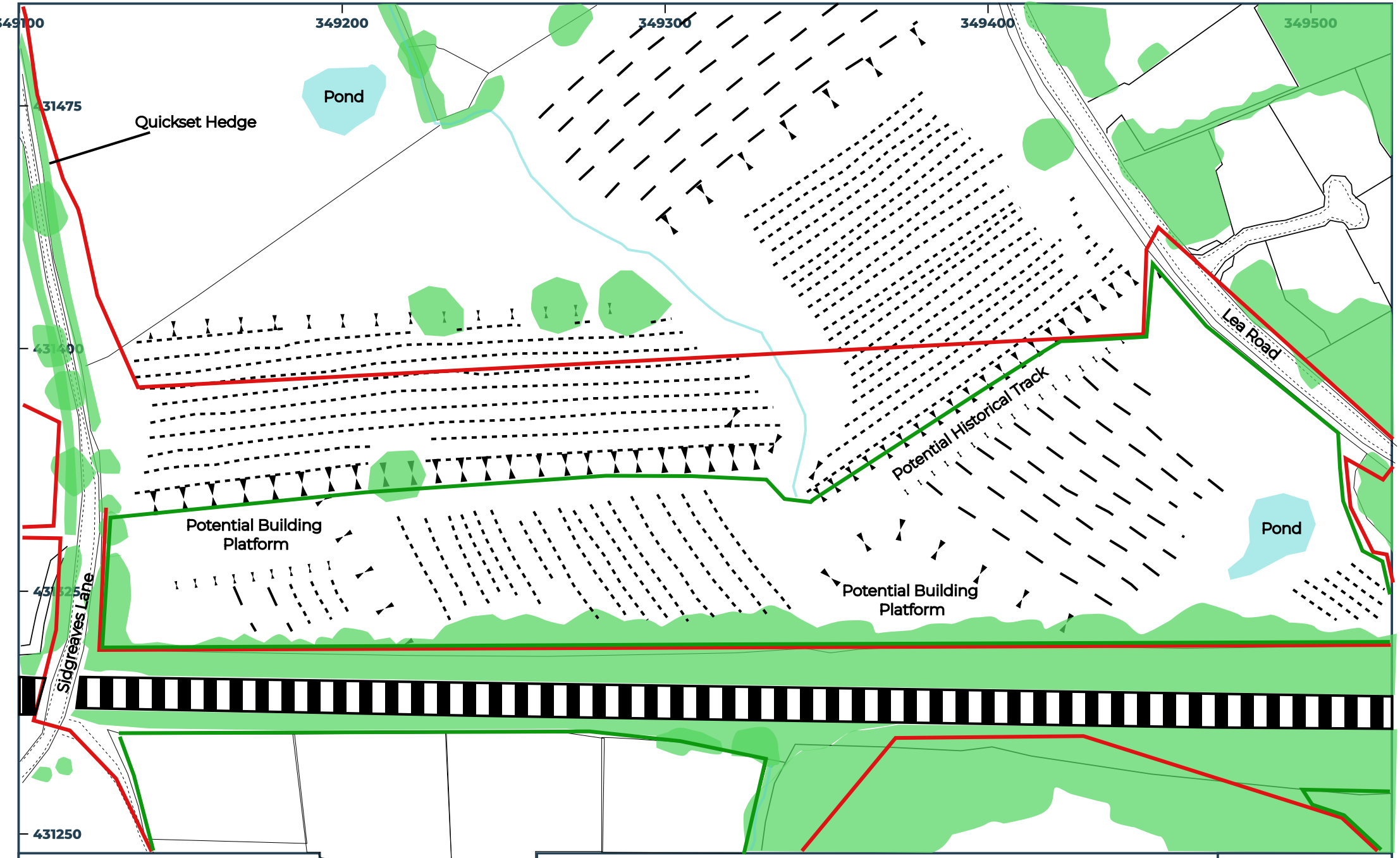


Figure 5: HLT2 Interpretative Plan (Northwest)

