

File: 24092-XXX-SP-KCC-PM-0001-DoS GPR Survey
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Comhairle Contae Chill Dara
Kildare County Council

Kildare County Council
Description of Services
For
Ground Penetrating Radar Survey
For
Main Street Social Housing
at Sallins, Co. Kildare
for Kildare County Council.

Prepared by:
Alex Dutczak MRIAI,
Executive Architect
Architectural Services Section,
Kildare County Council,
Aras Chill Dara,
Devoy Park, Naas

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1.0 Introduction

The Housing Capital Section of Kildare County Council are seeking a fixed price lump sum tender for the provision of Ground Penetrating Radar Survey at the site at **Main Street, Sallins**, County Kildare for Kildare County Council.

All related fees and charges associated with the service should be included in the lump sum price for this tender. The consultancy service must be an all-in package and incorporate all competent consultants as noted and the procurement of all required specialists to ensure the successful completion of the project on time and within budget and in adherence of all health and safety measures and requirements.

The survey site is as follows;

*Main Street, Sallins Co. Kildare is a site **0.69ha** in size. It is a greenfield site bordered by a Community hub, Train station, school, residential homes and car parking. The site has clearly defined boundaries.*

The site is located within close proximity to Sallins town centre. KCC are in full ownership of the property and is intended for future development for Social Housing.





2.0. Project Parameters

2.1. Purpose:

To carry out a Ground Penetrating Radar Survey to inform future development works. The objective of this survey is to locate the position and depth of all existing underground utilities using a combination of non-intrusive survey techniques.

2.2. Scope:

Works are to be carried out in accordance with the relevant standards and regulations including but not limited to

- Safety, Health & Welfare at Work Regulations
- Traffic Signs Manual – Chapter 8 – Temporary Traffic Measures and Signs for Road Works
- PAS 128
- European GPR Association – Policy on the use of GPR in utility detection

Survey Extents

- The survey shall include the full area enclosed by the ‘red line boundary’ on the annotated OS site location maps.

Survey Methodology

- Carry out a desktop study based on information supplied by the client and obtain utility plant records from all utility service providers.
- Open all access chambers within the survey area and record type of service.
- Photograph all foul and stormwater access chambers and provide a schematic of the manhole noting all in and outgoing pipes diameter, type, location, and invert.
- Carry out Ground Penetrating Radar survey across the survey areas.
- Survey all utilities, Electrical cables, Phone cables, Gas lines, Mains Water, Foul sewers, Surface Water and Any other services.
- Process and analyse the survey data and cross reference it against service provider information.
- Reference all survey information onto a topographical survey drawing, to be provided by client if not being undertaken as part of the scope.
- Produce a report confirming survey methodologies, site constraints, general findings and commentary on accuracy.
- Carry out QA & QC checks on drawings/ reports prior to issuing to client.

Ground Penetrating Radar (GPR) Survey Methodology

- Carry out a number of different GPR grids and set out over the site.
- Collect data field files with a multi frequency array antenna system to give maximum depth penetration whilst maintaining a high resolution at both shallow and deep depths.
- Carry out a full calibration at the start scan with constant quality monitoring during acquisition and carry out frequent recalibration checks where necessary.
- Carry out frequent recalibration of the subsurface velocity results as the surface and subsurface of the site changes to ensure accurate calculation of depths and thicknesses of located features relative to the surface.

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- The survey area is to be covered by a tight GPR grid, using a Multi Frequency Array system in order to detect any subsurface utilities not located by other methods and to ascertain depths of all targets.
- Post site processing to be undertaken including a number of processes including start time correction, amplitude gain adjustments, Gaussian filtering, dynamic correction and noise removal. Identify individual targets on each survey line and linear feature mapped over the survey area.
- Incorporate into Autocad format for final processing.

