

The Chantry Centre

Billericay Town Council

Job No. 600682

Pre-Construction Information (CDM Regulations 2015)

Author: Sean Edhouse
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Date: November 2018
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architecture
building surveying
building services
planning
interior design
sustainability
civil and structural
quantity surveying
project management
CDM and H&S services

Vision, form and function

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0.0 LEGAL INFORMATION

On 6th April 2015, the Construction (Design and Management) Regulations 2015 came into effect, which places legal duties on all persons involved with a Construction project.

Regulation 4 (4) requires that the Client must:

“Provide pre-construction information as soon as is practicable to every designer and contractor appointed, or being considered for appointment, to the project.”

Regulation 11 (6) requires that the Principal Designer must:

“Assist the client in the provision of the pre-construction information required by regulation 4 (4) and, so far as it is within the Principal Designer’s control, provide pre-construction information, promptly and in a convenient form, to every designer and contractor appointed, or being considered for appointment, to the project.”

Regulation 4 (5) requires that a Client must:

“Ensure that before the construction phase begins, a construction phase plan is drawn up by the contractor if there is only one contractor, or by the principal contractor.”

Ingleton Wood LLP have prepared this ‘Pre-Construction Information’ document to facilitate the obtaining and distribution of pre-construction information to all designers and contractors working on the project. The Principal Contractor should use this document to prepare the Construction Phase Plan, which should outline how the site will be managed before work takes place. Advice relating to the necessary content of the Construction Phase Plan can be obtained by reference to the following HSE publications:

- *Appendix 3 of the HSE’s Legal Series Guidance – L153 “Managing Health & Safety in Construction”*
- *HSE Construction Information Sheet No 43: “The Health & Safety Plan during the Construction Phase”*

Further information regarding the Construction (Design and Management) Regulations 2015, including downloadable guides for all duty holders (Client, Principal Designer, Designer, Principal Contractors, Contractors and Workers) can be found at the following link:

<http://www.hse.gov.uk/pUbns/priced/l153.pdf>

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1.0 PROJECT INFORMATION

1.1 Site Address

The Chantry Way Centre

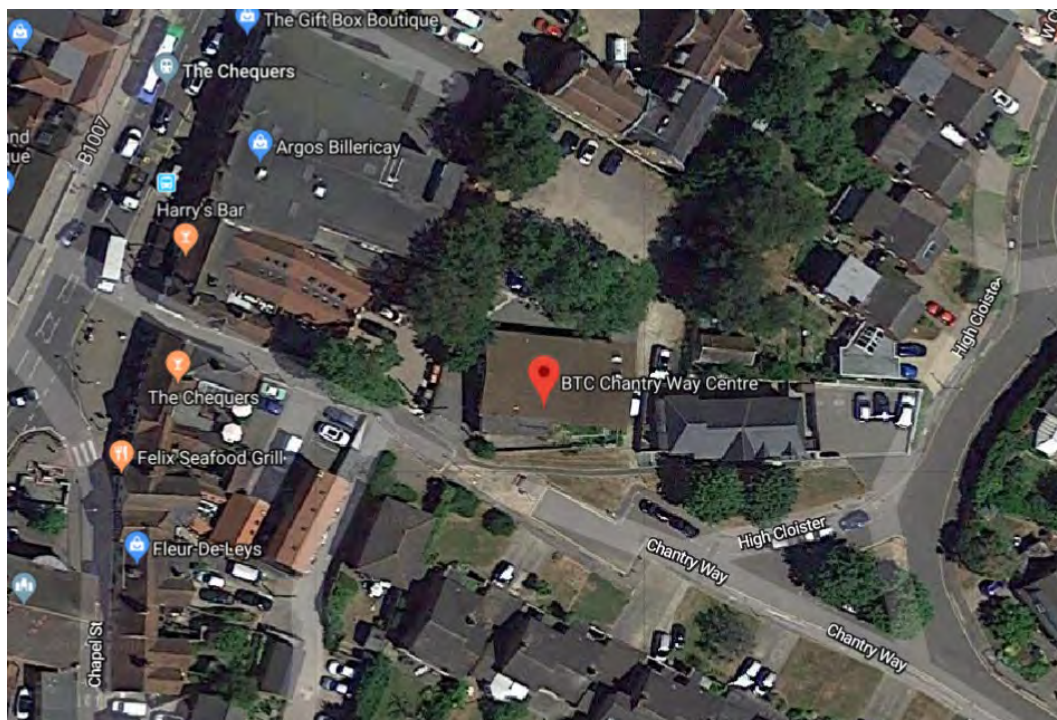
Chantry Way

Billericay

Essex

CM11 2BB

1.2 Location Maps



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1.3 Scope of Works

This project is to construct a new community facility and office space, the construction will include but not limited to; substructure, superstructure, internal layout formation, mechanical and electrical fit out and final decoration. The demolition works will be undertaken under a separate package prior to the new building works.

1.4 Workplace Status

The structure to which this work relates will constitute a workplace. Therefore, the requirements of the Workplace (Health, Safety and Welfare) Regulations 1992 will apply.

1.5 The Programme

The following dates are indicative only, are not contractual and in no way override any dates in the tender documents.

Start: 03/05/2019 (TBC)

Finish: 24/03/2020 (TBC)

The minimum lead-in period between appointment of the Principal Contractor and commencement of work on site will be 2 weeks.

Working hours are expected to be 08:00-1700, Monday to Friday.

1.6 Notification of Project to the HSE (Health and Safety Executive)

Regulation 6 of the Construction (Design and Management) 2015 Regulations requires that the client must give notice in writing to the HSE as soon as is practicable before the construction phase begins or arrange for someone else to do this on their behalf. Any periodic amendments to the project details required on the F10 must be addressed, when appropriate.

This project is expected to meet the conditions for notification. Therefore, an F10 will be submitted once the Principal Contractor has been appointed and can confirm the numbers of workers and contractors expected to be present on site. The F10 will then be distributed to the members of the project team.

A copy of the Notification of Project must be displayed in the site office as required by the CDM Regulations, in a position where people working on the site can easily read it.

1.6.1 Notification to HSE of Asbestos Removal Works

Asbestos works have been previously removed as part of the demolition, if there are any instances of the ground being contaminated with asbestos during the excavation works, these must be notified immediately and in line with current regulations the Control of Asbestos Regulations 2012.

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1.7 Health and Safety Executive

Osprey House
Hedgerows Business Park
Colchester Road
Springfield
Chelmsford
CM2 5PF

HSE can visit sites, at any time, and if standards are not met, they can issue:

- Notice of Contravention Letter (Fee for Intervention)
- Improvement Notice
- Prohibition Notice
- Summons

Within 24 hours of receipt of any of the above, the Principal Contractor must issue written notification to the Client and the Principal Designer.

1.8 The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR)

RIDDOR requires that specified incidents should be reported online via the HSE website using the [F2508 Online Form](#). The HSE's current guidance, [INDG453](#), lists most of the injuries and incidents which need to be reported, but refers to the HSE Website for [guidance on which dangerous occurrences](#) the requirement to report applies to.

The HSE also operates a RIDDOR Incident Contact Centre for reporting of fatal and major injuries only: -

Monday – Friday:	8:30am – 5:00pm
Telephone:	03453 009923
Out of Hours Tel:	01519 229235

Within 24 hours of any RIDDOR Incident taking place, the Principal Contractor must issue written notification to the Client and the Principal Designer.

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1.9 Emergency Services

Nearest A&E Department - Approximately 6 miles from site

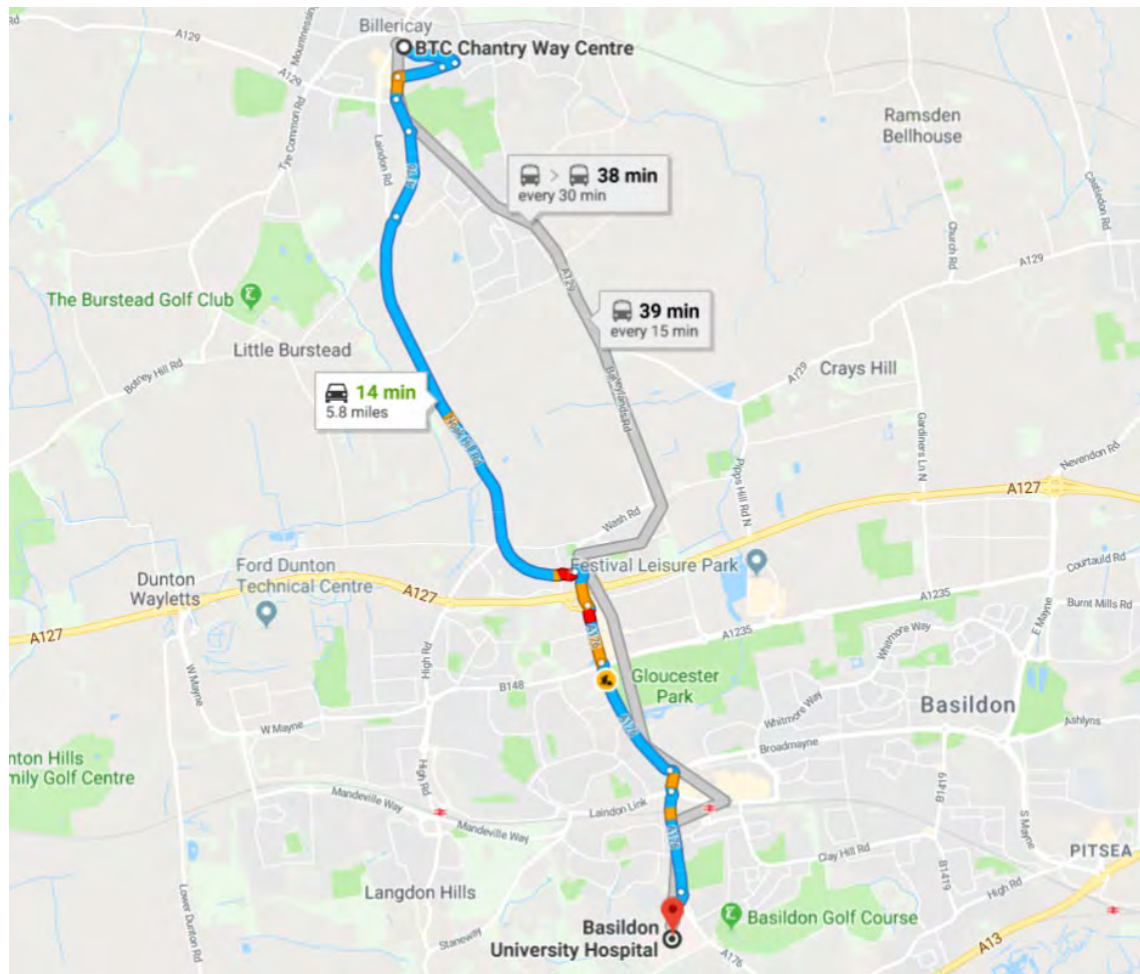
Basildon University Hospital

Nethermayne

Basildon

Essex

SS16 5NL



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2.0 RESOURCE ALLOCATION, CO-OPERATION AND CO-ORDINATION

2.1 Project Directory

Client:	Billericay Town Council The Loft Crown Yard High Street Billericay Essex CM12 9BX Deborah Tonkiss townclerk@billericaytowncouncil.gov.uk 01277 625732
Principal Designer & Contract Administrator:	Ingleton Wood LLP 10 Lake Meadows Business Park Woodbrook Crescent Billericay Essex CM12 0EQ Christopher Mabbutt Christopher.Mabbutt@ingletonwood.co.uk 01277 637805 Sean Edhouse Sean.Edhouse@ingletonwood.co.uk 01206 224270
Principal Contractor:	[TBC] [Contact Name] [Contact Email] [Contact Number]

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2.2 Clients Considerations and Management Requirements

Regulations 4 and 5 of the CDM Regulations 2015 set out the client's duty to make suitable arrangements for managing a project and maintaining and reviewing these arrangements throughout, so the project is carried out in a way that manages health and safety risks.

Arrangements should focus on the needs of the particular project and be proportionate to the size of the project and risks involved in the work. Arrangements should include:

- a) Appointing designers (including Principal Designer) and contractors (including Principal Contractor).
- b) Ensuring the roles, functions and responsibilities of the project team are clear.
- c) Ensuring sufficient resources and time are allocated for each stage of the project – from concept to completion.
- d) Ensuring effective mechanisms are in place for members of the project team to communicate and cooperate with each other and coordinate their activities.
- e) How the client will take reasonable steps to ensure that the Principal Designer and Principal Contractor comply with their separate duties e.g. this could take place at project progress meetings.
- f) Setting out the means to ensure that the health and safety performance of designers and contractors is maintained throughout
- g) Ensuring that workers are provided with suitable welfare facilities for the duration of the construction work.

Where the range and nature of risks involved in the work warrants it, the management arrangements should also include:

- h) The expected standards of health and safety, including safe working practices, and the means by which these standards will be maintained throughout.
- i) What is expected from the design team in terms of the steps they should reasonably take to ensure their designs help manage foreseeable risk during the construction phase and when maintaining the building once it is built.
- j) The arrangements for commissioning the new building and a well-planned handover procedure to the new user.

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2.3 Clients Duties Under CDM 2015

The CDM Regulations 2015 set out the Client's duties to make suitable arrangements for managing a project and maintaining and reviewing these arrangements throughout, so the project is carried out in a way that manages health and safety risks. In summary, the Client's duties are to:

- 1 Make suitable arrangements to ensure that, throughout the planning, design and construction of a project, adequate consideration is given to health, safety and welfare of all those affected and involved in the construction work.
- 2 Appoint a Principal Contractor with the 'skills, knowledge, experience and organisational capability' to undertake the project. There is guidance available on this matter and we would be pleased to carry out an assessment should you so wish.
- 3 Have passed to the Principal Designer and Principal Contractor all information relating to the proposed construction where this is available or can be obtained by reasonable enquiry.
- 4 Allow sufficient time for each stage of the project from concept onwards, including sufficient lead in for the Principal Contractor between placing an order and commencement of works.
- 5 Cooperate with other members of the team involved with the project and coordinate your own work/occupation to ensure the safety of all concerned.
- 6 Ensure that there are reasonable management arrangements in place throughout the project to ensure that construction work can be carried out safely and without risk to health.
- 7 Notify the project to the HSE if the construction phase will exceed 30 working days and involve 20 or more workers working simultaneously; or if the construction phase exceeds 500-person days.
- 8 Not permit commencement of work on site until a satisfactory Construction Phase Health and Safety plan has been received from the Principal Contractor.
- 9 Ensure that there are reasonable management arrangements in place throughout the project to ensure that construction work can be carried out safely and without risk to health.
- 10 Not permit commencement of work on site until the Principal Contractor has made arrangements for suitable welfare facilities.
- 11 Ensure that the Principal Designer and Principal Contractor are complying with their duties under the CDM Regulations.
- 12 Ensure that the Principal Designer prepares the Health and Safety File at completion of the works.

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The logo for Ingleton Wood, featuring the company name in white serif font on a red rectangular background.**2.4 Liaison Between Parties**

Under the CDM Regulations 2015, all persons working on a project must co-operate in relation to the project, or an adjoining site or premises to the extent necessary to enable any person with a duty or function to fulfil that duty or function. This means working with each other to ensure health and safety for all concerned. This should involve communicating with others and understanding what they are doing and in what sequence.

To achieve this, communication and liaison between the Client, Principal Contractor, Designers and others, will be promoted through regular progress meetings.

The Principal Contractor must liaise with the Principal Designer for the duration of the project. This includes liaison throughout the construction phase on matters such as changes to the designs and the implications these changes may have for managing the health and safety risks.

2.4.1 Ongoing Design Changes

The Principal Contractor must ensure he plans how any changes of design are relayed to all the teams on site and also inform the Principal Designer prior to changes being introduced.

2.5 Construction Phase Plan

During the pre-construction phase, and before setting up a construction site, the Principal Contractor must draw up a Construction Phase Plan or make arrangements for a Construction Phase Plan to be drawn up. It must take account the information the Principal Designer holds, such as the Pre-Construction Information and any information obtained from designers.

The Construction Phase Plan must set out the health and safety arrangements and site rules taking account, where necessary, of the industrial activities taking place on the construction site and where applicable, must include specific measures concerning work which falls within one or more categories set out in Schedule 3 of the CDM Regulations 2015.

The Construction Phase Plan is the basis for communicating health and safety arrangements to all those involved in the construction phase, so it should be easy to understand and as simple as possible. These details must include details of site inspections, contractor meetings, how design changes are to be managed and communicated to site operatives.

The Principal Contractor must ensure that the Construction Phase Plan is provided to the Principal Designer for approval at least 3 weeks before work commences on site in order for them to review it on behalf of the Client and any amendments to be made in due course.

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The Principal Contractor shall ensure that welfare facilities are provided from commencement of the works on site in accordance with Schedule 2 of 'Managing Health and Safety in Construction'. Welfare facilities must conform to the requirements of [Schedule 2 of the CDM Regulations 2015](#).

Sanitary requirements:

Suitable and sufficient sanitary conveniences are required on site and these should be readily accessible with adequately ventilated and lit. So far as is reasonably practicable, sanitary conveniences and the rooms containing them shall be kept in a clean and orderly condition.

Separate rooms containing sanitary conveniences shall be provided for men and women, except where each convenience is in a separate room which is capable of being secured from the inside.

Washing facilities:

Suitable and sufficient washing facilities, including showers if required by the nature of the work or for health reasons, shall so far as is reasonably practicable be provided or made available at readily accessible places.

Washing facilities shall be provided in the immediate vicinity of every sanitary convenience, whether or not provided elsewhere; and near any changing rooms. Washing facilities shall:

- Include a supply of clean hot and cold, or warm, water (which shall be running water so far as is reasonably practicable); soap or other suitable means of cleaning; and towels or other suitable means of drying.
- Be provided with sufficient ventilation and lighting.
- Be kept in a clean and orderly condition.
- Consist of separate washing facilities shall be provided for men and women, except when they are provided in a room which is capable of being secured from inside and the facilities in each such room are intended to be used by only one person at a time.

Drinking water:

An adequate supply of wholesome drinking water shall be provided or made available at readily accessible and suitable places. Every supply of drinking water shall be conspicuously marked by an appropriate sign where necessary for reasons of health and safety.

Where a supply of drinking water is provided, an appropriate number of suitable cups or other drinking vessels must be supplied unless the supply of drinking water is in a jet from which persons can drink easily.

Changing rooms and lockers:

Suitable and sufficient changing rooms shall be provided or made available at readily accessible places if: a worker must wear special clothing for the purposes of his work; and if he cannot, for reasons of health or propriety, be expected to change elsewhere, being separate rooms for, or separate use of rooms by, men and women where necessary for reasons of propriety. Changing rooms shall:

- be provided with suitable seating (chairs with backs)
- include, where necessary, facilities to enable a person to dry any such special clothing and his own clothing and personal effects.
- provide readily accessible places to enable persons to lock away any such special clothing which is not taken home; their own clothing which is not worn during working hours; and their personal effects.

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Suitable and sufficient rest rooms or rest areas shall be provided or made available at readily accessible places. Rest rooms and rest areas shall:

- Include suitable arrangements to protect non-smokers from discomfort caused by tobacco smoke;
- Be equipped with an adequate number of tables and adequate seating with backs for the number of persons at work likely to use them at any one time;
- Where necessary, include suitable facilities for any person at work who is a pregnant woman or nursing mother to rest lying down;
- Include suitable arrangements to ensure that meals can be prepared and eaten;
- Include the means for boiling water; and be maintained at an appropriate temperature.

2.7 Client Permit to Work Systems

The Client does not operate a specific permit to work system. However, in order to aid with the control of high-risk activities the Principal Contractor may wish to develop and implement such a system to ensure the required control measures are in place and being adhered to. They should not be 'over-applied' as this can reduce their overall effectiveness.

The essential features of a permit to work system are described in the HSE's [HSG250](#).

2.8 Restricted Areas, Smoking and Parking Restrictions

There are no known areas on site which are considered restricted. This is a non-smoking site as noted within the schedule of works. Limited parking provision has been agreed with the Client but must be kept to a minimum.

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3.0 PROJECT RISKS

3.1 Existing Site Safety Hazards

3.1.1 Boundaries and Access, including temporary access:

It is expected that the Principal Contractor will have to use Chantry Way & The High Street to access the site.

3.1.2 Transport/ Vehicle Movement Restrictions

The Client has made it very clear that at no point should the access road be blocked by the works. It is recommended that the Principal Contractor arrange deliveries to avoid rush hours and other peak times.

Access is restricted via Chantry Way and The High Street. The Contractor is required to visit the building and provided proposed access areas/ routes on site. The works will require materials, plant and delivery vehicles to be suitably sized as appropriate, considering the width and location of access routes and existing ground and overhead obstructions. The contractor must note the proximity of listed buildings and site access which is restricted, this must be taken into account at tender stage.

3.1.3 Site Security:

Site security is not only essential to protect its resources from theft but is also a key part of ensuring those at particular risk such as members of the public and children who can be easily harmed or killed in accidents resulting from construction works. The Principal Contractor must ensure the safety of the general public; sufficient and proper security and site boundaries must be in place before any work starts onsite and must be adequate to restrict any unauthorised access at all times both when the site is “live” and when it is closed up at night and at weekends.

All work areas and equipment/material storage areas should be physically segregated from publicly accessible areas via suitable fencing e.g. Heras fencing, or timber hoarding. Barriers and signage must be checked daily to ensure that no unauthorised entry has been/can be made.

3.1.4 Any restrictions on deliveries or waste collection or storage:

It is strongly advised that the Principal Contractor arrange deliveries and waste removal to avoid the peak times to reduce the risk of interaction between construction and members of the public / other vehicles.

The contractor must not the limited and restricted access to the site and ensure materials and vehicles are suitably sized to ensure these can be transported onto the site. It is noted the superstructure is a steel frame, of which will also need to be suitably sized prior to delivery onsite.

3.1.5 Adjacent land uses:

As the site is located in a residential area (some of which being Listed) it is advised that all noisy operations are scheduled for periods which do not cause significant disturbance to residents. The Principal Contractor should abide by the local authority’s requirements – works producing noise that can be heard beyond the site boundary should only be carried out between 08:00 and 18:00 on weekdays, or 08:00 and 13:00 on Saturdays, with no such work on Sundays.

3.1.6 Existing storage of hazardous materials:

Nothing identified which would present a safety risk on this project.

3.1.7 Location of existing services particularly those that are concealed:

Nothing identified which would present a safety risk on this project.

3.1.8 Ground conditions, underground structures or water courses:

Ground investigation report included in appendices.

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3.1.9 Information about existing structures:

Nothing identified which would present a safety risk on this project, the existing structure is to be demolished.

3.1.10 Previous structural modifications:

Nothing identified which would present a safety risk on this project.

3.1.11 Fire damage, ground shrinkage, movement or poor maintenance:

Nothing identified which would present a safety risk on this project.

3.1.12 Any difficulties relating to plant and equipment in the premises:

Nothing identified which would present a safety risk on this project.

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3.1.13 Health and safety information from earlier design, construction or 'as-built' drawings:

None available.

3.1.14 Fire Precautions, Emergency Procedures and Means of Escape

Under CDM 2015, Regulations 29 to 32 require arrangements to be made to; prevent risk of injury from fire or explosion and provide fire detection and fire-fighting equipment. These arrangements should take account of:

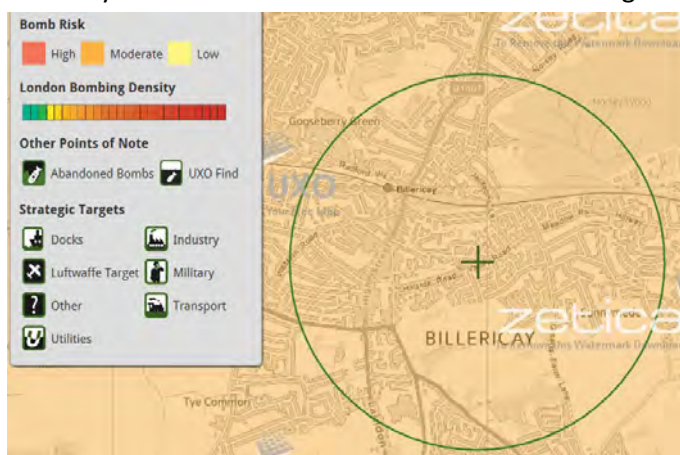
- Planning / Fire Risk Assessment
- Reducing ignition sources
- Reducing potential fuel sources (combustible materials)
- Storage of combustible / flammable materials
- Site specific fire precautions (waste disposal & housekeeping)
- LPG, Acetylene or other fuel types
- Control of Hot Works
- Plant and Equipment
- Electrical fire
- Security / Arson
- General fire precautions
- Means of raising the alarm
- Fire Fighting equipment

The Regulatory Reform (Fire Safety) Order 2005 (FSO) requires that a 'responsible person' on a Construction project must carry out, and keep up to date, a risk assessment and implement appropriate measures to minimise the risk to life and property from fire, which are generally accepted to take the form of a Fire & Emergency Plan. HSG168 "Fire Safety in Construction" and the requirements of the Construction Confederation Fire Protection Association's "Fire Prevention on Construction Sites - The Joint Code of Practice on the Protection from Fire on Construction Sites and Buildings Undergoing Renovation" give guidance on what should be done to fulfil this duty.

Operatives and visitors to the site should be made aware of the Accident and Emergency procedures and the location of escape routes, muster points, means of raising the alarm and facilities during the Site Induction and this information should be displayed on the Safety Notice Board.

3.1.15 UXBs/UXOs (Unexploded Bombs / Ordnance)

The site is located in an area of moderate risk of UXBs being encountered, however as the site has been developed previously since WWII and there are no finds or targets in the vicinity of Billericay it is estimated that the risk of encountering UXBs is low for this project.



3.1.16 Other Safety Risks

There are no COMAH sites within 3 miles of the site.

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3.2 Health Hazards

3.2.1 Asbestos

Asbestos has been confirmed on site in the refurbishment and demolition survey, removal of the asbestos is to be undertaken as part of the demolition works.

3.2.2 Existing Storage of Hazardous Materials

No hazardous materials are known to be stored in the area of the works.

3.2.3 Contaminated Land

No Contamination has been identified. Please note asbestos has been previously removed. The contractor may be required to investigate the soil.

3.2.4 Existing Structures

The existing structure is to be removed as part of a separate demolition package.

Please note that except for the asbestos mentioned above there are no other known concerns relating to health hazards arising from the existing structures. Due to the age of the building it is possible that lead paints may have been used at some point, there are no works planned which are expected to lead to lead exposure but the Principal Contractor is advised to familiarise themselves with the requirements of the Control of Lead at Work Regulations in order to be aware of the thresholds for action and control measures required.

The HSE's ACoP for working with lead, [L132](#) contains explanations of the legal requirements and guidance for achieving compliance.

3.2.5 Health Risks Arising from Clients Activities

No risks have been identified.

3.2.6 Legionellosis

Not expected to be a risk on this project.

3.2.7 Noise and Vibration

Noise and vibration can not only cause damage to the health of the user or neighbouring operatives but also cause disturbance to processes and activities in neighbouring buildings. In extreme circumstances, vibration can cause or contribute to building damage. Where noise levels exceed the 80dB(A) control measures should be provided and encouraged. Their use should be enforced where the noise level exceeds the 85dB(A). No personnel should be exposed to noise exceeding the exposure limit value (ELV) of 87dB(A) (accounting for the protection provided by PPE).

Noisy or vibration-generation activities should be identified well in advance and the timing agreed with the Client prior to commencement. The Principal Contractor should detail in the Construction Phase Plan when the noisy works can take place and organise for restricted times – in accordance with the local authority restrictions noted under 4.1iii below. The following control measures should be considered where appropriate to mitigate the impact of noise & vibration from construction activities:

- Personal protective equipment such as ear defenders or ear plugs can reduce individual exposure to noise. PPE such as vibration protection gloves contain shock absorbing materials to reduce the transmission of vibration to the hands and arms. Gloves can also help to keep the hands warm which reduces the harmful effects of the vibration.
- Acoustic barriers can be erected adjacent to any specific noise generating equipment and at specific locations to protect neighbouring buildings.

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- Selection of construction plant to minimise noise generation. Use of modern plant with damping materials, mufflers and full maintenance / service record.
- Electrically operated plant if available – for demolition there are options such as remote control, electrically powered demolition robots, battery powered plant is also now becoming more readily available.
- Using machine mounted breakers, etc. rather than handheld will reduce the risk of HAV exposure, however contractors should still be aware that it may introduce whole-body vibration which will need to be monitored.

Further Approved Codes of Practice (ACoPs) and guidance can be found at:

- Noise (L108) - <http://www.hse.gov.uk/pubns/priced/l108.pdf>
- Vibration (L140) - <http://www.hse.gov.uk/pubns/priced/l140.pdf>
- [BS 5228-1](#) and [5228-2](#) [BS 5228-2](#) give advice for protection against noise and vibration respectively for anyone living near or working on a building site.

3.2.8 Dust

Exposure to construction dust can seriously damage health, reduces work productivity and some types of dust can eventually cause death. Operatives who have regularly been exposed to inhalable or respirable dusts during activities such as cutting, grinding, etc. have often developed life-threatening lung diseases including lung cancer, silicosis, chronic obstructive pulmonary disease and or asthma. These diseases can take years to manifest but nonetheless are severe and therefore all efforts should be made by the Principal Contractor to eliminate and or minimise dust exposure to as low as is practicable.

The Control of Substances Hazardous to Health Regulations 2002 (CoSHH) place a legal requirement on Employers to control risks to employees' health arising from working activities. This means they need to ensure exposures to dust is kept as far below the Workplace Exposure Limits (WELs) as reasonably practicable. Any dust (regardless of composition or source) will be subject to a TWA (time weighted average over an 8-hour shift) of 10mg/m³ for inhalable dusts and 4mg/m³ for respirable dusts, particular materials have lower WELs such as Silica with a TWA of 0.1mg/m³.

The following measures should be considered to mitigate the impact of dust from demolition and construction activities:

- Working activities should be preferentially adopted that stop or reduce the amount of dust being made e.g. use of silica-free abrasives, using where possible dust-free power tools and plant such as block-splitter instead of a cut-off saw and or using a different method of work altogether e.g. direct fastening system.
- Where dust production cannot be prevented, such as during demolition and cutting equipment activities, it must be combatted at the source using water to dampen down dust clouds and or on-tool extraction controls. These include local exhaust ventilation / air filtration systems to extract / filter out dust.
- Dust sheeting or temporary screens, where appropriate, should be erected immediately around dust-creating activities to enclose the area and prevent dust escaping. Solid barriers with attachable dust-netting may be additionally added around the site (*Note: adding netting to a Heras Fence is a modification from the manufacturer's standard design and will require a temporary works design*).

- Respiratory protective equipment appropriate for the amount and type of dust will be supplied to operators who are carrying out activities that still generate dust at levels that are above the working exposure limit despite engineering controls in place.
- The Principal Contractor is to refer to HSE guidance to ensure that all reasonably practicable control measures are taken to safeguard workers against dust exposure. The Principal Contractor should be familiar with and adhere to the ACoP accompanying the COSHH Regulations, [L5 "Control of Substances Hazardous to Health"](#).

3.2.9 Zoonotic Diseases (Diseases Caused by Bacteria Transfer from Animals)

General precautions such as good hygiene, eating/rest areas separated from the working areas, provision of good washing facilities and supply of gloves are likely to be effective in most cases to prevent infection. All workers should be made aware that most bacteria can enter the body through breaks in the skin as well as by ingestion, cuts and grazes should be covered with waterproof plasters, areas of dry skin including eczema can also permit the bacteria to enter the body.

All food should be consumed within the designated canteen area only and all food waste cleared from site daily and secured in sealed bins. If possible, the site set-up should consider decontamination, i.e. the placement of washing facilities between the work area and the canteen or rest areas, to encourage workers to wash before eating.

Leptospirosis

Leptospirosis should be considered a potential risk on site given the nature of the site as a publicly accessible building, there will be potential food sources for rodents in the area. As such the Principal Contractor is advised to adhere to the HSE guidance [found on their website](#).

Provision of toolbox talks to workers and visitors to raise awareness of the risks is recommended. Good housekeeping practises on site must be implemented and maintained, ensuring all rubbish is cleared and any food/materials are secured in a locked and sealed container.

Construction workers who work around areas where rats have been present are at risk of developing a type of Leptospirosis called Weil's Disease. This is contracted from the urine of infected rats which can get through skin cuts, scratches, the mouth, eyes or after contact with contaminated water. Higher risk areas include work on canals, rivers or sewers.

The disease, albeit uncommon, is often misdiagnosed at the starts with the appearance of flu-like symptoms including a headache or muscle pains. However, left untreated, this can become severe and lead to meningitis, kidney failure and other serious conditions. In rare cases, the disease can be fatal.

Psittacosis, Aspergillosis and Histoplasmosis

The roof areas of the building could have harboured bird nesting / gathering and bird dander, waste and carcasses should be expected to be present, therefore there is a risk that the above diseases could occur.

Psittacosis is a rare infectious disease caused by a bacterium found in bird droppings and dander. It is mainly associated with parrots and other similar species but does affect other birds, including pigeons. The bacteria can survive for many months even in dehydrated waste and hostile environments. Symptoms are commonly a flu-like illness and pneumonia usually appearing 5-19 days after exposure.

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Aspergillus is generally harmless to humans as a normal immune system can fight off the bacteria, which is commonly found on Mallards and other ducks as well as pigeons. However, in immunocompromised persons Aspergillosis can be fatal through major organ failure.

Histoplasmosis is caused by bacteria present in bat and bird droppings. Symptoms will start to occur within 3-17 days of infection. Most show no effects, the acute phase often shows cough or flu-like symptoms and can resemble tuberculosis.

There are also a number of other bacteria carried by Birds such as Salmonella. Control measures will need to be decided by a risk assessment considering the Infectivity of the organism, route of transmission, vulnerability of the individuals concerned and the potential severity of the disease. General control measures advised by the HSE include good hygiene (as noted above), selecting the work method and equipment to minimise the generation of airborne dusts or mists which may be contaminated, provision of suitable and excluding workers from carrying out tasks in contaminated areas or handling contaminated materials.

Anthrax

Not expected to be a risk on this project.

3.2.10 Ionising and Non-Ionising Radiation

Not expected to be a risk on this project.

3.2.11 Other Health and Biological Risks

As the site is a publicly accessible area it is possible that sharps or other similarly dangerous items may be present on site when works start. The Principal Contractor should make all workers aware of what to do in the event that they discover something dangerous.

4.0 SIGNIFICANT DESIGN & RESIDUAL RISKS

4.1 Significant Risks Identified During Design

Designer Risk Assessments are appended to this information document (Appendix A). It is advised that all designers and contractors review the information within. All parties involved in the project have a legal duty to communicate information regarding any risks which may not have been previously identified to the Principal Designer for dissemination to the rest of the project team. This will be carried out via updates to the Significant Design Risk Register.

4.2 Materials Requiring Particular Precautions

No materials have been specified in the design which require particular precautions. However restricted site access will require reduced sizes of material and transportation to be able to be delivered.

4.3 Significant Construction Risks and CDM 2015: Schedule 3 Risks

1. *“Work which puts workers at risk of burial under earthfalls, engulfment in swampland or falling from a height, where the risk is particularly aggravated by the nature of the work or processes used or by the environment at the place of work or site”*

Work at Height and excavation work is to be expected as part of the works.

2. *“Work which puts workers at risk from chemical or biological substances constituting a particular danger to the safety or health of workers or involving a legal requirement for health monitoring”*

Substances and preparations or biological agents for which the COSHH Regulations would apply are expected as part of the works.

3. *“Work with ionizing radiation requiring the designation of controlled or supervised areas under regulation 16 of the Ionising Radiations Regulations 1999.”*

Not expected on this project.

4. *“Work near high voltage power lines”*

Not expected on this project.

5. *“Work exposing workers to the risk of drowning”*

Not expected on this project.

6. Work on wells, underground earthworks and tunnels.

Not expected on this project.

7. Work carried out by divers having a system of air supply.

Not expected on this project.

8. Work carried out by workers in caissons with a compressed air atmosphere.

Not expected on this project.

9. Work involving the use of explosives.

Not expected on this project.

10. Work involving the assembly or dismantling of heavy prefabricated components.

Not expected on this project.

4.4 Other Project Risks

The site is located within the Billericay Conservation Area, Listed Buildings are noted along the access way and limited access to, from and around the site are also noted.

5.0 THE HEALTH AND SAFETY FILE

The Principal Designer must prepare the Health and Safety File. They should liaise closely with the Client to agree content of the file as soon as practicable after appointment.

The Principal Designer must cooperate with the rest of the project team and should expect their cooperation in return. In cooperation with other members of the project team, the Principal Designer must ensure that the file is appropriately updated, reviewed and revised to ensure it takes account of changes that occur as the project progresses.

The Principal Contractor must provide the Principal Designer with any relevant information that needs to be included in the Health and Safety File.

Information on the following should be considered for inclusion:

- a) A brief description of the work carried out;
- b) Any hazards that have not been eliminated through design and construction processes, and how they have been addressed (e.g. surveys or other information containing asbestos or contaminated land);
- c) Key structural principles (e.g. bracing, sources of substantial stored energy – including pre- or post-tensioned members (and safe working loads for floors and roofs);
- d) Hazardous materials used (e.g. lead paint and special coatings);
- e) Information regarding the removal or dismantling of installed plant and equipment (e.g. any special arrangements for lifting such equipment);
- f) Health and safety information about equipment provided for cleaning or maintaining the structure;
- g) The nature, location and markings of significant services, including underground cables; gas supply equipment; fire-fighting services etc;
- h) Information and as-built drawings of the structure, its plant and equipment (e.g. the means of safe access to and from service voids and fire doors).

There should be enough detail to allow the likely risks to be identified and addressed by those carrying out the work and be proportionate to those risks. The file should not include things that will be of no help when planning future construction work such as pre-construction information, the construction phase plan, contractual documents, safety method statements etc. Information must be in a convenient form, clear, concise and easily understandable.

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Information	Location
<i>Significant Design Risk Register</i>	<i>Appendix A</i>
<i>Arboricultural Report</i>	<i>Appendix B</i>
<i>Asbestos R&D Survey</i>	<i>Appendix C</i>
<i>Phase I&II Geo-Environmental Assessment</i>	<i>Appendix D</i>
<i>Heritage Statement</i>	<i>Appendix E</i>
<i>CCTV Drain Survey</i>	<i>Appendix F</i>
<i>Topographical Survey with Proposed Building Overlaid</i>	<i>Appendix G</i>

6.2 Additional Information Required

Information	Timescale
<i>None currently identified</i>	

Significant Risk Register

Risk Ref	Description	Persons Affected	Schedule 3 Risk	Risk Level	Mitigating action	Residual Risk	Owner	Status	Date of next review
DRA-C001	Stability of Structures and Excavations / Temporary Works	Operatives Visitors	Yes (risk of burial under earthfalls)	High	<ul style="list-style-type: none"> • Ground Investigation has been carried out to inform the structural design. • The Principal Contractor (or their designated Sub-Contractor) is advised to ensure all temporary works are checked by a competent <u>temporary works designer</u> with a level of design check appropriate to the type of works being undertaken. Further guidance can be found in BS5975, the code of practice for temporary works management. • For excavation works, the Principal Contractor and sub-contractors are strongly recommended to familiarise themselves with the guidance in HSG150 from the HSE. • Contractor to ensure suitable protection of sides from collapsing, all support systems should be designed by a competent temporary works designer. Many manufacturers and suppliers of support equipment can also provide the design service if required. 	Medium	Client / Principal Designer / Principal Contractor	Live	January 2019
DRA-C002	Asbestos Containing Materials	Operatives Visitors	Yes (risk of chemical or biological substances)	High	<ul style="list-style-type: none"> • Asbestos Refurbishment and Demolition Survey has been carried out. • Removal of ACMs forms part of the scope of works, the recommendation of the surveyor is that a competent contractor is employer to remove them. • Hazardous waste consignment notes should be provided for inclusion in the H&S File. 	Medium	Client / Principal Designer / Principal Contractor	Live	January 2019
DRA-C003	Working at Height	Operatives Visitors	Yes (risk of falling from height)	High	<ul style="list-style-type: none"> • The Principal Contractor is recommended to adhere to the guidance in INDG401. Working at Height should be avoided if possible, and fall prevention preferred over fall arrest. Collective Controls such as handrails should be preferred over personal control measures such as harnesses and lanyards. • Designers should consider the method of construction whilst designing elements which will require work at height. 	Medium	Design Team / Principal Contractor	Live	N/A - Expected to remain live for the duration of the project but will be reviewed each time additional information becomes available.
DRA-C004	Demolition	Operatives Visitors	Yes (risk of burial under earthfalls)	High	<ul style="list-style-type: none"> • Permits to work are highly recommended during this activity. • Suitable debris screens and sheets should be set up. • All demolition works should be carried out in accordance with BS6187:2011. 	Medium	Principal Contractor	Live	January 2019
DRA-C005	Zoonotic Diseases	Operatives Visitors	Yes (risk of chemical or biological substances)	High	<ul style="list-style-type: none"> • The Principal Contractor and affected Sub-Contractors must ensure that all personnel are informed of the hazards, level of risk and control measures to be implemented. • Information given should also include the expected symptoms and incubation periods to enable workers to be vigilant. • Hygiene should be considered when setting up the site compound (such as placement of washing facilities between the work site and the rest / canteen areas to encourage good hygiene). 	Low	Principal Contractor	Live	N/A - Expected to remain live for the duration of the project but will be reviewed each time additional information becomes available.
DRA-C006	Buried Services	Operatives Visitors	No	High	<ul style="list-style-type: none"> • It is recommended that utility searches are undertaken prior to the works commencing on site. • The existing supplies for BT and UKPN are being relocated as part of the works to free space for the vehicle entrance. • The Principal Contractor will need to review the information and plan the works taking into account the risk of buried services and the guidance in HSG47. 	Medium	Client / Principal Designer / Principal Contractor	Live	January 2019
DRA-C007	Sharps	Operatives Visitors	Yes (risk of chemical or biological substances)	High	<ul style="list-style-type: none"> • The Principal Contractor should ensure that the staff on site are aware of the procedure to follow if they discover any sharps or similar items. 	Medium	Client / Principal Designer / Principal Contractor	Live	N/A - Expected to remain live for the duration of the project but will be reviewed each time additional information

SCHEDULE 3 - Work involving particular risks

No.	Description	
1	Work which puts workers at risk of burial under earthfalls, engulfment in swampland or falling from a height, where the risk is particularly aggravated by the nature of the work or processes used or by the environment at the place of work or site.	
2	Work which puts workers at risk from chemical or biological substances constituting a particular danger to the safety or health of workers or involving a legal requirement for health monitoring.	
3	Work with ionizing radiation requiring the designation of controlled or supervised areas under regulation 16 of the Ionising Radiations Regulations 1999.	
4	Work near high voltage power lines.	
5	Work exposing workers to the risk of drowning.	
6	Work on wells, underground earthworks and tunnels.	
7	Work carried out by divers having a system of air supply.	
8	Work carried out by workers in caissons with a compressed air atmosphere.	
9	Work involving the use of explosives.	
10	Work involving the assembly or dismantling of heavy prefabricated components.	

HSE RAG Lists (from HSE CDM2015 Guidance)



Designer’s Red Amber Green List – Use these lists to see examples of what should be designed out, controlled or good practice guidance

RED	AMBER	GREEN
Hazardous procedures, products and processes that should be eliminated from the project where possible.	Products, processes and procedures to be eliminated or reduced as far as possible and only specified or allowed if unavoidable. Including amber items would always lead to the provision of information to the principal contractor.	Products, processes and procedures to be positively encouraged.
<ul style="list-style-type: none">• Lack of adequate pre-construction information (such as asbestos surveys, details of geology, obstructions, services, ground contamination and so on).	<ul style="list-style-type: none">• Internal manholes and inspection chambers in circulation areas.	<ul style="list-style-type: none">• Adequate access for construction vehicles to minimise reversing requirements (one-way systems and turning radii).
<ul style="list-style-type: none">• Hand-scabbling of concrete (such as ‘stop ends’).	<ul style="list-style-type: none">• External manholes in heavily used vehicle access zones.	<ul style="list-style-type: none">• Provision of adequate access and headroom for maintenance in plant room, and adequate provision for replacing heavy components.
<ul style="list-style-type: none">• Demolition by hand-held breakers of the top sections of concrete piles (pile cropping techniques are available).	<ul style="list-style-type: none">• Specification of ‘lip’ details (such as trip hazards) at the tops of pre-cast concrete staircases.	<ul style="list-style-type: none">• Thoughtful location of mechanical and electrical equipment, light fittings, security devices and so on to facilitate access, and placed away from crowded areas.
<ul style="list-style-type: none">• Specification of fragile roof lights and roofing assemblies.	<ul style="list-style-type: none">• Specification of small steps (such as risers) in external paved areas.	<ul style="list-style-type: none">• Specification of concrete products with pre-cast fixings to avoid drilling.
<ul style="list-style-type: none">• Processes giving rise to large quantities of dust (such as dry cutting, blasting and so on).	<ul style="list-style-type: none">• Specification of heavy building blocks (such as those weighing more than 20 kgs).	<ul style="list-style-type: none">• Specification of half board sizes for plasterboard sheets to make handling easier.
<ul style="list-style-type: none">• On-site spraying of harmful substances.	<ul style="list-style-type: none">• Large and heavy glass panels.	<ul style="list-style-type: none">• Early installation of permanent means of access, and prefabricated staircases with hand rails.
<ul style="list-style-type: none">• Specification of structural steelwork which is not purposely designed to accommodate safety nets.	<ul style="list-style-type: none">• Chasing out concrete, brick or blockwork walls or floors for the installation of services.	<ul style="list-style-type: none">• Provision of edge protection at permanent works where there is a foreseeable risk of falls after handover.
<ul style="list-style-type: none">• Design of roof mounted services that require access (for maintenance and so on), without provision for safe access (such as barriers).	<ul style="list-style-type: none">• Specification of heavy lintels. (Slim metal or hollow concrete lintels are better alternatives.)	<ul style="list-style-type: none">• Practical and safe methods of window cleaning (such as from the inside).
<ul style="list-style-type: none">• Glazing that cannot be accessed safely. All glazing should be anticipated as requiring cleaning replacement, so a safe system of access is essential.	<ul style="list-style-type: none">• Specification of solvent-based paints and thinners, or isocyanates, particularly for use in confined areas.	<ul style="list-style-type: none">• Appointment of a temporary works co-ordinator (BS 5975).
<ul style="list-style-type: none">• Entrances, floors, ramps, stairs and escalators not specifically designed to avoid slips and trips during use and maintenance, including taking into account the effect of rain water and spillages.	<ul style="list-style-type: none">• Specification of curtain wall or panel systems without provision for tying or raking scaffolds.	<ul style="list-style-type: none">• Off-site timber treatment if PPA- and CCA-based preservatives are used (boron or copper salts can be used for cut ends on site).
<ul style="list-style-type: none">• Design of environments involving adverse lighting, noise, vibration, temperature, wetness, humidity and draughts or chemical and/or biological conditions during use and maintenance operations.	<ul style="list-style-type: none">• Specification of a blockwork wall more than 3.5 metres high using retarded mortar mixes.	<ul style="list-style-type: none">• Off-site fabrication and prefabricated elements to minimise on site hazards.
<ul style="list-style-type: none">• Designs of structures that do not allow for fire containment during construction.	<ul style="list-style-type: none">• Site traffic routes that do not allow for one-way systems and/or vehicular traffic segregated from site personnel.	<ul style="list-style-type: none">• Encourage the use of engineering controls to minimise the use of personal protective equipment.
	<ul style="list-style-type: none">• Site layout that does not allow adequate room for delivery and/or storage of materials, including site-specific components.	
	<ul style="list-style-type: none">• Heavy construction components which cannot be handled using mechanical lifting devices (because of access restrictions/floor loading and so on).	
	<ul style="list-style-type: none">• On-site welding, in particular for new structures.	
	<ul style="list-style-type: none">• Use of large piling rigs and cranes near live railways and overhead electric power lines or where proximity to obstructions prevents guarding of rigs.	



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BS5837:2012 (Trees in Relation to Design, Demolition and Construction)

Prepared for: Billericay Town Council

Site Address: The Chantry Centre, Chantry Way, Billericay, Essex.

Prepared by: Jon Harper cert.Arb (RFS)

27 February 2018

Reference Number: 2018044 v1.0

INTRODUCTION

Report Purpose

This is a BS5837 compliant arboricultural assessment report provided sufficient information for the Local Planning Authority (LPA) to consider the effect of any proposed development on the local character from a tree point of view. It includes an analysis of the effect on trees and a method statement, which outlines the way in which the retained trees will be protected and managed during the demolition and construction processes.