Address: Cottam Parkway, Land off Lea Road and Sidgreaves Lane, Preston

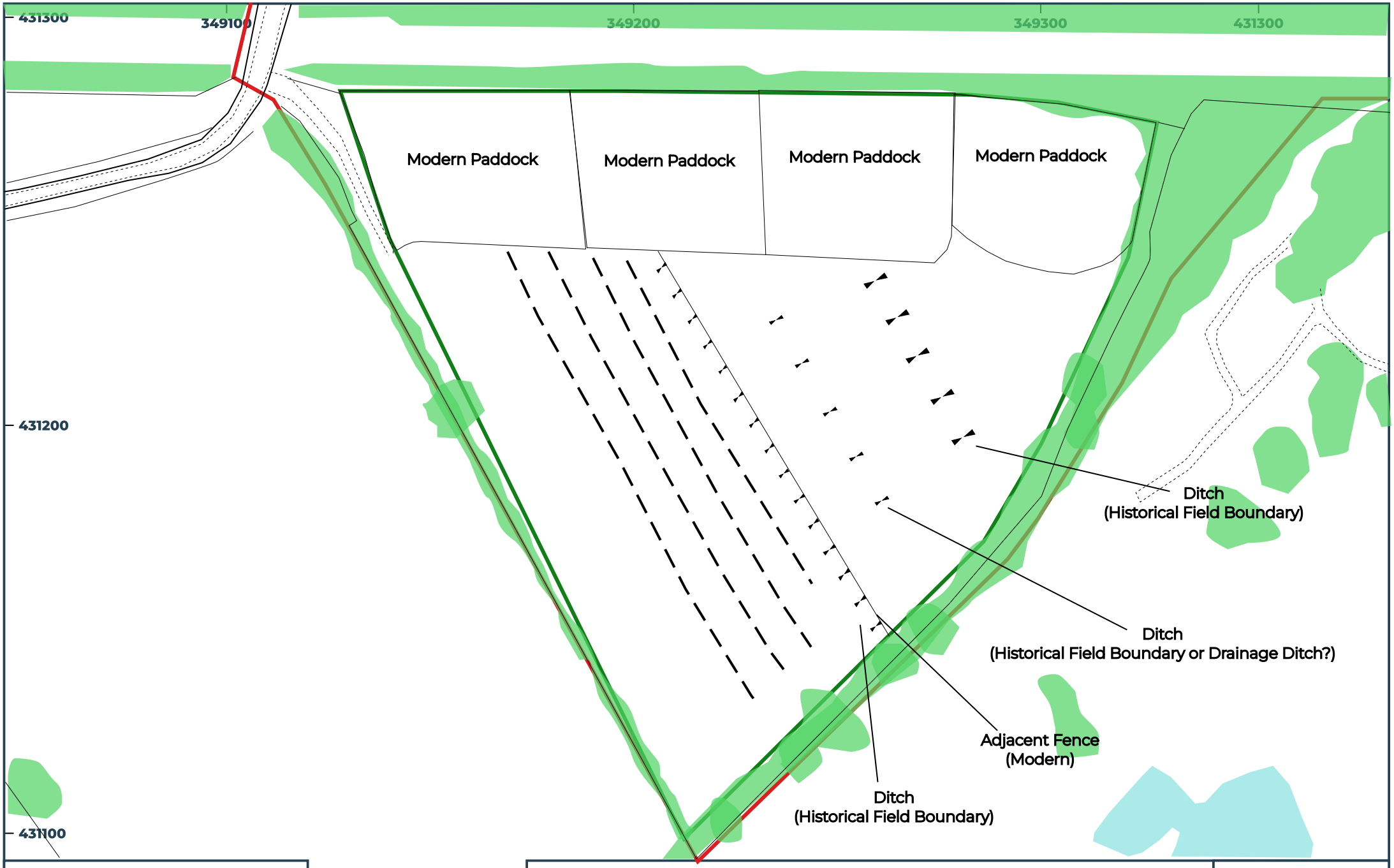


Figure 6: HLT 2 Interpretative Plan (Southeast)