Radio Detection Survey Methodology

- Use the radio frequency locating methods outlined below at the same time as the GPR system to determine the line and depth of metallic pipes and cable services with the aid of Sonde equipment.
- Start from a known point on a service and trace it using one or more of the four methods outlined below.
 - Method 1 – Direct Connection
 - Method 2 – Clamp Connection
 - Method 3 – Induction
 - Method 4 – Flexi Trace and Sonde Location

Induction and Find Sweeps

- Once the investigation has been completed and the Team Leader has confirmed that all known services and any additional unknown service have been detected and pick up by the land surveyors, one last procedure should be carried out, it is called final sweeps both passive mode and active induction sweep.
- The radar field data to be recorded and post processed off site by a qualified geophysicist as opposed to live site mark-ups.

Chamber / Manhole Inspection Survey

- Each manhole/ inspection cover within the survey areas 1, 2 & 3 are to be opened and the contents documented. The measurements are to be recorded. The manholes are to individually numbered with a unique reference. If a topographical survey plan is available and has a unique numbering system then these are to be used. All depths to be recorded inside the chamber. The manhole / chamber arrangement is to be sketched and the following noted.
- Details included:
 - Cover Levels
 - Invert levels
 - Service Type
 - Service Material
 - Pipe sizes
 - Chamber dimensions
 - Direction of flow
 - Photographs
 - This is to be presented in the final report.

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2.3. The Survey Process:

This section provides minimum requirements in relation to how the survey should be conducted. KCC is willing to consider variations to this approach that tenderers may wish to put forward to take advantage of their own methodologies particularly where they can show that additional benefit or value can be obtained by so doing.

For the avoidance of doubt, it should be noted that KCC will not be providing any technical or specialist resources to undertake or assist with the survey.

The successful tenderer will be expected to provide all equipment necessary to undertake the surveys. All survey teams will be expected to carry sectional surveyors ladders and any PPE equipment necessary for carrying out the surveys in a safe manner.

It is envisaged that there will be hard to reach areas across the site. The successful tenderer will be required to survey such hard to reach places where reasonably practicable. KCC wishes to encourage the adoption of innovative solutions, provided necessary and relevant insurances are in place, for example the use of drones or camera technology to survey such areas. For the avoidance of doubt KCC does not have MEWPs, camera technology or drones etc.

The successful tenderer will be given access to any available drawings or plans in respect of the lands in scope of the survey. Any drawings or plans that are available will be in a variety of formats and may not always be an accurate reflection of the current arrangements of the buildings. KCC considers it desirable that any photographs, observations, defects noted etc during the survey be cross referenced back to these plans if possible.

Any urgent issues of note regarding health and safety identified during the survey which may affect the staff or users of the property should be notified immediately to KCC.

2.4. Deliverables:

Drawings

- All survey information to be provided in 2D (all Z coordinates set to 0) and 3D, AutoCAD DWG file format, version 2013 or later, issued by e-mail. The findings are to be presented on the topographical survey drawing. This will be made available by the Contracting Authority. The topographical survey data is to be presented on one drawing layer called 'Topographical Survey'. The GPR survey data is to be superimposed onto this plan to the correct co-ordinate system. Drawing to use metric units, where 1 unit = 1 millimetre.
- Drawing line work and layer management must be orderly to easily become a working site plan drawing with logical layer names. All text to be legible and no text overlapping. Each type of GPR element identified is to be presented on different drawing layers. Identify on the final drawing where the different survey techniques were used.

Report

- A final report is to be prepared which will outline the following:
 - Project particulars; site particulars, confirm survey team and managers
 - Health, Safety & Environment
 - Survey area; describe areas accessed and project equipment

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- Survey Methodology; outline methodology used (if methodology varied for different areas include a plan noting what methodology was adopted for each area)
- GPR Limitations; Outline the general limitations and site specific limitations.
- Accuracies; outline the estimated detection rate for the depth range of services and the estimated confidence in the utilities detected.
- Quality Control and Quality Assurance; outline procedure
- Site Specific Findings; outline the general findings/issues on site and note any GPR anomalies
- Outline any further investigations that should be carried out
- Include the manhole / chamber inspection survey results
- Report to be issued in .pdf format