LPA Validation Statement

For the purposes of an LPA validation, this report includes: -

- A BS5837:2012 compliant tree survey, including a tree survey schedule, and tree protection plan.
- An Arboricultural Impact Assessment, which outline the way in which a development proposal will affect the local character from a tree point of view.
- An Arboricultural Method Statement, describing tree protection measures and management, and how they should be implemented.

Tree Protection Plan

More specifically, the tree protection plan is base upon the information provided by the client, and must only be used for dealing with tree issues. It illustrates: -

- The existing trees, numbered with the centre point colour coded for the categories A (green), B (blue), C (grey) and U (red).
- The circular interpretation of the root protection areas (RPAs) of cater A, B and C trees.
- The trees to be removed indicated by a red number and crown outline.
- The location of any construction exclusion zones (CEZs), which are areas of restricted access, protected by ground protection or tree protective fencing.
- The location of precautionary areas outside of CEZs where limited but careful access is permitted.

SUMMARY

The Development Proposal

The development proposal, in this instance, it to demolish the existing hall at the Chantry Centre, and to construct a new two story hall with parking at the front of the site instead of at the rear.

Client Brief

This report for commissioned by Billericay Town Council to provide the necessary arboricultural information to Basildon Council.

Table 1: Summary of trees to be removed

	Category A (High)	Category B (Moderate)	Category C (Low)
Remove		T2, T3, T6, T7 and T8	T1, T4 and T5
Protect using special precautions	N/A	N/A	N/A

Table 2: Summary of impact on Local Character

	Tree ID (number)	Impact on local character	Mitigation
Remove	T1	Low: Relatively small self seeded tree with distorted crown.	None required
	T2	Low to moderate: Slightly larger than T1 with multiple stems, but self seeded.	None required
	T3	Low to moderate: Low quality tree with limited life span due to various cable cutting into the stem.	None required
	T4	Low to moderate: Low quality tree with limited life span due to various cable cutting into the stem, and lighting fixed to the tree.	None required
	T5	Low to moderate: Multi-stemmed tree with heavy ivy growth on the stem as well as a very unbalanced crown.	None required
	T6	Low to moderate: Multi-stemmed tree with heavy ivy growth on the stem as well as a very unbalanced crown.	None required

	T7	Low to moderate: Multi-stemmed tree with heavy ivy growth on the stem as well as a very unbalanced crown.	None required
	T8	Low to moderate: Multi-stemmed tree with heavy ivy growth on the stem as well as a very unbalanced crown.	None required

Table 3: Extra Precautions in addition to Fencing & Ground Protection

Activities requiring extra precautions	Tree ID (numbers)
N/A	N/A

Overall Assessment of Impact

Although the currently proposed scheme makes it impractical to try to retain any of the trees along the boundaries of the site, the general quality of those trees is low to moderate. It should be noted that the trees along the northern boundary are being used to carry lighting and the associated power supply to that lighting for the car park behind. as these trees are under a different ownership from the site, permission would need to be sought for their removal, and I think that some alternative provision would need to be made for the lighting as a part of the proposed development.

With regard to mitigation planting, there may be some scope to plant some smaller specimen trees near to the front of the site, possibly outside of the site, to restore the amenity value. Assuming full compliance with the AMS in this report, and consideration being made to the points made above, I would consider that the net arboricultural impact may be acceptable.

ARBORICULTURAL IMPACT ASSESSMENT

Removal of Trees

T1, T2, T3, T4, T5, T6, T7 and T8 will be felled to the ground and the stumps ground out.

Tree Works

Other than the tree removals specified above, no tree work is required to facilitate the current proposal.

Incursions into RPAs of Retained Trees

In many instances, a low level of root disturbance can be deemed to be acceptable.

Where incursions can be fully invasive, a lower level of invasion can sometimes be achieved by the use of specialist methods to limit the degree of disturbance. The table below details the incursions, as well as how they will be dealt with.

Type of Incursion	Trees Affected	Action
N/A	N/A	N/A

Light and Proximity Issues

There are no light or proximity issues associated with the current proposal

Mitigation Planting

There is no requirement for replanting in mitigation for tree losses in this instance. But there may be scope for replanting near to the front of the site with some specimen trees.

Legal Protection Status

There are no tree preservation orders in force on the Chantry Centre site, but it is within the Billericay Conservation Area.

ARBORICULTURAL METHOD STATEMENT

Introduction

A construction method statement is a description of how operations that may affect trees will be carried out to minimise any negative impact on them. The details of how the site will be managed are construction and contractors matters that can only be finalised once the post-consent detailed planning begins. For that reason, at this stage in the planning process, it is only possible to list a heads of agreement summary of issues that will require more detailed consideration once consent is granted. The issues that may require further clarification on this site include: -

1. The order of work on site, including demolition, site clearance and building work.
2. Erection and maintenance of tree protective fencing.
3. Who will be responsible for protecting the trees on the site.
4. Detailed proposals for inspecting and supervising the tree protection measures, and how problems will be reported and overcome.
5. Details of access facilitation pruning and access onto the site. What size vehicles will be used under canopies and whether large machinery can be lifted over trees.
6. Parking arrangements for workers and visitors.
7. A schedule of emergency contact details.
8. Areas for deliver and storage of materials and plant.
9. Where welfare facilities will be located, and when they will be installed.
10. Machine washing facilities near trees.
11. Recycling and storage of waste near trees.
12. Details and precise cross sections of 'no dig' surfacing.
13. Details of earthworks, grading and mounding of spoil including and planned raising or lowering of ground levels.
14. Precise services locations including method of excavation when near trees.

Please Note: It is not our role as arboricultural consultants to detail the timing and implementation of these measures, although we can input into the process, and will need to confirm that the final proposals will not have any negative impact on the retained trees.

Arboricultural Supervision

An arboricultural consultant should be appointed by the developer to advise on tree management for the site, and to attend: -

- A pre-commencement meeting before any work starts.
- Regular supervision visits to oversee the agreed tree protection measures; and
- Further supervision visits as necessary to oversee any unexpected works that could affect trees.

More specifically, the form and purpose of the supervision should be as follows: -

- **Pre-commencement meeting:** A pre-commencement meeting should be held on site before any site clearance or construction work begins. This would, and should, be attended by the site manager, the arboricultural consultant and the local planning authority tree officer. All tree protection measures in this document should be fully discussed so that all aspects of their implementation and sequencing are understood by all parties. This should include agreeing the form and location of the most appropriate combination of tree protective fencing and/or ground protection to be used as barriers for the CEZ.
- **General site management:** It is the developers responsibility to ensure that the details of this arboricultural method statement and any subsequent agreed revisions are known and understood by all site personnel. Copies of the agreed documents must be available on site, and the site manager should brief all personnel who could have an impact on tree on the specific tree protection requirements.
- **Ongoing supervision:** Once the site is active, the arboricultural consultant should visit the site at intervals that are agreed at the pre-commencement site meeting. In normal practice, this would be every two to four weeks for general supervision, but could be at longer intervals if agreed by all parties. The supervision arrangement should be flexible enough to allow the supervision of all sensitive works as they occur. The arboricultural consultants initial role is to liaise with the developer and the LPA to ensure that all protective measures are in place and fit for purpose before any work begins. Once work commences, that role will switch to monitoring of compliance with arboricultural planning conditions.
- **Please Note:** In this instance, no direct arboricultural supervision is necessary.

Sequencing of events

The sequencing of events is a very important part of arboricultural protection on development sites. The key stages should be as follows: -

- AMS to be issued to site manager/building contractor.
- AMS to be read by all staff who can impact retained trees to ensure a full understanding of obligations.
- Tree felling and pruning as agreed with the LPA.
- Demolition and removal of old hard surfacing as required.
- Installation of agreed underground services.

- Construction of new buildings.
- Landscaping and mitigation planting as required.

Site precautions

The following points must be observed at all times: -

1. No fire will be lit within 15m of any retained tree on or around the site.
2. No access will be permitted for construction staff inside the tree protection fences.
3. No materials, equipment or waste will be stored inside the tree protection fences at anytime.
4. Notice boards, telephone cables, or any other services will not, under any circumstances, be attached to any retained tree.
5. Substances that may contaminate soil such as concrete or cement, diesel oil, vehicle washings or even builders sand, will not be allowed to enter the CEZ at anytime.

Carrying out tree work

All agreed tree work will be carried out in accordance with BS3998:2010 (Recommendations for tree work), and to the current best arboricultural practices.

Tree work will only be carried out by a suitably qualified contractor, who holds at least £5000,000 worth of public liability insurance. That contractor will be solely responsible for carrying out their own risk assessment prior to commencing their work.

All tree stumps to be removed will be ground out in the proper manner and not pulled out with a lorry or digger. This is to preserve the roots of retained trees in the vicinity.

If at any time, extra tree work is required in order to facilitate the proposed development, the site manager will contact the project arboricultural consultant who will then liaise with the LPA tree officer. No such work will be carried out until permission is confirmed by the arboricultural consultant.

Site access

Site access will only be available via Chantry Way for vehicles and pedestrians.

Demolition Work

Once the approved tree protection measures are in place, demolition will be carried out in the normal manner.

Underground services

As no trees are to be retained along the boundaries of this site, or on the site, underground services can be installed in the normal manner.

Foundations and construction

Because the foundations of the proposed development at outside of the RPAs of all retained trees, no specially engineered solutions will be necessary.

Fencing and landscaping

During the landscaping phase of the project (if any landscaping takes place), the following precautions will be observed: -

- No compaction of soil within the RPAs (or where new tree planting is to be carried out).
- No changes in ground level within the RPAs of retained trees.
- Unwanted vegetation will be removed manually, or by using a foliar herbicide that won't damage tree roots, such as glyphosate.
- No underground irrigation or drainage pipes to be installed within the RPAs of any retained trees.
- If the soil has been compacted where new planting is proposed, measures to improve soil structure may be necessary to facilitate successful plant establishment.

If any fence posts are to be installed within the RPAs of retained trees, excavation will be carried out by hand, and under direct arboricultural supervision. Post holes within the RPAs of retained trees must be lined with a damp proof membrane prior to pouring concrete into them. This is to protect the soil around tree roots from contamination with toxic substances from curing concrete.

Amendments

Issues may arise on development sites that require amendments to the previously agreed tree protection details. Any amendments to this AMS will be approved in writing by the LAP tree officer prior to being implemented. Copies of paperwork relating to any amendments will be communicated by the arboricultural consultant to the LPA tree officer and the client.

That concludes the advice contained in this report

Jon Harper cert.Arb (RFS)

Principle Arborist

TREE SURVEY SCHEDULE

Please note that the recommendations on the tree survey schedule have no bearing on the design of the proposed development, but are derived from observations made on site.

Tree Survey Schedule

Date: 14/05/2018
Site: The Chantry Centre
Surveyor: Jon Harper cert.Arb (RFS)

= Category A trees
 = Category B trees
 = Category C trees
 = Category U trees



Type (Tag)	Name	Age	Category	Diameter (Stems)	Height (L/Hgt)	North	East	South	West	Condition	Life Exp	Comments	Recommendations	RPR	RPA
T1	Acer cappadocicum (Cappadocian Maple)	EM	C1	198(2)	5(2)	1	3	3	3	Good	10+	Stem divides at ground level. Crown distorted due to group pressure.	None at present.	2.38	17.8
T2	Acer cappadocicum (Cappadocian Maple)	M	B3	210(1)	8(3)	2	4	4	4	Good	20+	Stem divides above 1.5m.	None at present.	2.52	19.95
T3	Acer cappadocicum (Cappadocian Maple)	M	B3	280(1)	11(4)	4	3	4	4.5	Good	20+	Various cables cutting into stem.	None at present.	3.36	35.47
T4	Acer cappadocicum (Cappadocian Maple)	M	C1	400(1)	11(4)	2	4	5	3	Good	10+	Various cables cutting into stem.	None at present.	4.8	72.39
T5	Fraxinus excelsior (Ash)	M	C1	329(3)	12(3)	4.5	1	4	3	Good	10+	Ivy on tree. Unable to inspect stem due to Ivy. Crown distorted due to group pressure.	Remove Ivy.	3.95	49.02
T6	Fraxinus excelsior (Ash)	M	B3	594(2)	13(4)	4	2	5	1	Good	20+	Ivy on tree. Unable to inspect stem due to Ivy. Crown distorted due to group pressure.	None at present.	7.13	159.73
T7	Fraxinus excelsior (Ash)	M	B3	460(1)	12(4)	5	1.5	6	4	Good	20+	Ivy on tree. Unable to inspect stem due to Ivy. Crown distorted due to group pressure.	None at present.	5.52	95.74
T8	Fraxinus excelsior (Ash)	M	B3	453(2)	11(4)	4	4.5	4.5	2	Good	20+	Ivy on tree. Unable to inspect stem due to Ivy. Crown distorted due to group pressure.	None at present.	5.44	92.98

TREE PROTECTION PLAN

Notes & Legend:

Category A trees



Category B trees



Category C trees



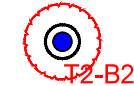
- Category U trees



RPA's

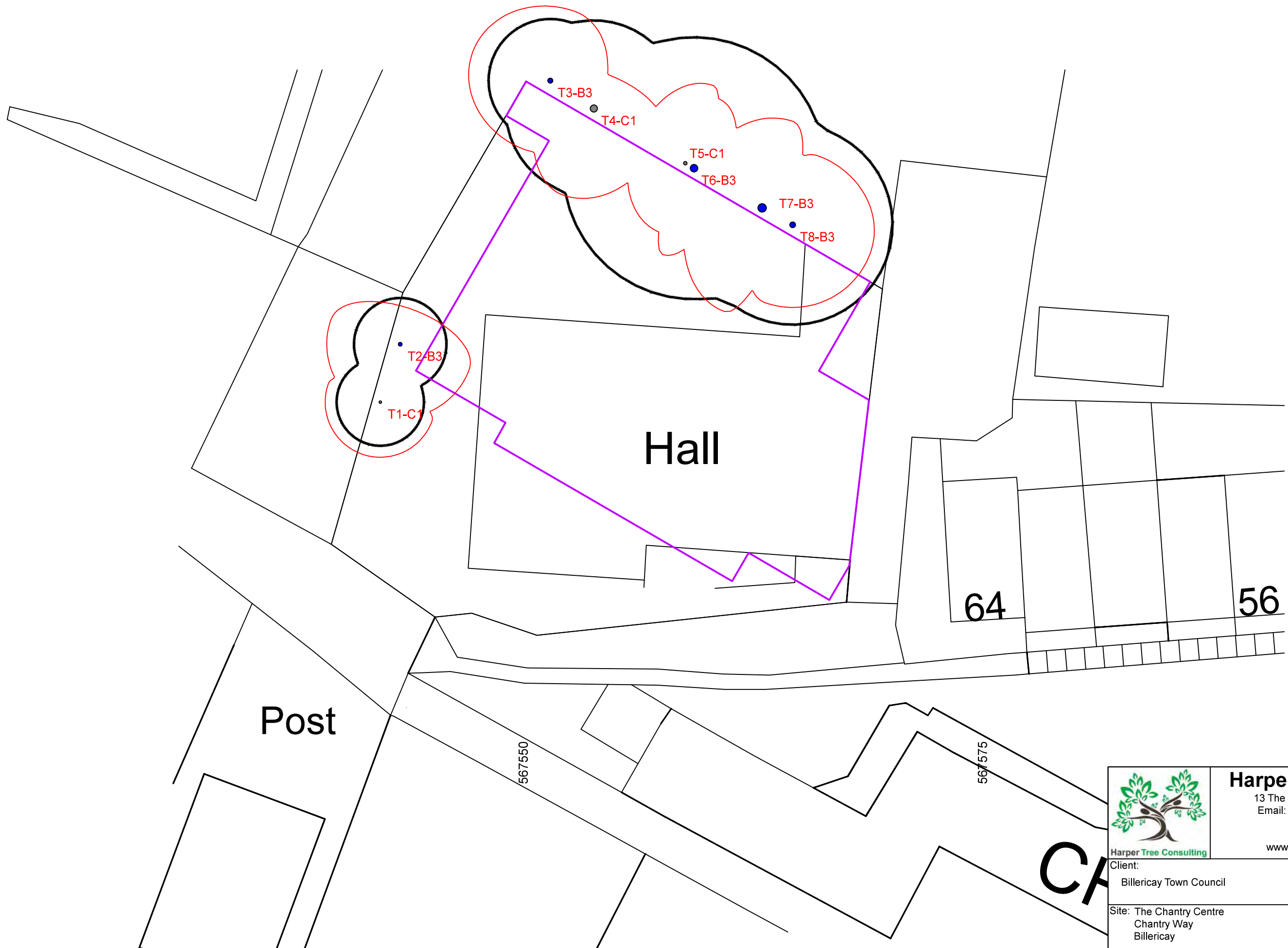


Trees to be removed (red crowns and numbers)



T2-B2

Footprint of proposed development.





Asbestos Refurbishment/Demolition Survey for
Billericay Town Council
at
The Chantry Centre
Chantry Way
Billericay
Essex
CM11 2BB



Project Number: INGL-6150

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KADEC Asbestos Management

Names and Addresses

Client Name:

Billericay Town Council

The Loft Crown Yard

High Street

Billericay

Essex

CM12 9BX

Contact: Mrs Deborah Tonkiss

Phone: 01277 625732

Fax:

Instructing Party:

Billericay Town Council

The Loft Crown Yard

High Street

Billericay

Essex

CM12 9BX

Contact: Mrs Deborah Tonkiss

Phone: 01277 625732

Fax:

Site Full Name:

The Chantry Centre

Chantry Way

Billericay

Essex

CM11 2BB

Contact: Danny Lawson

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KADEC Asbestos Management

Unit 5 Brocks Business Park

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Essex

SS11 8YN

Contact: Kevin Graham

Phone: 01702308438

Fax: 01702308438

<i>KADEC Asbestos Management</i>	Project Number:	INGL-6150
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SECTION 10	Bulk Certificate
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SECTION ONE

SURVEY SUMMARY

KADEC Asbestos Management

Survey Summary

- 1 This inspection is designed to locate and assess the presence of all accessible and hidden Asbestos Containing Materials (ACMs) within the Chantry Centre, Billericay, Essex, as well as record all assessment information clearly in this survey report to enable effective management of all ACMs identified during this inspection.

This Inspection was conducted by Kadec's P402 Qualified and experienced inspector Gordon Ringland on 10th April 2018, the data was entered by Lewis Jones and the final report review conducted by Kevin Graham.

Please refer to Section 6 of this report for an itemisation of all areas and materials that our inspector has assessed for this report, and Section 7 which clearly records any limitations or areas that could not be completely inspected along with reasons for any limitations.

- 2 Please note that on review of the information contained in this survey report, we would like to bring to your attention the following ACMs that require attention to minimise exposure risks :-

Item 1 - The suspect bitumen adhesive to the solid floor below the self levelling screed throughout the ground floor has been confirmed as Chrysotile Asbestos, and requires removal using asbestos qualified contractors

Item 2 - The suspect textile flashguards inside the grey MEM electrical box on the ground floor in room G.03 have been confirmed as Chrysotile Asbestos, and requires removal using asbestos qualified contractors

Item 4 - The suspect black vinyl floor tiles and adhesive on the ground floor in rooms G.03 & G.04 have been confirmed as Chrysotile Asbestos, and requires removal using asbestos qualified contractors

Please remember only qualified personnel are permitted to work on asbestos, so if any remediations or stabilisation treatments are required at all, please feel free to contact Kadec Asbestos Management on 01702 308438 or kevingraham@kadece.co.uk for further assessments to be conducted.

Please review the following User Guide Summary to help quickly understand how to gather all ACM information presented in this report to fully understand all ACM risks.

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KADEC Asbestos Management

Survey Summary

3 User Guide Summary for Survey Report Information

Sections 2; 3; 4; 5 & 8

These sections contain all the standard generic information required for each survey report and can be reviewed at your leisure.

Section 6 - 'Site Description'

This section of the survey report is designed to confirm the all areas that have been assessed during this inspection, as well as all materials that were assessed and in the inspectors opinion are Non-Asbestos Materials. The information contained in this section can assist in minimising any questions on a materials asbestos content, as well as reduce any potential costs in the future by confirming all objects and materials that have been assessed as part of this project to eliminate doubt as far as possible.

Section 7 - 'Excluded Areas'

This section of the Survey Report is designed to confirm any areas which could not be fully accessed during this inspection with reasons for not being able to gain access, as well as any specific locations that are excluded from the scope of this inspection.

Section 9 - 'Materials Assessment'

This section of the survey report is designed to display all materials that have been confirmed or presumed to contain asbestos. This section includes all ACM condition assessment criteria; photographs; action recommendations and risk ratings for each ACM identified. Please note this section also displays the results of any suspected ACM materials that were sampled, but independent analysis confirmed No Asbestos Detected In Sample (NADIS).

Section 10 - 'Bulk Certificate'

This section of the survey report is designed to display the independent UKAS accredited laboratories analysis certificate, for all physical samples of bulk material that were gathered during this assessment. All associated results are displayed in full in Section 9 - 'Materials Assessment', as some ACMs are presumed and havenot been sampled.

Section 11 - 'Asbestos Register'

This section of the survey report is designed to summarise all confirmed or presumed Asbestos Containing Materials (ACMs) identified during this inspection, along with the important data gathered by the assessment for quick and easy reference.

Section 12 - 'Site Drawings'

This section of the survey report is designed to provide the floor plans issued or created for this inspection quickly and easily, in order to display the locations of all ACM risks. Please note separate copies of all floor plans have been issued seperatly for clarity.

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SECTION TWO

SURVEY OBJECTIVES

KADEC Asbestos Management

Survey Objectives

- 1 The primary objective in this demolition inspection is to locate and assess all accessible ACM's within the Chantry Centre, Billericay, Essex, in order to produce accurate information to enable ACM's to be managed effectively, whilst reducing the risks of exposure to asbestos for all building users.

The secondary objective is to inspect and collate all information into user friendly formats, which will assist in preventing the spread of asbestos fibres within your premises or area through use of the information provided.

Our goal is to ensure our clients receive accurate and useful information to assist you in managing your asbestos risk. Please do ensure that Kadec are consulted if further information is required in any way.
- 2 The aim is to inspect all areas as far as reasonably practicable, in order to identify all ACM's that may present a risk during the planned demolition of the premises.
- 3 The purpose of our inspection is to reduce the risks of exposure to asbestos and to prevent the spread of asbestos in your premises.
- 4 Please note this inspection was not designed to enable all ACMs to be removed, only for the ACMs to be identified using intrusive techniques in order to both identify the risk and design any operations accordingly.

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SECTION THREE

SURVEY TECHNIQUE

KADEC Asbestos Management

Survey Technique

- 1 The inspection techniques used for this inspection are all designed to fulfill all current Regulatory requirements; guidelines and best practices. The site inspection and survey report are all designed to fulfill the new HSG264 - The Survey Guide Regulation, and based on the original inspection recommendations recorded in the MDHS100.

Typical inspection techniques include where possible assessing on a 'Left Hand Down' basis from top to bottom. Therefore when assessing our inspectors will start inspecting from left to right and from top to bottom.

All materials that were inspected are recorded by our inspectors have been recorded in the Site Description section of the survey report, reflecting the above technique.

Unless otherwise specified, Kadec inspections will include assessing underfloor coverings; above false ceilings; in loft spaces; inside risers; service ducts; lift shafts; basements; cellars; underground & ancillary rooms and undercrofts. Every effort will be made to gain full access into areas in order to assess potential ACMs.

Where possible and safe to do so, non-asbestos pipe insulation has been carefully opened in order to identify any asbestos residue to the pipe.

Kadec operates an 'Endoscope' assessment system for cavity areas; voids and confined spaces. Kadec will assess this option and advise the client if Endoscope assessment is required.

Where possible every site will have a pre-survey assessment to identify any potential restrictions; hazards and the typical ACMs that may require sampling. Samples will be carefully retrieved using the 'Suppression' or 'Shadow Vac' technique, in order to minimise any risk of fibre release during sample taking.

Kadec inspectors will assess the risks associated with retrieving samples whilst on site, and if necessary don P3 rated disposal or half mask, along with Category 3 Type 5 & 6 disposable overalls. Please be aware that 80% of most suspect ACMs sampled will NOT require this level of protection.

Once retrieved, the sample point will be stabilised using the most suitable method, and labelled to identify the sample point and potential ACMs hazard. Samples are carefully packaged for transportation, where they are delivered to our independent UKAS accredited bulk analysis laboratory.

The laboratory will examine and test each sample using UKAS & W.H.O techniques, to confirm or refute any asbestos content in the sample. A copy of the sample analysis certificate will be provided along with your Asbestos Survey Report.

The survey report must be read in its entirety and cascaded to every person who is liable to disturb the ACMs. Your on site Asbestos Register should also be updated if a Register has not been provided or managed by Kadec.

- 2 Photographs were taken at all suspected or identified ACMs in order to keep a physical conditional record of each ACMs and there potential deterioration or disturbance frequencies.

All digital photographic records will be updated annually during re-inspections, to reflect the accurate conditioning or disturbance of an ACM. This technique also assists everyone in being able to identify the ACM if a label should be removed.

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KADEC Asbestos Management

Survey Technique

- 3 All Asbestos Bulk Sample Analysis is conducted by using Polarised Light and Dispersion Staining Techniques. Dispersion Staining is used to describe the colour effects produced when a transparent colourless particle or fibre is immersed in a liquid having a refractive index near to that of the particle or fibre, and is viewed under a microscope using transmitted white light (based on HSE Publication MDHS 77).

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SECTION FOUR

SURVEY NOTES

KADEC Asbestos Management

Survey Notes

- 1 No air monitoring was carried out whilst the survey was undertaken and therefore care was taken not to cause disturbance of fibre or contamination of clean surfaces.
- 2 The diagrams in the report are not to scale and are illustrative only to indicate approximate locations. The descriptions used are for location identification purposes
- 3 Equipment, machinery, ducting etc were not moved, opened up or examined for the purpose of this investigation except in the odd occasion where hatches were available.
- 4 This Report has been written in accordance with all current HSE Asbestos Regulations and HSG264 Guidelines.

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SECTION FIVE

SURVEY CAVEAT

KADEC Asbestos Management

Survey Caveat

- 1 Whilst every effort was made to locate all building fabric; plant, equipment and old objects, which may have been constructed from asbestos, none other than those detailed were found. Some may have been missed due to repairs, alterations etc, where false and other finishes have been applied or where different specifications (including a possible mixture of asbestos and non-asbestos) panels have been used in the same area. Only by sampling each panel would the composition of all the materials be known. This was clearly not practical in terms of cost or time.
- 2 Please be aware that whilst every effort has been made to ensure accuracy in our survey reports and sample analysis, we cannot guarantee the sample analysis results in every case. The reason for this is that some ACMs are low content asbestos and the small sample as recommended in HSG264 retrieved by our inspectors can in some cases be a section that does not contain asbestos fibres, even though the remaining material may contain fibres.

Typical examples of low content ACMs are :-

Vinyl Floor Tiles (VFTs)
Textured Coatings (Artex)
Bitumen Products
Mastics & Resins
Asbestos Paint
Ebonite Products
Bakelite
Durestos

- 3 Kadec cannot be held responsible for any ACM products present beneath floor coverings or in the land surrounding the premises.
- 4 The information provided in this report is designed to help accurately identify the ACM risks in the specified areas, however any asbestos remediation works should be assessed by any contractors to ensure any measurements or quantifications are confirmed before submitting costs as Kadec cannot be held responsible for contractors tenders.
- 5 Please note this inspection was not designed to enable all ACMs to be removed, only for the ACMs to be identified using intrusive techniques in order to both identify the risk and design any operations accordingly.

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SECTION SIX

AREAS AND MATERIALS INSPECTED

KADEC Asbestos Management

Areas and Materials Inspected

General Information:

This Asbestos Refurbishment & Demolition Inspection was conducted at the Chantry Centre, Chantry Way, Billericay, Essex on behalf of Mrs Deborah Tonkiss of Billericay Town Council.

The below information is designed to record all areas and materials that have been assessed by our inspector.

Area	Comments	Accessed
Loft Space	Timber fixed pitched roof and timber rafters. Redundant Metal water tank, plastic water tank with MMMF insulation surround. Foam	Yes
	insulation to clean pipes. Modern compressor tank. Modern electrical cables. Timber boxing to sky lights. Loose MMMF insulation. Timber and	Yes
	Breeze block walls. Plasterboard fixed ceiling to all rooms below. Timber loft hatch and surround.	Yes
G.01 Kitchen	Fixed Plasterboard ceiling with loft space above. Ceiling heater inspected. Plaster and timber boarded walls with timber rafters and	Yes
	MMMF insulation in voids. Timber and metal window frames, timber doors and frames. Ceramic splash back tiles. Uninsulated copper and	Yes
	plastic pipes. Modern metal sinks and sink pads. Timber cupboards and units. Built in cooker and stoves. Timber boxing housing uninsulated	Yes
	pipes and Loose MMMF insulation. Modern red lino onto modern self-levelling screed, Suspect Bitumen adhesive below onto solid floor	Yes
	- See Item 1.	Yes
G.02 Corridor	Fixed Plasterboard ceiling with loft space above. Ceiling heater inspected. Plaster and timber boarded walls with timber rafters and	Yes
	MMMF insulation in voids. Timber window frames, timber doors and frames. Pay phone mounded to timber board. Uninsulated pipes to	Yes
	radiator. Modern red lino onto modern self-levelling screed, Suspect Bitumen adhesive below onto solid floor - See Item 1.	Yes
G.03 Electric and Gas Cupboard	Fixed plasterboard ceiling with loft space above. Fixed timber and plasterboard walls, timber rafters and MMMF insulation in void. Modern	Yes
	RCD electrical boxes fixed to timber shelf, Grey MEM electrical box with suspect textile flash guards - See Item 2. Suspect textile wrap to mail	Yes
	electrical incomer cable - See Item 3. Uninsulated pipes. Timber shelves. Suspect Black Vinyl Floor Tiles (VFT's) and adhesive to solid floor	Yes
	- See Item 4. Suspect bitumen adhesive to solid floor - See Item 1.	Yes
G.04 Store	Fixed plasterboard ceiling with loft space above. Fixed timber and plasterboard walls, timber rafters and MMMF insulation in void. Timber	Yes
	shelves. Suspect Black VFT's and adhesive to solid floor - See Item 4. Suspect bitumen adhesive to solid floor - See Item 1.	Yes
G.05 Female w/c	Fixed Plasterboard ceiling with loft space above. Plaster and timber boarded walls with timber rafters and MMMF insulation in void. ceramic	Yes

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	tile finish to walls. Timber window frames, timber doors and frames. Modern W/C goods. Uninsulated pipes to radiator. Modern red lino onto	Yes
	modern self-levelling screed, Suspect Bitumen adhesive below onto solid floor - See Item 1.	Yes
G.06 Disabled w/c	Fixed Plasterboard ceiling with loft space above. Plaster and timber boarded walls with timber rafters and MMMF insulation in void. Ceramic	Yes
	tile finish to walls. Timber window frames, timber doors and frames. Modern W/C goods. Boiler cupboard housing, Foam insulated pipes,	Yes
	modern combi boiler mounted to modern superlux board, metal flue. Suspect green VFT's - See Item 5. Suspect cream VFT's - See Item 6.	Yes
	Modern red lino onto modern self-levelling screed, Suspect Bitumen adhesive below onto solid floor - See Item 1.	Yes
G.07 Toilet Lobby	Fixed Plasterboard ceiling with loft space above. Plaster and timber boarded walls with timber rafters and MMMF insulation in void. Timber	Yes
	doors and frames. Timber partition store cupboards. Modern red lino onto modern self-levelling screed, Suspect Bitumen adhesive below onto	Yes
	solid floor - See Item 1.	Yes
G.08 Male w/c	Fixed Plasterboard ceiling with timber flat roof above. Plaster and timber boarded walls with timber rafters and MMMF insulation in void.	Yes
	ceramic tile finish to walls. Timber window frames, timber doors and frames. Modern W/C goods. Uninsulated pipes to radiator. Modern red	Yes
	lino onto modern self-levelling screed, Suspect Bitumen adhesive below onto solid floor - See Item 1.	Yes
G.09 Store	Fixed Plasterboard ceiling with timber flat roof above. Plaster and timber boarded walls with timber rafters and MMMF insulation in void.	Yes
	Timber doors and frames. Suspect Green VFT's and adhesive - See Item 7. Suspect Bitumen adhesive below onto solid floor - See Item 1.	Yes
G.10 Entrance Lobby	Fixed Plasterboard ceiling with timber flat roof above. Plaster and timber boarded walls with timber rafters and MMMF insulation in void.	Yes
	Timber window frames. Timber doors and frames. Modern red lino onto modern self-levelling screed, Suspect Bitumen adhesive below onto solid	Yes
	floor - See Item 1.	Yes
G.11 Main Hall	Fixed Plasterboard ceiling with loft space above. Timber upstands to sky lights. Plaster and timber boarded walls with timber rafters and MMMF	Yes
	insulation in void. Timber window frames. Timber doors and frames. Uninsulated pipes to radiators, timber boxings housing uninsulated	Yes
	pipes. Modern red lino onto modern self-levelling screed, Suspect Bitumen adhesive below onto solid floor - See Item 1.	Yes
G.12 Hairdressers	Fixed Plasterboard ceiling with timber flat roof above. Plaster, timber and solid walls, with timber rafters and MMMF insulation in void.	Yes
	Timber window frames. Timber door and frame. Uninsulated pipes to radiators, Modern red lino onto modern self-levelling screed, Suspect	Yes
	Bitumen adhesive below onto solid floor - See Item 1.	Yes
Externals	Tiled pitched roof, non-suspect underlay, timber boards below. Suspect felt cover onto timber flat roofs - See Item 8. Timber Facias And soffits.	Yes
	Plastic gutter and down pipes. Plastic flue pipes. Timber window frames, Suspect putty seal - See Item 9. Timber cladding with MMMF insulation	Yes
	behind. Timber doors and frames. Brick walls. Blue decorative finish to low level timber panels to front - See Item 10. Suspect bitumen damp	Yes
	proof onto solid foundations - See Item 11.	Yes

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SECTION SEVEN

EXCLUDED OR LIMITED AREAS

KADEC Asbestos Management

Excluded or Limited Areas

Area:	<input type="text"/>	Location:	<input type="text"/>
<input type="text" value="All accessible areas have been successfully inspected."/>			

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SECTION EIGHT

SURVEY RECOMMENDATIONS

KADEC Asbestos Management

Survey Recommendations

- 1 The recommendation and actions recorded in this inspection report have been calculated based on the assessment information gathered by our inspectors, and the database risk analysis systems.

For specific recommendations or to design a project to treat any ACMs identified, please contact Kadec directly for professional advice.

All ACM hazard scores and ACM assessments are calculated using the following algorithmic system :-

Material Assessment and Algorithm

The material assessment is an assessment of the condition of the ACM, or the presumed ACM, and the likelihood of it releasing fibres in the event of it being disturbed in some way. This material assessment will give a good initial guide to the priority for management, as it will identify the materials, which will most readily release airborne fibres if disturbed. However, there are other factors to take into account when prioritising action. HSG264 recommends the use of an algorithm to carry out the material assessment, and contains an example. The algorithm is a numerical way of taking into account several influencing factors, giving each factor considered a score. These scores can then be totaled to give a material assessment score. The use of algorithms is not infallible, but the assessment process is clear for all to see, so if discrepancies arise, it should be possible to track back through the assessment process to find the root of the error. The algorithm shown in HSG264 considers four parameters that determine the risk from ACM: that is the ability to release fibres if disturbed. These four parameters are:

Product type;
Extent of damage;
Surface treatment; and
Asbestos type

Each of the parameters is scored and added to give a total score between 2 and 12:

Materials with scores of 10 or more should be regarded as high risk with a significant potential to release fibres if disturbed;

Those with a score between 7 and 9 are regarded as medium risk;

Materials with a score between 5 and 6 are low risk; and

Scores of 4 or less are very low risk.

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SECTION NINE

MATERIAL ASSESSMENT (PHOTO SMALL)

KADEC Asbestos Management

Material Assessment Record

Sorted by: Location ID

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CM11 2BB

Client Name:

Billericay Town Council

Project Number:

INGL-6150

Area/ Floor/ Room/ Product: Chantry Centre: Ground: Throughout: Bitumen

Inspection Date: 10/04/2018

Next Inspection: 09/04/2019

Survey Type: RDS

Location ID: 22938

Location Ref: Item 1

Product Type: Resins



Action:

Remove Using Asbestos Qualified Contractors

Damage: Low damage

Treatment: Resins

Asbestos Type: Chrysotile

Identification: Identified

Quantity: 300m²

Accessibility: Low

Material Comments:

Suspect bitumen adhesive to the solid floor below the self levelling screed was sampled and confirmed as Chrysotile Asbestos.

Material Risk Score: 3

Material Risk Band: Very Low Risk

Priority Risk Score: N/A

Area/ Floor/ Room/ Product: Chantry Centre: Ground: G.03: Textile

Inspection Date: 10/04/2018

Next Inspection: 09/04/2019

Survey Type: RDS

Location ID: 22939

Location Ref: Item 2

Product Type: Ropes and woven textiles



Action:

Remove Using Asbestos Qualified Contractors

Damage: Low damage

Treatment: Ropes and woven textiles

Asbestos Type: Chrysotile

Identification: Identified

Quantity: 1 Box

Accessibility: Medium

Material Comments:

Suspect textile flash guards inside grey MEM electrical box was sampled and confirmed as Chrysotile Asbestos.

Material Risk Score: 5

Material Risk Band: Low Risk

Priority Risk Score: N/A

Area/ Floor/ Room/ Product: Chantry Centre: Ground: G.03: Textile

Inspection Date: 10/04/2018

Next Inspection: Not Applicable

Survey Type: RDS

Location ID: 22940

Location Ref: Item 3

Product Type: NADIS



Action:

No Action Required

Damage: NADIS

Treatment: NADIS

Asbestos Type: NADIS

Identification: Identified

Quantity: 1lm

Accessibility: Easy

Material Comments:

Suspect textile wrap to main electrical incomer cable was sampled and confirmed as Non-Asbestos.

Material Risk Score: 0

Material Risk Band: NADIS

Priority Risk Score: N/A

KADEC Asbestos Management

Material Assessment Record

Sorted by: Location ID

Site Address:

The Chantry Centre, Chantry Way, Billericay, Essex,
CM11 2BB

Client Name:

Billericay Town Council

Project Number:

INGL-6150

Area/ Floor/ Room/ Product: Chantry Centre: Ground: G.03 & G.04: VFT's

Inspection Date: 10/04/2018

Next Inspection: 09/04/2019

Survey Type: RDS

Location ID: 22941

Location Ref: Item 4

Product Type: Vinyl floor tiles



Action:

Remove Using Asbestos Qualified
Contractors

Damage: Low damage

Treatment: Vinyl tiles

Asbestos Type: Chrysotile

Identification: Identified

Quantity: 8m²

Accessibility: Easy

Material Comments:

Suspect Black vinyl floor tiles and
adhesive was sampled and confirmed
as Chrysotile Asbestos to both the floor
tiles and adhesive.

Material Risk Score: 3

Material Risk Band: Very Low Risk

Priority Risk Score: N/A

Area/ Floor/ Room/ Product: Chantry Centre: Ground: G.06: VFT's

Inspection Date: 10/04/2018

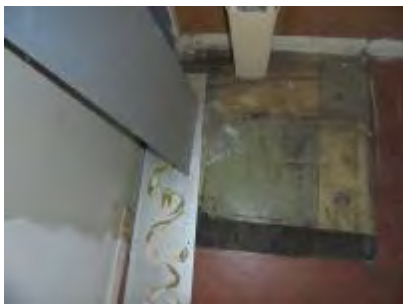
Next Inspection: Not Applicable

Survey Type: RDS

Location ID: 22942

Location Ref: Item 5

Product Type: NADIS



Action:

No Action Required

Damage: NADIS

Treatment: NADIS

Asbestos Type: NADIS

Identification: Identified

Quantity: <1m²

Accessibility: Easy

Material Comments:

Suspect green vinyl floor tiles and
adhesive were sampled and confirmed
as Non-Asbestos.

Material Risk Score: 0

Material Risk Band: NADIS

Priority Risk Score: N/A

Area/ Floor/ Room/ Product: Chantry Centre: Ground: G.06: VFT's

Inspection Date: 10/04/2018

Next Inspection: Not Applicable

Survey Type: RDS

Location ID: 22943

Location Ref: Item 6

Product Type: NADIS



Action:

No Action Required

Damage: NADIS

Treatment: NADIS

Asbestos Type: NADIS

Identification: Identified

Quantity: <1m²

Accessibility: Easy

Material Comments:

Suspect cream vinyl floor tiles and
adhesive was sampled and confirmed
as Non-Asbestos.

Material Risk Score: 0

Material Risk Band: NADIS

Priority Risk Score: N/A

KADEC Asbestos Management

Material Assessment Record

Sorted by: Location ID

Site Address:

The Chantry Centre, Chantry Way, Billericay, Essex,
CM11 2BB

Client Name:

Billericay Town Council

Project Number:

INGL-6150

Area/ Floor/ Room/ Product: Chantry Centre: Ground: G.09: VFT's

Inspection Date:

10/04/2018

Next Inspection:

Not Applicable

Survey Type:

RDS

Location ID:

22944

Location Ref:

Item 7

Product Type:

NADIS



Action:

No Action Required

Damage:

NADIS

Treatment:

NADIS

Asbestos Type:

NADIS

Identification:

Identified

Quantity:

8m²

Accessibility:

Easy

Material Comments:

Suspect green vinyl floor tiles and adhesive was sampled and confirmed as Non-Asbestos.

Material Risk Score:

0

Material Risk Band:

NADIS

Priority Risk Score:

N/A

Area/ Floor/ Room/ Product: Chantry Centre: Flat Roof: Externals: Bitumen

Inspection Date:

10/04/2018

Next Inspection:

Not Applicable

Survey Type:

RDS

Location ID:

22945

Location Ref:

Item 8

Product Type:

NADIS



Action:

No Action Required

Damage:

NADIS

Treatment:

NADIS

Asbestos Type:

NADIS

Identification:

Identified

Quantity:

25m²

Accessibility:

Medium

Material Comments:

Suspect bitumen felt cover to flat roofs was sampled and confirmed as Non-Asbestos.

Material Risk Score:

0

Material Risk Band:

NADIS

Priority Risk Score:

N/A

Area/ Floor/ Room/ Product: Chantry Centre: Ground: Externals: Putty

Inspection Date:

10/04/2018

Next Inspection:

Not Applicable

Survey Type:

RDS

Location ID:

22946

Location Ref:

Item 9

Product Type:

NADIS



Action:

No Action Required

Damage:

NADIS

Treatment:

NADIS

Asbestos Type:

NADIS

Identification:

Identified

Quantity:

Throughout

Accessibility:

Easy

Material Comments:

Suspect putty seal to windows was sampled and confirmed as Non-Asbestos.

Material Risk Score:

0

Material Risk Band:

NADIS

Priority Risk Score:

N/A

KADEC Asbestos Management

Material Assessment Record

Sorted by: Location ID

Site Address:

The Chantry Centre, Chantry Way, Billericay, Essex,
CM11 2BB

Client Name:

Billericay Town Council

Project Number:

INGL-6150

Area/ Floor/ Room/ Product: Chantry Centre: Ground: Externals: Decorative Finish

Inspection Date:

10/04/2018

Next Inspection:

Not Applicable

Survey Type:

RDS

Location ID:

22947

Location Ref:

Item 10

Product Type:

NADIS



Action:

No Action Required

Damage:

NADIS

Treatment:

NADIS

Asbestos Type:

NADIS

Identification:

Identified

Quantity:

10m²

Accessibility:

Easy

Material Comments:

Suspect blue decorative finish to the low level panels to the south elevation was sampled and confirmed as Non-Asbestos.

Material Risk Score:

0

Material Risk Band:

NADIS

Priority Risk Score:

N/A

Area/ Floor/ Room/ Product: Chantry Centre: Ground: Externals: Bitumen

Inspection Date:

10/04/2018

Next Inspection:

Not Applicable

Survey Type:

RDS

Location ID:

22948

Location Ref:

Item 11

Product Type:

NADIS



Action:

No Action Required

Damage:

NADIS

Treatment:

NADIS

Asbestos Type:

NADIS

Identification:

Identified

Quantity:

Throughout

Accessibility:

Medium

Material Comments:

Suspect bitumen damp proof course was sampled and confirmed as Non-Asbestos.

Material Risk Score:

0

Material Risk Band:

NADIS

Priority Risk Score:

N/A

SECTION TEN

BULK CERTIFICATE

KADEC Asbestos Management

Bulk Certificate

Project Number:

INGL-6150



ENVIRONMENTAL SOLUTIONS LTD

ATHENA ENVIRONMENTAL SOLUTIONS LTD
SUITE 3, SOPWITH HOUSE, HURRICANE WAY,
WICKFORD, ESSEX, SS12 8YU
Tel: 01258 761 171
Email: info@athena-env.co.uk

COMPANY REG NUMBER: 07376951
REGISTERED ADDRESS: AS ABOVE



4696

CERTIFICATE OF IDENTIFICATION OF ASBESTOS FIBRES

CERTIFICATE NUMBER: ATH/18/04/0681	SITE ADDRESS: THE CHANTRY CENTRE, CHANTRY WAY, BILLERICAY, ESSEX, CM11 2BB		
DATE SAMPLED: 10/04/18	SITE REFERENCE: INGL-6150		
DATE RECEIVED: 16/04/18	CLIENT: KADEC ASBESTOS MANAGEMENT		
DATE ANALYSED: 16/04/18	CLIENT ADDRESS: UNIT 5, BROOKS BUSINESS PARK, HODGSON WAY, WICKFORD, ESSEX, SS11 8YN		
OBTAINED: DELIVERED	PHONE NUMBER: 01702 308438		
NUMBER OF SAMPLES: 11			
ANALYST NAME & SIGNATURE:	S. SKINNER	AUTHORISER NAME & SIGNATURE:	A. Sneekey
COMMENTS:			

RESULTS

SAMPLE NUMBER	CLIENT NUMBER	SAMPLE LOCATION	FIBRE TYPE DETECTED	COMMENTS
1.	1	BITUMEN ADHESIVE	CHRYSOITILE	BITUMEN
2.	2	TEXTILE FLASH GUARD	CHRYSOITILE	TEXTILE
3.	3	TEXTILE WRAP TO MAIN ELECTRICAL INCOMER CABLE	NADIS	TEXTILE
4.	4	BLACK VINYL FLOOR TILES	CHRYSOITILE TO BOTH	FLOOR TILE & BITUMEN BACKING
5.	5	GREEN VINYL FLOOR TILES	NADIS	FLOOR TILE & BITUMEN BACKING
6.	6	CREAM VINYL FLOOR TILES	NADIS	FLOOR TILE & BITUMEN BACKING
7.	7	GREEN VINYL FLOOR TILES	NADIS	FLOOR TILE & BITUMEN BACKING
8.	8	BITUMEN FELT FLAT ROOF	NADIS	BITUMEN
9.	9	PURTY	NADIS	PURTY
10.	10	BLUE DECORATIVE FINISH	NADIS	TEXTURED COATING
11.	11	BITUMEN DAMP PROOF	NADIS	BITUMEN

KEY: CHRYSOITILE (WHITE ASBESTOS) - CROCIDOLITE (BLUE ASBESTOS) - AMOYNT (BROWN ASBESTOS)

NADIS (NO ASBESTOS DETECTED IN SAMPLE) - TREMOLITE, ANTHOPHYLLITE & ACTINOLITE (LESS COMMON ASBESTOS FIBRE TYPES)

Note: When a trace of asbestos fibres are reported this represents one or two fibres only

Note: The material type reported is an opinion of the analyst only and does not form part of the ATHENA UKAS accreditation.

Note: Samples will be kept for a minimum of 6 months.

Note: This Certificate of Identification of Asbestos Fibres can only be reproduced in full unless written approval from Athena has been obtained.

Note: If the sample condition or size is deemed unacceptable or unsatisfactory by the analyst, the client will be contacted.

Note: The results relate only to the items tested.

Samples have been analysed to determine the presence of asbestos fibres using Athena Environmental Solutions "in house" method of polarised light microscopy and central spot dispersion staining based on HSG 748. The site address and sample locations are given by the client and Athena are not responsible for the accuracy or competence of these details or of the sampling.