Address: Cottam Parkway, Land off Lea Road and Sidgreaves Lane, Preston

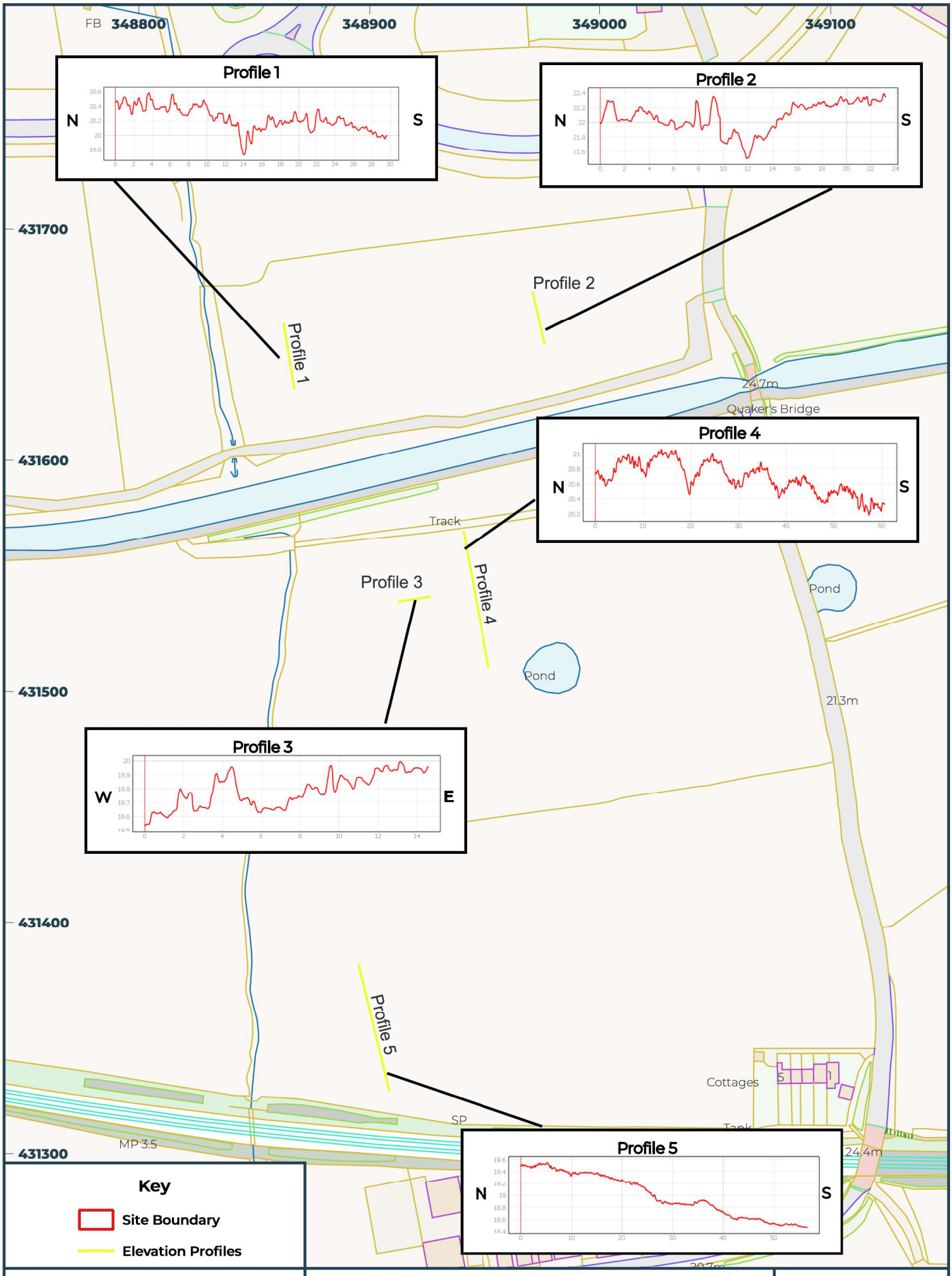


Figure 7: Elevation Profiles (West)