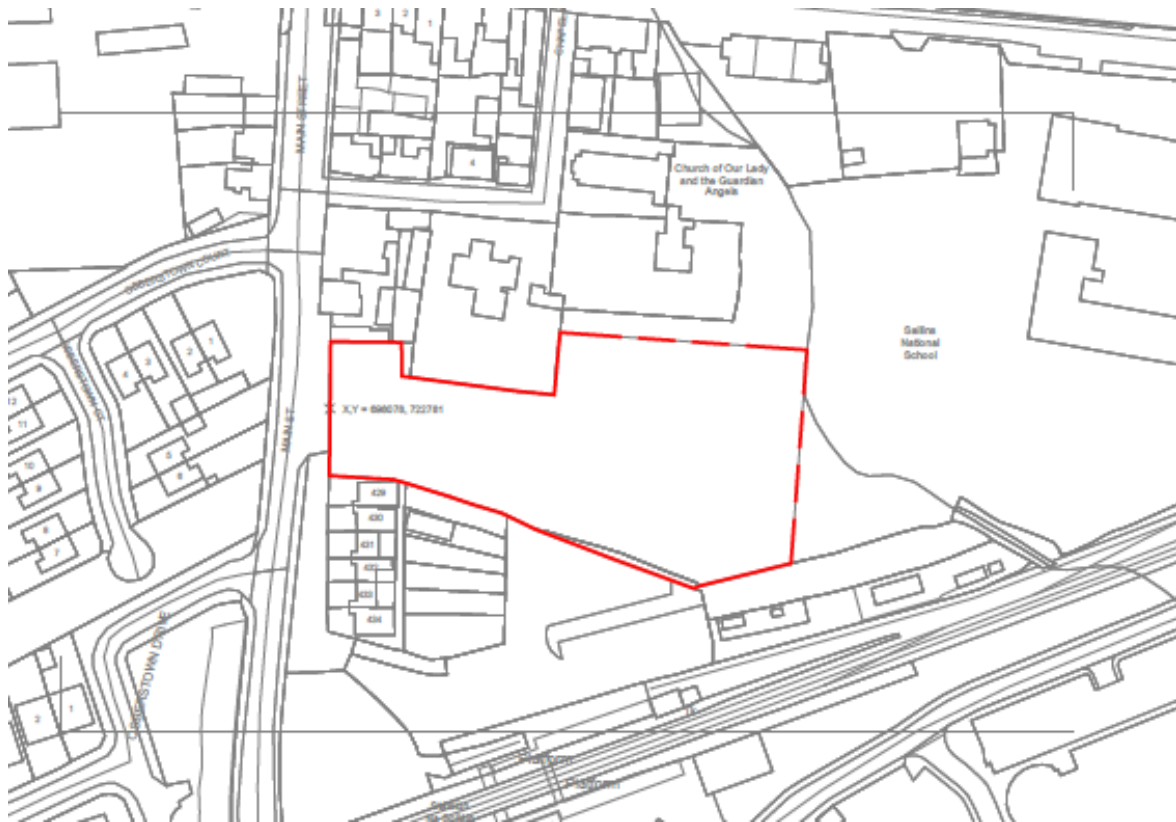
3.0. Site Details

3.1. Site

This is a greenfield site located within Sallins town centre. The site is accessible via Sallins Main Street at the entrance to the train station slip road. The boundaries are well defined and some overgrowth of vegetation is present.

<https://maps.app.goo.gl/tx2F89vKxiaUAdtL7>

3.2. Site Drawings



Site Location Plan see 24092-XXX-DR-KCC-AR-1001-Site Location Plan-1.

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3.3 Site Photographs



Mast at Train Station

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View towards school

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4.0 Safety and Insurance Requirements

The tenderer's attention is drawn to their obligations under the Safety, Health and Welfare at Work Act 2005; the Safety, Health and Welfare at Work (Construction) Regulations 2013 (S.I. No. 291 of 2013) and any amendment thereof and any other relevant Health and Safety Legislation, and shall comply with all relevant Safety Legislation.

The tenderer shall be responsible for the safety of their personnel during site inspection/surveying operations and ensure that all necessary safety precautions are taken, and the Client will not be held responsible for any injury or damage which may occur during the carrying out of this survey.

The successful tenderer shall have current and adequate Employers, Public Liability and Professional Indemnity Insurances in place before commencing work on site. Confirmation of same will be sought prior to appointment.