BULK 001 VERSION 5 - 08/08/16

PAGE 1 OF 1

SECTION ELEVEN

ASBESTOS REGISTER

Asbestos Register

Site Name:	The Chantry Centre
Project Number:	INGL-6150

Location	Product Type and Name		Extent	Accessibility	Condition	Surface treatment	Asbestos Type	Sample	Sample no	Material Risk Score	Priority Risk Score	Total Score
Throughout	Resins	Bitumen	300m ²	Low	Low damage	Resins	Chrysotile	Identified	Item 1	3	0	3
G.03	Ropes and woven textiles	Textile	1 Box	Medium	Low damage	Ropes and woven textiles	Chrysotile	Identified	Item 2	5	0	5
G.03 & G.04	Vinyl floor tiles	VFT's	8m ²	Easy	Low damage	Vinyl tiles	Chrysotile	Identified	Item 4	3	0	3

MATERIAL SCORES ABOVE 10 HAVE HIGH POTENTIAL TO RELEASE FIBRES

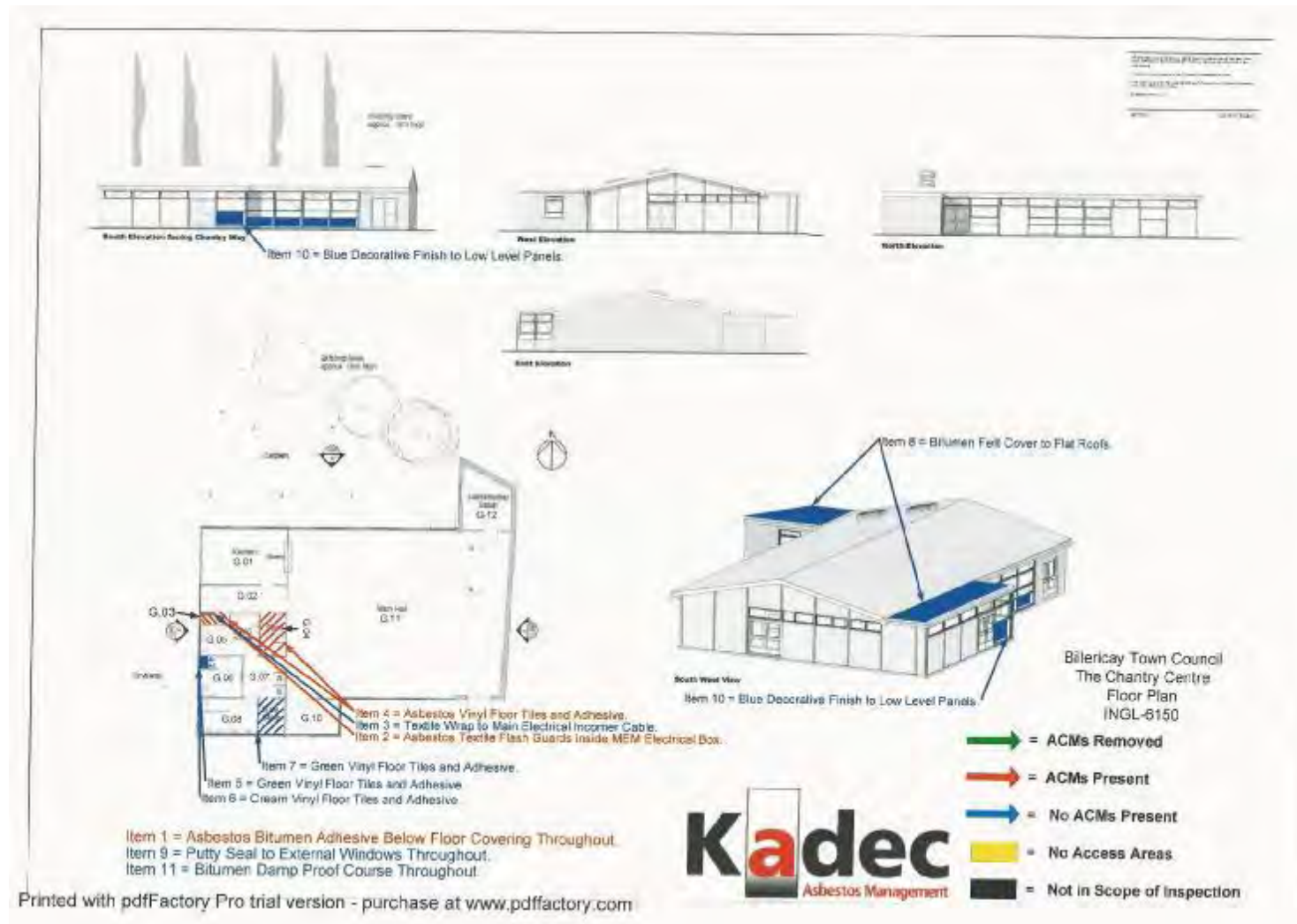
Printed: 18/04/2018 By: KADEC Asbestos Management. Using Multibase Software.

Asbestos register: Page 1 of 1



SECTION TWELVE

SURVEY DRAWINGS



Description of Drawing:



Phase I & II Geo-Environmental Assessment

Chantry Centre

Chantry Way
Billericay
Essex
CM11 2BB

Prepared for:

Billericay Town Council

The Loft Crown Yard
High Street
Billericay
Essex
CM12 9BX

EPS Reference Number: UK18.4036

Date Issued: 15th June 2018

Report Status: Issue 1

CHANTRY CENTRE, BILLERICAY

NON-TECHNICAL CLIENT SUMMARY

This report presents the findings of a combined Phase I Desk Study and Phase II Intrusive Investigation undertaken to determine ground conditions, establish if there are any environmental risks associated with the site and its development and provide a geotechnical appraisal. Pertinent findings and conclusions may be summarised as follows:

- The initial risk assessment and background searches established that the site has been developed from an early stage and several small structures have existed mostly within the southern half of the property, which has been used as a community centre more recently. Although a number of potential off-site sources of contamination were identified in the local area, possible risks from these were all subsequently ruled out and focus was given to the quality of shallow soils across the study area and how this may impact future site users.
- Intrusive investigations comprised the forming of a number of boreholes to a maximum depth of 4m. Ground conditions were reported to comprise a significant layer of made ground, up to 1.1m in thickness (but could be greater under the existing building), overlying variable interbedded sands, silts and clays of the Claygate Member.
- Waste analysis has identified that all the tested materials (made ground, natural clays and sands) can be classified as **INERT** waste for the purposes of off-site disposal, subject to approval from the chosen waste receiver.
- Given the results of laboratory analysis and the nature of the proposed land use, no significant risks to future site users have been identified and no further environmental assessment is considered to be warranted. Adoption of standard health and safety precautions have been recommended to protect construction workers during the redevelopment works.
- It is recommended that a copy of this report be provided to the Environmental Health Department of Basildon Council so that the information may be incorporated into their land quality records and used to support the current planning application.

ENGINEERING SUMMARY

- The ground conditions are considered suitable for the use of conventional spread foundations, bearing on the natural soils of the Claygate Member with allowable bearing capacities given in the table below:




Depth	Allowable Bearing Capacity (kN/m ²)	
	Strip	Pad
1.0	65	70
1.5	70	75
2.0	75	80

- Falling head permeability testing undertaken at the site has indicated 'very low permeability' drainage conditions and that a soakaway drainage system may not be feasible.
- Due to the thickness of made ground across the site suspended ground floor construction is recommended.
- A design sulphate class of DS-1 with an aggressive chemical environment for concrete (ACEC) of AC-1s has been recommended for the underlying soils of the Claygate Member.

The above points represent a simplified summary of the findings of this assessment and should not form the basis for key decisions for the proposed development. A thorough review of the details is contained within the following report, or alternatively get in touch and we will talk you through it.



Project Reference:	UK18.4036	
Title:	Phase I & II Geo-Environmental Assessment – Chantry Centre, Billericay	
Client:	Billericay Town Council	
Date:	15 th June 2018	
EPS Contact Details:	7B Caxton House Broad Street Cambourne Cambridge CB23 6JN	T: 01954 710666 F: 01954 710677 E: info@epstrategies.co.uk W: www.epstrategies.co.uk
Status:	Issue 1	

Author:	Reviewed:	Authorised:
		
Daryl Bowell	Ben Virtue	Steve Bullock
Consultant	Senior Consultant	Director

This report has been prepared for the client(s) listed on the report title page. EPS accepts no liability or responsibility for use of, or reliance upon, this report and / or the information contained within it by third parties.

No part of this report, or references to it, may be included in published documents of any kind without approval from EPS.

This report and its contents, together with any supporting correspondence or other documentation, remain the property of Environmental Protection Strategies Ltd until paid for in full.

Where ground investigations have been conducted, these have been limited to the level of detail required for the site in order to achieve the objectives of the investigation.

The report has been written, reviewed and authorised by the persons listed above. It has also undergone EPS' quality management inspection. Should you require any further assistance regarding the information provided within the report, please do not hesitate to contact us.

The National Planning Policy Framework 2012 requires a competent person to prepare site investigation information, which is defined as a person with a recognised relevant qualification, sufficient experience in dealing with the type(s) of pollution or land instability, and membership of a relevant professional organisation. EPS considers that it fulfils these criteria and would welcome any request for staff CVs or case studies to demonstrate it.

As stated within DEFRA's Contaminated Land Statutory Guidance (2012), with any complex risk assessment it is possible that different suitably qualified people may reach slightly different conclusions when interpreting the same information. EPS recognises this and considers the conclusions presented within this report to be robust and appropriate but input from the Local Authority and their judgement in line with this guidance would still be welcomed.

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Appendix L	Method Statement for Encountering Unexpected Contamination

1 INTRODUCTION

In May 2018, Environmental Protection Strategies Ltd (EPS) was commissioned by Billericay Town Council to complete a Phase I and II Geo-Environmental Assessment for the Chantry Centre, Chantry Way, Billericay, Essex, CM11 2BB ('the site'); see Figure 1.

The work was commissioned in order to support development proposals for the demolition and reconstruction of the existing Chantry Centre under Basildon Council Planning Application Ref: 18/00456/CACBAS.

This report presents the findings, conclusions, and recommendations of the Phase I Desk Study and subsequent Phase II Intrusive Investigation undertaken as instructed.

1.1 Background

A Desk Study comprises the first stage of any geo-environmental assessment, the purpose of which is to determine what potentially contaminative activities may have occurred at the property or the surrounding area which may pose an environmental or geological risk to site users, the surrounding environment or proposed development, either at present or in the future.

The method used in this investigation to assess the environmental risk posed is based on the concept of 'contaminant linkage', which considers the following three factors:

Source	The location from which an environmentally hazardous / contaminative substance is, (or was,) derived.
Receptor	An environmentally sensitive object or condition e.g. person, property, controlled water, or ecological system, which may be present now or in future.
Pathway	A route or mechanism via which a source could come into contact with a receptor to cause significant harm.

If all three factors are identified, there is the potential for a 'contaminant linkage' to be active, which could result in significant harm being caused to the environment or human health.

1.2 Objectives

The objectives of this investigation were as follows:

- Compile a Conceptual Site Model (CSM) and undertake a Preliminary Risk Assessment to evaluate the potential risks the site may pose to human and environmental receptors, both currently and in future.
- Investigate potential contaminant linkages identified through the CSM by means of an Intrusive Investigation and Generic Quantitative Risk Assessment.
- Determine the potential risks posed by the site and make recommendations for further work that may be required, to ensure safe development in accordance with the *Model Procedures for the Management of Land Contamination - Contaminated Land Report 11* and the *National Planning Policy Framework*.
- To collect information on ground conditions and strength in order to make appropriate recommendations for geotechnical design and undertake a number of falling head infiltration tests to initially assess the permeability of the natural subsurface soils.

1.3 Scope of Work

To perform an exploratory assessment of the site in accordance with the principles and requirements of DEFRA's 'Contaminated Land Statutory Guidance' (2012), BS10175 – 'Investigation of Potentially Contaminated Sites', BS5930:2015 'Code of practice for ground investigations' and BS EN 1997 'Geotechnical Design', the following tasks were undertaken:

Desk Study:

- Collection of site records.
- Study of existing geological, hydrogeological and historic maps of the area.
- Consultation of environmental databases, including records held by the local authority (where available).
- Review of proposed development plans.
- Development of a Conceptual Site Model (CSM) and Preliminary Risk Assessment.

Intrusive Investigation:

- Site walkover, inspection of any visual evidence of contamination at the site, obtaining photographic records.
- Health and safety briefing / site supervision.
- Drilling of five window sample boreholes to a maximum target depth of 4.0m below ground level (bgl).
- Continual logging of ground conditions including inspection of samples for visual and olfactory contamination, and laboratory analysis of selected representative samples.
- Completion of falling head infiltration tests at two locations, to provide an initial assessment of the permeability of the underlying natural soils.
- In-situ testing, to assist with geotechnical design.

Reporting:

- Data collection
- Interpretation of data including completion of Generic Quantitative Risk Assessment
- Reporting.

The findings and conclusions of these investigations are presented in the following sections.

1.4 Limitations and Constraints

The purpose of this report is to present the findings of a soil sampling investigation conducted at the location(s) specified. When examining the data collected from the investigations made during the assessment, Environmental Protection Strategies Ltd (EPS) makes the following statements:

No investigation method is capable of completely identifying all ground conditions that might be present in the soil or groundwater under a site. Where outlined in our report, we have examined the ground beneath a site by constructing a number of boreholes and / or trial pits to recover soil and / or groundwater samples. The locations of these excavations and sampling points are considered to be representative of the condition of the whole site subsurface however, ground conditions are naturally variable and it may be possible that the conditions encountered may differ to those found during the investigation.

No visible evidence of Japanese Knotweed was identified during the site walkover. However, this plant can be difficult to identify in the early stages of growth and therefore it is not always possible to identify its' presence at certain times of the year. For this reason, EPS cannot confirm that Japanese Knotweed rhizomes do not exist and it is recommended that if it is suspected that this species, or other similarly invasive plants are present at the site, a specialist contractor should be commissioned to make a detailed assessment.

This report does not include specific investigation for the presence of Potential Asbestos Containing Material (PACM). Specialist contractors should be commissioned to make detailed assessments and recommendations if these materials are suspected.

The investigation was carried out to assess the significance of contamination resulting from the use of the site as identified in this report. Unless EPS has otherwise indicated, no assessment of potential impact of any other previous uses has been made.

2 GEO-ENVIRONMENTAL SETTING

The following section provides a summary of the information collected in relation to the site location and history.

2.1 Site & Location Description

Detail	Description
Location	The property is located to the east of the High Street in Billericay Town Centre.
National Grid Reference	567555, 194711
Topography	The site is flat and sits at approximately 93m Above Ordnance Datum (AOD), land adjacent to the north was noted to be approximately 1m lower falling away sharply at the site boundary.
Description of Site	<p>A walkover survey was undertaken on the 17th May 2018 and the site was found to consist a small (roughly 650 m²), approximately square parcel of land set back from Billericay High Street.</p> <p>The land is currently occupied by a community centre with small areas of external hardstanding. The building itself covers the majority of the site and is set in the south east corner with the remaining areas consisting of a tarmac drive and parking area in an 'L' shape along its western and northern faces respectively. The structure was noted to be one storey in height and of brick construction with a concrete ramp access and a singular area of soft landscaping although several trees, approximately 4m in height, were noted along the northern and western boundaries. The perimeter of the property was marked by a combination of either wooden panelled or palisade fencing.</p> <p>The site was noted to be at a higher elevation than the surrounding land.</p>
Surrounding Land Use	Land to the west and north of the site is used for commercial purposes with various business and retail shops located along the high street while to the south and east lies a large area of residential housing.

A plan showing the site location is provided as Figure 1, the current site layout is detailed on Figure 2 and an aerial photograph is included as Figure 3. Selected site photographs are included as Appendix A, a proposed development plan is included as Appendix B and relevant extracts of a Landmark Envirocheck report are included as Appendix C.

2.2 Geology & Geological Hazards

Detail	Description	
Geology	Geological maps of the area show the site to lie on the edge of a Superficial Deposit of the Stanmore Gravel Formation (sand and gravel) above bedrock of the Bagshot Formation (sand). It should be noted that London Clay Formation or Claygate Member (clay, silt and sand) bedrock could be present at depth. Information on the site’s geological context is included as Appendix D.	
British Geological Survey (BGS)	An historic borehole log was acquired from the British Geological Survey (BGS), located approximately 25m west of the property. This borehole reports a thin layer (0.8m) of made ground above soft to firm silty sandy clay which is in turn is underlain by dense silty sand to 12m, the full depth of the borehole. Groundwater was not encountered during drilling. A copy of the historic borehole log is included in Appendix D.	
Geological Hazards	Hazard	On-site Risk
	Mining Activities	No Hazard
	Collapsible Ground	Very Low
	Compressible Ground	No Hazard
	Ground Dissolution	No Hazard
	Running Sand	Low
	Landslide	Very Low
	Shrinking/Swelling Clay	No Hazard
	In addition, one BGS recorded mineral site is reported within the surrounding area, around 570m to the west for Billericay Brick and Tile Works.	
Radon	The BGS and Health Protection Agency (HPA) report entitled ‘Indicative Atlas of Radon in England and Wales’ shows the site to lie within a lower probability area, where the percentage of homes above the radon action level is between 0% and 1%. The joint Building Research Establishment Ltd (BRE) report entitled: ‘Radon: Guidance on Protective Measures for New Buildings’ reports that no radon protection methods are needed for this area.	

2.3 Hydrology & Hydrogeology

Detail	Description
Hydrogeology	<p>Groundwater vulnerability maps for the area show that the underlying bedrock and superficial geology are both classified as Secondary Aquifers. Furthermore, the site does not lie within a Source Protection Zone (SPZ) for local groundwater abstraction. Groundwater vulnerability maps are included as Appendix E.</p> <p>The Envirocheck report does not list any groundwater abstractions within 1km.</p>

Detail	Description
Hydrology	The nearest surface water feature is an unnamed drain located around 185m south east, with no significant features identified locally.
Hydrology (continued)	<p>The Envirocheck report states that there are four discharge consents within a 1km radius, the closest of this being located around 740m to the south for the discharge of surface water to a soakaway. There are no surface water abstraction listed in the same area.</p> <p>Review of the EA Flood Zone Map for the area indicates that the site lies within Flood Zone 1, which is defined as the area with a low potential risk of flooding from fluvial or tidal sources within Table 1 of technical guidance to the National Planning Policy Framework (NPPF). However, it should be noted that the EA maps do not take into account the presence of flood defences or flooding from poor drainage, or groundwater. A copy of the flood map for the site and surrounding area is also included within Appendix E.</p>

2.4 Landfill & Waste

The Envirocheck report lists one area of historic landfill located Norsey Road, Billericay at approximately 545m north east which accepted inert, industrial and household waste from December 1960 to December 1969.

Furthermore, two entries for potentially infilled land (non-water) are reported within 500m, the nearest of these relates to an area of unknown filled ground (pit/ quarry) 184m to the west and is reported to have been infilled in 1938.

2.5 Industrial Land Use & Pollution

There are 62 sites licensed for industrial activity within the surrounding 500m (although no active sites are listed within 100m), the details of the most pertinent are listed below:

Land Use	Approximate Distance (Direction)	Status
Pallets, Crates & Packing Cases (Combined Pallets Co Ltd)	32m (north west)	Inactive
The Gift Box Boutique (Candle Manufacturers & Suppliers)	40m (north west)	Inactive
Grayburn Business Bureau Ltd (Copying & Duplicating Services)	50m (north)	Inactive
Cleaners Billericay (Carpet, Curtain & Upholstery Cleaners)	65m (north)	Inactive
Malwood Press Group (Printers)	79m (south west)	Inactive
R C Shelley (Garage Services)	116m (south west)	Inactive

Land Use	Approximate Distance (Direction)	Status
Universal Tyres (Tyre Dealers)	150m (north west)	Active

There are three fuel station entries listed in the same search radius, the closest of which is a closed premises (Wallinhurst Garage) located 196m to the south. The nearest active site is Mayflower Sf Connect, located 342m to the north.

There are four pollution incidents to controlled waters recorded within 500m, all of which are listed as 'category 3- minor incidents'. The closest proximity of these incidents was located 107m to the south west and involved the release of 'other sewerage' to the catchment of a nearby drain in July 1998, due to a 'poor connection'.

2.6 Sensitive Land Use

The site lies within a Nitrate Vulnerable Zone where surface water is identified as being at risk from nitrates leaching from agricultural land.

2.7 Site History

A summary of historical map data from 1874 to 2018 is provided below and copies of relevant historic maps and any others examined during the investigation are included in this report as Appendix F.

- Initial records show the High Street running through the centre of Billericay has been in place since before 1874. At this time, the site appears to be made up of several plots of land with one main building on the south of the site along with two small outbuildings. The remainder of the area appears to be grassed with paths running across it. To the east of the site lies a large area of open fields.
- Billericay Station was constructed by 1896 with the railway line running roughly east- west approximately 230m to the north with associated areas of sidings/ groundworks nearby. The land across the northern section of the property is now clear of vegetation although still comprised of multiple plots.
- Apart from the removal of the smaller outbuildings, this remains unchanged until the 1950's where the individual areas are combined and a separate (original) structure has been constructed adjacent to the centre of the western boundary. Chantry Way has also been established by this point adjacent to the south, with an electricity substation also introduced around 40m to the south west.
- By the early 1960's the buildings on-site have been replaced by a residential property marked 'Chantry Cottage', covering largely the same footprint as the former focal structure, although the eastern section of this building extends slightly further to the north. A residential estate has also been established from approximately 100m to the east and continues to expand through to the 1960's/ 1970's and rapidly populating the entire area to the east. The road layout by this point is the same as it is presently and the site is first used as a hall from this point albeit the main building appears to have been subject to a further phase of redevelopment. A further electricity substation has also been constructed around 35m to the north at this point.



- Mapping from early 1980's shows the hall building to have been developed on the same layout as it is presently with no more changes having taken place within, or immediately outside the property boundary from this point to the present day.

3 CONCEPTUAL SITE MODEL

The following section provides a review of the contaminant linkages that may be active at the site through the process of a Preliminary Risk Assessment, whereby EPS have examined the potential sources that may be present as a result of historic and / or current site activities and where potential interaction between these sources and the identified human / environmental receptors may occur.

3.1 Source Characterisation

The following potential contaminant sources have been identified at the site and in the surrounding area:

Potential Source	Source Description	Principal Contaminants of Concern
Historic Site Use	Possible infill material of unknown origin (made ground) used to level areas beneath several historic buildings and infrastructure.	PAH, Metals, ACM
Current and Historic Surrounding Land Use	Current and historic commercial and industrial land uses in the surrounding area including an obsolete petrol filling station and garage.	SVOC, VOC, TPH, PAH, Metals
	Two electricity substations identified within 100m.	TPH, PAH, PCBs
	Areas of potentially infilled land within 500m (including railway sidings) and one historic landfill within 600m.	Landfill Gas (CH ₄ , CO ₂)
	Current railway line located around 230m to the north of the site.	TPH, PAH, Metals, ACM
Notes PAH Polycyclic Aromatic Hydrocarbons ACM Asbestos Containing Material SVOC Semi Volatile Organic Compounds VOC Volatile Organic Compounds TPH Total Petroleum Hydrocarbons PCB Polychlorinated Biphenyls CH ₄ Methane CO ₂ Carbon Dioxide		

3.2 Potential Receptors

A framework for the assessment of risks arising from the presence of contamination in soils has been produced by the Environment Agency and the Department for the Environment, Food and Rural Affairs (DEFRA) and is presented with the report 'Using Science to Create A Better Place: Updated Technical Background to the CLEA Model – Science Report SC050021/SR3'. This guidance document defines a series of standard land-uses, which form a basis for the development of a Conceptual Site Model.

The proposed development plan is understood to comprise the demolition and reconstruction of the current community centre. Therefore, the land use has been considered as:

- Commercial

In view of the environmental setting, current and potential future land use of the site and surrounding sites, the potential receptors for any contaminant impact are discussed in the table below:

Receptor	Site Specific Description
Human	Future site users, construction workers involved in the site redevelopment, and those working and living in the surrounding area have the potential to be at risk from exposure to potential contaminants of concern (CoCs).
Groundwater	The site is reported to be underlain by Superficial Stanmore Gravel Formation and Bagshot Formation respectively, both of which are defined by the EA as Secondary Aquifers, although the historic borehole log does not indicate that shallow groundwater is likely to be present. Whilst the site does not lie within a SPZ for nearby groundwater abstraction, the underlying geology does have some resource potential and therefore groundwater should be considered as a potential receptor to site derived contaminants at this stage.
Surface Water	The nearest surface watercourse is an unnamed drain which is located around 185m south east. The primary concern for this site should be considered as the groundwater within the underlying Secondary Aquifers however, if significant impacts to groundwater were to be encountered then further consideration should be given to the associated risk posed to nearby surface waters via lateral migration of contaminants in the subsurface.
Flora and Fauna	Proposed development plans for the site do not indicate that any areas of garden, planting or landscaping will be present. Therefore, flora and fauna have not been considered as a sensitive receptor to site-derived contaminants.
Buildings & Infrastructure	Subsurface structures are likely to be present at the site which may be adversely affected by the potential presence of the identified contaminants of concern. These buried potable water supply pipes and other service lines and pipes.
Adjacent Land	Adjacent properties including private residential dwellings could also be at risk from potential contaminants found at the site.

3.3 Potential Pathways

Where contaminants may be present in soil, there are a number of potential pathways that enable human receptors to come into contact with or be exposed to them. The most direct pathways, considered under current UK legislation, can be summarised as follows:

- Direct ingestion of contaminated soil
- Ingestion of household dust
- Ingestion of contaminated vegetables
- Ingestion of soil attached to vegetables
- Dermal contact with contaminated soil
- Dermal contact with household dust
- Inhalation of fugitive soil dust
- Inhalation of fugitive household dust
- Inhalation of vapours outside
- Inhalation of vapours inside

Clearly, not all of these potential pathways apply for every standard land-use; the simplest example for exclusions being a commercial / industrial site which is covered by concrete

hardstanding. The concrete precludes the direct exposure of humans working at the site to any contaminated soils.

However, in addition to direct exposure pathways, a number of physical transport mechanisms / pathways may also exist at a site that allow remote or less accessible contaminants in soil or groundwater to reach human or environmental receptors both at a site and beyond the site boundary. These include the transport mechanisms listed below.

- Downward and lateral movement of contaminants in soil either by gravity or through being 'leached' by percolating rainwater
- Lateral migration of contaminants dissolved in groundwater.
- Direct seepage or leaching of contaminants from soil into subsurface drains or supply pipework.
- Volatilisation of contaminants from groundwater or unsaturated soils into buildings or outdoor air.

Through examination of the standard land use and environmental setting at each site, the presence of pathways and transport mechanisms described above must be considered when assessing whether a contaminant linkage may plausibly be active, and therefore be included in the conceptual site model.

3.4 Summary of Contaminant Linkages

Considering the site use and environmental setting, and proposed land use, the following plausible contaminant linkages have been identified through this phase I assessment and require further investigation.

Source	Pathway	Receptor
Contaminated soil	Direct contact and inadvertent ingestion by eating or smoking with dirty hands	Construction workers during redevelopment
	Inhalation of fugitive dusts	
	Ingress / diffusion through permeable potable water supply pipes	Site users

The following comments are made with respect to contaminant linkages which have been considered through development of the conceptual model, but have not been concluded as 'plausible' – i.e. through which a significant possibility of significant harm could occur to an identified receptor:

- PAHs and metals have been identified as contaminants of concern associated with the historic on-site infill, however these contaminants are considered to be relatively immobile in the environment by virtue of their very low solubility and volatility. On this basis, plausible

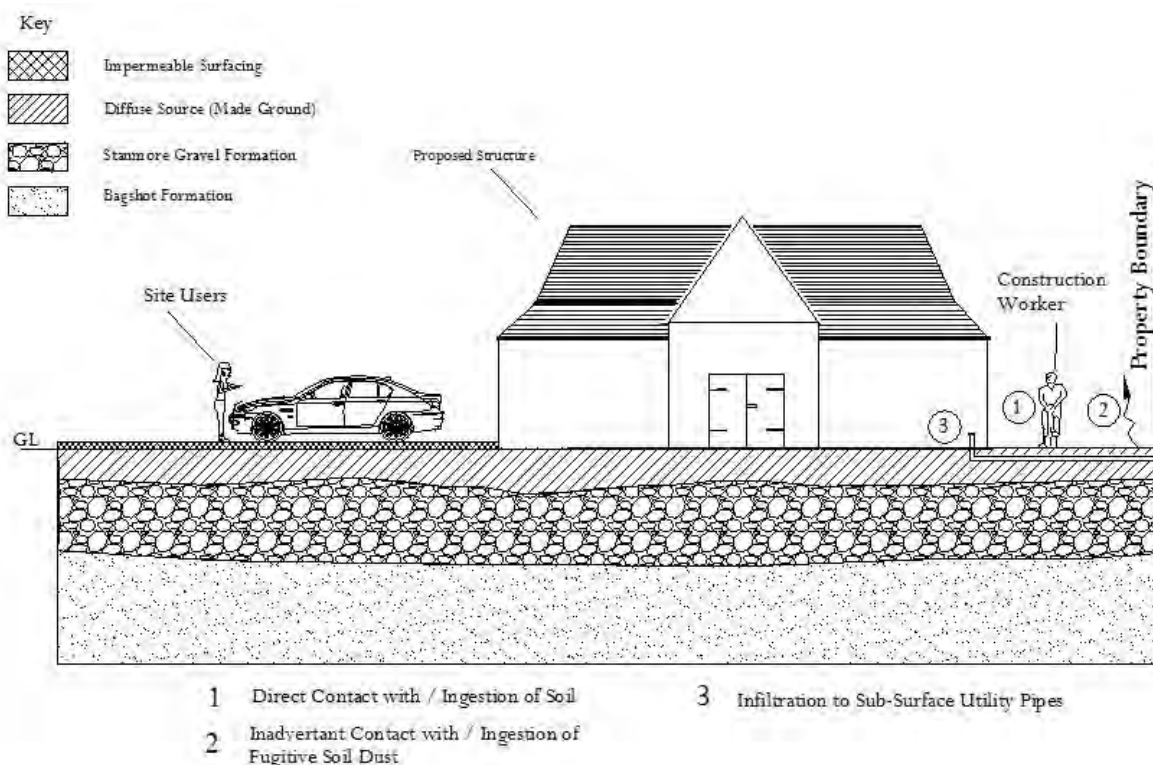
pathways by which these potential contaminants could pose a significant risk to the underlying groundwater or surface watercourses are not considered to be active.

- Due to the nature of the proposed redevelopment, all external spaces outside the building footprint are set to comprise hardstanding, with no areas of planting or landscaping anticipated. Therefore, future site users are assumed to have no direct contact with subsurface soils post completion of the redevelopment works. As a result, no pathway is identified with materials containing metals or PAHs.

- Several commercial land uses including a petrol filling station have been identified within the surrounding area and although the underlying geology is considered a sensitive receptor, given the distance of the more significant features (>100m) and the fact that the site appears to lie in an area of local topographic high these are not considered to pose a potential risk to the site. Furthermore, groundwater was not identified within 12m of surface level, within the neighbouring BGS borehole log.
- The electricity substations identified in the local area do represent potential off-site sources that could contain PCBs. However, given the distance of these features (at least 35m from the property boundary) and the limited mobility of PCBs in the environment, these sources are not considered to pose a significant risk to the proposed development.
- Whilst a number of areas of historically infilled land have been identified within the surrounding area including a number of supposed infilled pits/ quarries; given the size, age, (and therefore likely nature of fill material) and distance >175m of these features from the site, a plausible contaminant linkage is not recognised from the on-site migration of landfill gas from these features. A number of larger landfill sites have also been highlighted throughout the risk assessment process, but are all in excess of 500m from the property boundary and are therefore not anticipated to represent a significant risk to future site users.
- Contaminants of concern may be associated with the nearby railway line, located around 230m to the north. However, given the distance of this feature from the site, and as no goods / storage yards or sidings have been present close to the site, a plausible contaminant linkage has not been identified associated with this source.

The following diagram provides an illustration of the plausible contaminant linkages that may be active at the site and which may need further investigation or control to ensure safe development:

Chantry Centre, Billericay – Illustrative Conceptual Site Model



4 SUMMARY OF INTRUSIVE INVESTIGATIONS

Intrusive investigations were undertaken on the 17th May 2018 in accordance with EPS standard operating procedures, copies of which will be made available on request. A summary of all site activities is presented in the following sections.

4.1 Exploratory Hole Locations

Exploratory hole locations were selected through consideration of the potential contaminant linkages identified through the Phase I Desk Study, the proposed development layout, the location of below ground utilities as well as operational and health & safety considerations.

Five window sample boreholes (WS01 – WS05) were drilled across the site to a maximum depth of 4.0m. Boreholes WS02 and WS03 were terminated at 1.0m and 2.0m respectively, to facilitate the completion of falling head infiltration tests.

The overall objective in terms of exploratory hole locations was to provide an appropriate lateral and vertical coverage of the soils underlying the site in order to provide information relating to their quality and nature as well as to assist with geotechnical design. Further rationale for each sampling location is provided within the table below:

Location	Rationale
WS01-WS05	Provide information on the quality and nature of shallow soils and to assess the ground conditions (including strength and consistency) to assist with geotechnical design.
WS02 & WS03	Completion of a falling head infiltration tests to determine the permeability of the underlying natural soils.

A standpipe was installed at borehole location WS05, to cover any future gas or groundwater monitoring requirements using 50mm diameter uPVC well casing and fitted with a plastic cap. Slotted casing (1mm slot) was installed from the base of the borehole to approximately 1.0m below the surface and the installation was completed to ground surface using plain casing. A filter pack of 2-3mm washed gravel extended from the base of the borehole to approximately 0.1m above the slotted section with a bentonite seal to surface. The monitoring point was finished with forecourt rated, bolt down headworks.

A borehole location plan is presented as Figure 4.

4.2 In Situ Testing & Soil Sampling

Each borehole was logged for ground conditions encountered and inspected for any physical evidence of contamination, such as soil staining, odour and the presence of separate phase liquids on a precautionary basis.

Standard or cone penetration tests (SPT / CPT) were carried out in each borehole location using an automatic trip hammer. The number of blows required to advance a standard split spoon, (or solid 60° nose cone for the CPT test) over the final 300mm of a 450mm total drive was recorded and is shown on the borehole records at the penetration resistance (“N” value).

Where potentially volatile organic compounds are suspected, EPS carries a Photoionisation Detector (PID), which can be used to measure the relative concentrations of vapour associated with soil samples collected from different depths and locations at the site. Headspace testing by PID was not undertaken during the investigations given the absence of any visual or olfactory evidence of contamination within the recovered soils, which conformed to the findings of the conceptual model.

4.3 Laboratory Testing

Samples obtained for analysis of identified contaminants of concern were submitted to Exova Jones Environmental of Flintshire, who hold appropriate UKAS / MCERT accreditation for the required testing. Samples were transported in laboratory supplied containers and delivered to the laboratory by approved courier.

Geotechnical testing was undertaken by Soil Property Testing, Huntingdon, a UKAS accredited laboratory. Copies of chain of custody documentation are held by EPS and will be made available on request.

Laboratory testing schedules for environmental and geotechnical samples are included as Tables 1 and 2 respectively.

5 FINDINGS OF THE INVESTIGATION

This section of the report provides a summary of the findings of the various aspects of the ground investigation.

5.1 Ground Conditions

Five window sample boreholes were formed across the site and the natural soils encountered have been interpreted to be representative of Claygate Member bedrock, with the anticipated superficial (predominantly granular) soils not identified throughout the intrusive works. Therefore, the ground conditions have been summarised as:

- Made Ground
- Claygate Member

Site specific borehole logs are included as Appendix G and give descriptions and depths of strata encountered. A summary of the general strata encountered across the site is provided in the table below, with more detailed description given in the following sub sections.

Geological Strata	Maximum Depth to Base of Strata (m bgl)	Strata Thickness (m)
Made Ground	1.1	0.5-1.1
Claygate Member	>4.0m	>1.1->3.5 (not proven)

5.1.1 Made Ground

Made ground was encountered at all locations and was found to be largely consistent in all the locations formed beneath the existing external hardstanding. The profile consisted of a thin layer of asphalt above a sub-base comprising black and light brown gravel with sandy pockets and inclusions of asphalt as well as concrete and brick fragments/ cobbles to roughly 0.3m depth. This was in turn above a further (often more significant layer of infill) often recorded as dark brown very silty gravelly clay containing decayed roots, fine brick fragments, rare glass, coarse flints and black gravel. The total profile of the made ground in these locations extended to a maxim depth of 1.1m in WS01, however it should be noted that the potential for greater thickness of infill beneath the existing building does exist.

Position WS04 was formed in an area of soft landscaping and so the made ground was present from surface as a dark brown gravelly clayey silt with numerous decayed roots, fine brick and concrete gravel, extending to 0.5m.

5.1.2 Claygate Member

Soils interpreted to be representative of the Claygate Member were recovered from beneath the made ground in all locations and were present to beyond the maximum formation depth of each borehole, which was regularly >4.0m depth. These were found to be variable in nature consisting of fine and gravelly (initially clayey) sands from shallow depth and throughout the profile of WS01 and WS02 and at depth in WS05. In the remaining positions (WS03 and WS04) layers of soft orangey brown very silty clay or clayey silt were recorded, which suggests a grading from predominantly granular deposits in the north west, to more cohesive soils towards the south eastern area.

5.2 Groundwater

Groundwater strike was not recorded during or upon completion of drilling activities.

5.3 Physical Evidence of Contamination & Field Testing

There was no palpable evidence of contamination, waste or putrefiable material encountered in any of the sampling locations during the investigation, including throughout the profile of the infilled soils. This included the absence of visual or olfactory indication of hydrocarbon staining.

5.4 Laboratory Analysis – Soil

A laboratory analysis testing schedule is presented as Table 1 and all environmental sample results obtained from the laboratory are included as Appendix H. The key results of laboratory testing on environmental soil samples are summarised below.

Contaminant	No. of Samples	No of Detections	Range of Detections (mg/kg)		Highest Location & Depth (m bgl)
			Min	Max	
Arsenic	5	5	3.3	20.3	WS01 (0.3-1.1) & WS05 (0.3-0.6)
Cadmium	5	1	0.2		WS01 (0.3-1.1)
Chromium	5	5	59.7	205.5	WS05 (3.5-4.0)
Copper	5	5	4	60	WS02 (0.04-0.4)
Lead	5	5	5	689	WS05 (0.3-0.6)
Mercury	5	2	0.2	0.3	WS01 (0.3-1.1)
Nickel	5	5	15.7	31.6	WS02 (0.04-0.4)
Selenium	5	0	n/a		n/a
Zinc	5	5	18	197	WS01 (0.3-1.1)
Naphthalene	5	2	0.08	0.53	WS02 (0.04-0.4)
Benzo[a]pyrene	5	2	0.08	0.24	WS01 (0.3-1.1)
Dibenz(ah)anthracene	5	1	0.06		WS01 (0.3-1.1)
PAH (Total of 16)	5	2	3.2	5.7	WS02 (0.04-0.4)
TPH CWG	3	1	55		WS01 (0.3-1.1)
Asbestos (mass %)	5	0	-		n/a

Notes:
- Contaminant not found above laboratory detection limits
PAH Polycyclic Aromatic Hydrocarbons
TPH CWG Total Petroleum Hydrocarbons Criteria Working Group

5.5 Waste Analysis

Waste classification (i.e. hazardous or non-hazardous) was undertaken for representative samples of the made ground and natural soils recovered during the intrusive works, which included total concentrations of metals and hydrocarbons, using computer software provided by HazWaste Online™. The outputs from this process are included as a Waste Classification Report in Appendix I.

Subsequent Waste Acceptance Criteria (WAC) analysis was undertaken on one sample of made ground and one sample of both natural clay/ granular based soils of the Claygate Member respectively, as these materials are considered representative of the majority of the material that will be generated through future groundworks, and therefore to be considered for future off-site disposal. These results are also included within Appendix H and together with those of the waste classification above, are summarised in the following table:

Strata Description and Approximate Depth (m bgl)	Is it Hazardous? (number of hazardous samples)	Waste Code	Waste Acceptance Criteria	Waste Classification
Made Ground*- dark brown very silty gravelly clay with construction debris (0.03-1.1m).	No (0 of 3)	17 05 04	Passed criteria for inert landfill	INERT
Claygate Member (clay soils, more dominant towards the south east) - orangey brown silty slightly gravelly clay (varying depths >1.0->4.0m)	No (0 of 1)	17 05 04	Passed criteria for inert landfill	INERT
Claygate Member (granular soils, more dominant towards the north west) - light yellow gravelly sand (varying depths >1.0->4.0m)	No (0 of 1)	17 05 04	Passed criteria for inert landfill	INERT

The results of this process show that all materials analysed across the site have been classified as **INERT** for the purposes of off-site disposal. However, it should be recognised that the final decision regarding waste classification will lie with the chosen waste receiver.

Furthermore, the made ground materials tested don't include the thin layer of asphalt surfacing above the profile of the infill and this layer should be independently assessed if further detail on future handling and disposal characteristics are required.

* For made ground such as this, although the soil sampling process did not identify potentially hazardous concentrations of Asbestos Containing Material (ACM) within the soil, it must be acknowledged that the material may exist within areas which were not sampled or accessible during the investigation (particularly beneath the existing structure, which has replaced a number of former buildings in this area). Any visually identifiable fragments of ACM can invalidate any non-hazardous waste classification, as such, the above waste classifications are made on the proviso that any visually identifiable fragments of ACM are removed from the material prior to its disposal off-site. The subsequent ACM must then be disposed of in accordance with the Control of Asbestos Regulations 2012.

5.6 Geotechnical Testing

5.6.1 In-Situ Geotechnical Testing

The results of in-situ geotechnical testing for both granular and clay based soils with the profile of the Claygate Member are summarised in the table below.

Depth (m bgl)	Minimum 'N' Value	Maximum 'N' Value
1.0	6	15
2.0	8	14
3.0	13	21
4.0	13	22

5.6.2 Laboratory Geotechnical Testing

The results of geotechnical laboratory testing are summarised in the table below and all geotechnical sample results obtained from the laboratory are included as Appendix J.

Strata	Moisture Content (%)		Plasticity Index (%)		Particle Size Distribution (%)				CBR (%)	
	Min	Max	Min	Max	Silt	Clay	Sand	Gravel	Min	Max
Claygate Member (cohesive)	20.4	22.8	10	19 (16)	-	-	-	-	2.7	4.1
Claygate Member (granular)	-	-	-	-	9	3	88	0	-	-
					20	9	69	2		
					15	9	75	1		

(-) indicates plasticity modified for granular content

The natural moisture content was established for three samples of cohesive soil in accordance with BS1377 Part 1:7.3 and BS1377: Part 2:3.2.

Atterberg limit tests were undertaken on three samples of cohesive soils in accordance with BS1377: Part 1:7.4 and BS1377: Part 2:3.2 & 4.2.

Particle Size Distribution was undertaken on three samples of predominantly granular material in accordance with BS1377: Part 2: 1990: 9.2.

California Bearing Ratio (CBR) tests were scheduled for one sample of shallow soils in accordance with BS 1377: Part1, 4:1990:7.4.

Sulphate contents and pH values determinations were also carried out by the analytical laboratory, the results of which are summarised in section 6.5 below.

6 GEOTECHNICAL APPRAISAL

The ground conditions have been found to comprise a significant layer of made ground, overlying variable cohesive and granular soils of the Claygate Member.

6.1 Structural Foundations

The ground conditions are considered suitable for the use of conventional spread foundations, either strip footings or pad foundations bearing on the underlying Claygate Member deposits.

A minimum foundation depth of 0.75m, below existing or proposed ground level is considered suitable for the site, subject to the following provisos:-

- a) Foundations should fully penetrate any made ground and any disturbed ground arising from the removal of existing foundations/ below ground structures and should extend a minimum of 150mm in to undisturbed natural strata. It should be noted that made ground extended to a maximum depth of 1.1m and therefore average foundation depths may well exceed the advised minimum, particularly beneath the footprint of the existing structure.
- b) The Claygate Member have generally been proven as a predominantly cohesive (clay) material and will be subject to volume change (subsidence and / or heave) due to the presence of trees / vegetation. Foundations will therefore need to take into account the presence of trees, including those adjacent to the sites boundaries, as well as any to be recently removed or to be planted as part of the proposed scheme. Laboratory analysis has established the cohesive soils of the Claygate Member as having 'low volume change' potential in accordance with NHBC Standards Chapter 4.2 *'Building Near Trees'*.

Therefore, as an example, to comply with NHBC Standards, foundations will need to be deeper than 1.8m within a distance of approximately 10m of a mature English Oak. It is recommended that a tree survey is undertaken, so full consideration of the impact of these may be taken in to account in foundation design.

Where foundations exceed 1.5m in depth due to the influence of trees / vegetation, full anti-heave precautions will need to be adopted.

Allowable bearing capacities for the Claygate Member are provided in the table below. The allowable bearing capacity is the permissible increase in vertical stress at the level of the underside of the foundation, above existing overburden pressure, which may be calculated on the basis of a soil density of 19kN/m³.

Depth (m bgl)	Allowable Bearing Capacity (kN/m ²)	
	Strip	Pad
1.0	65	70
1.5	70	75
2.0	75	80

At the above bearing capacities, total settlements in soils are unlikely to exceed approximately 20mm to 25mm. Settlements in cohesive (clay) soils will comprise both immediate and long term (consolidation) settlement and will take place over a longer period of time. Settlements in the granular soils will be less time dependant and will take place rapidly as loadings increase.

It is recommended that where foundations cross a change in strata, from cohesive to granular, nominal reinforcement is incorporated in foundations, to control the effects of differential settlements.

6.2 Ground Floor Construction

Given that made ground is present across the site to depth of greater than 0.6m, suspended ground floor construction is recommended throughout the development.

6.3 Drainage

In order to provide an initial assessment of infiltration characteristics of the underlying shallow soils, falling head permeability testing was undertaken within two open (uncased) boreholes (WS02 & WS03).

Two tests were performed at WS02 at a depth of 2.0m and the calculated rates from each was 3.47E-07m/s and 1.84E-07m/s.

Two tests were also performed at WS03 at a depth of 3.0m and the calculated rates from each was 2.02E-07m/s and 1.06E-07m/s.

These values indicate 'very low permeability drainage conditions' and soakaway drainage systems would be considered unlikely to be successful.

6.4 Groundworks

Excavations in the Claygate Member (due to its variable nature) or any shallow made or disturbed ground should not be relied upon in unsupported excavations.

Heavy plant and stockpiles of materials should not be permitted close to the edges of unsupported excavations. Further reference may be made to CIRIA Report No. 97 '*Trenching Practice*' 1992.

Groundwater was not encountered during the excavation and is not considered likely to be encountered in shallow excavations for foundations.

6.5 Concrete Grade

Sulphate contents and pH values determinations were also carried out by analytical laboratory, the results of which are also included within Appendix H. Results for concrete grade testing for Claygate Member materials are summarised within the following table:

Strata	Water Soluble Sulphate (mg/l SO ₄)		pH		Total Sulphur (%)
	Min	Max	Min	Max	Max
Claygate Member	<1.5	93.9	7.3	8.57	<0.01

In accordance with Part 1 of the BRE Special Digest 1 '*Concrete in Aggressive Ground*' 2005, the mean of the highest two water soluble sulphate values has been used to determine a design sulphate class of DS-1 with aggressive chemical environment for concrete (ACEC) of AC-1s for the Claygate Member.

7 ENVIRONMENTAL APPRAISAL

The following section outlines the approach applied to assessing the risks posed to human health through a Generic Quantitative Risk Assessment, then identifies any sample results found by this investigation which warrant further consideration.

7.1 Land Use Setting & Generic Screening

It is understood that the site will be developed for commercial usage with the construction of a new community centre and parking. In order to screen laboratory data for concentrations of contaminant in soil with potential to cause harm to human health at a commercial setting, relevant generic screening values for contaminants in soil have been used. The technical framework used to derive the screening values and the documents in which they are published are summarised as follows:

- *EA Science Reports* (SC050021/SR2, SC050021/SR3, and SC050021/SR7)
- *EA Soil Guideline Value Science Reports*
- *Suitable For Use Levels (S4ULs) for Human Health Risk Assessment* – LQM and CIEH (2015).
- *Soil Generic Assessment Criteria for Human Health Risk Assessment* - EIC/AGS/CL:AIRE (2010)
- *Development of Category 4 Screening Levels for assessment of land affected by contamination - SP1010* DEFRA (2013)

A summary of the screening criteria and the methodology used to derive them is included in Appendix K.

7.2 Assessment of Results

The results of the screening process for on-site human receptors show that screening values representative of suitability limits for a commercial land use have not been exceeded by any contaminants of concern.

7.3 Summary of Findings

Laboratory analysis of shallow soils has identified that the adopted screening criteria protective of future site users in a commercial setting have not been exceeded by any contaminants of concern. On this basis, no further environmental assessment is considered to be warranted, however, it is recommended that construction workers follow appropriate health and safety guidance and adopt best working practices, to limit exposure to shallow soils during the groundworks stage and to ensure safe development, as outlined in Section 7.4 below.

These measures will also act to protect site workers against the material present beneath the current building, which hasn't been assessed as part of this investigation. Although this material will be temporarily exposed during the groundworks phase, it will be capped by the future building footprint and hardstanding post completion of the scheme, and therefore won't significantly impact future site users. A summary of the approach outlined in CLR11, marking the work already completed under the risk assessment phase, is presented as a flow diagram in Figure 5 of this report.