Address: Cottam Parkway Railway Station, Preston

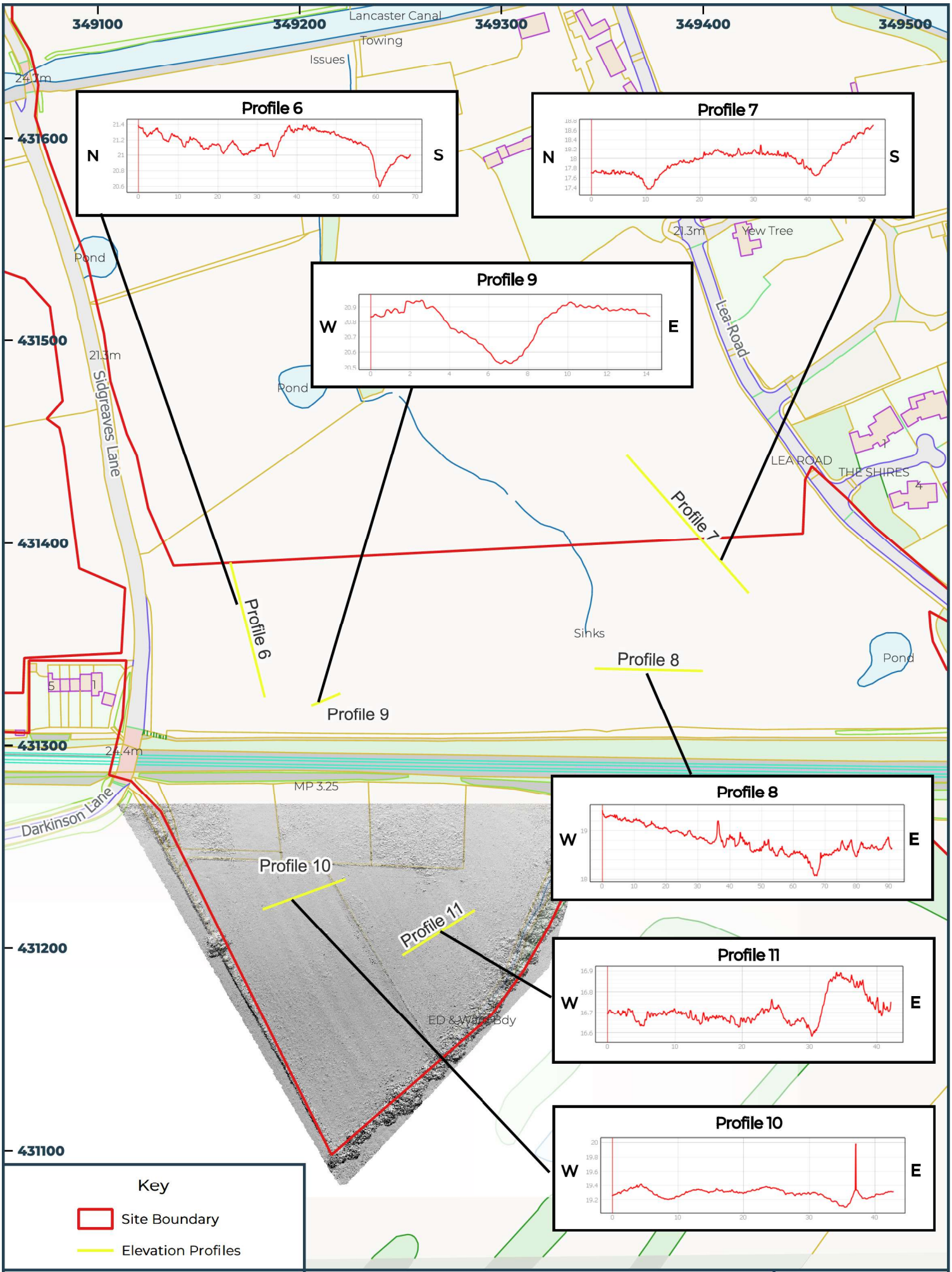


Figure 8: Elevation Profiles (East)

Address: Cottam Parkway Railway Station, Preston

Figure 9: LiDAR (West)

Address: Cottam Parkway Railway Station, Preston

Rocket Heritage & Archaeology

Figure 10: LiDAR (East)

Address: Cottam Parkway Railway Station, Preston

Rocket Heritage & Archaeology