



GPR SURVEY REPORT

PROJECT DETAILS	
NAME	The Chalk Pit, Otford, Sevenoaks, TN14 5RX
DESCRIPTION	GPR survey to detect sinkholes, subsidence

JOB NUMBER: 10670

DATE: 03/06/2024

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DISCLAIMER NOTICE

This report is for information purposes only.

The information in this document was produced from using non-intrusive geophysical survey methods and has not been physically verified. Data quality of geophysical surveys is subject to variations in local ground conditions and cannot be guaranteed.

ALWAYS EXERCISE CAUTION WHEN BREAKING GROUND

REVISION HISTORY

Version	Reason for Update	Author	Date
1.1	Original issue	Natalia Sroczyńska	03/06/2024

DOCUMENT AUTHORISATION

Action	Name	Role	Signature
Review	Natalia Sroczyńska	GPR Data Manager	
Approval	Kevin Banks	Managing Director	

INTRODUCTION

BACKGROUND

The work conducted was a GPR survey at the The Chalk Pit, Otford, Sevenoaks, TN14 5RX.

The main aims of the survey are to:

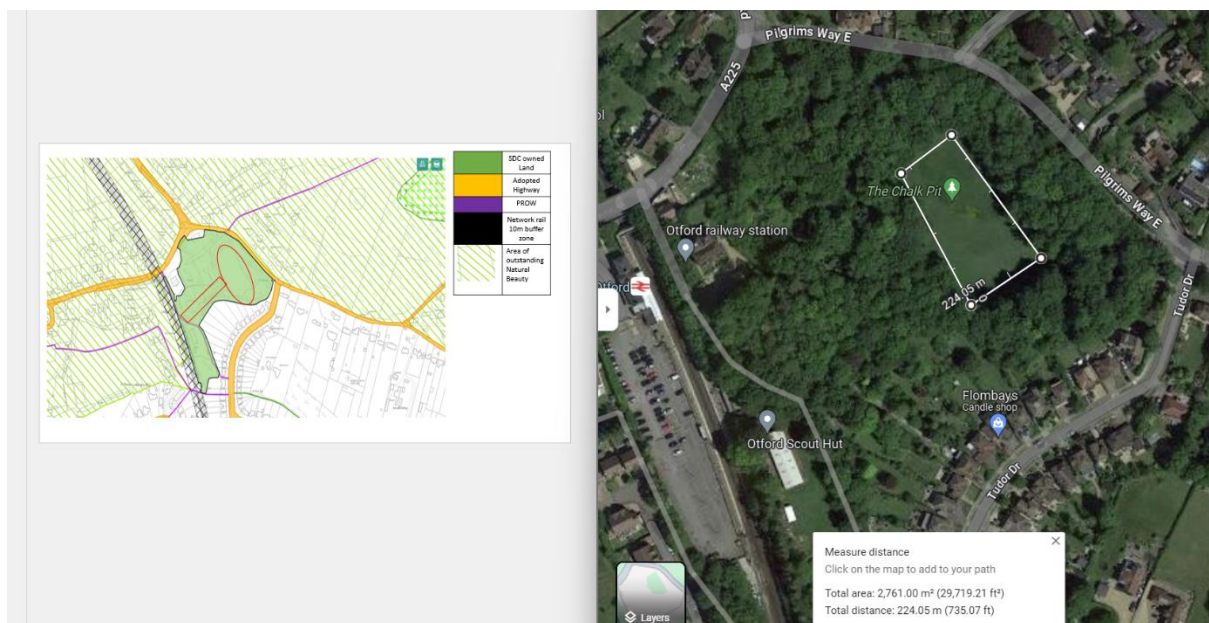
- Locate sinkholes and subsidence.

SURVEY BOUNDARY

Survey Area:

Area to be surveyed outlined in white.

Figure 1. Survey area outlined in white.



On site it was also requested that the track leading up to the clearing be scanned.

SURVEY STRATEGY

The text below explains the site practice that was undertaken during the work conducted:

1. Arrival on Site.
2. Review of area to understand the most appropriate method for surveying and referencing.
3. Assembly of equipment (this will be discussed in more detail below).
4. Conducted survey: all reasonable efforts were made to scan the area within the survey boundary using GPS to georeference the path of the radar or plotting an XY grid.
5. Site notes were recorded.

6. Data was saved for office-based processing and interpretation.
7. Equipment was disassembled.

DESCRIPTION OF SURVEY EQUIPMENT

Impulse Radar Crossover 7030

This low frequency Ground Penetrating Radar has frequencies of 70MHz, designed for deep penetration of the signal for Geological surveys, and 300MHz, which helps to improve resolution in the first few meters (typically a poor area for low frequency GPR).

DATA CAPTURE AND PROCESSING

The survey was performed by GPR to map any features on site and save data for office-based processing, to determine the location of church foundations and potential burial places.

The data was then processed using GPR-Slice software V7.0. A multitude of filters were used in the processing of the final data set, these included:

- Regain
- Bandpass
- Background
- Grid
- Pixel
- Slice

DATA OUTPUT

The data has been presented on an AutoCAD drawing with different layers to highlight certain features:

- KB_WATER ACCUMULATION AND SUBSIDENCE: Water accumulation underground with visible signs of subsidence.
- KB_POTENTIAL SINKHOLE: Potential sinkhole.
- KB_SCANLINES: Layer showing the location of each scan.
- B_LOW SPOTS: Deeper areas of subsidence which may indicate the direction of water travel.

RESULTS

COVERAGE

All accessible area has been scanned.

The track leading to the clearing was scanned along its length, this was all that is possible due to the dimensions of the survey equipment.

Two further scans were completed along the footpath to try and determine if a deeper flow of water was leading towards the scout hut.

RESULTS

Results are provided as an AutoCAD drawing attached to this report.

Overall data quality was good. The layer of underground water with obvious signs of subsidence was significantly different to the otherwise homogenous soil. This area has been plotted onto the AutoCAD drawing and is may indicate a larger sinkhole or slip plane, along which water is accumulating or flowing.

The lower areas of this layer have been highlighted in a separate colour, which may be where the water is sinking through to deeper underground layers.

Potential sinkhole was detected and is adjacent to the water and subsidence area.

No visible underground water or subsidence area was visible in the path and area in front of the scout hut.

CONCLUSION

All of the accessible surfaces have been surveyed by GPR, there is evidence of widespread subsidence within the chalk pit, however the deeper flow of water could not be ascertained.

There was no evidence of deeper features (deeper underground voids or similar) within the GPR data that was collected, however this may be outside the GPR's maximum penetration, which was around 6m on most occasions.