7.4 Recommendations

The following recommendations are made with respect to required control measures which should be implemented in order to protect construction workers during the site redevelopment.

- a) All construction workers operating at the site should be advised of the potential for contact with made ground material within shallow soils, particularly beneath the existing buildings and hardstanding. Appropriate health and safety precautions should be adopted during any excavation works to avoid exposure to infilled soils. Reference should be made to relevant health & safety guidance including the following CIRIA document: *R132 Guide to Safe Working on Contaminated Sites*.
- b) Should any palpable evidence of unexpected contamination be encountered during the redevelopment work, it should be reported to EPS so that an inspection can be made and appropriate sampling and assessment work carried out, a method statement for this is provided as Appendix L.

It is recommended that a copy of this report be provided to the Environmental Health Department of Basildon Council so that the information may be incorporated into their land quality records and used to support the current planning application.

FIGURES



Approximate Site Location

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Title: Site Location Plan

Project: Chantry Centre, Chantry Way,
Billericay, Essex, CM11 2BB

Fig No: 1

Scale: NTS

Drawn By: DB | Approved By: BV

Job No: UK18.4036

Dwg No: ChantryCentre/0618/01

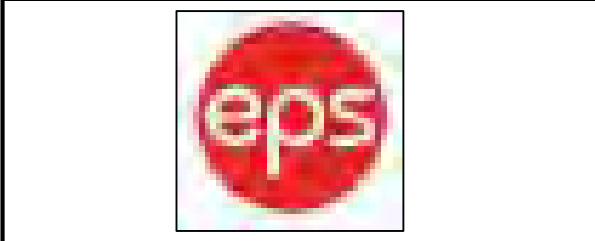
Date: June 2018



Key:

— Approximate Site Boundary

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Licence Number: 100054115



Project: Chantry Centre, Chantry Way, Billericay, Essex, CM11 2BB Fig No: 2	Scale: NTS	
	Drawn By: DB	Approved By: BV
	Job No: UK18.4036 Dwg No: ChantryCentre/0618/02 Date: June 2018	

Scale:	NTS	
Drawn By:	DB	Approved By: BV

Job No: UK18.4036
Dwg No: ChantryCentre/0618/02
Date: June 2018



Key:

— Approximate Site Boundary

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Title: Aerial Photograph

Project: Chantry Centre, Chantry Way,
Billericay, Essex, CM11 2BB

Fig No: 3

Scale: NTS



Drawn By: DB | Approved By: BV

Job No: UK18.4036

Dwg No: ChantryCentre/0618/03

Date: June 2018



Key:	
	Approximate Site Boundary
WS05	Approximate Window Sampler Borehole Location
	

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Title: Borehole Location Plan

Project: Chantry Centre, Chantry Way,
Billericay, Essex, CM11 2BB

Fig No: 4

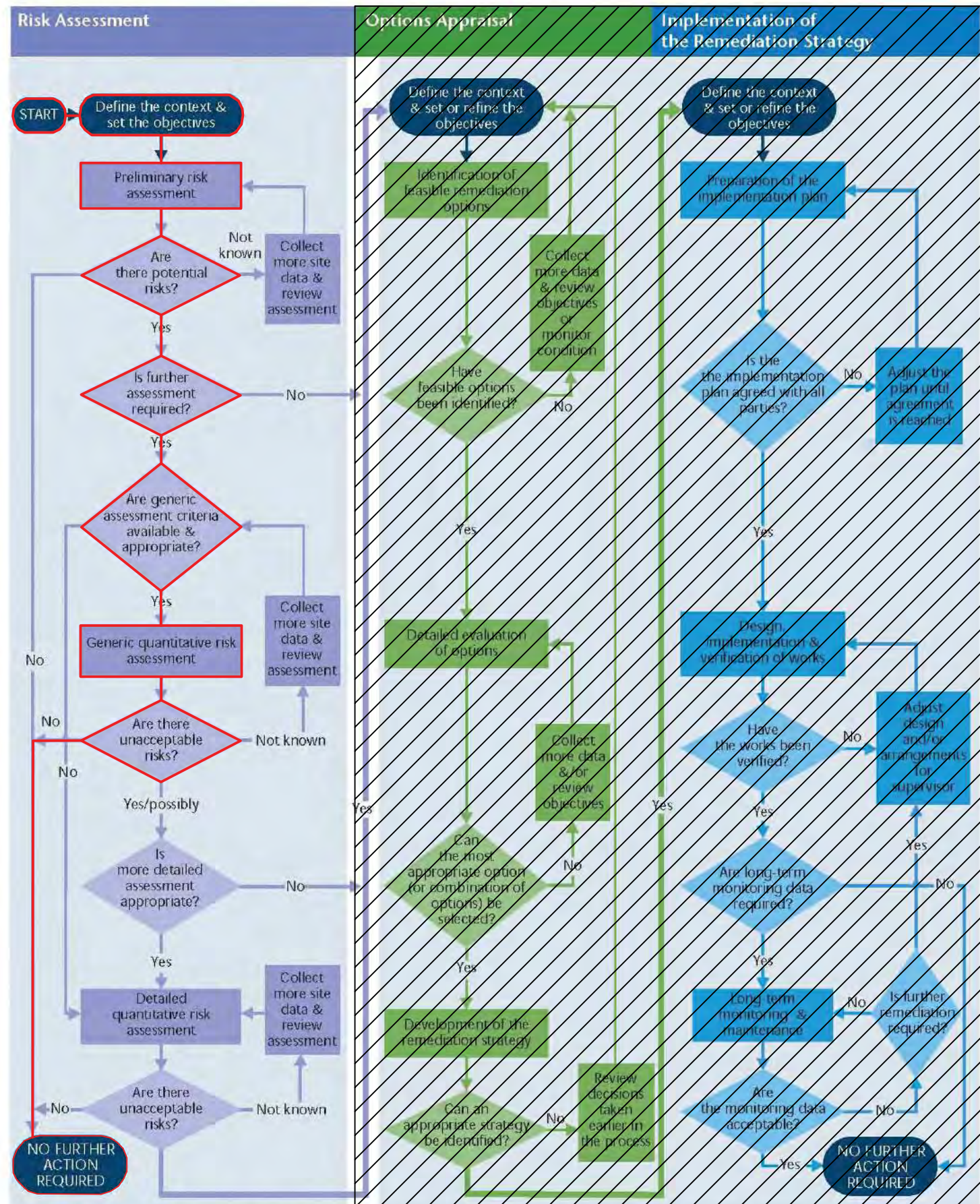
Scale: NTS

Drawn By: DB **Approved By:** BV

Job No: UK18.4036

Dwg No: ChantryCentre/0618/04

Date: June 2018



Assessment Pathway for Site



Title: Site Context - CLR11

Project: Chantry Centre, Chantry Way,
Billerica, Essex, CM11 2BB

Fig No: 5

Scale: n/a

Drawn By: DB Approved By: BV

Job No: UK18.4036

Dwg No: ChantryCentre/0618/05

Revision Date: June 2018

TABLES

Table 1 – Laboratory Testing Schedule (Environmental)

Sample ID	Sample Depth (m bgl)	EPS Mini Suite	EPS Geotechnical Suite	pH and Water-Soluble Sulphate	EPS Waste Suite
WS01	0.3-1.1	-	-	-	1
WS01	1.2-1.4	-	-	1	-
WS02	0.04-0.4	1	-	-	-
WS02	1.7-2.0	-	-	1	-
WS04	1.0-1.5	-	1	-	1
WS04	2.4-2.7	-	-	1	-
WS05	0.3-0.6	1	-	-	-
WS05	3.5-4.0	-	-	-	1
WS05	3.0-3.3	-	-	1	-

Notes:

mbgl

1

-

EPS Mini Suite

EPS Waste Suite

EPS Geotechnical Suite

meters below ground level

Sample Taken

Sample Not Analysed

Organic Matter, Cyanide, Metals, PAH's, Phenols, Asbestos

Waste Characterisation Suite

pH, Water Soluble Sulphate and Total Sulphur

Table 2 – Laboratory Testing Schedule (Geotechnical)

Sample ID	Sample Depth (m bgl)	Moisture Content	Liquid/ Plastic Limits	Particle Size Distribution	CBR
WS01	1.5-2.0	-	-	1	-
WS01	3.0-3.5	-	-	1	-
WS03	0.3-1.2	1	1	-	1
WS03	1.5-1.7	1	1	-	-
WS04	3.3-3.6	-	-	1	-
WS05	2.5-3.0	1	1	-	-

Notes:

mbgl

1

-

meters below ground level

Sample Taken

Sample Not Analysed

APPENDICES

APPENDIX A

Selected Site Photographs



Key:

- Approximate Site Boundary
- 4 Approximate Photograph Locations and Direction

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Title: Photograph Location Plan

Project: Chantry Centre, Chantry Way,
Billericay, Essex, CM11 2BB

Fig No: Appendix A

Scale: As Shown

Drawn By: DB | Approved By: BV

Job No: UK18.4036

Dwg No: ChantryCentre/0618/A

Date: June 2018

Photo 1: Photograph facing approximately south towards the site entrance.



Photo 2: Material recovered from WS03.



Photo 3: Image of location WS04 at the front of the building.



Photo 4: Material recovered from WS04.



Photo 5: Image of location WS05 to the rear of the existing building.

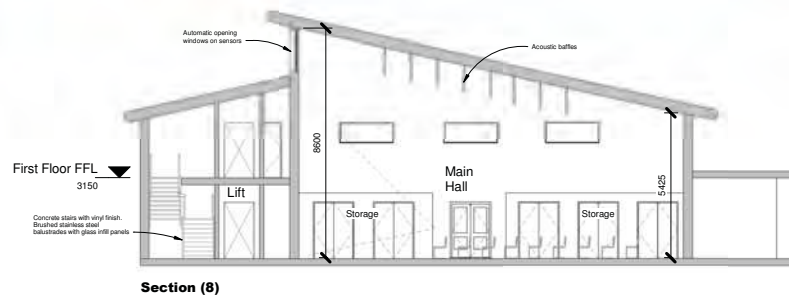
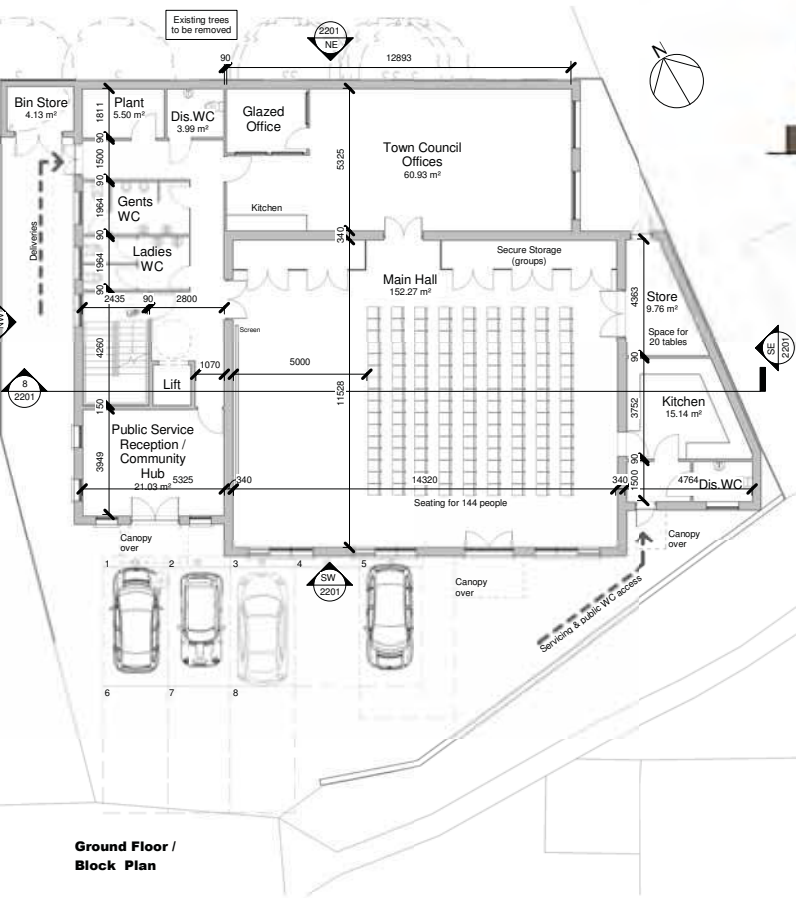
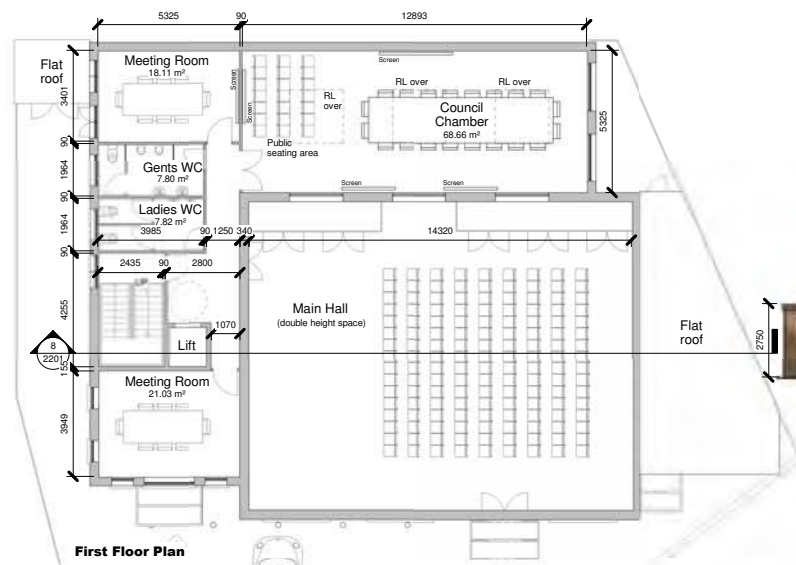


Photo 6: Material recovered from WS05.



APPENDIX B

Proposed Development Plan



All dimensions to be verified on site by Main Contractor before the start of any shop drawings or work whatsoever other than on their own behalf or that of sub-contractors.
Report any discrepancies to the Contract Administrator at once.
This drawing is to be read with all relevant Architect's and Engineer's drawings and other relevant information.
© Ingleton Wood LLP

NOTES: DO NOT SCALE

B	12/06/17	Car parking adjusted. Existing trees added.			
A	02/06/17	Dimensions and materials notes added. Meeting room tables added.	XX	XX	
Rev	Date	Description	Chk	App	

Ingleton Woo
Vision, form and function
Billerica
10 Lake Meadows Business Park
Woodbrook Crescent
Billerica CM12 0EQ
T: 01277 637800
www.ingletonwood.co.uk

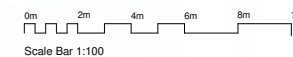
Project No: 62694

Project: Proposed Community Building
Chantry Centre, Chantry Way
Billerica, Essex, CM11 2BB

Drawing Title: Proposed New Building

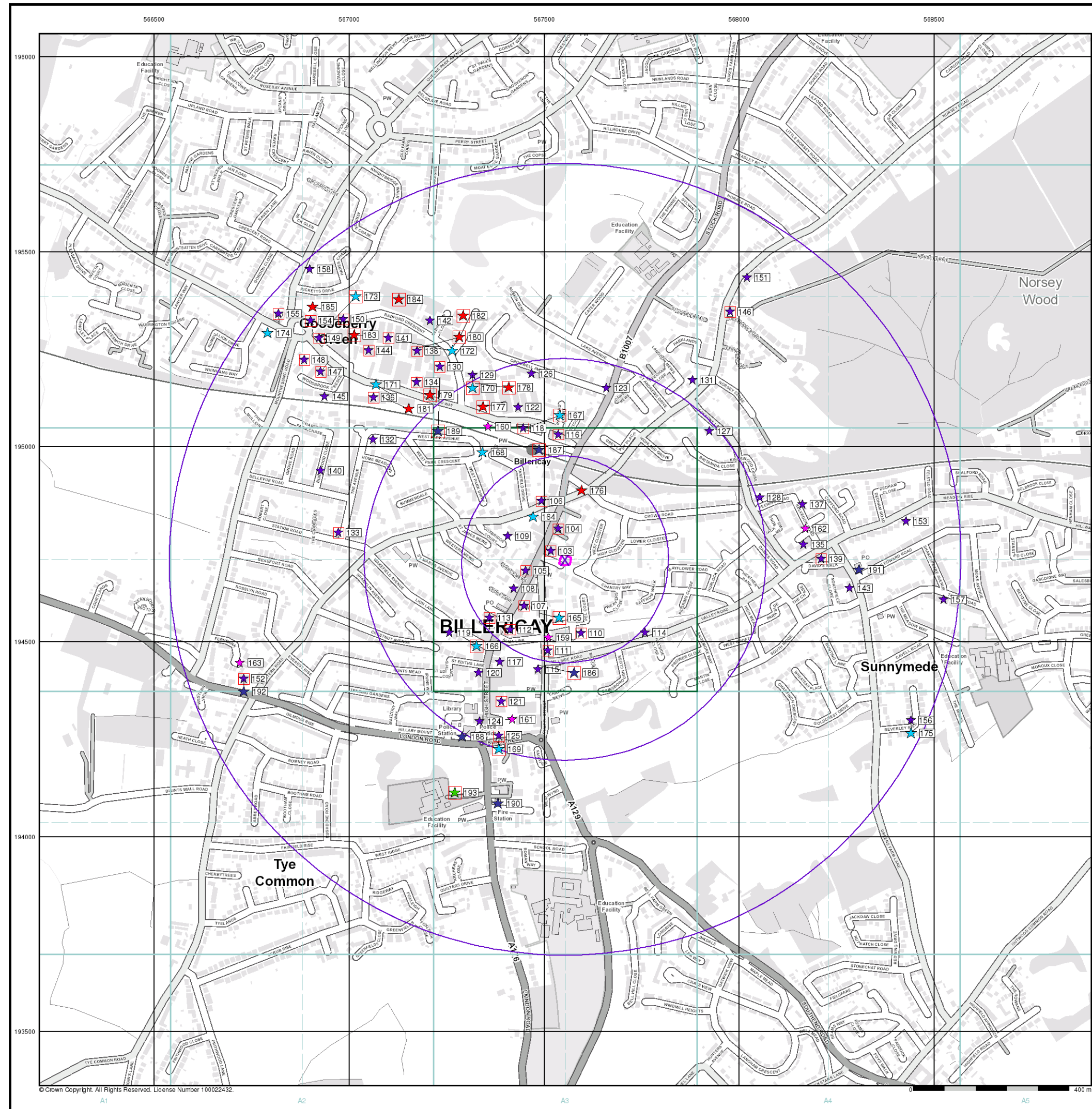
Client: Billerica Town Council

File Ref:	CHANT-IW-DR-A-2201	Revision:	B
Status:	Purpose of Issue	Scale:	1 : 100
		Rev:	A1



APPENDIX C

Surrounding Land Use



Industrial Land Use Map

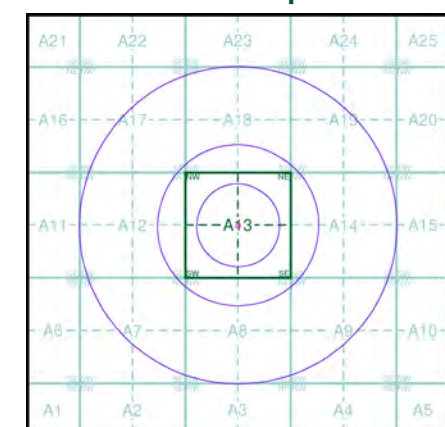
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry
- Gas Pipeline
- Points of Interest - Commercial Services
- Points of Interest - Education and Health
- Points of Interest - Manufacturing and Production
- Points of Interest - Public Infrastructure
- Points of Interest - Recreational and Environmental
- Underground Electrical Cables

Industrial Land Use Map - Slice A



Order Details

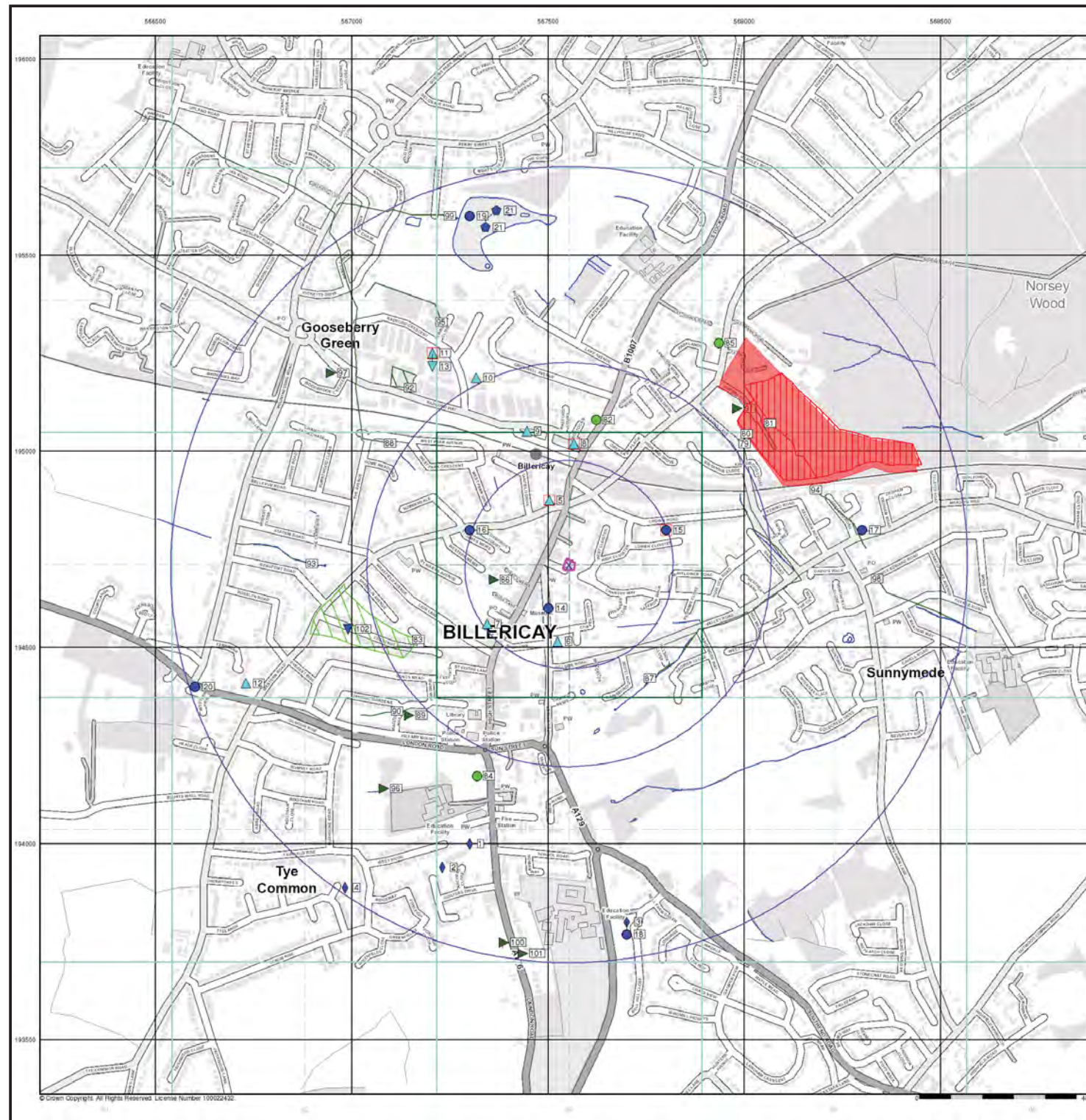
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Customer Ref: UK18.4036
National Grid Reference: 567550, 194710
Slice: A
Site Area (Ha): 0.07
Search Buffer (m): 1000

Site Details

Chantry Centre, Chantry Way, Billericay, Essex, CM11 2BB

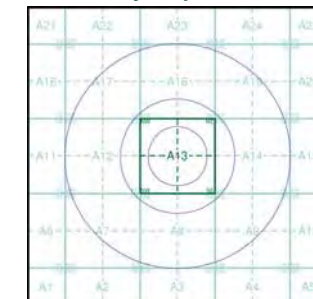


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- General**
- Specified Site
 - Specified Buffer(s)
 - Bearing Reference Point
 - Map ID
 - Several of Type at Location
- Agency and Hydrological**
- Contaminated Land Register Entry or Notice (Location)
 - Contaminated Land Register Entry or Notice
 - Discharge Consent
 - Enforcement or Prohibition Notice
 - Integrated Pollution Control
 - Integrated Pollution Prevention and Control
 - Local Authority Integrated Pollution Prevention and Control
 - Local Authority Pollution Prevention and Control
 - Local Authority Pollution Prevention and Control Enforcement
 - Pollution Incident to Controlled Waters
 - Prosecution Relating to Authorised Processes
 - Prosecution Relating to Controlled Waters
 - Registered Radioactive Substance
 - River Network or Water Feature
 - River Quality Sampling Point
 - Substantiated Pollution Incident Register
 - Water Abstraction
 - Water Industry Act Referral
- Hazardous Substances**
- COMAH Site
 - Explosive Site
 - NIHHS Site
 - Planning Hazardous Substance Consent
 - Planning Hazardous Substance Enforcement
- Geological**
- BGS Recorded Mineral Site
- Waste**
- BGS Recorded Landfill Site (Location)
 - BGS Recorded Landfill Site
 - EA Historic Landfill (Buffered Point)
 - EA Historic Landfill (Polygon)
 - Integrated Pollution Control Registered Waste Site
 - Licensed Waste Management Facility (Landfill Boundary)
 - Licensed Waste Management Facility (Location)
 - Local Authority Recorded Landfill Site (Location)
 - Local Authority Recorded Landfill Site
 - Potentially Infilled Land (Non-water)
 - Potentially Infilled Land (Non-water)
 - Potentially Infilled Land (Water)
 - Potentially Infilled Land (Water)
 - Registered Landfill Site
 - Registered Landfill Site (Location)
 - Registered Landfill Site (Point Buffered to 100m)
 - Registered Landfill Site (Point Buffered to 250m)
 - Registered Waste Transfer Site (Location)
 - Registered Waste Transfer Site
 - Registered Waste Treatment or Disposal Site (Location)
 - Registered Waste Treatment or Disposal Site

Site Sensitivity Map - Slice A



Order Details

Order Number: 165047082_1_1
 Customer Ref: UK18.4036
 National Grid Reference: 567550, 194710
 Slice: A
 Site Area (Ha): 0.07
 Search Buffer (m): 1000

Site Details

Chantry Centre, Chantry Way, Billericay, Essex, CM11 2BB



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APPENDIX D

Geological Context

RECORD OF BOREHOLE No: 3

Location : BILLERICAY - High Street

Borehole Dia : 8 ins.

Contract No. : F69/377

Casing : 8 ins. to 40ft.

Type of Boring : Shell and Auger

Ground Level :

Date (started) : 16th January, 1969.

	Depth of Casing	Water Level	SAMPLES			STRATA		DESCRIPTION OF STRATA	
			Depth	Type	No.	Legend	Depth		Thickness
							0'-0"		
			2'-6"	D	1		2'-8"	2'-8"	MADE GROUND - Brick rubble, clayey topsoil, cinders and gravel.
			5'-0" - 6'-5"	U	2				
			7'-6"	D	3			10'-4"	Soft to firm brown silty sandy CLAY.
			10'-0" - 11'-5"	U	4				
			12'-6"	D	5			13'-0"	
18.30	15'-0"	DRY	15'-0"	D	6				
17.1	15'-0"	DRY	(Σ=47)						
08.00									
			20'-0"	D	7			27'-0"	Dense brown silty fine SAND.
			(Σ=45)						
			25'-0"	D	8				
			(Σ=44)						
			30'-0"	D	9				
			(Σ=45)						
			35'-0"	D	10				
			(Σ=46)						
12.30	40'-0"	39'-0"	40'-0" (Σ=83)	D	11			40'-0"	

REMARKS:





End of Borehole.

SCALE 1" = 5'







Foundation Engineering Ltd.

Geology 1:50,000 Maps Legends




Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	WGR	Worked Ground (Undivided)	Void	Not Supplied - Holocene
	MGR	Made Ground (Undivided)	Artificial Deposit	Not Supplied - Holocene
	SLIP	Landslide Deposit	Clay, Silt and Sand	Not Supplied - Quaternary
	SLIP	Landslide Deposit	Clay	Not Supplied - Quaternary

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Not Supplied - Holocene
	LOFT	Lowestoft Formation	Diamicton	Not Supplied - Anglian
	STGR	Stanmore Gravel Formation	Sand and Gravel	Not Supplied - Pleistocene
	HEAD	Head	Clay, Silt, Sand and Gravel	Not Supplied - Quaternary
	RTD2	River Terrace Deposits, 2	Sand and Gravel	Not Supplied - Quaternary
	RTD3	River Terrace Deposits, 3	Sand and Gravel	Not Supplied - Quaternary

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	BGS	Bagshot Formation	Sand	Not Supplied - Ypresian
	CLGB	Claygate Member	Clay, Silt and Sand	Not Supplied - Ypresian
	LC	London Clay Formation	Clay, Silt and Sand	Not Supplied - Ypresian



Geology 1:50,000 Maps

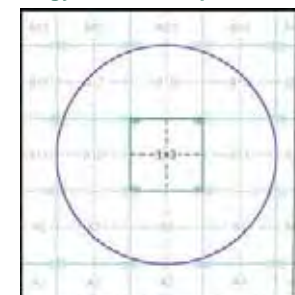
This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published paper maps.

The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:50,000 Maps Coverage

Map ID:	1
Map Sheet No:	257
Map Name:	Romford
Map Date:	1996
Bedrock Geology:	Available
Superficial Geology:	Available
Artificial Geology:	Available
Faults:	Not Supplied
Landslip:	Available
Rock Segments:	Not Supplied

Geology 1:50,000 Maps - Slice A



Order Details:

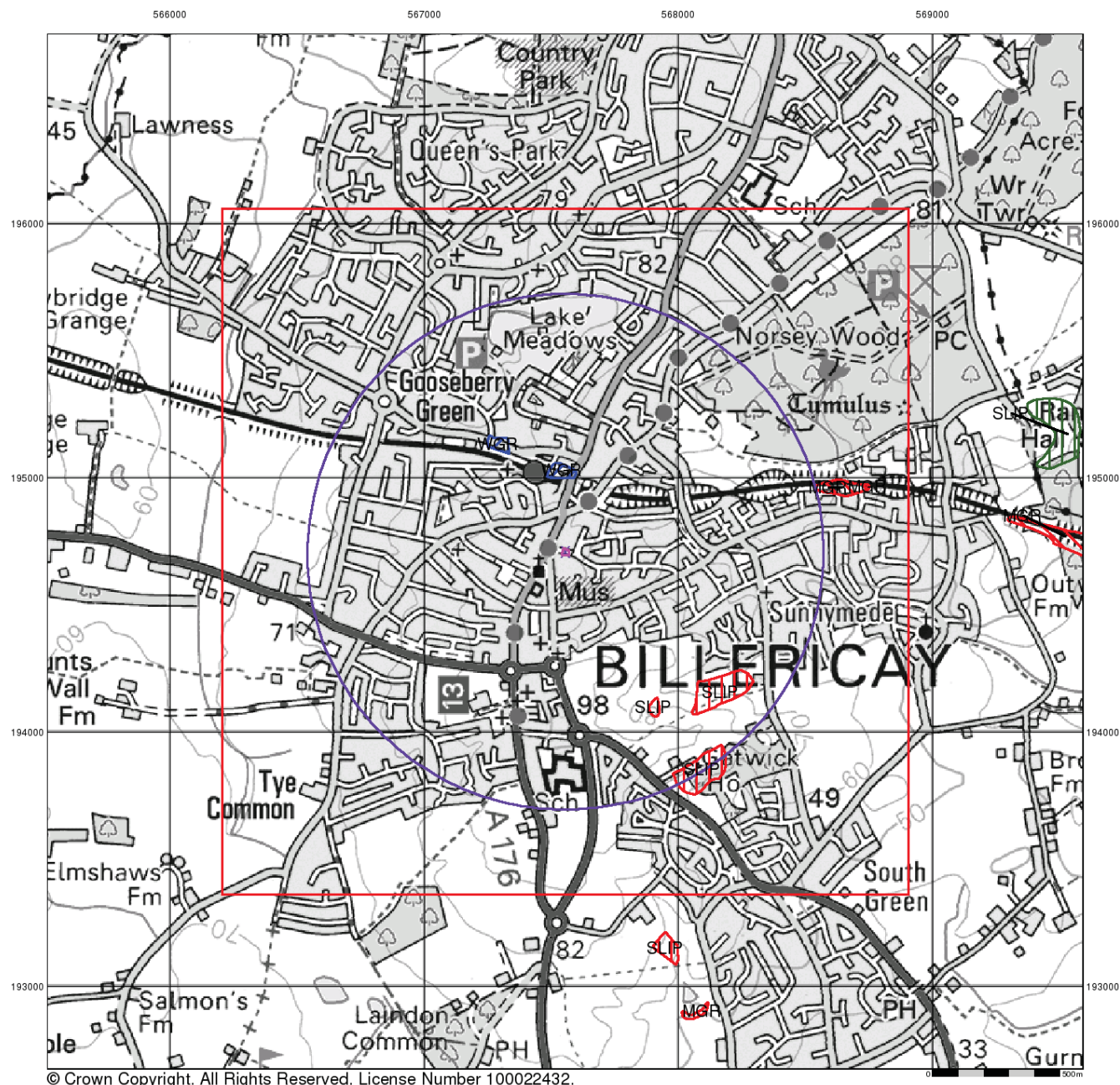
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Customer Reference:	UK18.4036
National Grid Reference:	567550, 194710
Slice:	A
Site Area (Ha):	0.07
Search Buffer (m):	1000

Site Details:

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Artificial Ground and Landslip

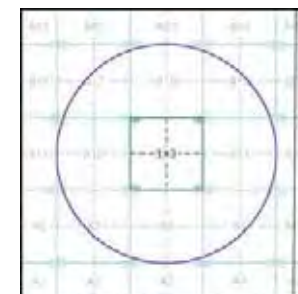
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes foundered strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice A



Order Details:

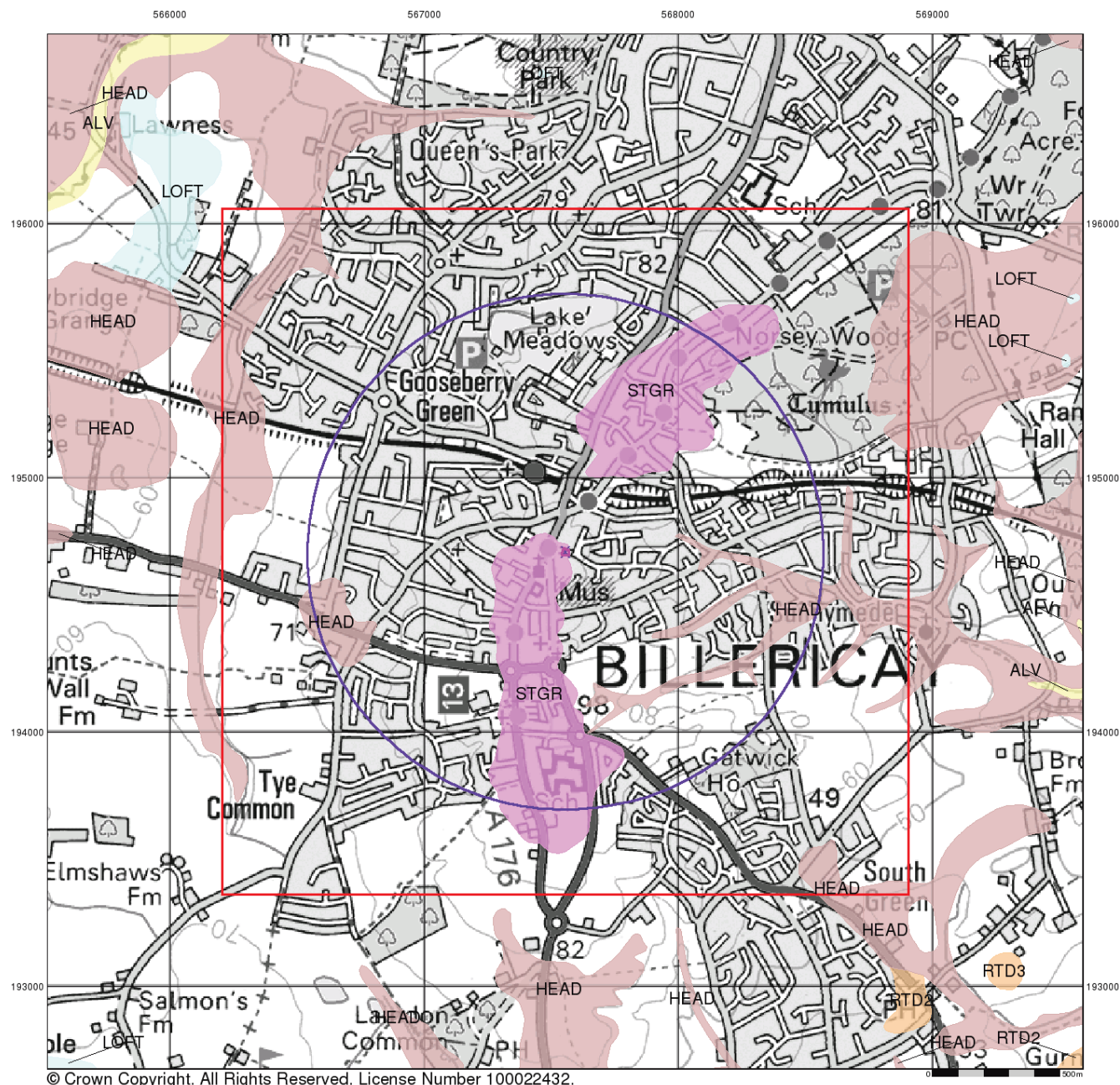
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 Customer Reference: UK18.4036
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 Slice: A
 Site Area (Ha): 0.07
 Search Buffer (m): 1000

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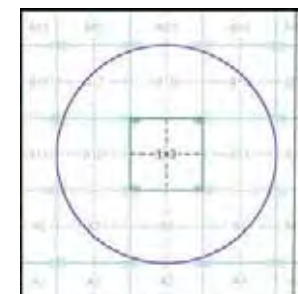
Superficial Geology

Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

Superficial Geology Map - Slice A



Order Details:

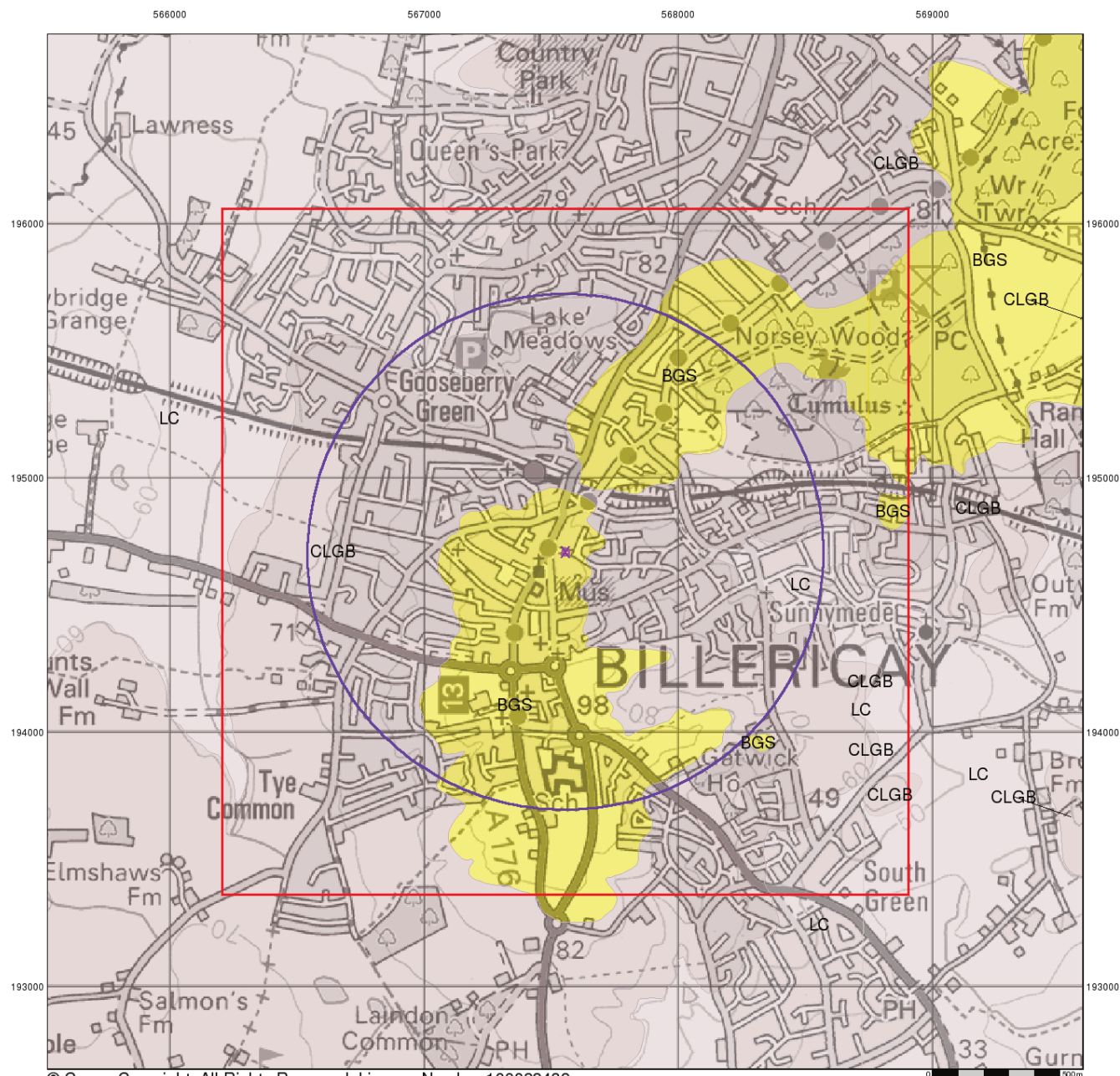
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Customer Reference: UK18.4036
National Grid Reference: 567550, 194710
Slice: A
Site Area (Ha): 0.07
Search Buffer (m): 1000

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Bedrock and Faults

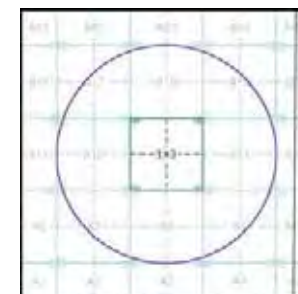
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets, for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but cut across the strata and post date its deposition.

Bedrock and Faults Map - Slice A



Order Details:

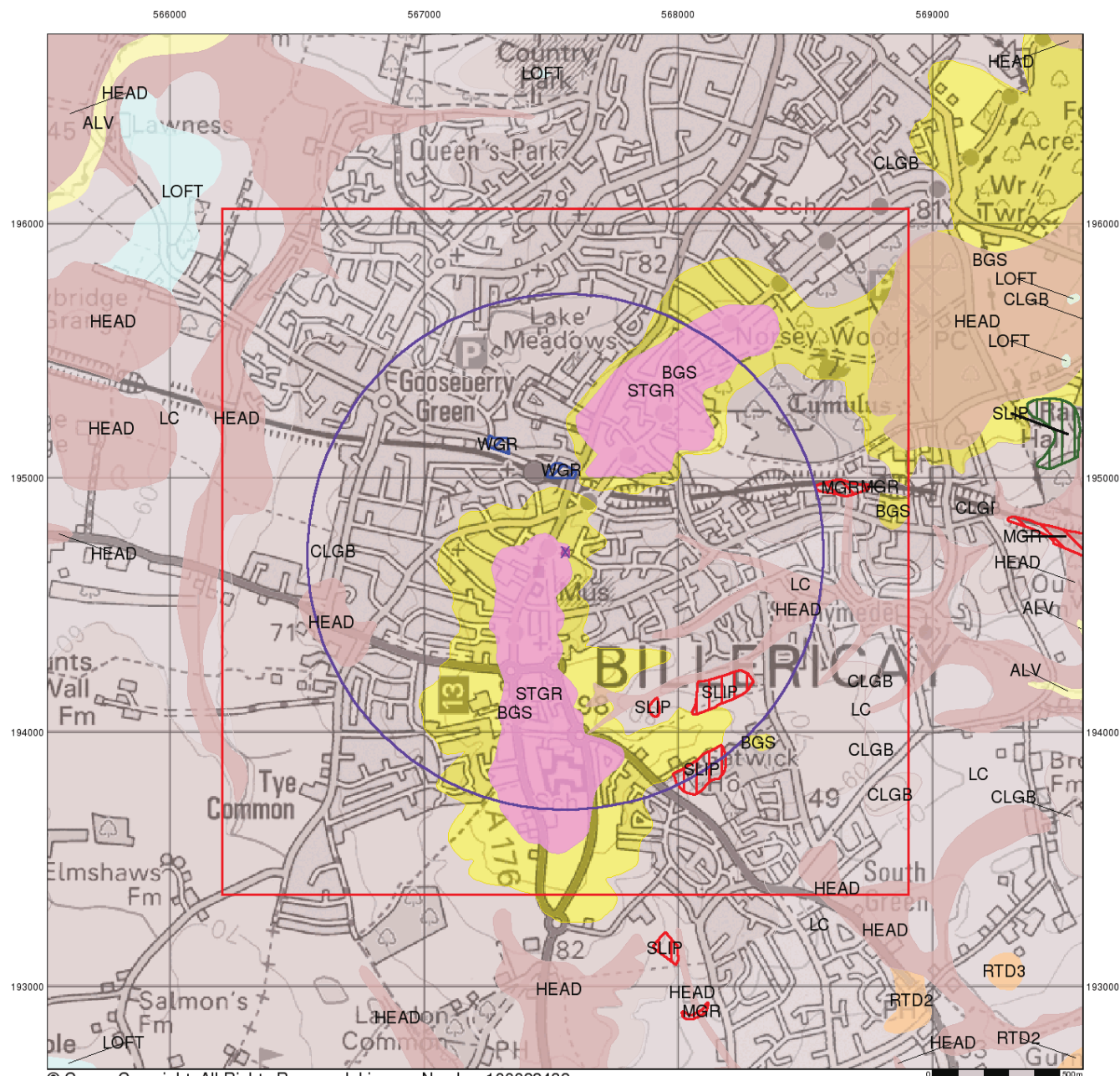
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Customer Reference: UK18.4036
National Grid Reference: 567550, 194710
Slice: A
Site Area (Ha): 0.07
Search Buffer (m): 1000

Site Details:

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Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

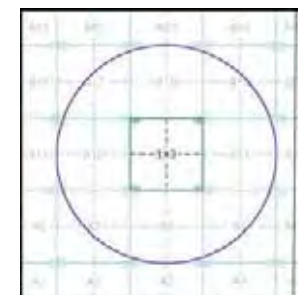
Additional Information

More information on 1:50,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

Contact

British Geological Survey
Kingsley Dunham Centre
Keyworth
Nottingham
NG12 5GG
Telephone: 0115 936 3143
Fax: 0115 936 3276
email: enquiries@bgs.ac.uk
website: www.bgs.ac.uk

Combined Geology Map - Slice A



Order Details:

Order Number: 165047082_1_1
Customer Reference: UK18.4036
National Grid Reference: 567550, 194710
Slice: A
Site Area (Ha): 0.07
Search Buffer (m): 1000

Site Details:

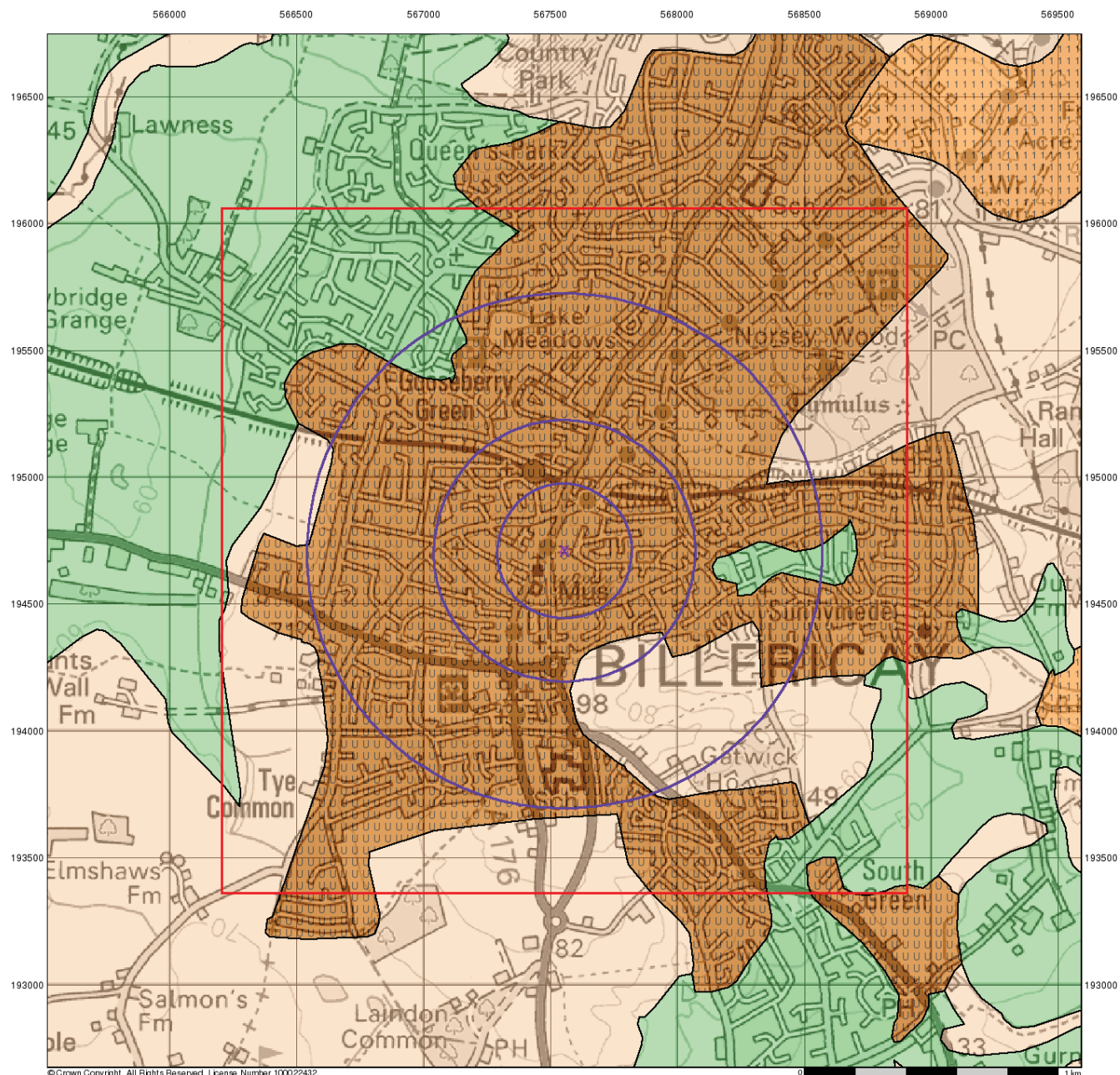
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APPENDIX E

Groundwater Vulnerability and Flood Maps



Groundwater Vulnerability

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

Geological Classes

- Major Aquifer (Highly Permeable)**
 - High (H) 1, 2, 3, U
 - Intermediate (I) 1, 2
 - Low
- Minor Aquifer (Variably Permeable)**
 - High (H) 1, 2, 3, U
 - Intermediate (I) 1, 2
 - Low
- Non Aquifer (Negligibly Permeable)**
 - Non Aquifer (Negligibly Permeable)
- Water or Sea**
 - Water or Sea
- Drift Deposit**
 - Drift Deposit

Soil Classes

Site Sensitivity Context Map - Slice A



Order Details

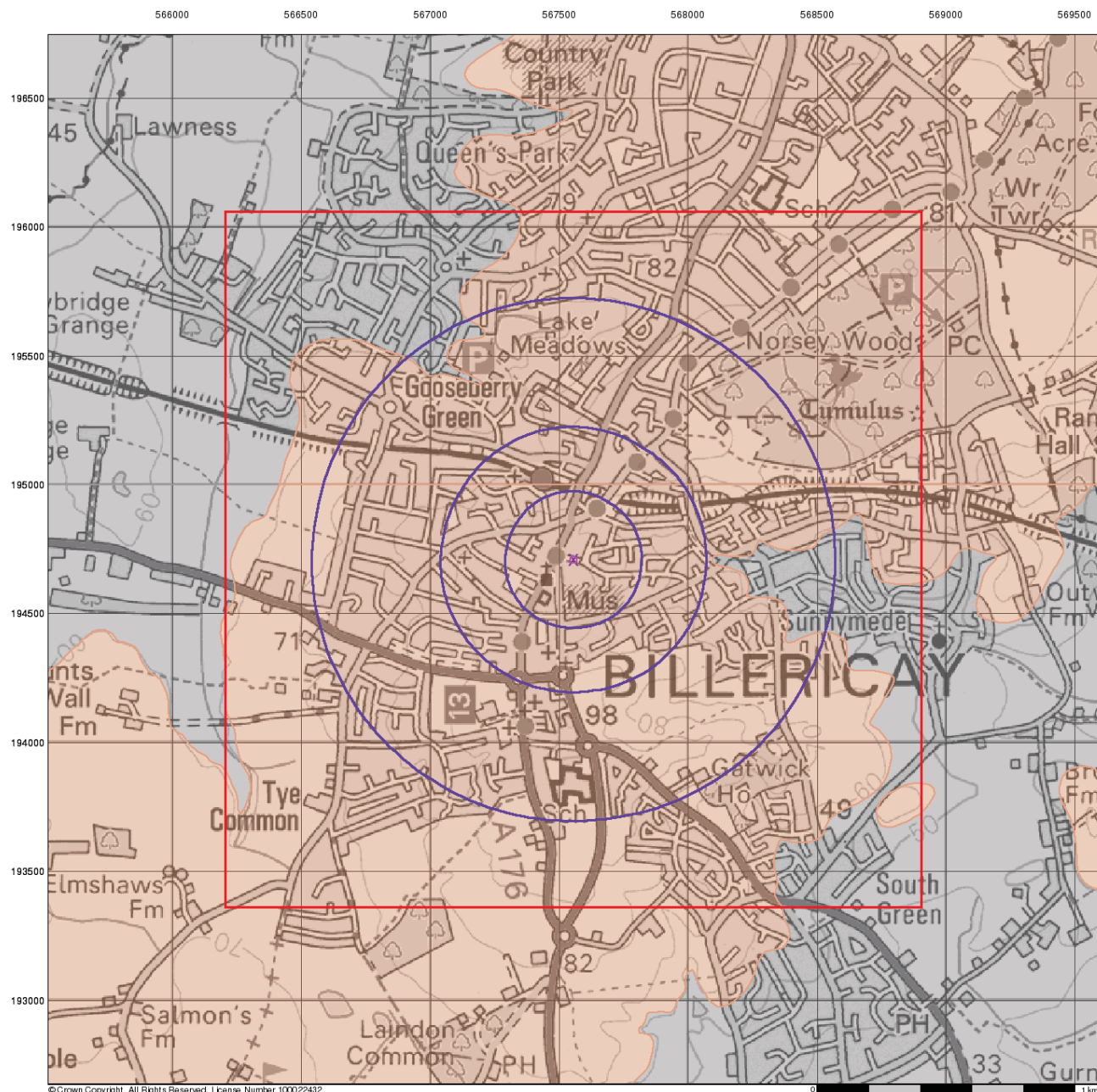
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 Customer Ref: UK18.4036
 National Grid Reference: 567550, 194710
 Slice: A
 Site Area (Ha): 0.07
 Search Buffer (m): 1000

Site Details

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Bedrock Aquifer Designation

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



Order Details

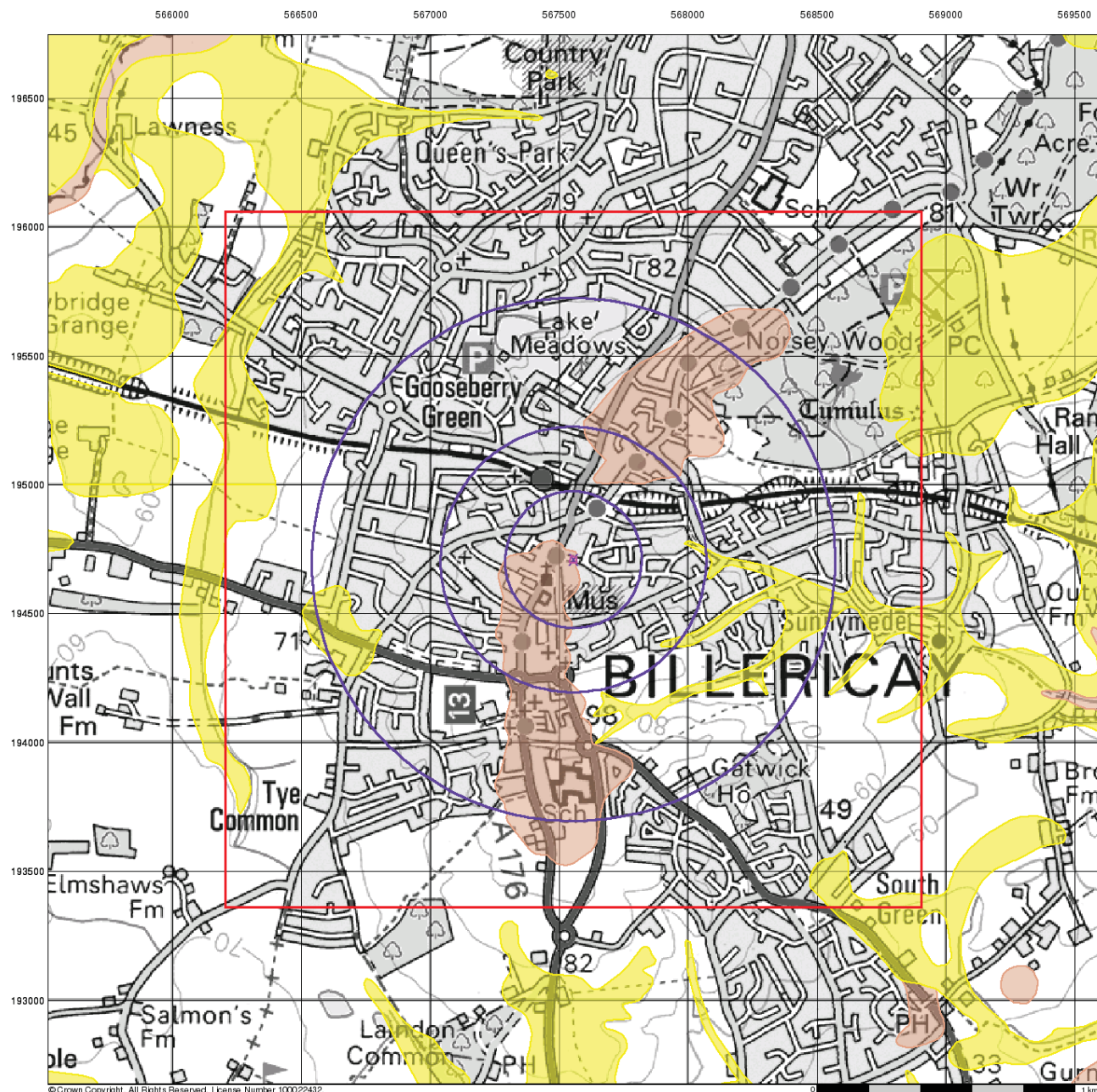
Order Number: 165047082_1_1
 Customer Ref: UK18.4036
 National Grid Reference: 567550, 194710
 Slice: A
 Site Area (Ha): 0.07
 Search Buffer (m): 1000

Site Details

Chantry Centre, Chantry Way, Billericay, Essex, CM11 2BB



Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk



Superficial Aquifer Designation

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



Order Details

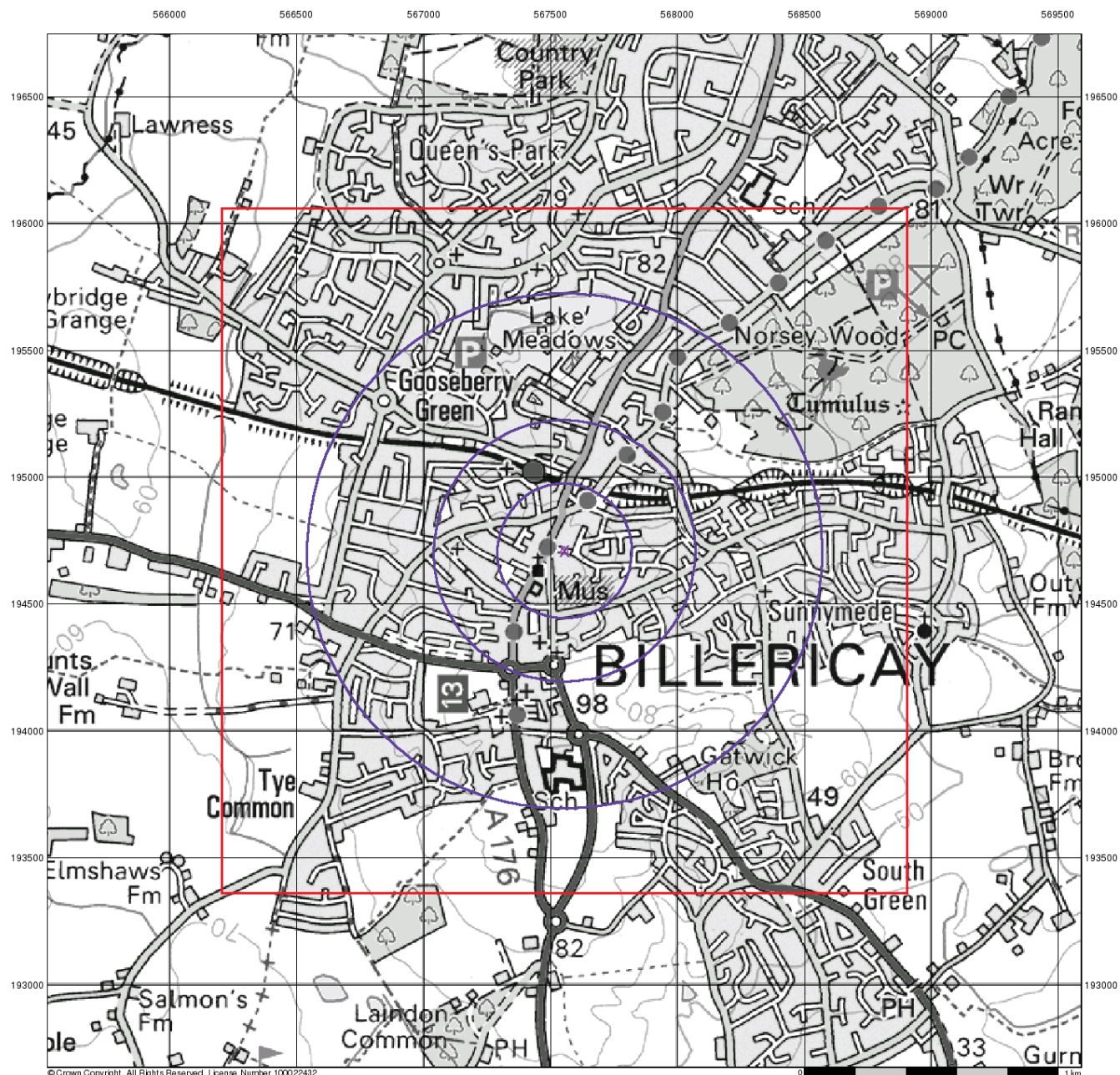
Order Number: 165047082_1_1
 Customer Ref: UK18.4036
 National Grid Reference: 567550, 194710
 Slice: A
 Site Area (Ha): 0.07
 Search Buffer (m): 1000

Site Details

Chantry Centre, Chantry Way, Billericay, Essex, CM11 2BB



Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk



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Source Protection Zones

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

- Inner zone (Zone 1)
- Inner zone - subsurface activity only (Zone 1c)
- Outer zone (Zone 2)
- Outer zone - subsurface activity only (Zone 2c)
- Total catchment (Zone 3)
- Total catchment - subsurface activity only (Zone 3c)
- Special interest (Zone 4)

Site Sensitivity Context Map - Slice A



Order Details

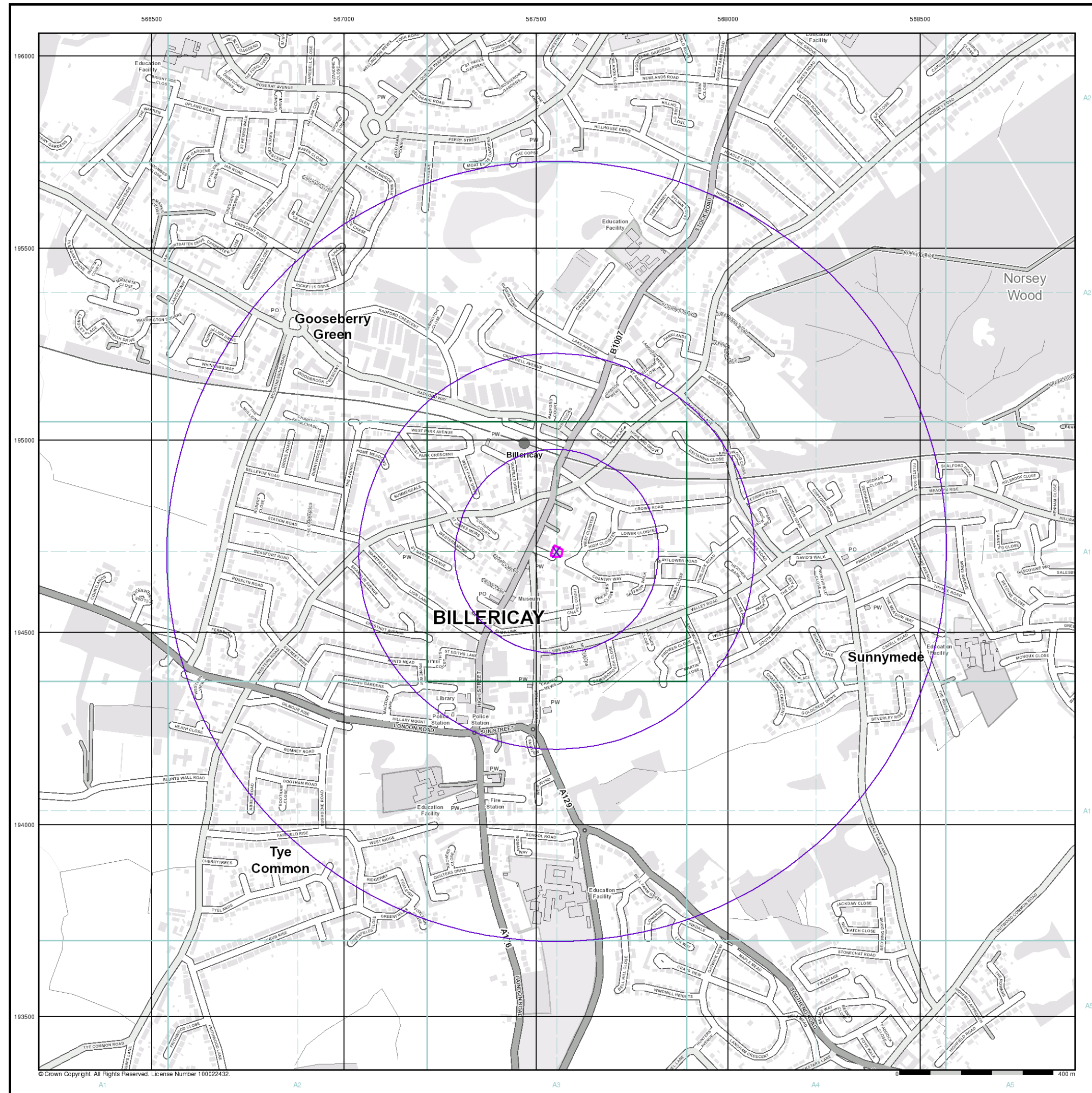
Order Number: 165047082_1_1
 Customer Ref: UK18.4036
 National Grid Reference: 567550, 194710
 Slice: A
 Site Area (Ha): 0.07
 Search Buffer (m): 1000

Site Details

Chantry Centre, Chantry Way, Billericay, Essex, CM11 2BB



Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk



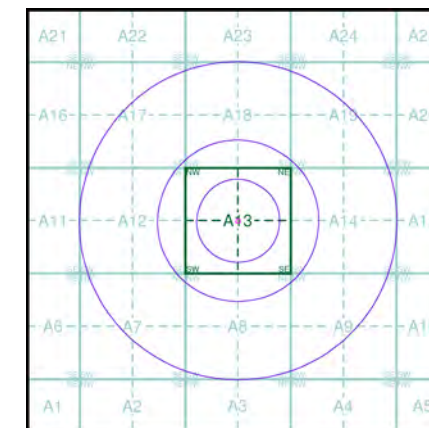
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Agency and Hydrological (Flood)

- Extreme Flooding from Rivers or Sea without Defences (Zone 2)
- Flooding from Rivers or Sea without Defences (Zone 3)
- Area Benefiting from Flood Defence
- Flood Water Storage Areas
- Flood Defence

Flood Map - Slice A



Order Details

Order Number: 165047082_1_1
Customer Ref: UK18.4036
National Grid Reference: 567550, 194710
Slice: A
Site Area (Ha): 0.07
Search Buffer (m): 1000

Site Details

Chantry Centre, Chantry Way, Billericay, Essex, CM11 2BB



Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

APPENDIX F

A Selection of Historic Maps

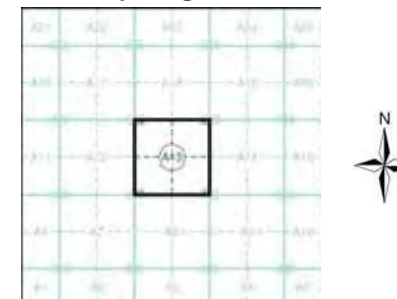


The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

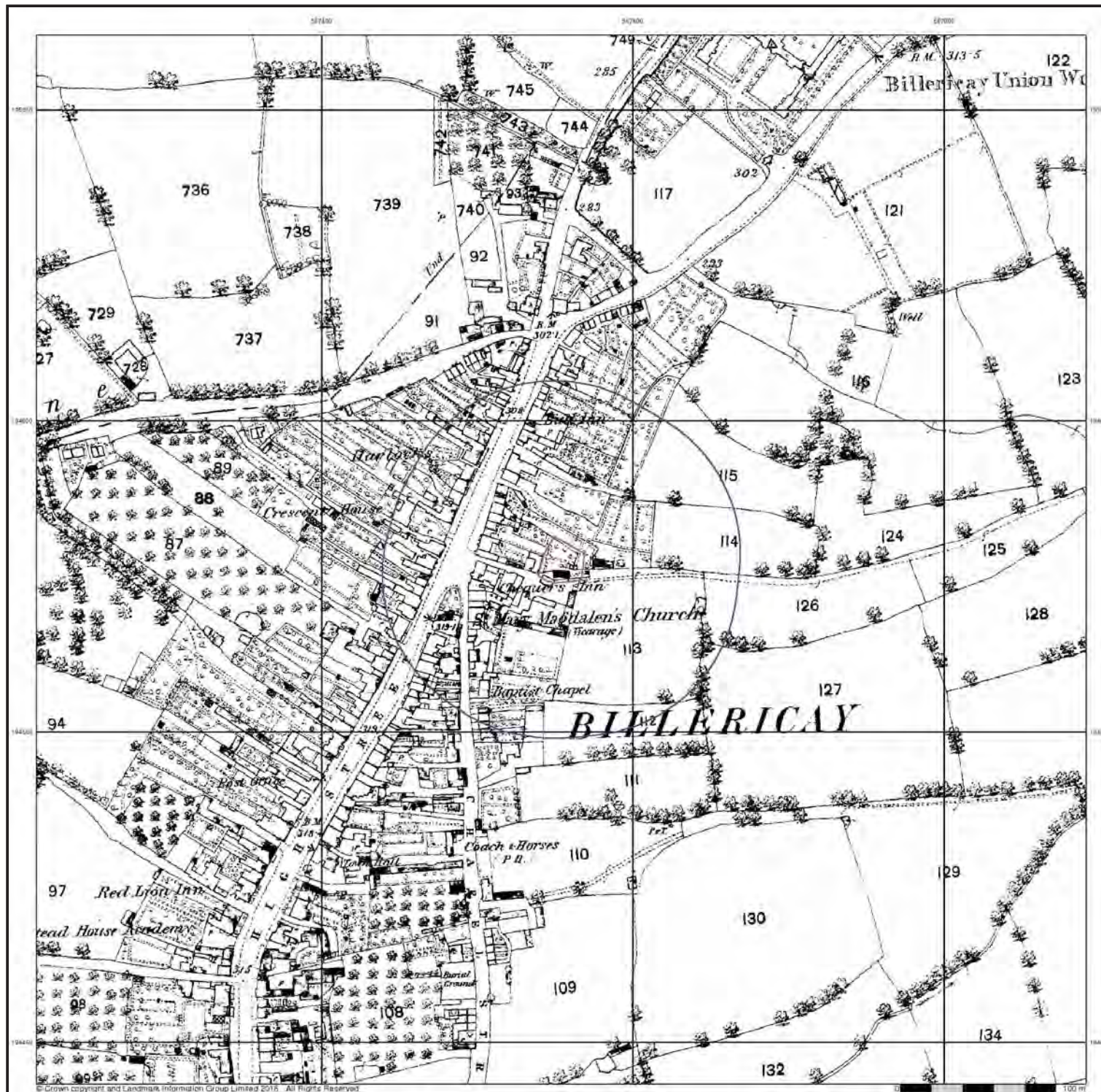
Order Number: 165047082_1_1
Customer Ref: UK18.4036
National Grid Reference: 567550, 194710
Slice: A
Site Area (Ha): 0.07
Search Buffer (m): 100

Site Details

Chantry Centre, Chantry Way, Billericay, Essex, CM11 2BB

Landmark

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk





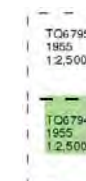
Ordnance Survey Plan

Published 1955

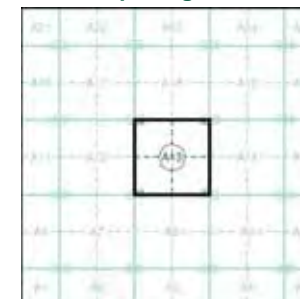
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

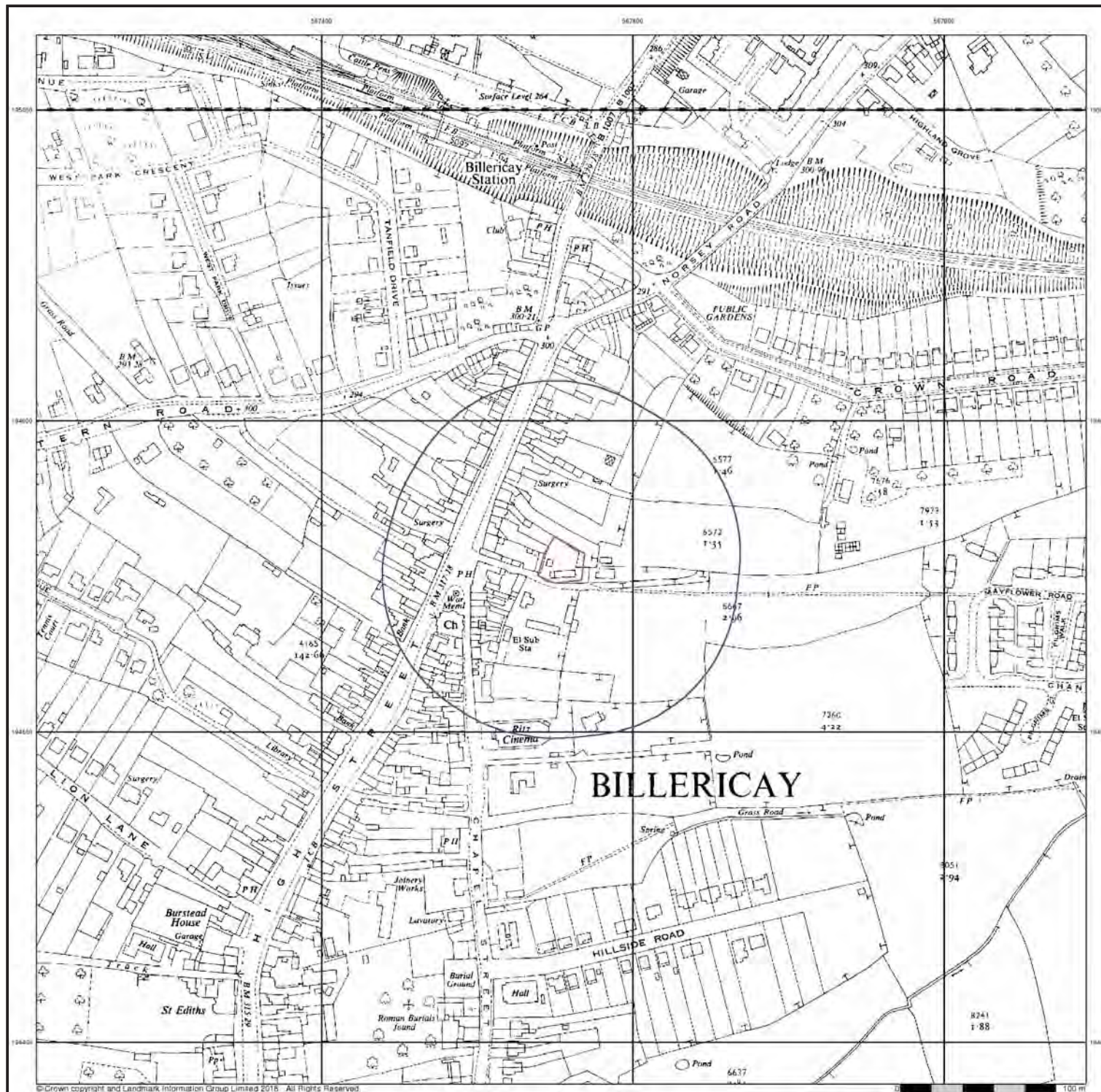
Order Number: 165047082_1_1
Customer Ref: UK18.4036
National Grid Reference: 567550, 194710
Slice: A
Site Area (Ha): 0.07
Search Buffer (m): 100

Site Details

Chantry Centre, Chantry Way, Billericay, Essex, CM11 2BB



Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk





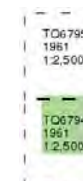
Ordnance Survey Plan

Published 1961

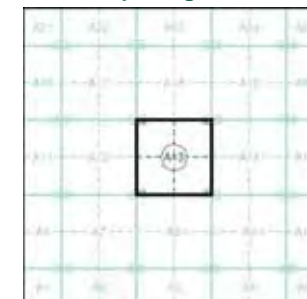
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

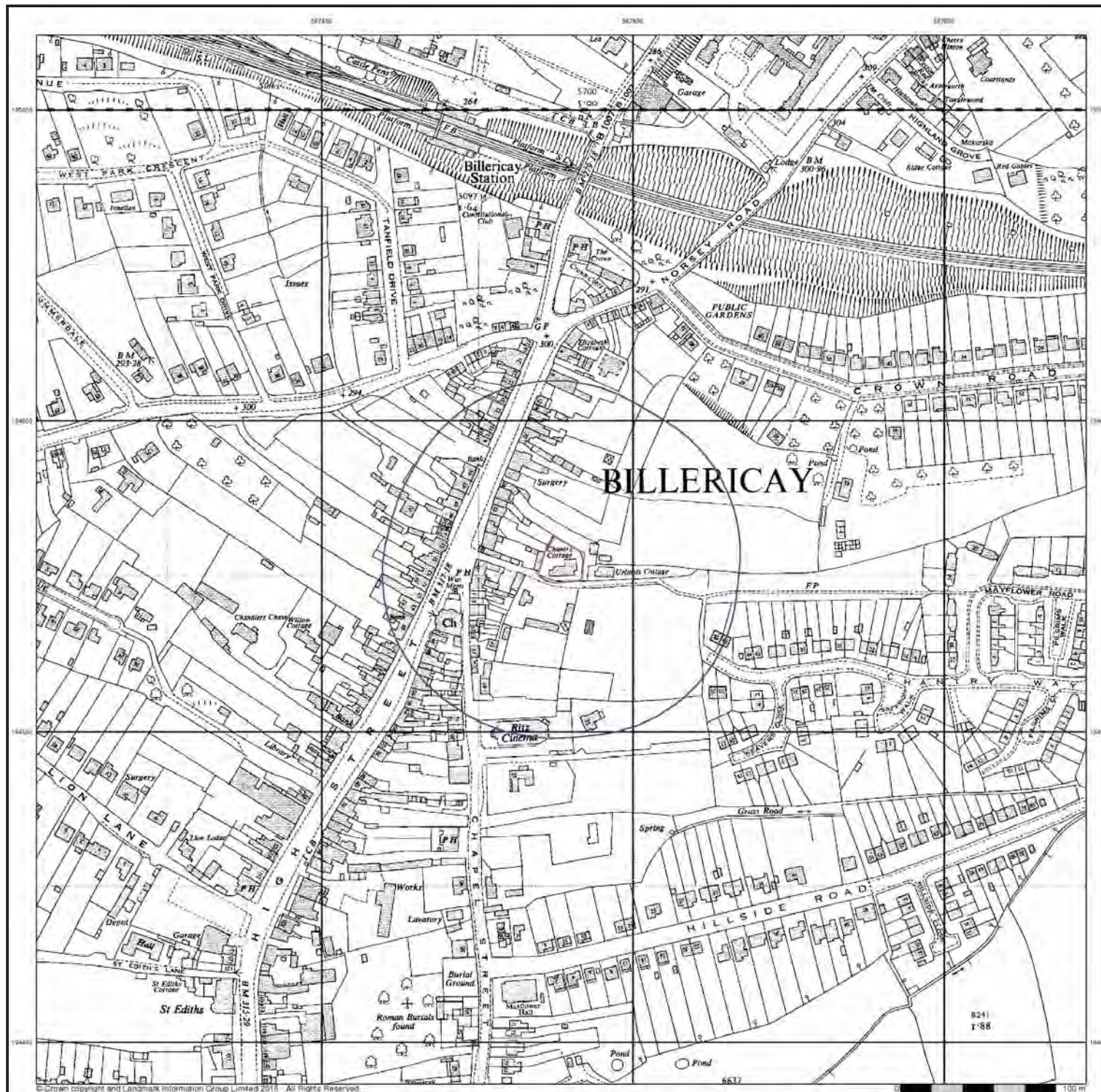
Order Number: 165047082_1_1
Customer Ref: UK18.4036
National Grid Reference: 567550, 194710
Slice: A
Site Area (Ha): 0.07
Search Buffer (m): 100

Site Details

Chantry Centre, Chantry Way, Billericay, Essex, CM11 2BB



Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk





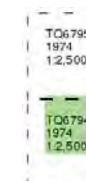
Ordnance Survey Plan

Published 1974

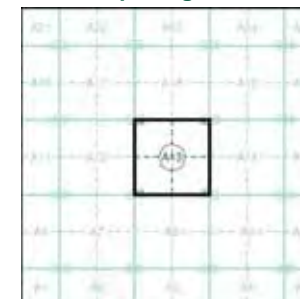
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

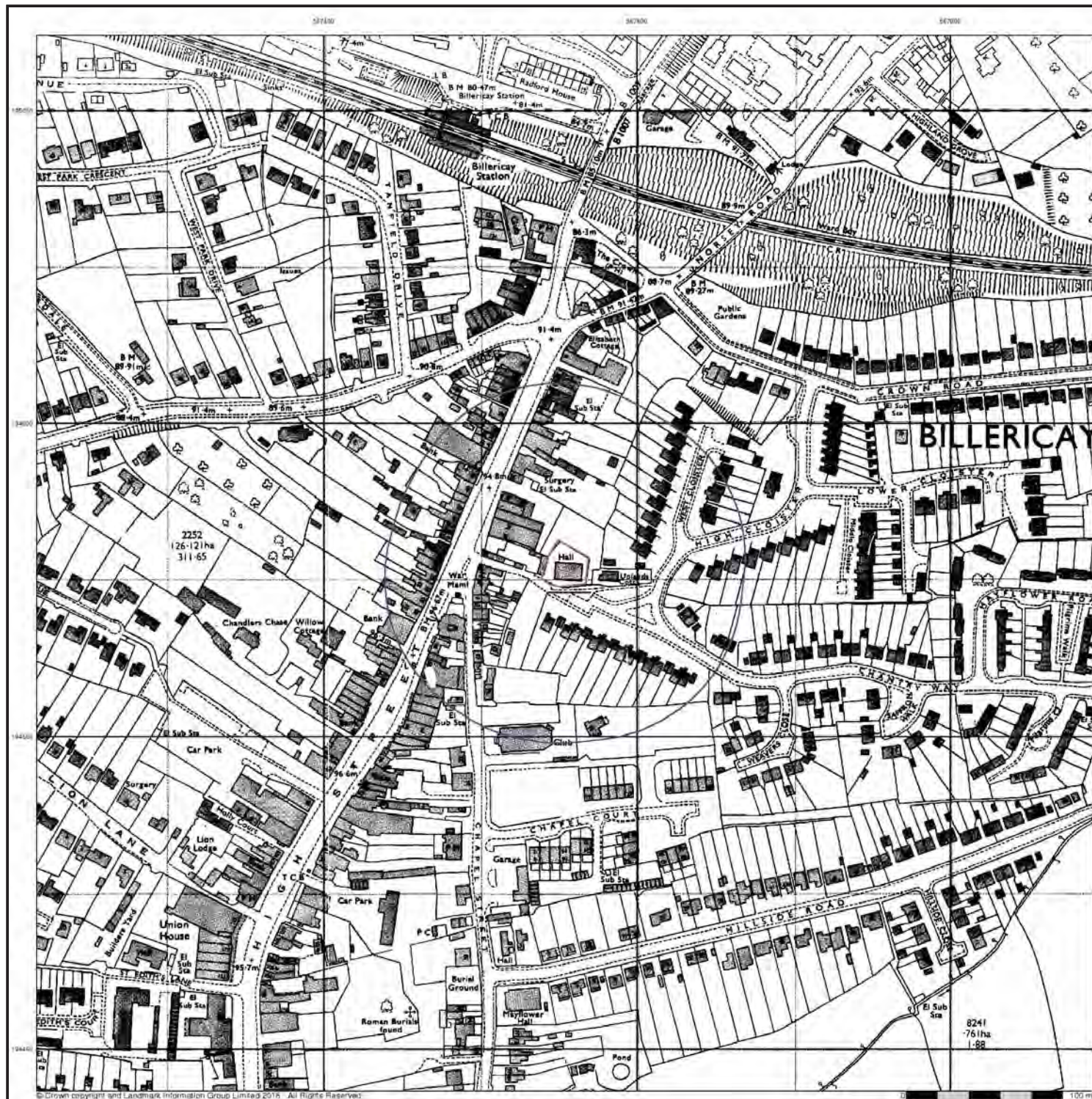
Order Number: 165047082_1_1
Customer Ref: UK18.4036
National Grid Reference: 567550, 194710
Slice: A
Site Area (Ha): 0.07
Search Buffer (m): 100

Site Details

Chantry Centre, Chantry Way, Billericay, Essex, CM11 2BB



Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

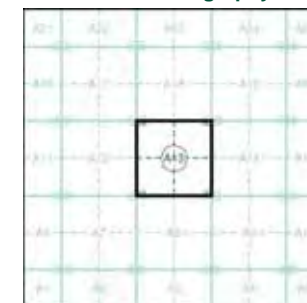




Historical Aerial Photography Published 1999

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

Historical Aerial Photography - Segment A13



Order Details

Order Number: 165047082_1_1
Customer Ref: UK18.4036
National Grid Reference: 567550, 194710
Slice: A
Site Area (Ha): 0.07
Search Buffer (m): 100

Site Details

Chantry Centre, Chantry Way, Billericay, Essex, CM11 2BB

Landmark
INTEGRATION SERVICE

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

APPENDIX G

Site Specific Borehole Logs



Borehole Log

Borehole No.

WS01

Sheet 1 of 1

Project Name: Chantry Centre, Billericay

Project No.
UK18.4036

Co-ords: -

Hole Type
WLS

Location: Chantry Way, Billericay, Essex, CM11 2BB

Level:

Scale
1:20

Client: Ingleton Wood

Dates: 17/05/2018 - 17/05/2018

Logged By
Daryl Bowell

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.03			0.03			Tarmac Surfacing.	
		0.30 - 1.10	ES		0.30			MADE GROUND: Black and light brown weak concrete mix with fine black sand, tarmac and concrete fragments as well as brick and black gravel.	
								MADE GROUND: Dark brown very silty gravelly CLAY with decayed roots, fine brick fragments, glass, black gravel and coarse flints.	
								Layer of broken brick cobbles and concrete fragments...	
		1.20 - 1.40	ES		1.10			Firm orangey brown gravelly very sandy CLAY with fine flint gravel.	1
		1.50 - 2.00	D		1.30			Medium dense reddish orange fine SAND. Aproportion of clay up to 1.45m...	
									2
					2.50			Medium dense yellowish orange fine slightly gravelly SAND with fine angular flint gravel.	
		3.00 3.00 - 3.50	D	N=21 (5,4/5,5,6,5)					3
		4.00		N=16 (4,5/5,4,4,3)	4.00			End of borehole at 4.00 m	4

Remarks

Groundwater was not encountered during drilling.





Borehole Log

Borehole No.

WS02

Sheet 1 of 1

Project Name: Chantry Centre, Billericay

Project No.
UK18.4036

Co-ords: -

Hole Type
WLS

Location: Chantry Way, Billericay, Essex, CM11 2BB


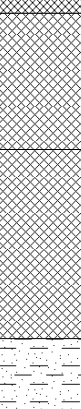
Level:

Scale
1:20

Client: Ingleton Wood

Dates: 17/05/2018 - 17/05/2018

Logged By
Daryl Bowell

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.04 - 0.40	ES	N=11 (1,2/2,3,3,3)	0.04			Tarmac Surfacing. MADE GROUND: Black gravel with black tarmac and concrete fragments with a light grey silt.	1
					0.40			Dark brown with black mottling gravelly silty fine sandy CLAY with gravel of varying sizes including brick, bituminous material, concrete and glass fragments and decayed roots.	
		1.00			0.90			Soft-firm orangey brown very sandy CLAY/ clayey SAND with fine sand and rare decayed roots.	
					1.10			Medium dense orange fine SAND.	
		1.70 - 2.00	ES		2.00			End of borehole at 2.00 m	2
									3
									4

Remarks

Groundwater was not encountered during drilling.





Borehole Log

Borehole No.

WS03

Sheet 1 of 1

Project Name: Chantry Centre, Billericay

Project No.
UK18.4036

Co-ords: -

Hole Type
WLS

Location: Chantry Way, Billericay, Essex, CM11 2BB

Level:

Scale
1:20

Client: Ingleton Wood

Dates: 17/05/2018 - 17/05/2018

Logged By
Daryl Bowell

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.06			0.06			Tarmac Surfacing.	
		0.30 - 1.20	B		0.30			MADE GROUND: Black gravel with black tarmac and concrete fragments with a light grey silt.	
					0.60			MADE GROUND: Dark orangey brown gravelly silty sandy CLAY with fine brick fragments, black gravel and fine to medium rounded gravel.	
		1.00		N=11 (1,3/2,2,4,3)	1.10			Soft-firm orangey brown silty slightly gravelly sandy CLAY with rare fine rounded gravel and fine sand.	1
		1.20 - 1.50	ES					Soft-firm orangey brown silty fine sandy slightly gravelly CLAY.	
		1.50 - 1.70	D						
		2.00		N=8 (2,1/2,2,2,2)					2
		2.20 - 2.60	D						
					3.00			End of borehole at 3.00 m	3
									4

Remarks

Groundwater was not encountered during drilling.





Borehole Log

Borehole No.

WS04

Sheet 1 of 1

Project Name: Chantry Centre, Billericay

Project No.
UK18.4036

Co-ords: -

Hole Type
WLS

Location: Chantry Way, Billericay, Essex, CM11 2BB

Level:

Scale
1:20

Client: Ingleton Wood

Dates: 17/05/2018 - 17/05/2018

Logged By
Daryl Bowell

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.00 - 0.60	ES		0.50			MADE GROUND: Dark brown gravelly clayey SILT with numerous decayed roots, fine brick and concrete fragments.	
								concrete layer...	
		1.00 1.00 - 1.50	ES	N=6 (1,1/1,1,2,2)	1.50			Soft-firm orangey brown silty slightly gravelly CLAY with rare medium gravel.	1
		2.00		N=14 (3,3/3,3,4,4)	2.00			Medium dense orangey brown fine SAND/SILT	2
		2.40 - 2.70	ES					Medium dense light brown with orange mottling fine SAND/SILT.	3
		3.00		N=16 (3,3/4,4,4,4)					
		3.30 - 3.60	D						4
		4.00		N=13 (4,4/3,3,3,4)					
					4.00			End of borehole at 4.00 m	

Remarks

Groundwater was not encountered during drilling.





Borehole Log

Borehole No.

WS05

Sheet 1 of 1

Project Name: Chantry Centre, Billericay

Project No.
UK18.4036

Co-ords: -

Hole Type
WLS

Location: Chantry Way, Billericay, Essex, CM11 2BB

Level:

Scale
1:20

Client: Ingleton Wood

Dates: 17/05/2018 - 17/05/2018

Logged By
Daryl Bowell

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.03			0.03			Tarmac Surfacing	
		0.30 - 0.60	ES		0.30			MADE GROUND: Black silty gravel with tarmac, brick and concrete.	
					0.80			MADE GROUND: Dark brown to black gravelly silty CLAY with decayed roots and fragments of brick and black material with fine to medium angular flints.	
		1.00		N=15 (1,2/3,4,4,4)	1.20			Soft-firm reddish orange sandy gravelly CLAY with frequent medium angular flint gravel.	1
					1.50			Medium dense orangey brown very clayey SILT.	
		2.00		N=8 (2,2/1,3,2,2)	2.30			Soft-firm orangey brown very silty CLAY.	2
		2.50 - 3.00	D		3.10			Soft-firm light yellow very sandy silty CLAY.	
		3.00 3.00 - 3.30	ES	N=13 (3,4/3,4,3,3)	3.50			Medium dense light yellow clayey SAND with decreasing clay content with depth.	3
		3.50 - 4.00	ES		4.00			Medium dense light yellow SAND.	
		4.00		N=22 (4,6/6,5,6,5)	4.00			End of borehole at 4.00 m	4

Remarks

Groundwater was not encountered during drilling.



APPENDIX H

Laboratory Results – Environmental



Exova Jones Environmental

Registered Address : Exova (UK) Ltd, Lochend Industrial Estate, Newbridge, Midlothian, EH28 8PL

Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

EPS Ltd
7B Caxton House
Broad Street
Cambourne
Cambridgeshire
CB23 6JN

Tel: +44 (0) 1244 833780

Fax: +44 (0) 1244 833781



Attention :	Daryl Bowell
Date :	31st May, 2018
Your reference :	UK18.4036
Our reference :	Test Report 18/7668 Batch 1 Schedule A
Location :	Chantry Centre, Billericay
Date samples received :	19th May, 2018
Status :	Final report
Issue :	1

Eleven samples were received for analysis on 19th May, 2018 of which seven were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

Phil Sommerton BSc

Project Manager

Client Name: EPS Ltd
Reference: UK18.4036
Location: Chantry Centre, Billericay
Contact: Daryl Bowell
JE Job No.: 18/7668

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	4	5-7	8	11-13	14	15	19				Please see attached notes for all abbreviations and acronyms		
Sample ID	WS01	WS02	WS02	WS04	WS04	WS05	WS05						
Depth	1.20-1.40	0.04-0.40	1.70-2.00	1.00-1.50	2.40-2.70	0.30-0.60	3.00-3.30						
COC No / misc													
Containers	T	V J T	T	V J T	T	J	T						
Sample Date	17/05/2018	17/05/2018	17/05/2018	17/05/2018	17/05/2018	17/05/2018	17/05/2018						
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	19/05/2018	19/05/2018	19/05/2018	19/05/2018	19/05/2018	19/05/2018	19/05/2018				LOD/LOR	Units	Method No.
Arsenic ^{#M}	-	7.1	-	-	-	20.3	-				<0.5	mg/kg	TM30/PM15
Cadmium ^{#M}	-	<0.1	-	-	-	<0.1	-				<0.1	mg/kg	TM30/PM15
Chromium ^{#M}	-	59.7	-	-	-	91.2	-				<0.5	mg/kg	TM30/PM15
Copper ^{#M}	-	60	-	-	-	31	-				<1	mg/kg	TM30/PM15
Lead ^{#M}	-	66	-	-	-	689	-				<5	mg/kg	TM30/PM15
Mercury ^{#M}	-	<0.1	-	-	-	0.2	-				<0.1	mg/kg	TM30/PM15
Nickel ^{#M}	-	31.6	-	-	-	21.1	-				<0.7	mg/kg	TM30/PM15
Selenium ^{#M}	-	<1	-	-	-	<1	-				<1	mg/kg	TM30/PM15
Sulphur as S	-	-	-	<0.01	-	-	-				<0.01	%	TM30/PM15
Total Sulphate as SO ₄ ^{#M}	-	435	-	87	-	383	-				<50	mg/kg	TM50/PM29
Zinc ^{#M}	-	106	-	-	-	77	-				<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene ^{#M}	-	0.53	-	-	-	<0.04	-				<0.04	mg/kg	TM4/PM8
Acenaphthylene	-	0.14	-	-	-	<0.03	-				<0.03	mg/kg	TM4/PM8
Acenaphthene ^{#M}	-	0.84	-	-	-	<0.05	-				<0.05	mg/kg	TM4/PM8
Fluorene ^{#M}	-	0.46	-	-	-	<0.04	-				<0.04	mg/kg	TM4/PM8
Phenanthrene ^{#M}	-	1.44	-	-	-	<0.03	-				<0.03	mg/kg	TM4/PM8
Anthracene [#]	-	0.46	-	-	-	<0.04	-				<0.04	mg/kg	TM4/PM8
Fluoranthene ^{#M}	-	0.69	-	-	-	<0.03	-				<0.03	mg/kg	TM4/PM8
Pyrene [#]	-	0.50	-	-	-	<0.03	-				<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene [#]	-	0.16	-	-	-	<0.06	-				<0.06	mg/kg	TM4/PM8
Chrysene ^{#M}	-	0.12	-	-	-	<0.02	-				<0.02	mg/kg	TM4/PM8
Benzo(b)fluoranthene ^{#M}	-	0.15	-	-	-	<0.07	-				<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene [#]	-	0.08	-	-	-	<0.04	-				<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene ^{#M}	-	0.06	-	-	-	<0.04	-				<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene [#]	-	<0.04	-	-	-	<0.04	-				<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene [#]	-	0.09	-	-	-	<0.04	-				<0.04	mg/kg	TM4/PM8
PAH 16 Total	-	5.7	-	-	-	<0.6	-				<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	-	0.11	-	-	-	<0.05	-				<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	-	0.04	-	-	-	<0.02	-				<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	-	105	-	-	-	109	-				<0	%	TM4/PM8
Total Phenols HPLC	-	<0.15	-	-	-	<0.15	-				<0.15	mg/kg	TM26/PM21
Natural Moisture Content	-	16.2	-	-	-	22.3	-				<0.1	%	PM4/PM0
Hexavalent Chromium [#]	-	<0.3	-	-	-	<0.3	-				<0.3	mg/kg	TM38/PM20
Sulphate as SO ₄ (2:1 Ext) ^{#M}	0.0939	0.0197	0.0088	<0.0015	<0.0015	<0.0015	0.0240				<0.0015	g/l	TM38/PM20
Chromium III	-	59.7	-	-	-	91.2	-				<0.5	mg/kg	NONE/NONE
Total Cyanide ^{#M}	-	<0.5	-	-	-	<0.5	-				<0.5	mg/kg	TM89/PM45
Organic Matter	-	4.9	-	-	-	2.1	-				<0.2	%	TM21/PM24

Please see attached notes for all abbreviations and acronyms

Client Name: EPS Ltd
Reference: UK18.4036
Location: Chantry Centre, Billericay
Contact: Daryl Bowell

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

Signed on behalf of Jones Environmental Laboratory:

[Signature]

Ryan Butterworth
Asbestos Team Leader

[illegible]

Client Name: EPS Ltd
Reference: UK18.4036
Location: Chantry Ce
Contact: Daryl Bowe

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 18/7668

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Please include all sections of this report if it is reproduced

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to an Exova Jones Environmental approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 18/7668

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes	Yes	AR	Yes
PM13	A visual examination of the solid sample is carried out to ascertain sample make up, colour and any other inclusions. This is not a geotechnical description.	PM0	No preparation is required.			AR	
TM21	Modified USEPA 415.1. Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO ₂ generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.			AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21	As received solid or water samples are extracted in Methanol: Sodium Hydroxide (0.1M NaOH) (60:40) by orbital shaker.			AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes	Yes	AD	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes	Yes	AD	Yes

JE Job No: 18/7668

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM29	Dried and ground solid sample is boiled with dilute hydrochloric acid, the resulting liquor is then analysed.	Yes	Yes	AD	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes	Yes	AR	No
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide and Thiocyanate analysis.	Yes	Yes	AR	Yes
NONE	No Method Code	NONE	No Method Code			AR	Yes



Exova Jones Environmental

Registered Address : Exova (UK) Ltd, Lochend Industrial Estate, Newbridge, Midlothian, EH28 8PL

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Attention :	Daryl Bowell
Date :	30th May, 2018
Your reference :	UK18.4036
Our reference :	Test Report 18/7668 Batch 1 Schedule B 18/7668 Batch 1 Schedule C
Location :	Chantry Centre, Billericay
Date samples received :	19th May, 2018
Status :	Final report
Issue :	1

Eleven samples were received for analysis on 19th May, 2018 of which three were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Compiled By:

Phil Sommerton BSc

Project Manager

Client Name: EPS Ltd
Reference: UK18.4036
Location: Chantry Centre, Billericay
Contact: Daryl Bowell
JE Job No.: 18/7668

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	1-3	11-13	16-18								Please see attached notes for all abbreviations and acronyms		
Sample ID	WS01	WS04	WS05										
Depth	0.30-1.10	1.00-1.50	3.50-4.00										
COC No / misc													
Containers	V J T	V J T	V J T										
Sample Date	17/05/2018	17/05/2018	17/05/2018										
Sample Type	Soil	Soil	Soil										
Batch Number	1	1	1										
Date of Receipt	19/05/2018	19/05/2018	19/05/2018								LOD/LOR	Units	Method No.
Arsenic ^{#M}	20.3	16.0	3.3								<0.5	mg/kg	TM30/PM15
Cadmium ^{#M}	0.2	<0.1	<0.1								<0.1	mg/kg	TM30/PM15
Chromium ^{#M}	136.9	88.3	205.5								<0.5	mg/kg	TM30/PM15
Copper ^{#M}	52	7	4								<1	mg/kg	TM30/PM15
Lead ^{#M}	280	10	5								<5	mg/kg	TM30/PM15
Mercury ^{#M}	0.3	<0.1	<0.1								<0.1	mg/kg	TM30/PM15
Nickel ^{#M}	18.4	23.5	15.7								<0.7	mg/kg	TM30/PM15
Selenium ^{#M}	<1	<1	<1								<1	mg/kg	TM30/PM15
Zinc ^{#M}	197	28	18								<5	mg/kg	TM30/PM15
PAH MS													
Naphthalene ^{#M}	0.08	<0.04	<0.04								<0.04	mg/kg	TM4/PM8
Acenaphthylene	0.08	<0.03	<0.03								<0.03	mg/kg	TM4/PM8
Acenaphthene ^{#M}	0.12	<0.05	<0.05								<0.05	mg/kg	TM4/PM8
Fluorene ^{#M}	0.05	<0.04	<0.04								<0.04	mg/kg	TM4/PM8
Phenanthrene ^{#M}	0.31	<0.03	<0.03								<0.03	mg/kg	TM4/PM8
Anthracene [#]	0.13	<0.04	<0.04								<0.04	mg/kg	TM4/PM8
Fluoranthene ^{#M}	0.42	<0.03	<0.03								<0.03	mg/kg	TM4/PM8
Pyrene [#]	0.40	<0.03	<0.03								<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene [#]	0.23	<0.06	<0.06								<0.06	mg/kg	TM4/PM8
Chrysene ^{#M}	0.24	<0.02	<0.02								<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene ^{#M}	0.49	<0.07	<0.07								<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene [#]	0.24	<0.04	<0.04								<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene ^{#M}	0.17	<0.04	<0.04								<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene [#]	0.06	<0.04	<0.04								<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene [#]	0.20	<0.04	<0.04								<0.04	mg/kg	TM4/PM8
Coronene	0.05	<0.04	<0.04								<0.04	mg/kg	TM4/PM8
PAH 16 Total	3.2	<0.6	<0.6								<0.6	mg/kg	TM4/PM8
PAH 17 Total	3.27	<0.64	<0.64								<0.64	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.35	<0.05	<0.05								<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.14	<0.02	<0.02								<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	84	95	107								<0	%	TM4/PM8
Mineral Oil (C10-C40)	55	<30	<30								<30	mg/kg	TM5/PM8/PM16

Client Name: EPS Ltd
 Reference: UK18.4036
 Location: Chantry Centre, Billericay
 Contact: Daryl Bowell
 JE Job No.: 18/7668

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	1-3	11-13	16-18							Please see attached notes for all abbreviations and acronyms		
Sample ID	WS01	WS04	WS05									
Depth	0.30-1.10	1.00-1.50	3.50-4.00									
COC No / misc												
Containers	V J T	V J T	V J T									
Sample Date	17/05/2018	17/05/2018	17/05/2018									
Sample Type	Soil	Soil	Soil									
Batch Number	1	1	1									
Date of Receipt	19/05/2018	19/05/2018	19/05/2018							LOD/LOR	Units	Method No.
TPH CWG												
Aliphatics												
>C5-C6 ^{#M}	<0.1	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>C6-C8 ^{#M}	<0.1	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>C8-C10	0.1	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>C10-C12 ^{#M}	<0.2	<0.2	<0.2							<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 ^{#M}	<4	<4	<4							<4	mg/kg	TM5/PM8/PM16
>C16-C21 ^{#M}	14	<7	<7							<7	mg/kg	TM5/PM8/PM16
>C21-C35 ^{#M}	41	<7	<7							<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35	55	<19	<19							<19	mg/kg	TM5/TM36/PM8/PM12/PM16
Aromatics												
>C5-EC7 [#]	<0.1	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>EC7-EC8 [#]	<0.1	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>EC8-EC10 ^{#M}	<0.1	<0.1	<0.1							<0.1	mg/kg	TM36/PM12
>EC10-EC12 [#]	<0.2	<0.2	<0.2							<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 [#]	<4	<4	<4							<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 [#]	<7	<7	<7							<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 [#]	50	<7	<7							<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 [#]	50	<19	<19							<19	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-35)	105	<38	<38							<38	mg/kg	TM5/TM36/PM8/PM12/PM16
MTBE [#]	<5	<5	<5							<5	ug/kg	TM31/PM12
Benzene [#]	<5	<5	<5							<5	ug/kg	TM31/PM12
Toluene [#]	<5	<5	<5							<5	ug/kg	TM31/PM12
Ethylbenzene [#]	<5	<5	<5							<5	ug/kg	TM31/PM12
m/p-Xylene [#]	<5	<5	<5							<5	ug/kg	TM31/PM12
o-Xylene [#]	<5	<5	<5							<5	ug/kg	TM31/PM12
PCB 28 [#]	<5	<5	<5							<5	ug/kg	TM17/PM8
PCB 52 [#]	<5	<5	<5							<5	ug/kg	TM17/PM8
PCB 101 [#]	<5	<5	<5							<5	ug/kg	TM17/PM8
PCB 118 [#]	<5	<5	<5							<5	ug/kg	TM17/PM8
PCB 138 [#]	<5	<5	<5							<5	ug/kg	TM17/PM8
PCB 153 [#]	<5	<5	<5							<5	ug/kg	TM17/PM8
PCB 180 [#]	<5	<5	<5							<5	ug/kg	TM17/PM8
Total 7 PCBs [#]	<35	<35	<35							<35	ug/kg	TM17/PM8
Natural Moisture Content	19.8	21.7	9.9							<0.1	%	PM4/PM0
Hexavalent Chromium [#]	<0.3	<0.3	<0.3							<0.3	mg/kg	TM38/PM20
Chromium III	136.9	88.3	205.5							<0.5	mg/kg	NONE/NONE
Total Organic Carbon [#]	1.98	0.10	0.05							<0.02	%	TM21/PM24

Please see attached notes for all abbreviations and acronyms

Mass of sample taken (kg)	-	Moisture Content Ratio (%) =	19.8
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	83.5
Particle Size <4mm =	>95%		
JEFL Job No	18/7668	Landfill Waste Acceptance Criteria Limits	
Sample No	3		
Client Sample No	WS01		
Depth/Other	0.30-1.10		
Sample Date	17/05/2018		
Batch No	1		
Solid Waste Analysis		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill
Total Organic Carbon (%)	1.98	3	5
Loss on Ignition (%)	5.2	-	10
Sum of BTEX (mg/kg)	<0.025	6	-
Sum of 7 PCBs (mg/kg)	<0.035	1	-
Mineral Oil (mg/kg)	55	500	-
PAH Sum of 17(mg/kg)	3.27	100	-
pH (pH Units)	8.27	-	>6
ANC to pH 7 (mol/kg)	-	-	to be evaluated
ANC to pH 4 (mol/kg)	-	-	to be evaluated
Eluate Analysis	10:1 concⁿ leached		Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg
	C₁₀	A₁₀	
	mg/l	mg/kg	mg/kg
Arsenic	0.0059	0.059	0.5
Barium	0.027	0.27	20
Cadmium	<0.0005	<0.005	0.04
Chromium	<0.0015	<0.015	0.5
Copper	0.010	0.10	2
Mercury	<0.001	<0.01	0.01
Molybdenum	0.009	0.09	0.5
Nickel	<0.002	<0.02	0.4
Lead	<0.005	<0.05	0.5
Antimony	0.005	0.05	0.06
Selenium	<0.003	<0.03	0.1
Zinc	<0.003	<0.03	4
Chloride	4.5	45	800
Fluoride	0.5	5	10
Sulphate as SO ₄	93.66	936.4	1000
Total Dissolved Solids	227	2270	4000
Phenol	<0.01	<0.1	1
Dissolved Organic Carbon	9	90	500

Mass of sample taken (kg)	-	Moisture Content Ratio (%) =	22.7
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	81.5
Particle Size <4mm =	>95%		
JEFL Job No	18/7668	Landfill Waste Acceptance Criteria Limits	
Sample No	13		
Client Sample No	WS04		
Depth/Other	1.00-1.50		
Sample Date	17/05/2018		
Batch No	1		
Solid Waste Analysis		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill
Total Organic Carbon (%)	0.10	3	5
Loss on Ignition (%)	3.1	-	10
Sum of BTEX (mg/kg)	<0.025	6	-
Sum of 7 PCBs (mg/kg)	<0.035	1	-
Mineral Oil (mg/kg)	<30	500	-
PAH Sum of 17(mg/kg)	<0.64	100	-
pH (pH Units)	-	-	>6
ANC to pH 7 (mol/kg)	-	-	to be evaluated
ANC to pH 4 (mol/kg)	-	-	to be evaluated
Eluate Analysis	10:1 concⁿ leached		Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg
	C₁₀	A₁₀	
	mg/l	mg/kg	mg/kg
Arsenic	<0.0025	<0.025	0.5
Barium	<0.003	<0.03	20
Cadmium	<0.0005	<0.005	0.04
Chromium	<0.0015	<0.015	0.5
Copper	<0.007	<0.07	2
Mercury	<0.001	<0.01	0.01
Molybdenum	<0.002	<0.02	0.5
Nickel	<0.002	<0.02	0.4
Lead	<0.005	<0.05	0.5
Antimony	<0.002	<0.02	0.06
Selenium	<0.003	<0.03	0.1
Zinc	0.003	0.03	4
Chloride	<0.3	<3	800
Fluoride	<0.3	<3	10
Sulphate as SO ₄	1.35	13.5	1000
Total Dissolved Solids	85	850	4000
Phenol	<0.01	<0.1	1
Dissolved Organic Carbon	9	90	500

Mass of sample taken (kg)	-	Moisture Content Ratio (%) =	17.4
Mass of dry sample (kg) =	0.09	Dry Matter Content Ratio (%) =	85.2
Particle Size <4mm =	>95%		
JEFL Job No	18/7668	Landfill Waste Acceptance Criteria Limits	
Sample No	18		
Client Sample No	WS05		
Depth/Other	3.50-4.00		
Sample Date	17/05/2018		
Batch No	1		
Solid Waste Analysis		Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill
Total Organic Carbon (%)	0.05	3	5
Loss on Ignition (%)	1.5	-	10
Sum of BTEX (mg/kg)	<0.025	6	-
Sum of 7 PCBs (mg/kg)	<0.035	1	-
Mineral Oil (mg/kg)	<30	500	-
PAH Sum of 17(mg/kg)	<0.64	100	-
pH (pH Units)	5.80	-	>6
ANC to pH 7 (mol/kg)	-	-	to be evaluated
ANC to pH 4 (mol/kg)	-	-	to be evaluated
Eluate Analysis	10:1 concⁿ leached		Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg
	C₁₀	A₁₀	
	mg/l	mg/kg	mg/kg
Arsenic	<0.0025	<0.025	0.5
Barium	<0.003	<0.03	20
Cadmium	<0.0005	<0.005	0.04
Chromium	<0.0015	<0.015	0.5
Copper	<0.007	<0.07	2
Mercury	<0.001	<0.01	0.01
Molybdenum	<0.002	<0.02	0.5
Nickel	<0.002	<0.02	0.4
Lead	<0.005	<0.05	0.5
Antimony	<0.002	<0.02	0.06
Selenium	<0.003	<0.03	0.1
Zinc	<0.003	<0.03	4
Chloride	0.3	<3	800
Fluoride	<0.3	<3	10
Sulphate as SO ₄	4.48	44.8	1000
Total Dissolved Solids	<35	<350	4000
Phenol	<0.01	<0.1	1
Dissolved Organic Carbon	4	40	500

Matrix : Solid

Client Name: EPS Ltd
Reference: UK18.4036
Location: Chantry Centre, Billericay
Contact: Daryl Bowell

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

Signed on behalf of Jones Environmental Laboratory:

Ryan Butterworth
Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
18/7668	1	WS01	0.30-1.10	2	24/05/2018	General Description (Bulk Analysis)	Soil/Stone
					24/05/2018	Asbestos Fibres	NAD
					24/05/2018	Asbestos Fibres (2)	NAD
					24/05/2018	Asbestos ACM	NAD
					24/05/2018	Asbestos ACM (2)	NAD
					24/05/2018	Asbestos Type	NAD
					24/05/2018	Asbestos Type (2)	NAD
					24/05/2018	Asbestos Level Screen	NAD
18/7668	1	WS04	1.00-1.50	12	24/05/2018	General Description (Bulk Analysis)	Soil/Stone
					24/05/2018	Asbestos Fibres	NAD
					24/05/2018	Asbestos Fibres (2)	NAD
					24/05/2018	Asbestos ACM	NAD
					24/05/2018	Asbestos ACM (2)	NAD
					24/05/2018	Asbestos Type	NAD
					24/05/2018	Asbestos Type (2)	NAD
					24/05/2018	Asbestos Level Screen	NAD
18/7668	1	WS05	3.50-4.00	17	24/05/2018	General Description (Bulk Analysis)	Soil/Stone
					24/05/2018	Asbestos Fibres	NAD
					24/05/2018	Asbestos Fibres (2)	NAD
					24/05/2018	Asbestos ACM	NAD
					24/05/2018	Asbestos ACM (2)	NAD
					24/05/2018	Asbestos Type	NAD
					24/05/2018	Asbestos Type (2)	NAD
					24/05/2018	Asbestos Level Screen	NAD

Client Name: EPS Ltd
Reference: UK18.4036
Location: Chantry Ce
Contact: Daryl Bowe

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 18/7668

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Please include all sections of this report if it is reproduced

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa.
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to an Exova Jones Environmental approved laboratory.
AD	Samples are dried at 35°C \pm 5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

JE Job No: 18/7668

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes	Yes	AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM16	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes	Yes	AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details	Yes		AR	Yes

JE Job No: 18/7668

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM13	A visual examination of the solid sample is carried out to ascertain sample make up, colour and any other inclusions. This is not a geotechnical description.	PM0	No preparation is required.			AR	
TM17	Modified US EPA method 8270. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM20	Modified BS 1377-3: 1990/USEPA 160.3 Gravimetric determination of Total Dissolved Solids/Total Solids	PM0	No preparation is required.			AR	Yes
TM21	Modified USEPA 415.1. Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO ₂ generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.	Yes		AD	Yes
TM22	Modified USEPA 160.4. Gravimetric determination of Loss on Ignition by temperature controlled Muffle Furnace (450°C)	PM0	No preparation is required.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes	Yes	AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM17	Modified method EN12457-2 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.	Yes		AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes

JE Job No: 18/7668

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes	Yes	AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM60	Modified USEPA 9060. Determination of TOC by calculation from Total Carbon and Inorganic Carbon using a TOC analyser, the carbon in the sample is converted to CO ₂ and then passed through a non-dispersive infrared gas analyser (NDIR).	PM0	No preparation is required.			AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes	Yes	AR	No
TM173	Analysis of fluoride by ISE (Ion Selective Electrode) using modified ISE method 340.2	PM0	No preparation is required.			AR	Yes
NONE	No Method Code	NONE	No Method Code			AR	Yes

JE Job No: 18/7668

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.			AR	

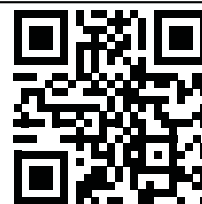


APPENDIX I

Waste Classification Report



Waste Classification Report



F3WBQ-SNH4R-QUHEP

Job name

Chantry Centre, Billericay

Description/Comments

Project

UK18.4036

Site

Chantry Centre, Chantry Way Billericay, Essex, CM11 2BB

Waste Stream Template

EPS Waste Stream

Classified by

Name:
Michael Judson
Date:
12 Jun 2018 14:58 GMT
Telephone:
01954 710666

Company:
EPS
Unit 7B, Caxton House
Broad Street, Great Cambourne
Cambridge
CB23 6JN

Report

Created by: Michael Judson
Created date: 12 Jun 2018 14:58 GMT

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	WS01	0.30-1.10	Non Hazardous		2
2	WS04	1.00-1.50	Non Hazardous		5
3	WS05	3.50-4.00	Non Hazardous		8
4	WS02	0.04-0.40	Non Hazardous		11
5	WS05[1]	0.30-0.60	Non Hazardous		13

Appendices	Page
Appendix A: Classifier defined and non CLP determinands	15
Appendix B: Rationale for selection of metal species	17
Appendix C: Version	17



Classification of sample: WS01

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details















Sample Name:	WS01	LoW Code:	
Sample Depth:	0.30-1.10 m	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	19.8%	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
(dry weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 19.8% Dry Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number									
1		arsenic { arsenic pentoxide }			1	20.3	mg/kg	1.534	25.991	mg/kg	0.0026 %	✓	
		033-004-00-6	215-116-9	1303-28-2									
2		cadmium {  cadmium compounds, with the exception of cadmium sulphoselenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex }			1	0.2	mg/kg		0.167	mg/kg	0.0000167 %	✓	
		048-001-00-5											
3		chromium in chromium(III) compounds {  chromium(III) oxide }				136.9	mg/kg	1.462	167.018	mg/kg	0.0167 %	✓	
			215-160-9	1308-38-9									
4		copper {  dicopper oxide; copper (I) oxide }				52	mg/kg	1.126	48.87	mg/kg	0.00489 %	✓	
		029-002-00-X	215-270-7	1317-39-1									
5		lead {  lead compounds with the exception of those specified elsewhere in this Annex }			1	280	mg/kg		233.723	mg/kg	0.0234 %	✓	
		082-001-00-6											
6		mercury { mercury }				0.3	mg/kg		0.25	mg/kg	0.000025 %	✓	
		080-001-00-0	231-106-7	7439-97-6									
7		nickel { nickel }			7	18.4	mg/kg		15.359	mg/kg	0.00154 %	✓	
		028-002-00-7	231-111-4	7440-02-0									
8		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		034-002-00-8											
9		zinc { zinc oxide }				197	mg/kg	1.245	204.682	mg/kg	0.0205 %	✓	
		030-013-00-7	215-222-5	1314-13-2									
10		naphthalene				0.08	mg/kg		0.0668	mg/kg	0.00000668 %	✓	
		601-052-00-2	202-049-5	91-20-3									
11		acenaphthylene				0.08	mg/kg		0.0668	mg/kg	0.00000668 %	✓	
			205-917-1	208-96-8									



#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value		MC Applied	Conc. Not Used
		CLP index number	EC Number	CAS Number										
12	●	acenaphthene				0.12	mg/kg		0.1	mg/kg	0.00001 %	✓		
			201-469-6	83-32-9										
13	●	fluorene				0.05	mg/kg		0.0417	mg/kg	0.00000417 %	✓		
			201-695-5	86-73-7										
14	●	phenanthrene				0.31	mg/kg		0.259	mg/kg	0.0000259 %	✓		
			201-581-5	85-01-8										
15	●	anthracene				0.13	mg/kg		0.109	mg/kg	0.0000109 %	✓		
			204-371-1	120-12-7										
16	●	fluoranthene				0.42	mg/kg		0.351	mg/kg	0.0000351 %	✓		
			205-912-4	206-44-0										
17	●	pyrene				0.4	mg/kg		0.334	mg/kg	0.0000334 %	✓		
			204-927-3	129-00-0										
18		benzo[a]anthracene				0.23	mg/kg		0.192	mg/kg	0.0000192 %	✓		
		601-033-00-9	200-280-6	56-55-3										
19		chrysene				0.24	mg/kg		0.2	mg/kg	0.00002 %	✓		
		601-048-00-0	205-923-4	218-01-9										
20		benzo[a]pyrene; benzo[def]chrysene				0.24	mg/kg		0.2	mg/kg	0.00002 %	✓		
		601-032-00-3	200-028-5	50-32-8										
21	●	indeno[123-cd]pyrene				0.17	mg/kg		0.142	mg/kg	0.0000142 %	✓		
			205-893-2	193-39-5										
22		dibenz[a,h]anthracene				0.06	mg/kg		0.0501	mg/kg	0.00000501 %	✓		
		601-041-00-2	200-181-8	53-70-3										
23	●	benzo[ghi]perylene				0.2	mg/kg		0.167	mg/kg	0.0000167 %	✓		
			205-883-8	191-24-2										
24	●	coronene				0.05	mg/kg		0.0417	mg/kg	0.00000417 %	✓		
			205-881-7	191-07-1										
25		benzo[b]fluoranthene				0.35	mg/kg		0.292	mg/kg	0.0000292 %	✓		
		601-034-00-4	205-911-9	205-99-2										
26		benzo[k]fluoranthene				0.14	mg/kg		0.117	mg/kg	0.0000117 %	✓		
		601-036-00-5	205-916-6	207-08-9										
27	●	TPH (C6 to C40) petroleum group				105	mg/kg		87.646	mg/kg	0.00876 %	✓		
				TPH										
28	●	polychlorobiphenyls; PCB				<0.035	mg/kg		<0.035	mg/kg	<0.0000035 %		<LOD	
		602-039-00-4	215-648-1	1336-36-3										
29		benzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD	
		601-020-00-8	200-753-7	71-43-2										
30		toluene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD	
		601-021-00-3	203-625-9	108-88-3										
31	●	ethylbenzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD	
		601-023-00-4	202-849-4	100-41-4										
32		xylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD	
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]										
33	🧪	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.3	mg/kg	1.923	<0.577	mg/kg	<0.0000577 %		<LOD	
		024-001-00-0	215-607-8	1333-82-0										
34		asbestos				<1000	mg/kg		<1000	mg/kg	<0.1 %		<LOD	
		650-013-00-6	- - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5										
35	●	pH				8.27	pH		8.27	pH	8.27 pH			
				PH										
Total:											0.179 %			



Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
●	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous property to non hazardous because Sample is solid and therefore less flammable.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00876%)

Classification of sample: WS04

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:
WS04	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.00-1.50 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
21.7%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 21.7% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic pentoxide }				16 mg/kg	1.534	20.166 mg/kg	0.00202 %	✓	
	033-004-00-6	215-116-9	1303-28-2							
2	cadmium { cadmium compounds, with the exception of cadmium sulposelenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex }			1	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	048-001-00-5									
3	chromium in chromium(III) compounds { chromium(III) oxide }				88.3 mg/kg	1.462	106.044 mg/kg	0.0106 %	✓	
		215-160-9	1308-38-9							
4	copper { dicopper oxide; copper (I) oxide }				7 mg/kg	1.126	6.476 mg/kg	0.000648 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
5	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	10 mg/kg		8.217 mg/kg	0.000822 %	✓	
	082-001-00-6									
6	mercury { mercury }				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	080-001-00-0	231-106-7	7439-97-6							
7	nickel { nickel }			7	23.5 mg/kg		19.31 mg/kg	0.00193 %	✓	
	028-002-00-7	231-111-4	7440-02-0							
8	selenium { selenium compounds with the exception of cadmium sulposelenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
9	zinc { zinc oxide }				28 mg/kg	1.245	28.638 mg/kg	0.00286 %	✓	
	030-013-00-7	215-222-5	1314-13-2							
10	naphthalene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
11	acenaphthylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
		205-917-1	208-96-8							



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
12	acenaphthene	201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
13	fluorene	201-695-5	86-73-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
14	phenanthrene	201-581-5	85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
15	anthracene	204-371-1	120-12-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
16	fluoranthene	205-912-4	206-44-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
17	pyrene	204-927-3	129-00-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
18	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	<0.06 mg/kg		<0.06 mg/kg	<0.000006 %			<LOD
19	chrysene	601-048-00-0	205-923-4	218-01-9	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
20	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
21	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
22	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
23	benzo[ghi]perylene	205-883-8	191-24-2		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
24	coronene	205-881-7	191-07-1		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
25	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
26	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
27	TPH (C6 to C40) petroleum group		TPH		<38 mg/kg		<38 mg/kg	<0.0038 %			<LOD
28	polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3	<0.035 mg/kg		<0.035 mg/kg	<0.0000035 %			<LOD
29	benzene	601-020-00-8	200-753-7	71-43-2	<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
30	toluene	601-021-00-3	203-625-9	108-88-3	<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
31	ethylbenzene	601-023-00-4	202-849-4	100-41-4	<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
32	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]	<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
33	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0	<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %			<LOD
34	asbestos	650-013-00-6	-----	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5	<1000 mg/kg		<1000 mg/kg	<0.1 %			<LOD
Total:									0.123 %		



Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification



Classification of sample: WS05

✔ **Non Hazardous Waste**
Classified as 17 05 04
in the List of Waste

Sample details

Sample Name:	WS05	LoW Code:	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	3.50-4.00 m	Entry:		17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Moisture content:	9.9%			
	(dry weight correction)			

Hazard properties

None identified

Determinands

Moisture content: 9.9% Dry Weight Moisture Correction applied (MC)

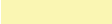



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2	3.3 mg/kg	1.534	4.606	mg/kg	0.000461 %	✓	
2	cadmium { cadmium compounds, with the exception of cadmium sulphoselenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex }	048-001-00-5			<0.1 mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
3	chromium in chromium(III) compounds { chromium(III) oxide }	215-160-9	1308-38-9		205.5 mg/kg	1.462	273.294	mg/kg	0.0273 %	✓	
4	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1	4 mg/kg	1.126	4.098	mg/kg	0.00041 %	✓	
5	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			5 mg/kg		4.55	mg/kg	0.000455 %	✓	
6	mercury { mercury }	080-001-00-0	231-106-7	7439-97-6	<0.1 mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
7	nickel { nickel }	028-002-00-7	231-111-4	7440-02-0	15.7 mg/kg		14.286	mg/kg	0.00143 %	✓	
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8			<1 mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
9	zinc { zinc oxide }	030-013-00-7	215-222-5	1314-13-2	18 mg/kg	1.245	20.387	mg/kg	0.00204 %	✓	
10	naphthalene	601-052-00-2	202-049-5	91-20-3	<0.04 mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
11	acenaphthylene		205-917-1	208-96-8	<0.03 mg/kg		<0.03	mg/kg	<0.000003 %		<LOD



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
12	acenaphthene	201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
13	fluorene	201-695-5	86-73-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
14	phenanthrene	201-581-5	85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
15	anthracene	204-371-1	120-12-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
16	fluoranthene	205-912-4	206-44-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
17	pyrene	204-927-3	129-00-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
18	benzo[a]anthracene	601-033-00-9	200-280-6		<0.06 mg/kg		<0.06 mg/kg	<0.000006 %			<LOD
19	chrysene	601-048-00-0	205-923-4		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
20	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
21	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
22	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
23	benzo[ghi]perylene	205-883-8	191-24-2		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
24	coronene	205-881-7	191-07-1		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
25	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
26	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
27	TPH (C6 to C40) petroleum group		TPH		<38 mg/kg		<38 mg/kg	<0.0038 %			<LOD
28	polychlorobiphenyls; PCB	602-039-00-4	215-648-1		<0.035 mg/kg		<0.035 mg/kg	<0.0000035 %			<LOD
29	benzene	601-020-00-8	200-753-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
30	toluene	601-021-00-3	203-625-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
31	ethylbenzene	601-023-00-4	202-849-4		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
32	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
33	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8		<0.3 mg/kg	1.923	<0.577 mg/kg	<0.0000577 %			<LOD
34	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<1000 mg/kg		<1000 mg/kg	<0.1 %			<LOD
35	pH		PH		5.8 pH		5.8 pH	5.8 pH			
Total:									0.136 %		



Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS02

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:
WS02	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.04-0.40 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
16.2%	
(dry weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 16.2% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic pentoxide }				7.1 mg/kg	1.534	9.372 mg/kg	0.000937 %	✓	
	033-004-00-6	215-116-9	1303-28-2							
2	cadmium { cadmium compounds, with the exception of cadmium sulposelenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex }			1	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	048-001-00-5									
3	chromium in chromium(III) compounds { chromium(III) oxide }				59.7 mg/kg	1.462	75.09 mg/kg	0.00751 %	✓	
		215-160-9	1308-38-9							
4	copper { dicopper oxide; copper (I) oxide }				60 mg/kg	1.126	58.135 mg/kg	0.00581 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
5	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	66 mg/kg		56.799 mg/kg	0.00568 %	✓	
	082-001-00-6									
6	mercury { mercury }				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	080-001-00-0	231-106-7	7439-97-6							
7	nickel { nickel }			7	31.6 mg/kg		27.194 mg/kg	0.00272 %	✓	
	028-002-00-7	231-111-4	7440-02-0							
8	selenium { selenium compounds with the exception of cadmium sulposelenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
9	zinc { zinc oxide }				106 mg/kg	1.245	113.545 mg/kg	0.0114 %	✓	
	030-013-00-7	215-222-5	1314-13-2							
10	naphthalene				0.53 mg/kg		0.456 mg/kg	0.0000456 %	✓	
	601-052-00-2	202-049-5	91-20-3							
11	acenaphthylene				0.14 mg/kg		0.12 mg/kg	0.000012 %	✓	
		205-917-1	208-96-8							



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
12	acenaphthene	201-469-6	83-32-9		0.84 mg/kg		0.723 mg/kg	0.0000723 %	✓	
13	fluorene	201-695-5	86-73-7		0.46 mg/kg		0.396 mg/kg	0.0000396 %	✓	
14	phenanthrene	201-581-5	85-01-8		1.44 mg/kg		1.239 mg/kg	0.000124 %	✓	
15	anthracene	204-371-1	120-12-7		0.46 mg/kg		0.396 mg/kg	0.0000396 %	✓	
16	fluoranthene	205-912-4	206-44-0		0.69 mg/kg		0.594 mg/kg	0.0000594 %	✓	
17	pyrene	204-927-3	129-00-0		0.5 mg/kg		0.43 mg/kg	0.000043 %	✓	
18	benzo[a]anthracene	601-033-00-9	200-280-6		0.16 mg/kg		0.138 mg/kg	0.0000138 %	✓	
19	chrysene	601-048-00-0	205-923-4		0.12 mg/kg		0.103 mg/kg	0.0000103 %	✓	
20	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.08 mg/kg		0.0688 mg/kg	0.00000688 %	✓	
21	indeno[123-cd]pyrene	205-893-2	193-39-5		0.06 mg/kg		0.0516 mg/kg	0.00000516 %	✓	
22	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
23	benzo[ghi]perylene	205-883-8	191-24-2		0.09 mg/kg		0.0775 mg/kg	0.00000775 %	✓	
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.11 mg/kg		0.0947 mg/kg	0.00000947 %	✓	
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.04 mg/kg		0.0344 mg/kg	0.00000344 %	✓	
26	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<1000 mg/kg		<1000 mg/kg	<0.1 %		<LOD
27	pH		PH		8.57 pH		8.57 pH	8.57 pH		
Total:								0.135 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD** Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: WS05[1]

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample Name:	LoW Code:	
WS05[1]	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.30-0.60 m		
Moisture content:		
22.3%		
(dry weight correction)		

Hazard properties

None identified

Determinands

Moisture content: 22.3% Dry Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic pentoxide }				20.3 mg/kg	1.534	25.46 mg/kg	0.00255 %	✓		
	033-004-00-6	215-116-9	1303-28-2								
2	cadmium { cadmium compounds, with the exception of cadmium sulposelenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex }			1	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	048-001-00-5										
3	chromium in chromium(III) compounds { chromium(III) oxide }				91.2 mg/kg	1.462	108.989 mg/kg	0.0109 %	✓		
		215-160-9	1308-38-9								
4	copper { dicopper oxide; copper (I) oxide }				31 mg/kg	1.126	28.538 mg/kg	0.00285 %	✓		
	029-002-00-X	215-270-7	1317-39-1								
5	lead { lead compounds with the exception of those specified elsewhere in this Annex }			1	689 mg/kg		563.369 mg/kg	0.0563 %	✓		
	082-001-00-6										
6	mercury { mercury }				0.2 mg/kg		0.164 mg/kg	0.0000164 %	✓		
	080-001-00-0	231-106-7	7439-97-6								
7	nickel { nickel }			7	21.1 mg/kg		17.253 mg/kg	0.00173 %	✓		
	028-002-00-7	231-111-4	7440-02-0								
8	selenium { selenium compounds with the exception of cadmium sulposelenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %			<LOD
	034-002-00-8										
9	zinc { zinc oxide }				77 mg/kg	1.245	78.367 mg/kg	0.00784 %	✓		
	030-013-00-7	215-222-5	1314-13-2								
10	naphthalene				<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
11	acenaphthylene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
		205-917-1	208-96-8								



#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
12	acenaphthene	201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
13	fluorene	201-695-5	86-73-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
14	phenanthrene	201-581-5	85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
15	anthracene	204-371-1	120-12-7		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
16	fluoranthene	205-912-4	206-44-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
17	pyrene	204-927-3	129-00-0		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
18	benzo[a]anthracene	601-033-00-9	200-280-6		<0.06 mg/kg		<0.06 mg/kg	<0.000006 %			<LOD
19	chrysene	601-048-00-0	205-923-4		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
20	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
21	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
22	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
23	benzo[ghi]perylene	205-883-8	191-24-2		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
26	asbestos	650-013-00-6	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<1000 mg/kg		<1000 mg/kg	<0.1 %			<LOD
27	pH		PH		7.47 pH		7.47 pH	7.47 pH			
Total:									0.183 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD Below limit of detection
- CLP: Note 1 Only the metal concentration has been used for classification

Appendix A: Classifier defined and non CLP determinands

• **cadmium compounds, with the exception of cadmium sulposelenide ($x\text{CdS.yCdSe}$), reaction mass of cadmium sulphide with zinc sulphide ($x\text{CdS.yZnS}$), reaction mass of cadmium sulphide with mercury sulphide ($x\text{CdS.yHgS}$), and those specified elsewhere in this Annex**

CLP index number: 048-001-00-5

Description/Comments: Worst Case: IARC considers cadmium compounds Group 1; Carcinogenic to humans

Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)

Additional Risk Phrases: None.

Additional Hazard Statement(s): Carc. 1A H350

Reason for additional Hazards Statement(s)/Risk Phrase(s):

29 Sep 2015 - Carc. 1A H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

• **chromium(III) oxide** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Conversion factor: 1.462

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Risk Phrases: R61, R60, R50/53, R43, R42, R38, R37, R36, R22, R20

Hazard Statements: Aquatic Chronic 1 H410, Aquatic Acute 1 H400, Repr. 1B H360FD, Skin Sens. 1 H317, Resp. Sens. 1 H334, Skin Irrit. 2 H315, STOT SE 3 H335, Eye Irrit. 2 H319, Acute Tox. 4 H302, Acute Tox. 4 H332

• **dicopper oxide; copper (I) oxide** (EC Number: 215-270-7, CAS Number: 1317-39-1)

CLP index number: 029-002-00-X

Description/Comments: M-factor for long-term aquatic hazard not included as per paragraph (5), ATP9

Data source: Regulation (EU) 2016/1179 of 19 July 2016 (ATP9)

Additional Risk Phrases: N R50/53 $\geq 0.25\%$, N R50/53

Additional Hazard Statement(s): None.

Reason for additional Hazards Statement(s)/Risk Phrase(s):

10 Oct 2016 - N R50/53 $\geq 0.25\%$ risk phrase sourced from: WM3 v1 still uses ecotoxic risk phrases

10 Oct 2016 - N R50/53 risk phrase sourced from: WM3 v1 still uses ecotoxic risk phrases

• **lead compounds with the exception of those specified elsewhere in this Annex**

CLP index number: 082-001-00-6

Description/Comments: Least-worst case: Lead REACH Consortium considers some lead compounds Carcinogenic category 2B

Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)

Additional Risk Phrases: None.

Additional Hazard Statement(s): Carc. 2 H351

Reason for additional Hazards Statement(s)/Risk Phrase(s):

03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium

www.reach-lead.eu/substanceinformation.html. Review date 29/09/2015

• **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Risk Phrases: R38, R37, R36, R27, R26, R22

Hazard Statements: Skin Irrit. 2 H315, STOT SE 3 H335, Eye Irrit. 2 H319, Acute Tox. 1 H310, Acute Tox. 1 H330, Acute Tox. 4 H302

• **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Risk Phrases: N R51/53, N R50/53, R38, R37, R36

Hazard Statements: Aquatic Chronic 2 H411, Aquatic Chronic 1 H410, Aquatic Acute 1 H400, Skin Irrit. 2 H315, STOT SE 3 H335, Eye Irrit. 2 H319

• **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Risk Phrases: N R50/53

Hazard Statements: Aquatic Chronic 1 H410, Aquatic Acute 1 H400

• **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Risk Phrases: N R50/53 , R43 , R40 , R38 , R37 , R36 , R22

Hazard Statements: Skin Irrit. 2 H315 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Carc. 2 H351 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302

• **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

Risk Phrases: N R50/53 , R43 , R38 , R37 , R36

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

• **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Risk Phrases: N R50/53 , Xn R22

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Acute Tox. 4 H302

• **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Risk Phrases: N R50/53 , Xi R36/37/38

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Skin Irrit. 2 H315

• **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Risk Phrases: R40

Hazard Statements: Carc. 2 H351

• **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 23 Jul 2015

Risk Phrases: N R50/53

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400

• **pH** (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Risk Phrases: None.

Hazard Statements: None.

• **coronene** (EC Number: 205-881-7, CAS Number: 191-07-1)

Description/Comments: Data from C&L Inventory Database; no entries in Registered Substances or Pesticides Properties databases; SDS: Sigma Aldrich, 1907/2006 compliant, dated 2012 - no entries; IARC – Group 3, not carcinogenic.

Data source:

<http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=17010&HarmOnly=no?fc=true&lang=en>

Data source date: 16 Jun 2014

Risk Phrases: R68/20

Hazard Statements: STOT SE 2 H371

• **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Risk Phrases: R65 , R63 , R51/53 , R46 , R45 , R10

Hazard Statements: Aquatic Chronic 2 H411 , Repr. 2 H361d , Carc. 1B H350 , Muta. 1B H340 , STOT RE 2 H373 , Asp. Tox. 1 H304 , Flam. Liq. 3 H226

• **polychlorobiphenyls; PCB** (EC Number: 215-648-1, CAS Number: 1336-36-3)

CLP index number: 602-039-00-4

Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans; POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.

Data source: Regulation 1272/2008/EC - Classification, labelling and packaging of substances and mixtures. (CLP)

Additional Risk Phrases: None.

Additional Hazard Statement(s): Carc. 1A H350

Reason for additional Hazards Statement(s)/Risk Phrase(s):

29 Sep 2015 - Carc. 1A H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

• **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

CLP index number: 601-023-00-4

Description/Comments:

Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)

Additional Risk Phrases: None.

Additional Hazard Statement(s): Carc. 2 H351

Reason for additional Hazards Statement(s)/Risk Phrase(s):

03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

Appendix B: Rationale for selection of metal species

arsenic {arsenic pentoxide}

Worst Case

cadmium {cadmium compounds, with the exception of cadmium sulphoselenide (xCdS.yCdSe), reaction mass of cadmium sulphide with zinc sulphide (xCdS.yZnS), reaction mass of cadmium sulphide with mercury sulphide (xCdS.yHgS), and those specified elsewhere in this Annex}

Using elemental Cadmium with no CrVI

chromium in chromium(III) compounds {chromium(III) oxide}

Worst case species

copper {dicopper oxide; copper (I) oxide}

Worst case species

lead {lead compounds with the exception of those specified elsewhere in this Annex}

Worst case species

mercury {mercury}

Worst case species

nickel {nickel}

Worst case species

selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

Worst case species

zinc {zinc oxide}

Elemental Zinc with no CrVI

chromium in chromium(VI) compounds {chromium(VI) oxide}

Worst case species

Appendix C: Version

HazWasteOnline Classification Engine: **WM3 1st Edition, May 2015**

HazWasteOnline Classification Engine Version: 2018.157.3544.7274 (06 Jun 2018)

HazWasteOnline Database: 2018.157.3544.7274 (06 Jun 2018)



This classification utilises the following guidance and legislation:

WM3 - Waste Classification - May 2015
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Wastes 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004
1st ATP to POPs Regulation - Regulation 756/2010/EU of 24 August 2010
2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010

APPENDIX J

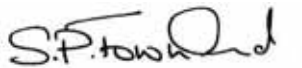
Laboratory Results – Geotechnical



TEST REPORT
ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 01/06/2018



0998

Contract	UK18.4036 - Chantry Centre, Billericay		
Serial No.	S33136		
Client: Environmental Protection Strategies Ltd Unit 7 Caxton House Broad Street Great Cambourne Cambridge CB23 6JN		Soil Property Testing Ltd 15, 16, 18 Halcyon Court, St Margaret's Way, Stukeley Meadows, Huntingdon, Cambridgeshire, PE29 6DG Tel: 01480 455579 Email: enquiries@soilpropertytesting.com Website: www.soilpropertytesting.com	
Samples Submitted By: Environmental Protection Strategies Ltd Samples Labelled: UK18.4036 - Chantry Centre, Billericay		Approved Signatories: <input type="checkbox"/> J.C. Garner B.Eng (Hons) FGS Technical Director <input checked="" type="checkbox"/> S.P. Townend FGS Quality Manager <input type="checkbox"/> W. Johnstone Materials Lab Manager <input type="checkbox"/> D. Sabnis Operations Manager 	
Date Received: 18/05/2018		Samples Tested Between: 18/05/2018 and 01/06/2018	
Remarks: For the attention of Daryl Bowell Your Reference No: UK18.4036 Your Order No: 19684			
Notes: <ol style="list-style-type: none">1 All remaining samples or remnants from this contract will be disposed of after 21 days from today, unless we are notified to the contrary.2 (a) UKAS - United Kingdom Accreditation Service (b) Opinions and interpretations expressed herein are outside the scope of UKAS accreditation3 Tests marked "NOT UKAS ACCREDITED" in this test report are not included in the UKAS Accreditation Schedule for this testing laboratory.4 This test report may not be reproduced other than in full except with the prior written approval of the issuing laboratory.			



TEST REPORT

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DATE ISSUED: 01/06/2018



0998

Contract		UK18.4036 - Chantry Centre, Billericay																		
Serial No.		S33136										Target Date		01/06/2018						
Scheduled By		Environmental Protection Strategies Ltd																		
SCHEDULE OF LABORATORY TESTS																				
Schedule Remarks																				
Bore Hole No.	Type	Sample Ref.	Top Depth	PSD by Hydro + Pre-sieve Water Content BSFN Liquid/Plastic Limits Wet Sieve Preparation CBR inc. 2.5kg compaction																Sample Remarks
WS01	D	1	1.50	1																
WS01	D	2	3.00	1																
WS03	B	1	0.30		1	1	1	1												
WS03	D	1	1.50		1	1														
WS04	D	1	3.30	1																
WS05	D	1	2.50		1	1														
Totals				3	3	3	1	1											End of Schedule	



TEST REPORT

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DATE ISSUED: 01/06/2018



0998

Contract	UK18.4036 - Chantry Centre, Billericay
Serial No.	S33136

SUMMARY OF WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole /Pit No.	Depth (m)	Type	Ref.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Liquid-ity Index (%)	SAMPLE PREPARATION				Description	CLASS
									Method	Ret'd 0.425mm (%)	Corr'd W/C <0.425mm	Curing Time (hrs)		
WS03	0.30 - 1.20	B	1	20.4	35	16	19	0.23	Wet Sieved	16 (M)	24.3*	25	Firm orangish brown slightly gravelly slightly sandy silty CLAY with rare grey mottling. Gravel is brown, black and white fine to coarse angular to rounded chert.	CL/CI
WS03	1.50 - 1.70	D	1	22.1	30	20	10	0.21	From Natural	0 (A)		24	Soft orangish brown sandy silty CLAY with rare recently active roots. Sand is fine.	CL
WS05	2.50 - 3.00	D	1	22.8	29	19	10	0.38	From Natural	0 (A)		24	Soft yellowish brown sandy silty CLAY with occasional orangish brown mottling. Sand is fine.	CL

Method Of Preparation:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:4.2
Method of Test:	BS EN ISO: 17892-1: 2014 & BS1377:Part 2:1990:3.2, 4.4
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	*Corrected water content assume material greater than 0.425mm is non-porous. See BS1377: Part 2: 1990 Clause 3 Note 1.
Remarks to Include:	Sample disturbance, loss of water, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110C



TEST REPORT

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DATE ISSUED: 01/06/2018

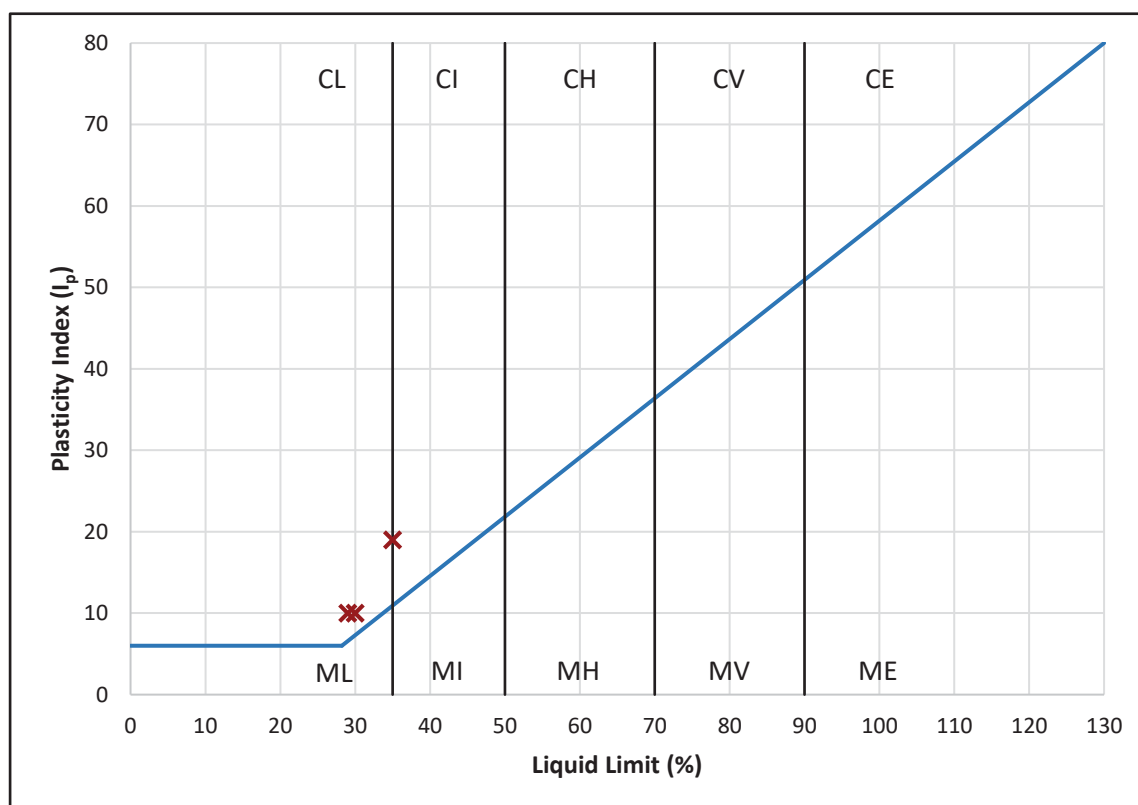


0998

Contract	UK18.4036 - Chantry Centre, Billericay
Serial No.	S33136

PLOT OF PLASTICITY INDEX AGAINST LIQUID LIMIT USING CASAGRANDE CLASSIFICATION CHART

Plasticity				
Low	Medium	High	Very High	Extremely High



Plasticity Chart BS5930: 2015: Figure 8

High	NHBC Volume Change Potential
Medium	
Low	

Method of Preparation:	BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
Method of Test:	BS EN ISO: 17892-1: 2014 & BS1377: Part 2: 3.2, 4.4, 5.3, 5.4
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index



TEST REPORT

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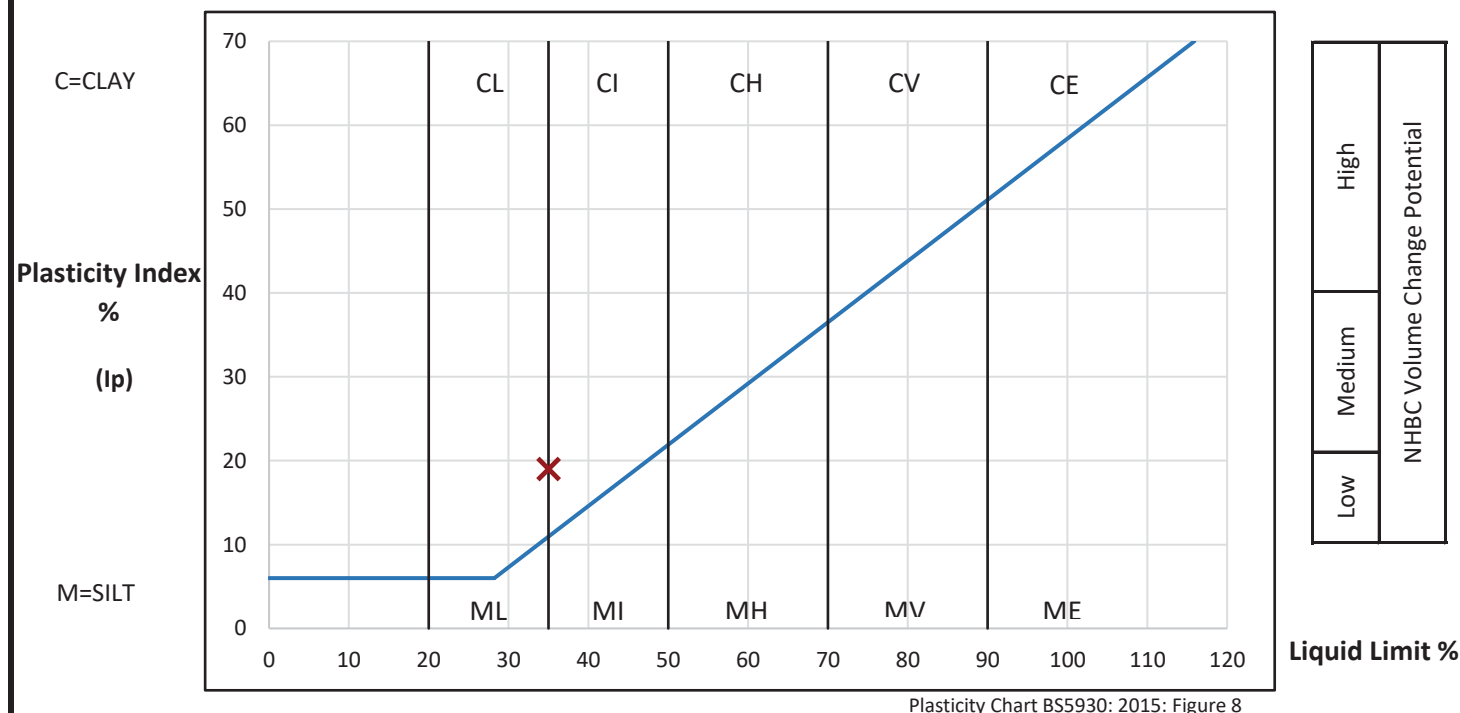
0998

Contract	UK18.4036 - Chantry Centre, Billericay
Serial No.	S33136

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
WS03	0.30 - 1.20	B	1	20.4	Firm orangish brown slightly gravelly slightly sandy silty CLAY with rare grey mottling. Gravel is brown, black and white fine to coarse angular to rounded chert.	

PREPARATION				Liquid Limit 35 %	
Method of preparation Wet sieved over 0.425mm sieve				Plastic Limit 16 %	
Sample retained 0.425mm sieve (Measured) 16 %				Plasticity Index 19 %	
Corrected water content for material passing 0.425mm 24.3 %				Liquidity Index 0.23	
Sample retained 2mm sieve (Measured) 14 %				NHBC Modified (I'p) 16 %	
Curing time 25 hrs		Clay Content Not analysed		Derived Activity Not analysed	



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 01/06/2018



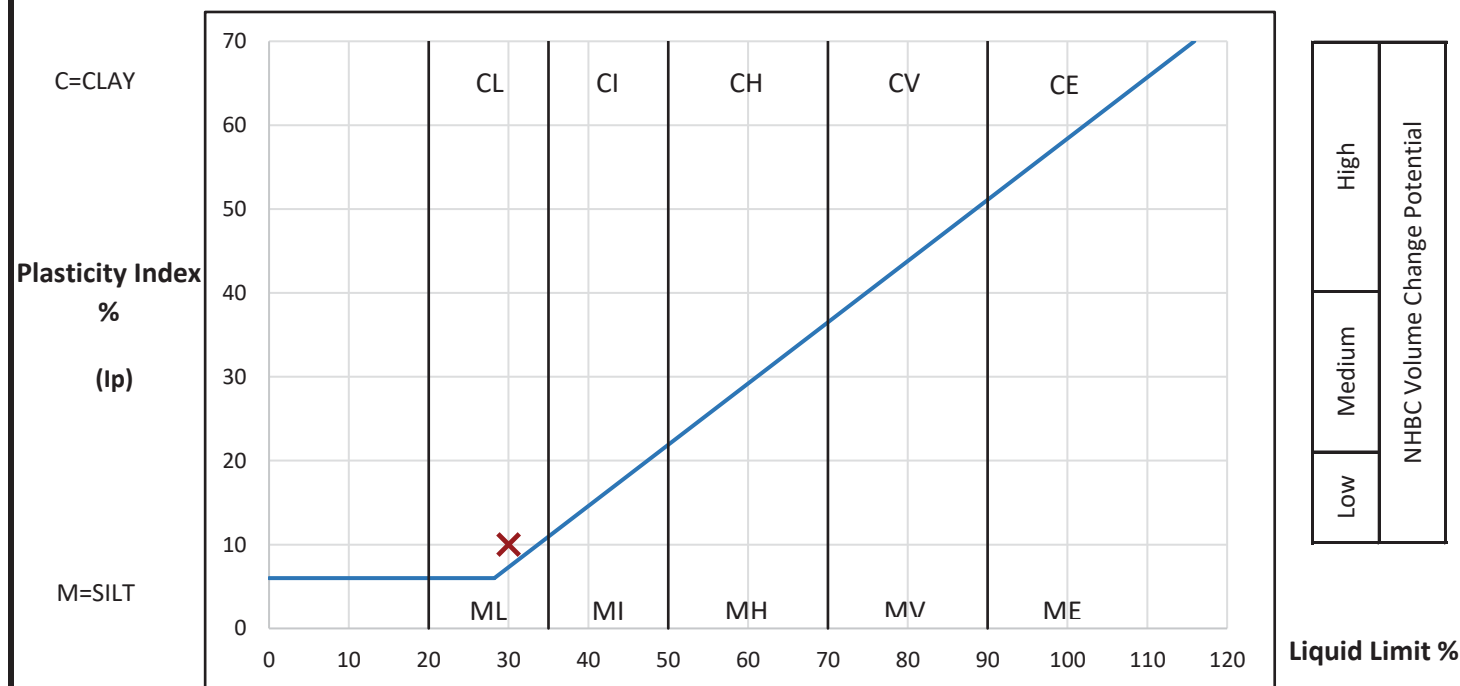
0998

Contract	UK18.4036 - Chantry Centre, Billericay
Serial No.	S33136

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks
		Type	Reference			
WS03	1.50 - 1.70	D	1	22.1	Soft orangish brown sandy silty CLAY with rare recently active roots. Sand is fine.	

PREPARATION			Liquid Limit	30 %	
Method of preparation		From natural	Plastic Limit	20 %	
Sample retained 0.425mm sieve	(Assumed)	0 %	Plasticity Index	10 %	
Corrected water content for material passing 0.425mm			Liquidity Index	0.21	
Sample retained 2mm sieve	(Assumed)	0 %	NHBC Modified (I'p)	n/a	
Curing time	24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



TEST REPORT

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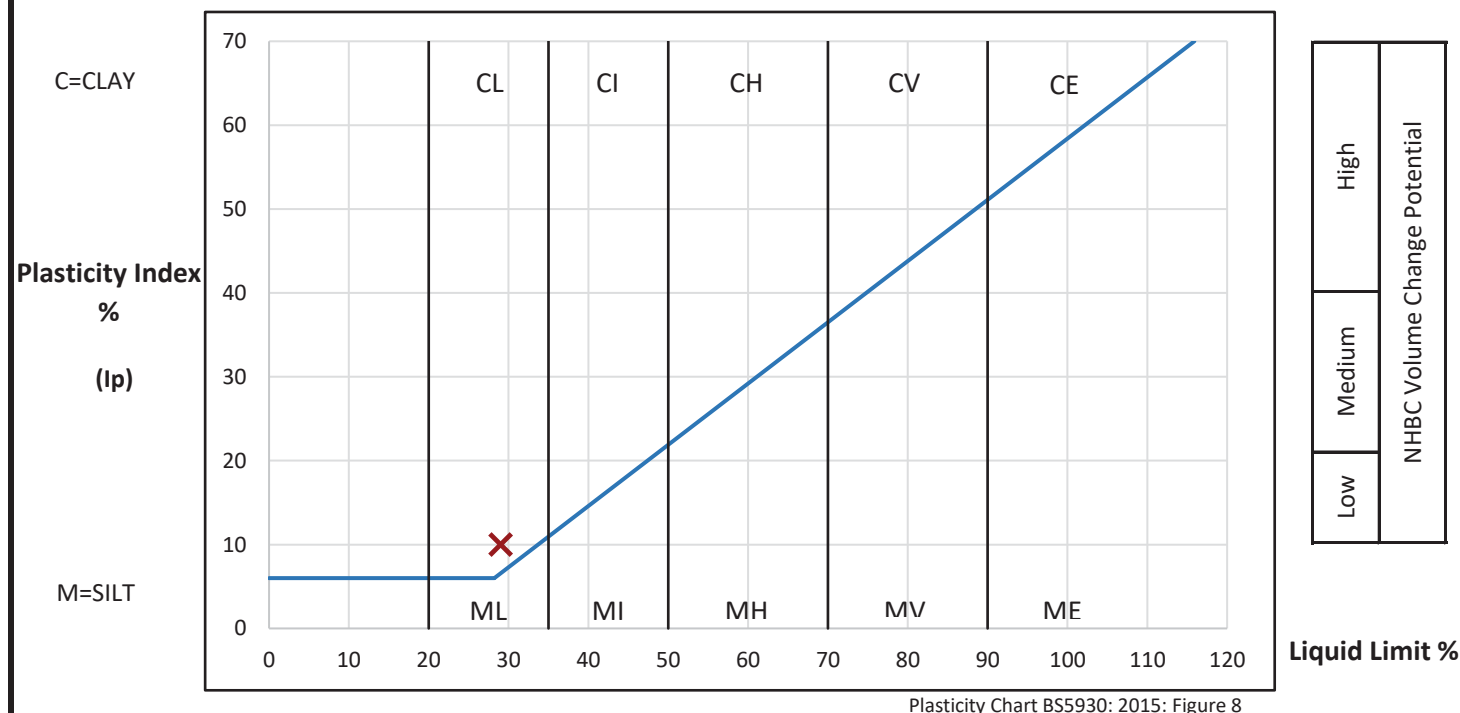
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Contract	UK18.4036 - Chantry Centre, Billericay
Serial No.	S33136

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
WS05	2.50 - 3.00	D	1	22.8	Soft yellowish brown sandy silty CLAY with occasional orangish brown mottling. Sand is fine.	

PREPARATION			Liquid Limit	29 %	
Method of preparation		From natural	Plastic Limit	19 %	
Sample retained 0.425mm sieve	(Assumed)	0 %	Plasticity Index	10 %	
Corrected water content for material passing 0.425mm			Liquidity Index	0.38	
Sample retained 2mm sieve	(Assumed)	0 %	NHBC Modified (I'p)	n/a	
Curing time	24 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2
 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4
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 Comments:



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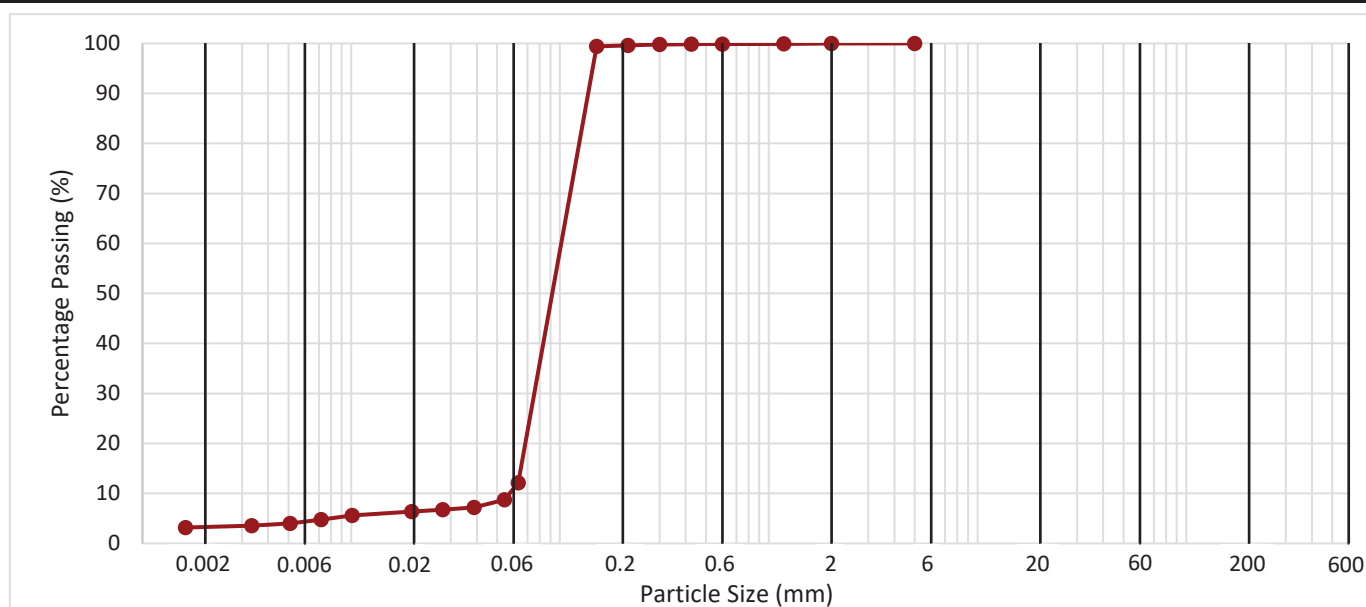
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Contract	UK18.4036 - Chantry Centre, Billericay
Serial No.	S33136

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
WS01	1.50 - 2.00	D	1	Orange silty slightly clayey SAND.	

Method of Test: Hydrometer + Pre-sieve Method of Pretreatment: Not required



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Hydrometer	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)
	0.0541	9	9
	0.0387	7	
	0.0275	7	
	0.0195	6	Clay by Dry Mass (%)
	0.0101	6	
	0.0072	5	
	0.0051	4	3
	0.0033	4	
	0.0016	3	

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	100	88
1.18	100	
0.600	100	
0.425	100	
0.300	100	
0.212	100	
0.150	99	
0.063	12	

Fines By Dry Mass (%)	
<0.063mm	12

Sieve Size (mm)	Passing (%)	Gravel By Dry Mass (%)
150		0
125		
90		
63		
50		
37.5		
28		
20		
14		
10		
6.3		
5	100	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
 Method of test: BS1377: Part2: 1990: 9.2, 9.5
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



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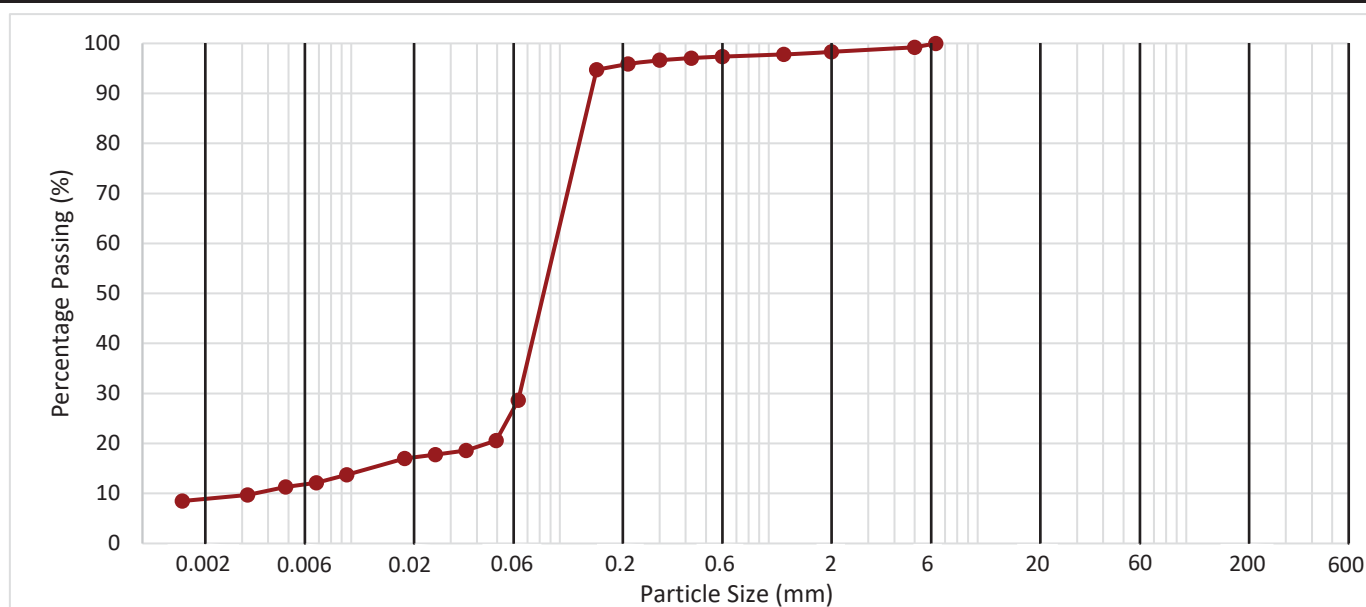
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Contract	UK18.4036 - Chantry Centre, Billericay
Serial No.	S33136

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
WS01	3.00 - 3.50	D	2	Brownish yellow slightly gravelly very silty clayey SAND. Gravel is ferruginous sandstone/siltstone.	

Method of Test: Hydrometer + Pre-sieve Method of Pretreatment: Not required



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Hydrometer	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)
	0.0494	21	20
	0.0355	19	
	0.0253	18	
	0.0180	17	
	0.0095	14	Clay by Dry Mass (%)
	0.0068	12	
	0.0049	11	
	0.0032	10	
	0.0016	8	9

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	98	69
1.18	98	
0.600	97	
0.425	97	
0.300	97	
0.212	96	
0.150	95	
0.063	29	

Fines By Dry Mass (%)	
<0.063mm	29

Sieve Size (mm)	Passing (%)	Gravel By Dry Mass (%)
150		2
125		
90		
63		
50		
37.5		
28		
20		
14		
10		
6.3	100	
5	99	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
 Method of test: BS1377: Part2: 1990: 9.2, 9.5
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
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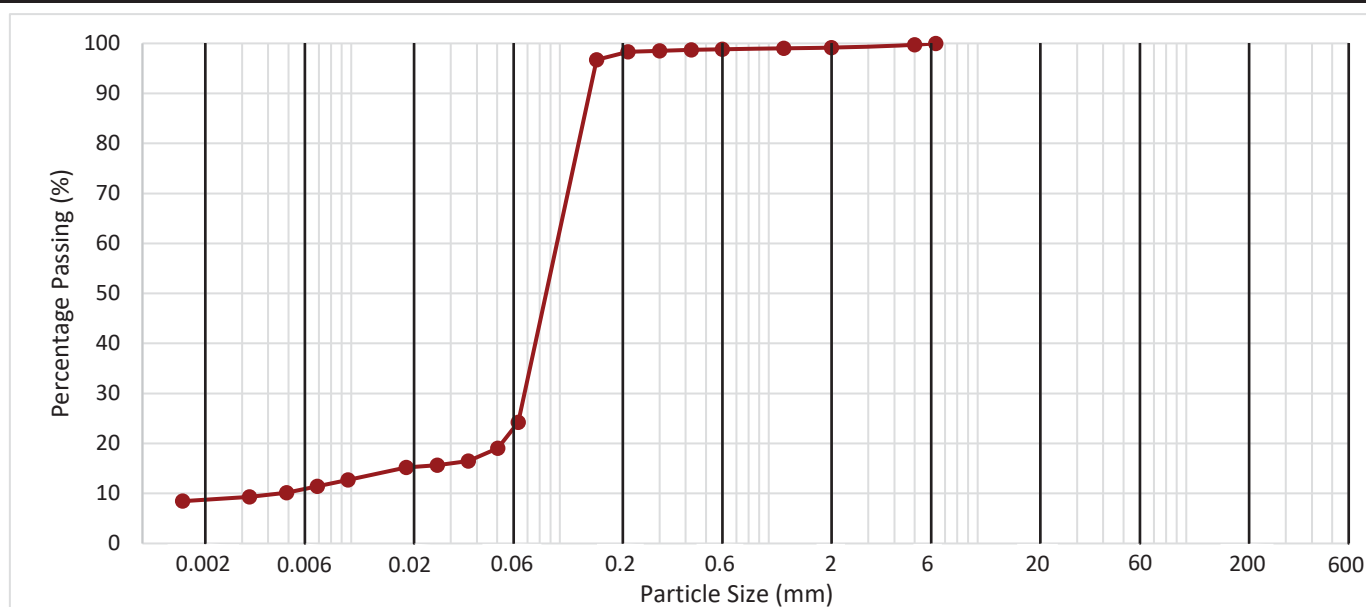
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Contract	UK18.4036 - Chantry Centre, Billericay
Serial No.	S33136

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
WS04	3.30 - 3.60	D	1	Pale brown slightly gravelly silty clayey SAND with rare orange sand.	

Method of Test: Hydrometer + Pre-sieve Method of Pretreatment: Not required



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Hydrometer	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)
	0.0504	19	15
	0.0364	16	
	0.0258	16	
	0.0184	15	Clay by Dry Mass (%)
	0.0096	13	
	0.0069	11	
	0.0049	10	9
	0.0033	9	
	0.0016	8	

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	99	75
1.18	99	
0.600	99	
0.425	99	
0.300	99	
0.212	98	
0.150	97	
0.063	24	

Fines By Dry Mass (%)	
<0.063mm	24

Sieve Size (mm)	Passing (%)	Gravel By Dry Mass (%)
150		1
125		
90		
63		
50		
37.5		
28		
20		
14		
10		
6.3	100	
5	100	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
 Method of test: BS1377: Part2: 1990: 9.2, 9.5
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



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Contract	UK18.4036 - Chantry Centre, Billericay
Serial No.	S33136

LABORATORY CALIFORNIA BEARING RATIO TESTS ADJUSTED FOR SEASONAL WATER CONTENT CHANGES

Due to seasonal variations of water content in near surface soils, many clients require CBR test samples to be subjected to sample preparation in the laboratory before testing. With Clay soils, liquid and plastic limits and water contents are carried out to classify them on material passing 20mm. The plastic limit is then compared against the water content with due regard to the proportion of material then retained on a 0.425mm sieve. If the water content is already 2% or more above the plastic limit, compaction may take place immediately. If this is not the case a calculated amount of water is added to the sample and cured for 24 hours before compaction. The samples are then cured for a further 24 hours before CBR tests are carried out at both the top and bottom of the sample.

Calculation of Adjusted Water Content for CBR testing

When a significant proportion of a basically clay material is >0.425mm, the adjusted water content (WC) for test shall be derived as follows:

Obtain test specimens for CBR, Limits and Water Content from Material Passing 20mm. (If the sample is large enough a water content may also be carried out on a representative portion of the whole sample including material greater than 20mm, and reported for information)

The Plastic Limit (PL) for the fine fraction is obtained by testing material passing the 0.425mm sieve. A notional 5% Water Content is to be allowed for material passing 20mm, and retained on the 0.425mm sieve. The proportion passing the 0.425mm is obtained by the wet sieve preparation method.

If X% passes 0.425mm, (100-X) % is retained on 0.425mm and with the 5% WC required to be incorporated for the retained 0.425mm portion, the adjusted WC for test shall be at least:

$$\frac{X(PL+2) + (100-X)5}{100} \% \quad \text{for the sample passing 20mm}$$

BH/ TP No.	Depth (m)	Type	Reference	WC as received* (%)	Plastic Limit (%)	Passing 0.425mm (%)	>20mm excluded (%)	WC req. for CBR (%)	WC after CBR Test (%)	Remarks
WS03	0.30 - 1.20	B	1	20.4	16	84	5.8	15.9	19.0	WC not adjusted

* Water content excluding material +20mm



TEST REPORT

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0998

Contract	UK18.4036 - Chantry Centre, Billericay
Serial No.	S33136

CALIFORNIA BEARING RATIO TEST

Borehole / Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
WS03	0.30 - 1.20	B	1	Firm orangish brown slightly gravelly slightly sandy silty CLAY with rare grey mottling. Gravel is brown, black and white fine to coarse angular to rounded chert.	

Specimen Preparation

Condition	Remoulded
Details	Recompacted with specified standard effort using 2.5kg rammer

Soaking Details	Not Soaked	
Period of Soaking		days
Time to Surface		days
Amount of Swell Recorded		mm
Initial Water Content		%

Material Retained on 20mm Sieve Removed	5.8	%
Initial Specimen Details:	Bulk Density	2.07 Mg/m ³
	Dry Density	1.74 Mg/m ³

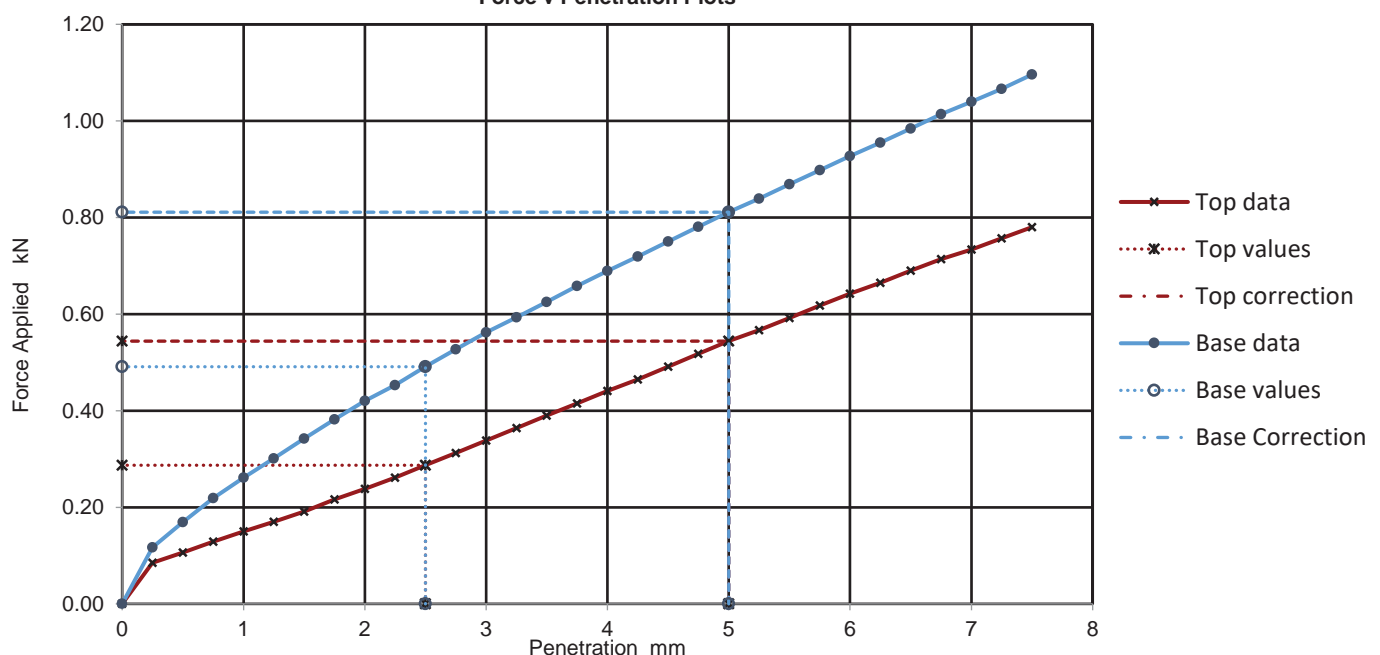
Surcharge Applied	15	kg
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Test Results

	Curve Correction	CBR Values (%)			
		2.5mm	5.0mm	Highest	Mean*
TOP	No	2.2	2.7	2.7	
BASE	No	3.7	4.1	4.1	

Water Content (%)
18.6
19.4

Force v Penetration Plots



Method of Preparation:	BS1377: Part1: 2016 & BS1377: Part 4: 1990: 7.2.4.4
Method of Test:	BS1377: Part 4: 1990: 7
Type of Sample Key	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT= Split Spoon Sample, C = Core Cutter
Comments:	*Only reported if the results from each end of the sample are within $\pm 10\%$ of the mean value.
Remarks to Include:	Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110°C.

APPENDIX K

Generic Screening Criteria

EPS Generic Quantitative Risk Assessment

Minimal Risk Generic Screening Criteria - Commercial Land Use

Contaminant	Soil Targets			Groundwater Targets	
	Human Health	Controlled Waters		Controlled Waters	
		LGwRP	HGwRP	LGwRP	HGwRP
Unit	mg/kg			ug/l	
Arsenic	640	n/c	n/c	50	10
Cadmium	190	n/c	n/c	5	5
Chromium III	8600	n/c	n/c	250	50
Chromium VI	33	n/c	n/c	n/c	n/c
Copper	68000	n/c	n/c	28	28
Mercury (elemental)	58	n/c	n/c	1	1
Nickel	980	n/c	n/c	200	50
Lead	NA	n/c	n/c	250	10
Selenium	12000	n/c	n/c	10	10
Zinc	730000	n/c	n/c	500	500
Benzene	27	0.252	0.008	30	1
Toluene	56000* (869)	1.17	1.17	50	50
Ethylbenzene	5700* (518)	15.0	10.0	300	200
Xylene (Para)	5900** (576)	0.885	0.885	30	30
MTBE#	7900	0.138	0.0276	75	15
Benzo(a)Pyrene	35	10	1.44	0.7	0.1
Naphthalene	190** (76.4)	0.934	0.02	10	0.1
Dibenz(ah)anthracene	3.5	n/c	n/c	n/c	n/c
Aliphatic C5-C6	3200** (304)	5.27	1.05	50	10
Aliphatic C6-C8	7800** (144)	23.2	4.64	50	10
Aliphatic C8-C10	2000** (78)	175	35.1	50	10
Aliphatic C10-C12	9700** (48)	1380	276	50	10
Aliphatic C12-C16	59000** (24)	27500	5490	50	10
Aliphatic C16-C35	1600000	3.46E+06	6.91E+05	50	10
Aromatic C8-C10	3500* (613)	8.74	1.75	50	10
Aromatic C10-C12	16000** (364)	13.8	2.76	50	10
Aromatic C12-C16	36000** (169)	27.5	5.5	50	10
Aromatic C16-C21	28000	86.9	17.4	50	10
Aromatic C21-C35	28000	690	138	50	10

Notes:

LGwRP - Low Groundwater Resource Potential HGwRP - High Groundwater Resource Potential

f = Oral, dermal and inhalation exposure compared with oral HCV N/C = Not

* = S4UL exceeds vapour saturation limit (in brackets) ** = S4UL exceeds solubility saturation limit (in

Soil Targets

Targets for Human Health have been taken from 'S4ULs' *'Suitable For Use Levels for Human Health Risk Assessment'* – LQM and CIEH (2014) derived using standard sandy loam soil with 1% SOM, except (#) = EIC/AGS/CL:AIRE GAC 'Soil Generic Assessment Criteria' (2010). For sites where ground conditions differ significantly from sandy loam or site-specific SOM and pH are available, the generic human health targets may be revised.

Targets for Controlled waters have been derived using EA Remedial Targets Worksheet (v3.1) - using standard Sandy Loam ground conditions as described in Science Report SC050021/SR3, assuming no degradation for a 10m compliance distance with criteria of EQS or UKDWS for LGwRP and HGwRP respectively (see notes for GW targets).

Groundwater Targets

For LGwRP, targets have been taken as Freshwater EQS where available. For Ethylbenzene and BaP the WHO Health limit has been used and for MTBE and individual TPH fractions a 5 times multiplier of taste threshold and UKDWS has been taken respectively.

For HGwRP, targets have been taken as UKDWS where available, with the exception of Copper and Zinc where the EQS is lower than the DWS and therefore the EQS has been used as the groundwater target. For Ethylbenzene the upper WHO ATO limit has been used. For Toluene and Xylene, the WHO ATO limit is higher than the EQS and so the lower value has been taken. For MTBE the taste threshold has been taken.

APPENDIX L

Method Statement for Encountering Unexpected Contamination



METHOD STATEMENT

ACTIONS TO BE TAKEN IN THE EVENT OF DISCOVERING UNEXPECTED CONTAMINATION DURING INTRUSIVE GROUNDWORKS

If at any point during intrusive groundworks at a site, evidence of unforeseen contamination is encountered in the form of significant noxious odours, discolouration, or instability within soils or sheen/ discolouration in groundwater, the following actions will be taken:

- Intrusive works in the immediate area of the impacted ground will be suspended and the continuation of work in other areas of the site will be considered within the context of the site specific health & safety plan.
- Environmental Protection Strategies Ltd (EPS) will be contacted and appraised of the situation so that arrangements can be made to characterise the impact and determine what action may be necessary in addition to the scheduled site works. Where possible / health & safety plan permits, digital photographs of the impacted ground will be taken and emailed to EPS at the address below to assist in the initial assessment.
- It may well be necessary for EPS to attend site to undertake visual inspection and obtain samples for field and/or laboratory analysis, although the actions taken will be dependent on the nature of what is encountered.
- In cases where EPS consider the unforeseen contamination likely to pose a significant risk of significant harm to adjacent site users or local environmental receptors, the local authority and the Environment Agency will be informed of the situation and the actions being taken.
- Once appropriate action has been agreed and undertaken, a written summary will be produced by EPS for submission to the Local Authority, (and where relevant, the Environment Agency) in accordance with planning requirements. The submission will include details of work undertaken, analytical results of investigative and validation samples obtained and conclusions and recommendations for any further actions considered necessary.
- Where regulatory bodies have been involved, site works should only recommence following their agreement and in all cases should only recommence when the site manager considers it safe to do so within the context of the site specific health & safety plan.

EPS Contact Details:

Giles Lock	Director	Tel: 0781 253 9656
Will Evans	Director	Tel: 0781 253 9655
Steve Bullock	Director	Tel: 0786 694 9221

Email: info@epstrategies.co.uk (Automatically forwarded to the above and office based personnel.)

HERITAGE STATEMENT:

CHANTRY CENTRE, CHANTRY WAY, BILLERICAY, ESSEX

Planning Reference: Pre-application

NGR: TQ 6755 9470

AAL Site Code: BICW 18



Report prepared for Ingleton Wood
on behalf Billericay Town Council

By

Allen Archaeology Limited
Report Number AAL 2018110

July 2018



Allenarchaeology



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Document Control

Element:	Name:	Date:
Report prepared by:	Harvey Tesseyman BA (Hons) PCIfA, Isobel Curwen BSc (Hons) MSc PCIfA	02/07/2018
Illustrations prepared by:	Harvey Tesseyman BA (Hons) PCIfA, Isobel Curwen BSc (Hons) MSc PCIfA	02/07/2018
Report edited by:	Matt Parker Wooding MPhil MCIfA	27/06/2018
Report reviewed by:	Chris Clay BA MA (Hons)	02/07/2018
Version no:	v.1.0	03/07/2018

Cover image: General view of the site, looking northeast

Executive Summary

- Allen Archaeology Limited was commissioned by Ingleton Wood on behalf of Billericay Town Council to prepare a heritage statement to assess the archaeological and heritage potential and impacts of a proposed development at the Chantry Centre, Chantry Way, Billericay, Essex, in advance of the submission of a planning application for the redevelopment of the site.
- Data was gathered from a range of primary and secondary sources, including a search of the Essex Historic Environment Record, the Essex Record Office, appropriate published sources and a site visit.
- Prehistoric activity is represented by a single Palaeolithic find and a small number of Iron Age find spots. The potential for encountering prehistoric activity within the site is considered to be low.
- There has been a large quantity of Roman activity reported in Billericay, and in the vicinity of the site this includes cremation burials and pottery scatters. Extensive areas of Roman finds have been mapped around the town and this suggests a moderate archaeological potential.
- Early medieval activity is not recorded within the study area, suggesting a negligible potential.
- Billericay is not mentioned in the Domesday Book. The earliest documentary evidence of settlement in Billericay dates from the late 13th century, with a possible market place just to the south of the site and the church to the southwest. Archaeological interventions have also recorded medieval activity near to the site, suggesting a moderate archaeological potential. Billericay appears to have been a linear development and the site is likely to lie in the rear of burgage plots fronting onto the High Street.
- Post-medieval activity predominantly relates to extant brick and timber framed houses, again focussed along High Street. Some possible outbuildings occupied the site in the 18th and 19th centuries, overall suggesting a moderate archaeological potential.
- The site is located within the Billericay Conservation Area and there are a number of Listed Buildings to the west of the site. The assessment has established that the present building on the site does not contribute positively to the setting of the Conservation Area. The proposed development design has sought to enhance the area, bringing in high quality design and materials, respecting the form and style of the Conservation Area. No negative impact on the setting of the Conservation Area or Listed Buildings is anticipated.
- Overall, therefore, there is a moderate archaeological potential for Roman, medieval and post-medieval activity, although evidence from the site visit and from archaeological work in the vicinity suggests that the site may have experienced significant truncation of archaeological deposits as a result of recent development.

1.0 Introduction

- 1.1 Allen Archaeology Limited was commissioned by Ingleton Wood on behalf of Billericay Town Council to prepare a heritage statement to assess the archaeological and heritage potential and impacts of a development proposal for land at the Chantry Centre, Chantry Way, Billericay, Essex, in advance of the submission of a planning application for the demolition of the existing building, and the construction of a replacement community building, comprising relocated Billericay Town Council offices, a main hall, with ancillary offices, meeting rooms, kitchen and toilet facilities and car parking.
- 1.2 The document has been completed with reference to current national guidelines, as set out in the Chartered Institute for Archaeologists '*Standard and guidance for historic environment desk-based assessment*' (ClfA 2014), and the Historic England documents '*Management of Research Projects in the Historic Environment*' (Historic England 2015a) and '*Historic Environment Good Practice Advice in Planning*' (Historic England 2015b).

2.0 Site Location and Description

- 2.1 The proposed development site is located on Chantry Way, Billericay, Essex, in the administrative district of Basildon Borough Council. It is situated 12km southwest of Chelmsford and 7.4km northwest of Basildon. The site is approximately 0.06 hectares and is presently occupied by a day centre building with parking to the rear. The site is centred at National Grid Reference (NGR) TQ 6755 9470 and is c.94.5m above Ordnance Datum.
- 2.2 The bedrock geology comprises Bagshot Formation Sand, a sedimentary bedrock formed between c.48–56 million years ago in an environment dominated by shallow seas, overlain with superficial deposits of Stanmore Gravel Formation sands and gravels which formed up to 3 million years ago in an environment dominated by rivers (<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>).

3.0 Planning Background

- 3.1 This heritage statement has been prepared to inform a planning application that will be submitted in due course for the demolition of the existing building and the construction of a new community building and town council offices, including car park resurfacing. This is the first stage of archaeological investigation, intended to provide detailed information that will allow the planning authority to make an informed decision as to whether further archaeological investigations will be required prior to or following the determination of a planning application for the proposed development.

National Planning Policy

- 3.2 The National Planning Policy Framework (NPPF) was published on the 27th March 2012 (Department for Communities and Local Government 2012).
- 3.3 The relevant sections of the NPPF (Department for Communities and Local Government 2012) concerning archaeological and cultural heritage assets, are Paragraphs 58 and 61 of 'Section 7. Requiring good design', and Paragraphs 126-141 of 'Section 12. Conserving and enhancing the historic environment'. Paragraph 128 has special relevance concerning the responsibilities of planning applicant:

'In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation'.

Local Planning Policy

- 3.4 The Basildon Borough Local Plan Core Strategy Revised Preferred Options Report covered the period 2007–2014 (Basildon Council 2013), however the updated, emerging Local Plan 2014–2034 started in December 2014 is currently under review:

Local Plan Update - 7 June 2018

An Extraordinary Meeting of the Council was held on Thursday 7th June 2018, in order to consider a Notice of Motion signed by 23 Members of the Council concerning the Publication Local Plan and the previous decisions the Council made in respects of the plan on 22nd March 2018.

The Notice of Motion was passed and the decision made by the Council on 22nd March to consult on the Local Plan, and to submit it to the Government, has been withdrawn and the Strategic Planning and Infrastructure Committee will be asked to look again at specific aspects of proposals in: South West Billericay, Noak Bridge, Ramsden Bellhouse, Hovefields & Honiley and Bowers Gifford & North Benfleet.

In addition, they would be required to look at:

- how future provision for Gypsy, Travelling and Travelling Showpeople could be met*
- and the proposed approach to the Community Infrastructure Levy.*

- 3.5 The relevant policy of the Basildon Borough Local Plan Core Strategy Revised Options Report (Basildon Council 2013) concerning archaeological and cultural heritage assets is Core Policy 12:

Core Policy 12: Conserving the Historic Environment

5.5.30 The Borough has a rich and locally distinctive historic environment which has been influenced by human activity spanning many thousands of years. Industry, commerce and agriculture have shaped the Borough's landscape and created unique local historic characteristics that have defined communities and settlements and which should be preserved for future generations.

5.5.31 As a resource, the historic environment is irreplaceable. The Council will work with developers, designers and other specialists to ensure that it is protected, promoted and enhanced. In accordance with national policy, significant weight should be given to the conservation of all designated heritage assets with nationally designated assets being awarded the highest level of protection followed by locally designated assets. Development

proposals should also have regard to the impact they could have on non-designated but locally important historic features and landmarks, some of which are listed within the local landscape study⁽⁷⁰⁾

5.5.32 Nationally designated assets within the Borough comprise of Listed Buildings and Scheduled Monuments. The Listed Buildings are scattered around the Borough but the highest concentration is found within the historic town of Billericay. There are two grade I listed buildings within the Borough, the Church of St Mary Magdalene in Great Burstead and the Church of St Nicholas in Laindon which receive the highest level of protection that can be awarded to buildings of historical or architectural importance. The Scheduled Monuments are two moated sites at Botelers in the Fryerns area of Basildon and at Basildon Hall, and surviving earthworks at Norsey Wood and they are statutorily required to be conserved in situ.

5.5.33 Local designations comprise of four Conservation Areas and areas of archaeological importance. Conservation Areas manage the quality and condition of the wider built environment, rather than individual buildings, and are designated for their special architectural or historic interest. The character and appearance of these areas should be preserved and enhanced and development will be expected to have regard to the character appraisals and management plans that have been produced for each Conservation Area. There are also a large number of sites of archaeological interests within the Borough which are identified in the Historic Environment Record. They are considered to be a finite resource and the historic environment characterisation study⁽⁷¹⁾ suggests that there are more which remain undiscovered as below ground deposits.

5.5.34 The landscape also contributes to the historic context of the Borough and development should have regard to this. The Borough can be divided into areas of distinctive historic landscapes which are of varying sensitivities to change due to their character, context and potential for further archaeological deposits.

5.5.35 Opportunities to enhance the historic environment should be taken and adverse impacts associated with development must be minimised so as to avoid unnecessary degradation. The Council will support development that restores the Borough's heritage assets identified as 'at risk' on the local Heritage At Risk Register (HARR).

Core Policy 12

Conserving the Historic Environment

A) All development proposals must conserve or enhance the Borough's historic environment, including the preservation of historic field boundaries and hedgerows where appropriate, to maintain and where possible improve the quality and distinctiveness of the local environment;

B) Significant weight will be given to the conservation of designated heritage assets, such as Listed Buildings, Scheduled Monuments, Conservation Areas and areas of archaeological importance. However development should also have regard to the conservation of local landmarks and features which are without statutory designation but contribute to local identity.

C) Development proposals should be sensitively designed to a high quality and should not cause harm to the historic environment. Development that could cause substantial harm to

a designated historic asset or impact on its significance will not be permitted, except in exceptional circumstances where it can be justified that significant public benefit resulting from the proposal outweighs the adverse impact on the asset. In such circumstances effort should be made to minimise any identified harm or loss to the historic asset through mitigation.

4.0 Methodology

Data Collection

4.1 A full range of primary and secondary archaeological and historical sources were consulted in the preparation of this document. The sources consulted were as follows:

- Essex Historic Environment Record (EHER) – a database of archaeological sites and artefacts, listed buildings and Scheduled Monuments. A search of this resource was undertaken for a study area extending 250m from the centre of the site.
- Essex Records Office – holds a range of historic maps, for example enclosure maps, Tithe maps, estate plans, and former editions of Ordnance Survey maps of the development area.
- Allen Archaeology’s own reference library – secondary sources pertaining to the archaeology and history of the region.
- A site visit was carried out on Wednesday 13th June 2018 in order to assess the present situation of the development area, to identify any areas where the potential archaeological resource may be particularly well preserved or damaged by recent development, and to observe the site in its landscape context.

4.2 Each archaeological and historic site and Listed Building identified in the study area has been allocated a one or two digit ‘Site’ number and assigned to a specific period according to the definitions outlined on the English Heritage Periods List (formerly the Royal Commission on the Historical Monuments of England (RCHME) Archaeological Periods List). These sites are described in the Archaeological and Historical Background section (See Section 5.0 below). Further details are provided for each site in Appendix 1, and where applicable the sites are depicted on Figure 3.

5.0 Archaeological and Historical Background

- 5.1 A Palaeolithic hand axe has been found off Chapel Street and Chapel Court, c.100m south of the site and is now held by Bedford Museum (Site 1). No further details of the axe are known. However, the site lies on Stanmore Gravel Formation gravels, dated to the early Pleistocene epoch (British Geological Survey) and therefore fairly unlikely to contain Palaeolithic material, given its very early pre-Anglian date (Juby 2011).
- 5.2 The only other prehistoric activity is represented by an Iron Age pot found in the garden of 5 Chapel Street, c.50m west of the site (Site 2), a gold coin c.90m north of the site (Site 3) and a small quantity of pottery sherds found along with Roman and Tudor pottery, c.140m southwest of the site (Site 4).

- 5.3 Although there are no detailed locations given, several prehistoric finds from Billericay and the surrounding area have been recorded in antiquarian journals including 'a most beautiful [sic] flint celt' found at a depth of c.2 feet half a mile from town, and a 'bronze celt of the loop class' with fragments of its 'ashen handle' (Bayly 1879).
- 5.4 Roman activity is more widespread within Billericay (Figure 4) and the town is believed to have been a locally important settlement during this period (Basildon Council 2010).
- 5.5 Three Roman burials were identified in the field between Mill Hill and the Union House, adjoining the old Non-Conformist burial ground, c.270m southwest (Site 5). The site included three cremation urns. Further Roman pottery was also found, c.150m to the south of the site (Site 6).
- 5.6 Slightly further afield, a large number of significant finds were recorded in the area in the 1879 edition of *The Archaeological Journal*:

Morant in his History of Essex tells us, " In November, 1724, a person digging for gravel in a field near Billerica [sic], on a high hill, after he had sunk about three feet, came to a large bed of black earth, or ashes, which endeavouring to clear away, he found mixt [sic] with a great quantity of pieces of earthen vessels of different kinds and colours; some white, some red, and some of a dark brown. Neither he, nor any who have since searched, have been able to meet with anything entire; but the pieces appeared plainly to be fragments of urns, pateras, etc. In one part of the earth, there was a place made like an oven...the man believed it was large enough to have held six half peck loaves (Bayly 1879: 72).

- 5.7 Numerous further finds are also reported (Bayly 1879), including but not limited to; intact amphora, a head or face pot, burial grounds including cremation burials within urns, and in excess of 1000 coins of Germanicus (AD 37–41), Nero (AD 54–68), Trajan (AD 98–117), Hadrian, (AD 117–138), Constantine (AD 306–337) and Licinius (AD 308–324). Where the depths of finds are noted, a Roman level of c.1m (3 feet in the journal) appears fairly uniform, although no exact locations are described.
- 5.8 Despite the quantity of finds recorded in Billericay dating to the Roman period, Bayly notes:

While from the great number of interments, and frequent discovery of tiles, etc., in Billericay, I am induced to think that it was not only a very early settlement, but that it was also a numerously populated one...Although the evidences of Roman occupation, hitherto found in Billericay, consist, with the exception of a few beads, fibulae and specula, of coins and interments, there are, I think, sufficient of the latter to justify my opinion that it must have been a place of some little importance...No foundations have been discovered, no fragments of tessellated pavements to mark the abodes of the great ones of a station, which very probably rose upon a spot near to, but not actually upon, the site of a British town (Bayly 1879: 71, 76–78).

- 5.9 The Conservation Area Appraisal for Billericay High Street highlights further areas of Roman activity including immediately to the south of the site (Figure 4). These areas have been highlighted to cover broad areas of archaeological finds, notably of Roman date (Basildon Council 2010). However, with the exception of Sites 5 and 6 lying within these identified areas to the south of the site, no other Roman finds have been recorded in the HER within the areas marked on this map and therefore the provenance of these areas identified on Figure 4 is unclear.

- 5.10 There is no recorded early medieval presence in the search area; Anglo-Saxon activity in the area centred on Great Burstead, c.2.5km south of Billericay (Basildon Council 2010: 7). The name 'Burstead' likely derives from the Old English '*burh*', typically referring to a fortified settlement or stronghold (Watts 2007). It is not recorded in the Domesday Survey of 1086, suggesting that the area was unoccupied and any Roman precursor had been abandoned.
- 5.11 Medieval Billericay is first recorded in documentary evidence dating to 1291, with the settlement named '*Byllyrica*', centered just 70m to the west of the Chantry Way site (Site 7). Several historic spellings are known, including *Billeryke*, *Billerykay*, and *Billerica*, with the name meaning dye house or tan house and originating from the medieval Latin word '*bellerica*' (Mills 1991). The town did not appear within the Domesday Survey, with Great Burstead and Cowbridge being the closest settlements named, further indicating that Billericay was not settled during the late Saxon or beginning of the medieval period.
- 5.12 Although the town is first documented in 1291, it is possible that a market was established at the site of a wooden cross, somewhere between High Street and Chapel Street in 1253, c.100m southwest of the site (Site 8) (Basildon Council 2010:11). This date has not been fully substantiated however but indicates that the site lies close to the historic core of the settlement.
- 5.13 The Grade II* Listed medieval Church of Saint Mary Magdalen, c.85m southwest of Chantry Way, was established in 1345, although the majority of the fabric surviving today is of 16th and 18th century date (Site 9).
- 5.14 Two further medieval buildings have been recorded within the search area, a Grade II Listed hall, now converted into three cottages, on Norsey Road 150m north of Chantry Way (Site 10), and The Red Lion Inn, which is a timber framed building of 15th century origin c.290m southwest of the site (Site 11).
- 5.15 Archaeological remains of medieval date have also been recorded in the study area, including boundary ditches, c.230m to the west of the site (Site 12), and a pit with a small quantity of medieval pottery, c.125m to the northwest (Site 13). In both of these cases truncation by later development was also encountered, with Site 12 particularly being significantly damaged, which may suggest the potential for wider truncation of medieval deposits throughout the area, as a result of later development.
- 5.16 Post-medieval activity is largely represented by extant housing, much of which is Grade II Listed. The focus of the post-medieval activity is along High Street, Chapel Street and Alma Link and extends into the site boundary on Chantry Way. There are thirteen timber-framed houses recorded within the search area, all of which are Grade II Listed, and range in date from the 16th to 18th century (Sites 14–26). All are located off High Street.
- 5.17 There are also thirteen brick-built houses and other buildings (Sites 27–37 and 39), which are also Grade II Listed and date to the 18th and 19th centuries. These sites are more evenly distributed across the study area, with three, Sites 38, 40 and 41, located within the site boundary and depicted on the later 19th century mapping of the town, one of which is likely to be Chantry Cottage.
- 5.18 Early historic mapping for the area shows the linear development of Billericay along the High Street and Chapel Street (Figure 5). Cartographic sources show the surrounding landscape as mainly rural with clear rectangular field boundaries and small roads leading to nearby Windmill Hill, Norsey Wood and Peartree Street.

- 5.19 By the early 19th century, development along the High Street and Chapel Street had intensified (Figure 6). This map focuses on the High Street and includes the names of some of the occupiers of dwellings along the street. While the land the site occupies is not included in the 1830 map, the footpath linking the site to High Street does appear to have been in place, suggesting that the site may have been utilised, even if only as part of the tenement plots to the rear of properties fronting the road.
- 5.20 The Tithe map of Great Burstead also shows the development of dwellings fronting the High Street with elongated plots stretching westwards to Western Road and also to the east of the High Street (Figure 7). The site appears to have spread across three plots at the time:

Number on plan	Landowner	Occupier	Name and description of land
576	Tyrell, Sir John Bart	Curtis, William	Homestead
609	Curtis, William	Love, James and others	Cottage and Garden
610	-	-	Site of House

- 5.21 A small square building within a small parcel of land (Site 38) is shown in the southern part of the site. The plot of land containing this building has not been numbered and no further details are provided in the tithe apportionments. Given the size of the building, this is likely to be an outbuilding of some description. Chantry Lane was in existence by this date, with the route marked on the Tithe map, although at this time, it did not extend as far as the site.
- 5.22 By the late 19th century, further development can be seen along the High Street and Chapel Street to the south of St Mary Magdalene's Church (Figure 8). Settlement still appears to have been predominantly in a linear nature along the High Street and Chapel Street with gardens to the rear of the properties, including within the site itself. The areas to the east of the site and north of Western Road were still marked as open field systems with defined field boundaries.
- 5.23 The site appears to have been developed sometime after 1839, but before 1874 at which point the First Edition Ordnance Survey map was produced (Figure 8). By 1874 there were three buildings within the site, including the earlier one identified in the Tithe map (Site 38), which may have been extended, another in the southwestern corner of the site (Site 40) and another small, square building in the centre of the site, likely another small outhouse (Site 41). Chantry Lane still terminates before the site.
- 5.24 The 1896 map does not show the detail of gardens and paths displayed on the previous mapping. The small building at Site 41 is no longer present, suggesting it had been demolished (Figure 9).
- 5.25 Further post-medieval features recorded in the study area include a 19th century well (Site 43), Stick Road Bridge (Site 44) and Norsey Road Bridge (Site 45) both built c.1888.
- 5.26 Post-medieval features relating to quarrying, field boundaries and remains of buildings are also noted across the study area (Sites 46–50).

- 5.27 The Grade II Listed Billericay War Memorial was erected in 1921 and bears names from both the First and Second World Wars (Site 51). A plan for the Chantry Way Estate was drawn up by W. Henden Winder in the 1920's, however it was never built. The location of this estate was to the east of the site, where Chantry Way now lies. The existence of this map suggests development of the estate was in the planning stage for several decades before construction actually began.
- 5.28 Billericay became a separate civil parish from Great Burstead in 1937 (Basildon Council 2010).
- 5.29 Heritage assets relating to the Second World War have been recorded within the search area, centred on High Street. Four mortar emplacements (Sites 52–55), and four road barriers (Sites 56–59) are known to have existed, some of which are thought to have been entirely destroyed and some of which may be at least partially extant below the ground surface (Sites 53–54). Other early modern features include a Grade II Listed telephone kiosk (Site 60).
- 5.30 By 1946, development has started to move away from the High Street and extended westwards, with development along Western Road, and streets off Western Road such as Station Road and Chestnut Avenue (Figure 10). The area immediately to the east of the site was still undeveloped at this time. Within the site itself, the buildings marked on the 1896 Ordnance Survey map were still extant. A proposed development plan of the town in the 1950's shows the area of site identified within an area marked as 'shopping area' with the area immediately to the east marked as 'residential areas identified primarily for houses and other residential buildings and used for land ordinarily incidental to use for residential purposes'.
- 5.31 Archaeological works immediately to the north of the site recorded significant modern truncation, possibly to a depth of 1.5m across the area investigated (Site 61) (Pocock 2008). This was interpreted as having:
- 'resulted in the truncation of any archaeological remains that may have once been present within the areas monitored, specifically of remains associated with the medieval or post-medieval High Street frontage but also recording any earlier prehistoric or Roman activity. The lack even of residual artefacts may suggest no such remains had been present at this location...There was also no sign of any archaeological remains extending to the east or the south into adjacent plots of land where the degree of preservation seemed good, with little or no evidence for truncation or re-working of the underlying natural geology (Pocock 2008: 1).*
- 5.32 It is not known how extensive this truncation is and whether it will impact on subsurface deposits within the site.

6.0 Site Visit

- 6.1 The site was visited by Harvey Tesseyman on Wednesday 13th June 2018. Selected photographic images taken during the site visit are reproduced below and their locations indicated on Figure 2.
- 6.2 The site is occupied by a building (Plate 1), access ramp (Plate 2) and car park off Chantry Way (Plate 3).



Plate 1: The hall building on the site, looking northwest



Plate 2: Footpath access to the site including an access ramp, looking east



Plate 3: The car park at the rear of the building in the north of the site, looking east

- 6.3 The ground rises up from the southeast towards the site, whereas the site itself is on what appears to be an artificially levelled terrace (Plate 4). At the western boundary, the site appears to be c.0.5m higher than the adjacent land (Plate 5).



Plate 4: View of Chantry Way looking northwest towards the site



Plate 5: Height difference between site (on right) and adjacent land (on left), which is 0.5m lower

- 6.4 The site is surrounded by residential buildings to the east and south (Plate 6), by a yard and car park to the north (Plate 7), and by an area of land containing a footpath connecting Chantry Way and the High Street to the west (Plate 8).



Plate 6: Residential housing to the south of the site, looking south



Plate 7: Car park to the north of the site, looking southwest



Plate 8: The footpath connecting the site and High Street, looking west-northwest towards the rear elevations of two Grade II Listed Buildings fronting the High Street (Sites 16 and 17)

- 6.5 The eastern and southern boundaries of the site follow the boundary of the Billericay Conservation Area, with a footpath running approximately northwest-southeast linking the site to the High Street (Plate 9), which is host to several Listed Buildings (Plate 10 and Plate 11). The site does share some limited intervisibility with a Grade II Listed Building, however the presence of intervening trees limits these views.



Plate 9: The footpath connecting the site and High Street, looking southeast



Plate 10: Front elevations of Grade II Listed Buildings bordering the site to the east, looking northeast



Plate 11: Billericay High Street, looking southwest

7.0 Constraints

- 7.1 There are 30 Listed Buildings within the search area, all Grade II Listed with the exception of the Grade II* Listed Church of St Mary Magdalene (Site 9). The closest Listed Buildings to the site are No. 38 High Street (Site 16), The Chequers Inn (Site 17), No. 40 High Street (Site 21), as well as three buildings along Chapel Street (Sites 14, 20 and 23). These range in date from the 16th to the 19th centuries, displaying the post-medieval heritage of the area and the good level of preservation of historic buildings along this main arterial route through Billericay.
- 7.2 The site is located at the eastern edge of the Billericay Conservation Area. It is screened from the main focus of the Conservation Area, which is along High Street, by several imposing buildings, including the Chequers Inn, Harrys Bar and Ravens Bakery. Dialogue with the local planning authority has established that although the present building is considered to be of neutral contribution to the setting of the Conservation Area, a strong design including suitable considerations in terms of height, bulk, scale, form, detailing and material would be considered as its replacement and could be a positive addition to the setting of the Conservation Area.
- 7.3 The Billericay Conservation Area is characterised by a collection of buildings dating from the 15th to the 19th centuries, the majority of which are now used as High Street shops (Basildon Council 2010). Varying styles have been used including a country town mix of timber frames, jettied cross wings, plaster, weatherboard and brick finished buildings which have been interspersed with tall and bulky steel framed buildings of the 20th century (*ibid*). These modern buildings and associated rear service yards and car park have been eroding the historic character of the town and therefore further development needs to be aware of this.
- 7.4 The current building, originally constructed as a temporary building on the site, is dated and is considered a neutral building within the Conservation Area and as such does not contribute positively to the character of the area. It has come to the end of its viable life and a replacement structure has been proposed, which has been designed in accordance

with its proposed usage, in accordance with the Billericay Town Conservation Appraisal and Management Plan and dialogue with the local town planners.

- 7.5 The proposed development is slightly larger than the existing development, with an additional storey to incorporate the new functions of the structure (Figure 11). This has slightly increased the intervisibility between the Grade II Listed Buildings fronting the High Street (Sites 16 and 21) although the existing mature trees limit most intervisibility and the proposed new building is set back from the plot frontage, further reducing views from the High Street. The current form of buildings along High Street here are mostly of two storeys, thus the proposed two storey new development would not be out of character.
- 7.6 The suggested fabric of the proposed development contributes positively to the character of the area, particularly as other nearby buildings along Chantry Way and towards the High Street also employ a brown/beige colour palette with common use of red and brown bricks and brown roof tiles as well as white-washed boarding and facades on the High Street itself, with the properties at the rear mainly brick. As the proposed development is located at the eastern extent of the Conservation Area, at the rear of the main town centre route within the transitional commercial and residential zone, the nature of the building will not be out of place, complementing both this transitional area and bridging the residential and commercial/retail locality.
- 7.7 The plot of land has seen some 18th or 19th century development, such as Chantry Cottage, and may require archaeological investigation to determine the nature of the remains and to provide a record of any elements of this building and other earlier uses which may be lost to the proposed development. Any finds may be suitable for display within the new building, providing a link to the historic use of the plot of land.
- 7.8 The footpath running from the High Street to the site appears to be of historic origin, dating back to at least 1830 and is an integral part of the character of the streetscape. The proposals will not affect this feature.

8.0 Discussion and Conclusions

- 8.1 Prehistoric activity within the search area is represented by a single Palaeolithic find, and several finds of Iron Age date. This would suggest a low archaeological potential for prehistoric activity, as the Stanmore Gravels date to the Early Pleistocene, a pre-Anglian period which only rarely contains evidence of human activity.
- 8.2 While there have been a large quantity of Roman finds reported across an extensive area in Billericay, recorded Roman activity within the search area comprises at least three cremation urn burials, and a quantity of Roman pottery. The extent of Roman finds has been mapped (Figure 4) and shows the site just north of an area known to contain archaeological finds, predominantly of Roman date although the provenance of these broad areas of Roman finds is currently unclear. However, given the large quantity of Roman finds reported across Billericay and the recorded Roman activity within the search area, the potential for encountering Roman activity within the site is considered to be moderate.
- 8.3 There is no evidence for early medieval activity, with settlement in the area probably focused on nearby Great Burstead, to the south of Billericay. Therefore, the potential for encountering early medieval archaeology within the site is considered to be negligible.

- 8.4 The first documentary evidence of settlement in Billericay dates from the late 13th century, with the suggestion of an earlier market with a wooden cross dated to 1253, a short distance to the south of the site.
- 8.5 The Grade II* Listed Church of Saint Mary Magdalen (Site 9), was established in 1345, a short distance to the southwest of the site, and several other medieval dwellings are recorded within the study area (Sites 10 and 11). Archaeological investigations in the area has also revealed evidence of medieval features (Sites 12 and 13), albeit heavily truncated by later development.
- 8.6 Given the proximity of the site to the church, and the medieval activity recorded within the search area, the potential for encountering medieval activity within the site is considered to be moderate. It is likely that the focus of the settlement at the time was on High Street, with the current site likely to be forming part of the garden plots to the rear of properties fronting the street, where property boundaries, outbuildings and rubbish pits may be encountered. However, archaeological work in the immediate vicinity had identified substantial horizontal truncation of archaeological deposits and this may be the case at the present site. Evidence from the site visit indicates that the site has been levelled and landscaped prior to construction of the present buildings, but the impact of these works remains unknown.
- 8.7 Post-medieval activity within the search area is represented by extant timber framed and brick dwellings, many of which are Grade II Listed. Development continues to follow a linear pattern along the High Street and Chapel Street with plots extending back from the main roads. Again the site lies to the rear of the main High Street frontage, and the remains exposed are likely to be for the most part of a similar nature to the medieval period.
- 8.8 A number of buildings are also recorded within the site on 18th and 19th century mapping of the area (Sites 38, 40 and 41) and therefore the potential for encountering post-medieval activity within the site is considered to be moderate as the current survival of these buildings is unknown.
- 8.9 The site is located within the Billericay Town Conservation Area. As such, consideration has been taken during the design phase to identify opportunities and areas of enhancement that are possible during the proposed replacement of the current structure with a new purpose-built community building and town council offices.
- 8.10 The present building, a temporary structure, is outdated and does not make a positive contribution to the Conservation Area. The proposed building will bridge the transitional zone between residential and High Street commercial areas, bringing a quality design utilising appropriate materials and form to enhance this part of the Billericay Conservation Area. The proposals are not anticipated to harm the Listed Buildings or Conservation Area and represent an opportunity to enhance the setting here.

9.0 Acknowledgements

- 9.1 Allen Archaeology Limited would like to thank Ingleton Wood for this commission.

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Appendix 1: List of EHER Entries within a 250m search area

Site No.	HER No.	Grade & Listing No.	Easting	Northing	Description	Date
1	5416		567533	194567	Palaeolithic hand axe now held in Bedford Museum.	Prehistoric
2	5413		567500	194700	Iron Age pot found in the garden of 5 Chapel Street.	Prehistoric
3	51653		567600	194800	A Portable Antiquities Scheme findspot of uncertain exact location representing a single gold Iron Age coin.	Prehistoric
4	16835; 16836		567489	194572	A watching brief during the demolition of a barn recorded a Tudor well, along with Iron Age and Roman pottery.	Prehistoric
5	5417		567443	194459	Roman burials in a field between Mill Hill and the Union House, adjoining the old burial ground belonging to the Non-conformists. A lathe turned urn with no decoration was found containing cremated bones along with another with bands of a light yellow colour. A third example was very shallow with a deep overhanging lip serrated on its lower edge.	Roman
6	5418; 5419		567533	194567	Roman pottery and/or a non-descript object, may be a duplicate of other Roman entries.	Roman
7	5410		567486	194699	Billericay medieval town, first mentioned in 1291. A market was present from 1253, growing as a secondary settlement of Great Burstead.	Medieval
8	18415		567457	194661	The medieval market and wooden market cross were sited here at the junction between High Street and Chapel Street. The area was infilled by the post-medieval period.	Medieval
9	5411; 5412; 25908; 25909	1170075, Grade II*; 1122265, Grade II	567482	194671	Church of St Mary Magdalen, a chapel established in 1345. The present church has a brick tower of c.1500 but the rest is 18 th century.	Medieval
10	25934	1338399, Grade II	567587	194867	6, 8 and 10 Norsey Road, a late 14 th century or early 15 th century timber framed hall, now three cottages.	Medieval

Site No.	HER No.	Grade & Listing No.	Easting	Northing	Description	Date
11	25927	1338406, Grade II	567352	194500	The Red Lion Inn, a timber framed 15 th century building altered through the 18 th century and 19 th century.	Medieval
12	16053		567335	194752	The remains medieval boundary ditches were found along with the remains of a building erected c.1700 and a boundary wall built c.1800 at 71 Western Road (BL5 & BL6) identified during an archaeological watching brief in 1994 by Godbold and Foreman. Later work also in 1994 suggested significant damage had been done to the site by ongoing building works.	Medieval
13	14418; 14419		567433	194766	Trial trenching in 1991-1992 by N.J. Lavender recorded five sherds of medieval pottery in a pit. A post-medieval ditch and pit with a fill including tile, pottery, glass, coal, and clay pipe fragments along with red earthenware was also recorded.	Medieval
14	25899	1122248, Grade II	567498	194681	Timber framed house dating to the 16 th century or 17 th century.	Post-medieval
15	25902	1122262, Grade II	567541	194813	12 High Street, 16 th century or 17 th century timber framed house.	Post-medieval
16	25905	1170061, Grade II	567522	194716	38 High Street, a late 16 th century timber framed house. A large pit c.1800 and two possible 17 th century post holes were also found along with some residual medieval pottery.	Post-medieval
17	25907	1122264, Grade II	567501	194705	The Chequers Inn, a 16 th century timber framed house.	Post-medieval
18	25921	1122269, Grade II	567463	194701	57 to 61 High Street, a 16 th century timber framed hall house.	Post-medieval
19	25924	1122228, Grade II	567409	194595	Office of North Thames Gas Board, 16 th century or 17 th century timber framed house, a meeting place of the 17 th century Billericay dissenters.	Post-medieval
20	25900	1338376, Grade II	567498	194671	7 and 9 Chapel Street, 17 th century or 18 th century timber framed houses.	Post-medieval
21	25906	1338383, Grade II	567506	194715	40 High Street, a 17 th century Timber framed house.	Post-medieval

Site No.	HER No.	Grade & Listing No.	Easting	Northing	Description	Date
22	25910	1306211, Grade II	567445	194592	72 High Street, 17 th century timber framed house.	Post-medieval
23	25901	1122249, Grade II	567499	194664	11 and 13 Chapel Street, 18 th century timber framed houses.	Post-medieval
24	25915	1338385, Grade II	567368	194460	106 High Street, 18 th century timber framed house.	Post-medieval
25	25923	1122227, Grade II	567437	194641	75-79 High Street, a 18 th century timber framed house.	Post-medieval
26	25925	1338405, Grade II	567398	194583	93 and 95 High Street, 18 th century timber framed house.	Post-medieval
27	25903	1170052, Grade II	567526	194774	22 High Street, 18 th century red brick house.	Post-medieval
28	25911	1338384, Grade II	567437	194587	74A, 74 and 74B High Street, a 18 th century red brick house.	Post-medieval
29	25912	1122266, Grade II	567391	194500	98 High Street, 18 th century red brick house.	Post-medieval
30	25913	1306221, Grade II	567387	194487	Foxcroft, a late 18 th century or early 19 th century brick house.	Post-medieval
31	25918	1122268, Grade II	567492	194770	41 High Street, 18 th century brick house.	Post-medieval
32	25919	1170121, Grade II	567489	194759	43 High Street, a C18 brick house.	Post-medieval
33	25920	1338386, Grade II	567457	194744	51 High Street, a 18 th century red brick house.	Post-medieval
34	25922	1170126, Grade II	567460	194688	63 High Street, a late 18 th century or early 19 th century red brick house.	Post-medieval
35	25926	1188613, Grade II	567360	194524	107 High Street, a 18 th century red brick house. Listed for group value with 105 and 109.	Post-medieval
36	25932	1122240, Grade II	567580	194880	1 to 5 Norsey Road, a range of 18 th century red brick cottages.	Post-medieval
37	25904	1122263, Grade II	567522	194765	24 High Street, early 19 th century red brick house.	Post-medieval
38			567558	194703	Small building marked within the site on the Tithe map 1839	Post-medieval
39	27207	1122211, Grade II	567488	194459	The Old Vicarage and attached wall, gatepiers and gate, an early 19 th century brick house with a cast and wrought iron gate.	Post-medieval
40			567558	194703	Building marked within the site on the 1874 Ordnance Survey map	Post-medieval
41			567558	194703	Building marked within the site on the 1874 Ordnance Survey map	Post-medieval

Site No.	HER No.	Grade & Listing No.	Easting	Northing	Description	Date
42	40910; 41012		567524	194927	Railway Hotel, a hotel and public house appearing on Ordnance Survey maps c.1898.	Post-medieval
43	18459		567402	194599	A watching brief in 1999 recorded a possible 19th century well to the immediate rear of the property at 91 High Street.	Post-medieval
44	40908; 41011		567601	194950	Stock Road bridge, probably built c.1888 and currently used as a functional railway crossing.	Post-medieval
45	40911; 41013		567674	194931	Norsey Road bridge, built c.1888 and functional as a railway crossing.	Post-medieval
46	16071		567443	194459	A 5% sample of The Fold Site taken in 1995 by L. Barber was excavated using a machine. Severe ground disturbance relating to gravel quarrying in the late 17 th century or early 18 th century was apparent. Other features recorded including possible building remains, and several pits one of which contained a large amount of post-medieval pottery.	Post-medieval
47	14676		567386	194439	Archaeological evaluation by M. Atkinson in 1992 at 108 High Street. No features or finds were recorded predating the 16 th century/17 th century suggesting the previous theory that the medieval town did not extend this far south is possibly accurate. Most of the post-medieval finds appeared residual, although some features may be related to an original 17 th century building.	Post-medieval
48	47655		567326	194538	Archaeological evaluation at Land at Lion Lodge, Lion Lane in 2009 by T. Ennis found a Victorian rubbish pit, two animal burials, evidence for 18th century quarrying, and two residual sherds of medieval pottery.	Post-medieval

Site No.	HER No.	Grade & Listing No.	Easting	Northing	Description	Date
49	47381		567430	194670	A 2010 archaeological evaluation by P. Sparrow found evidence for post-medieval garden management which correlates to features visible on the 1874 Ordnance Survey map at land to the Rear of 69 High Street. Residual finds including Tudor red earthenware, a 17 th century clay pipe, and an ornamental roof tile c.1500 were also found.	Post-medieval
50	16834		567486	194481	A trench dug by Billericay Archaeological and Historical Society found an Irish token at Boughtwoods Cottage, Chapel Street. Evidence for ground disturbance from gravel extraction was also recorded.	Post-medieval
51	39363	1431204, Grade II	567480	194690	Billericay War Memorial, bearing names from the First and Second World War, dated to 1921.	Modern
52	21007		567510	194940	Spigot Mortar Emplacement (destroyed), Constitutional Club. Exact location unknown, but the grid reference is considered fairly accurate to within several metres.	Modern
53	21008		567540	194900	Spigot Mortar Emplacement (destroyed), 3 High St. The forecourt has been tarmaced over but it is considered likely below ground remains survive.	Modern
54	21010		567640	194900	Spigot Mortar Emplacement, railway embankment, Norsey Road. Extant, although the octagonal brick lined pit has been filled with soil and woodland debris.	Modern
55	21012		567500	194720	Spigot Mortar Emplacement (destroyed), 38 High St. Approximate position taken from a former resident who lived through the war. Remains may survive below ground level.	Modern
56	21006		567560	194930	Road Barrier (destroyed), Stock Road railway bridge, Second World War. Exact location unknown.	Modern

Site No.	HER No.	Grade & Listing No.	Easting	Northing	Description	Date
57	21009		567630	194900	Road Barrier (destroyed), Norsey Road railway bridge. Exact location unknown.	Modern
58	21011		567510	194850	Road Barrier (destroyed), Western Road.	Modern
59	21013		567340	194490	Road Barrier (destroyed), Lion Lane. A sketch map at the Cater Museum shows the position.	Modern
60	25914	1235002, Grade II	567390	194516	Telephone kiosk, mid to late 20 th century type K6, designed in 1935.	Modern
61	47621		567570	194750	Modern building remains and extensive truncation were recorded during an archaeological investigation by Matthew Pocock in 2008 at the rear of 22 High Street.	Modern

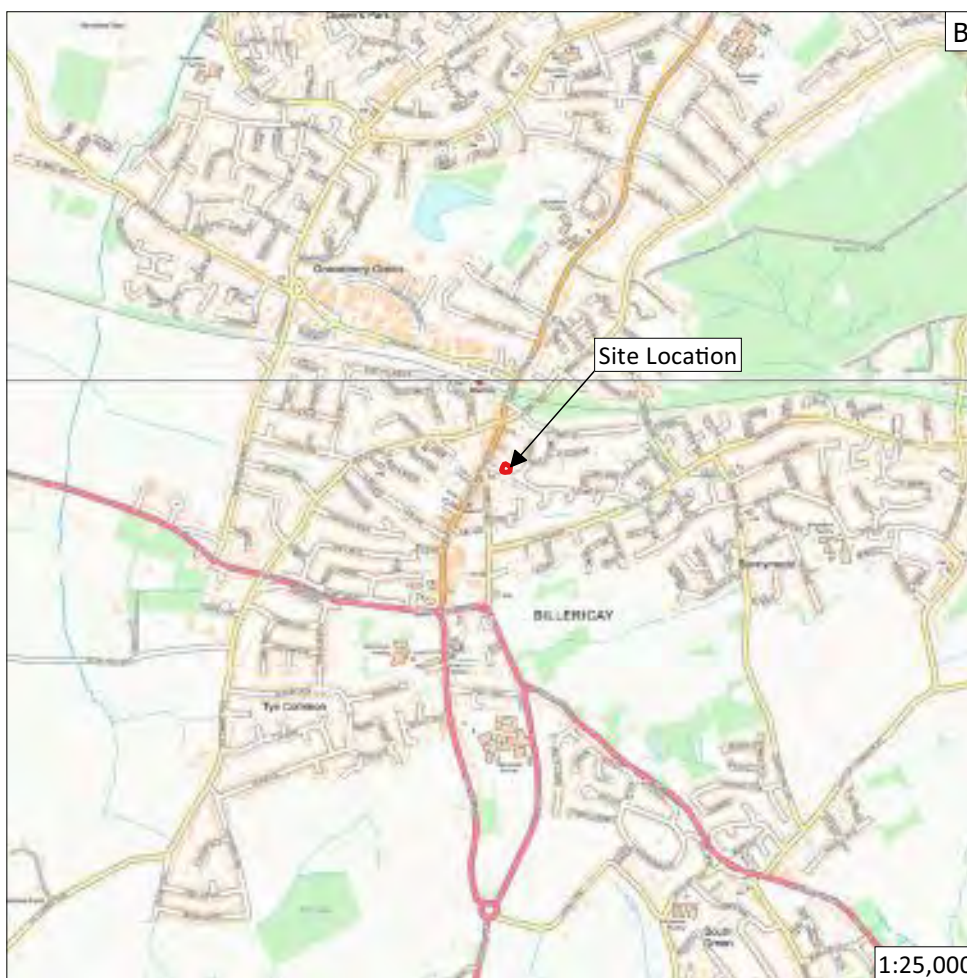
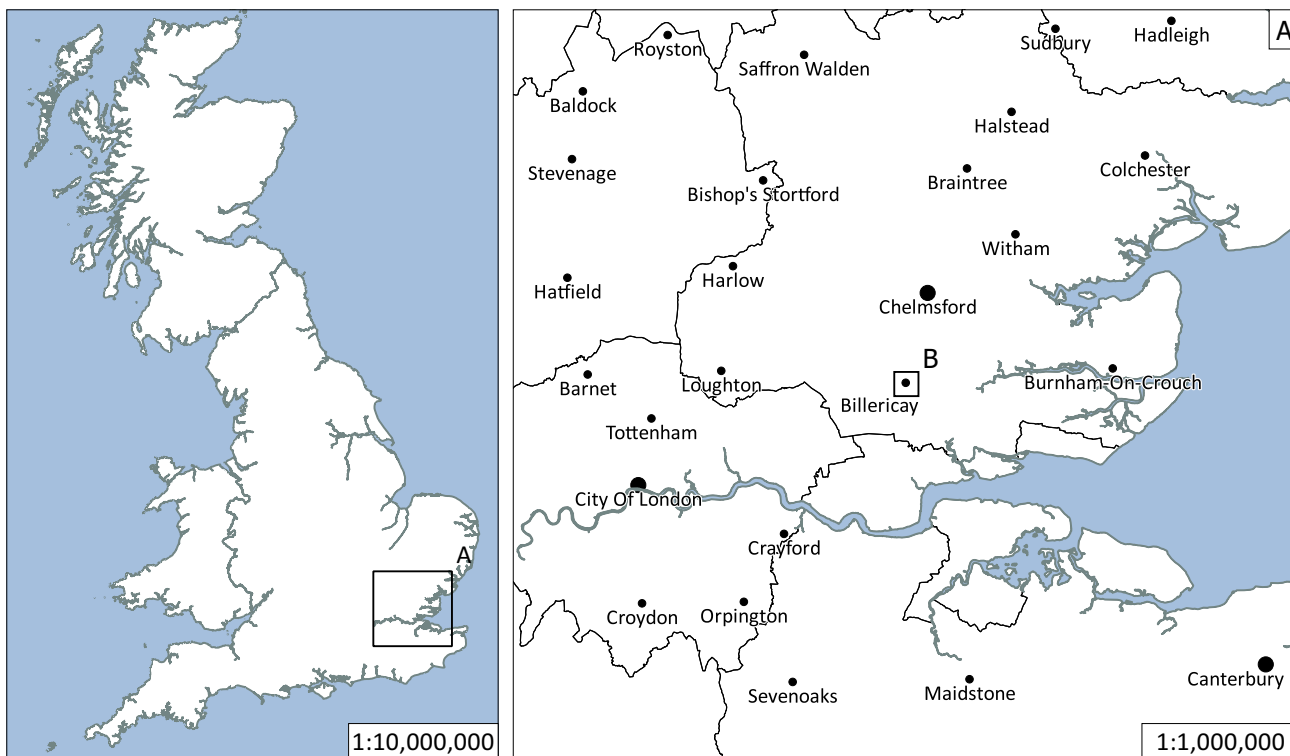


Figure 1: Site location outlined in red

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Site Code	BICW 18
Scale	1:10,000,000 1:1,000,000 1:25,000 @ A4
Drawn by	H Tesseyman
Date	11/06/2018

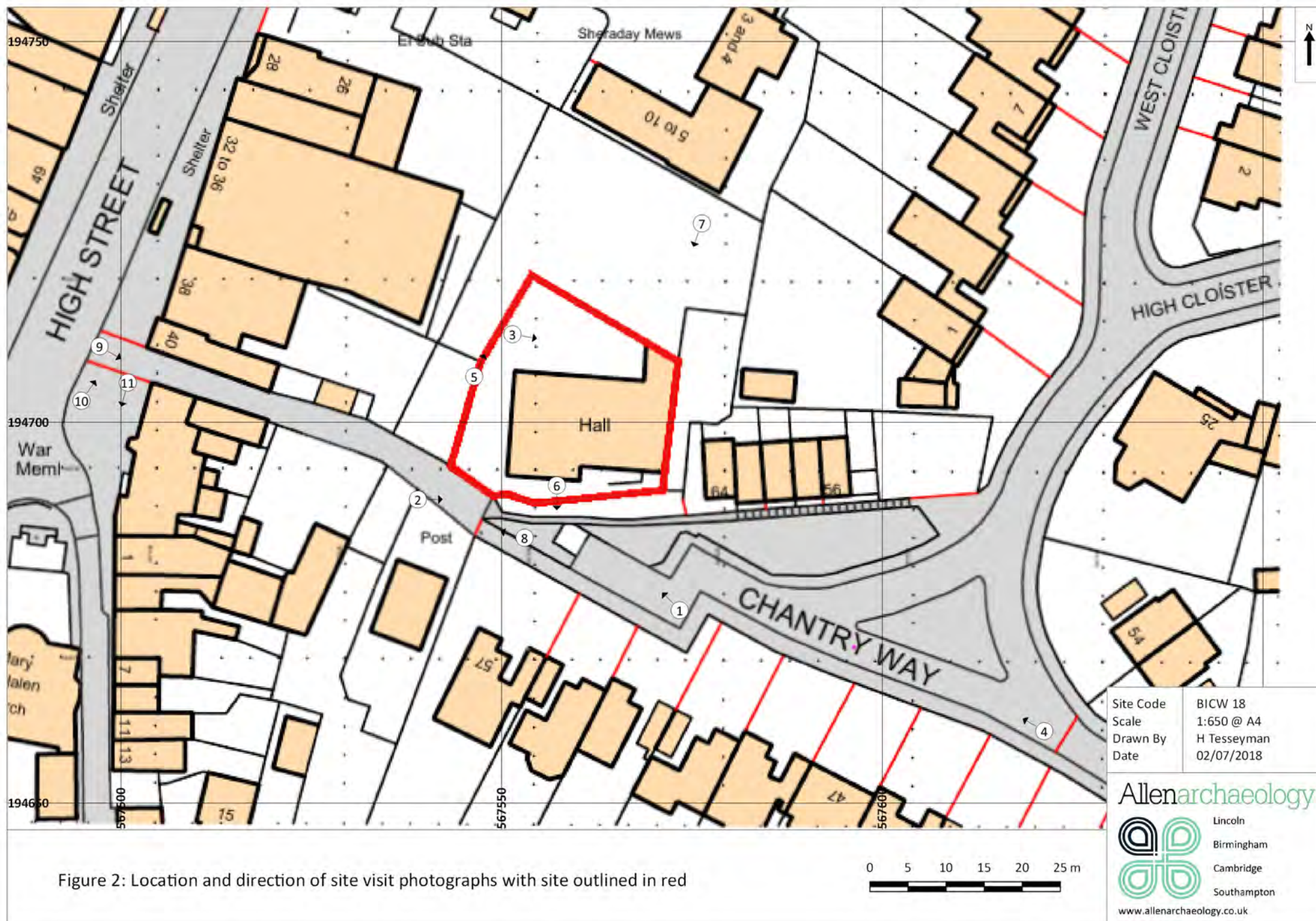
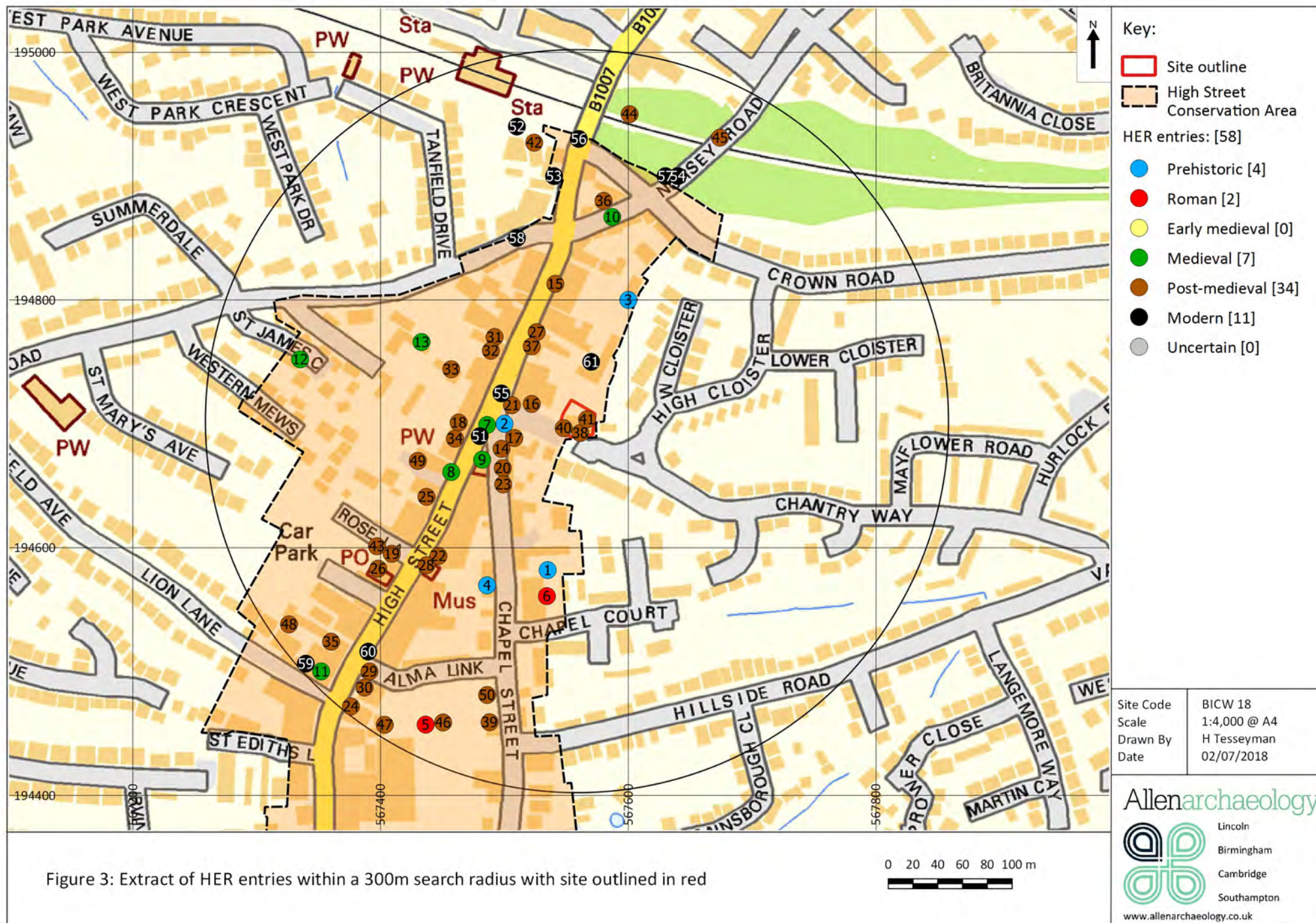


Figure 2: Location and direction of site visit photographs with site outlined in red



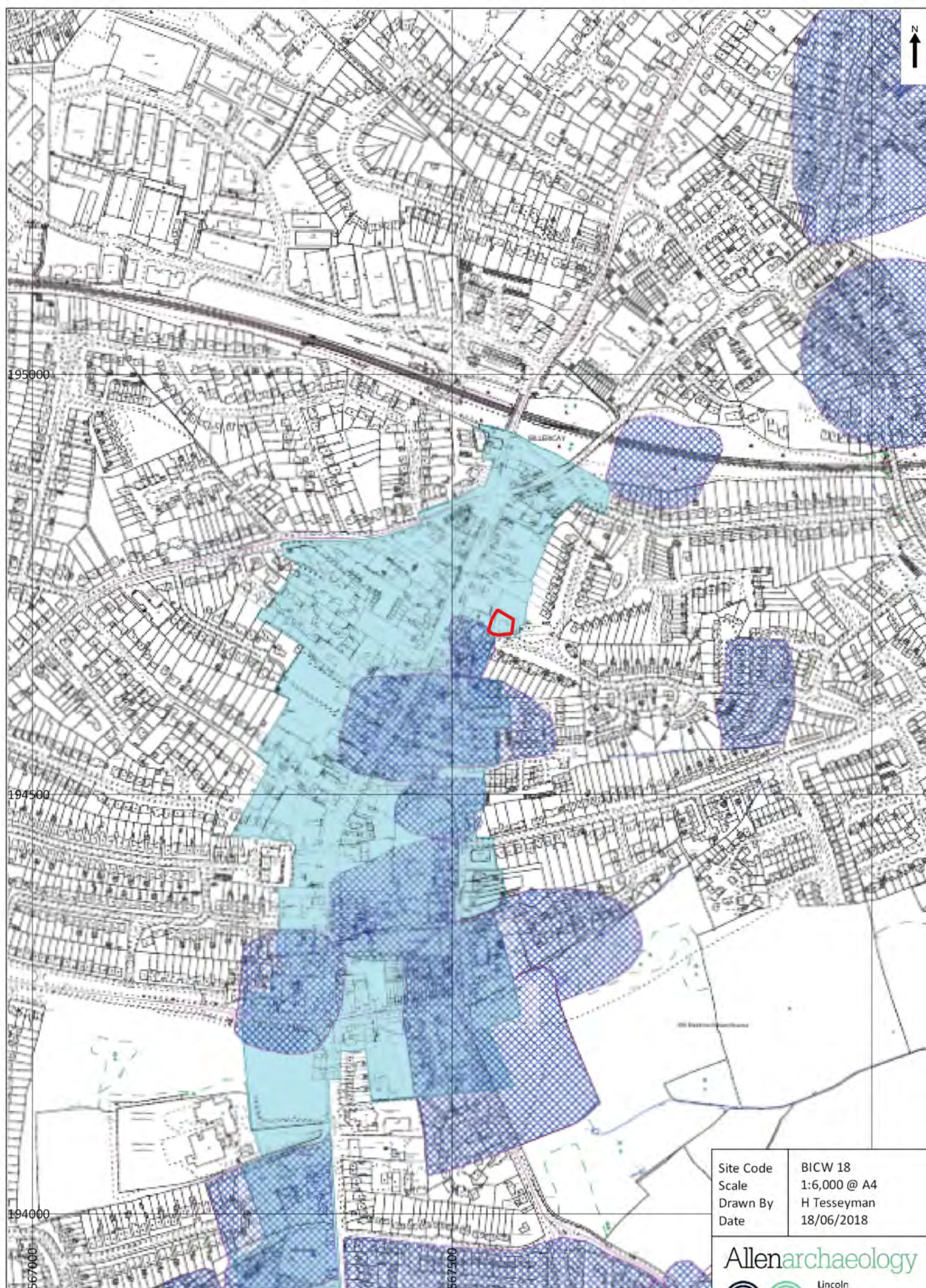


Figure 4: Extract of map of Roman finds (dark blue, hatched) and Conservation Area (light blue, solid) with site outlined in red

0 50 100 150 200 m

Site Code	BICW 18
Scale	1:6,000 @ A4
Drawn By	H Tesseyman
Date	18/06/2018

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Figure 5: Extract of Charles Budgen's 1799 map of Brentwood, Essex with approximate site location outlined in red

Site Code	BICW 18
Scale	1:10,000 @ A4
Drawn By	H Tesseyman
Date	18/06/2018

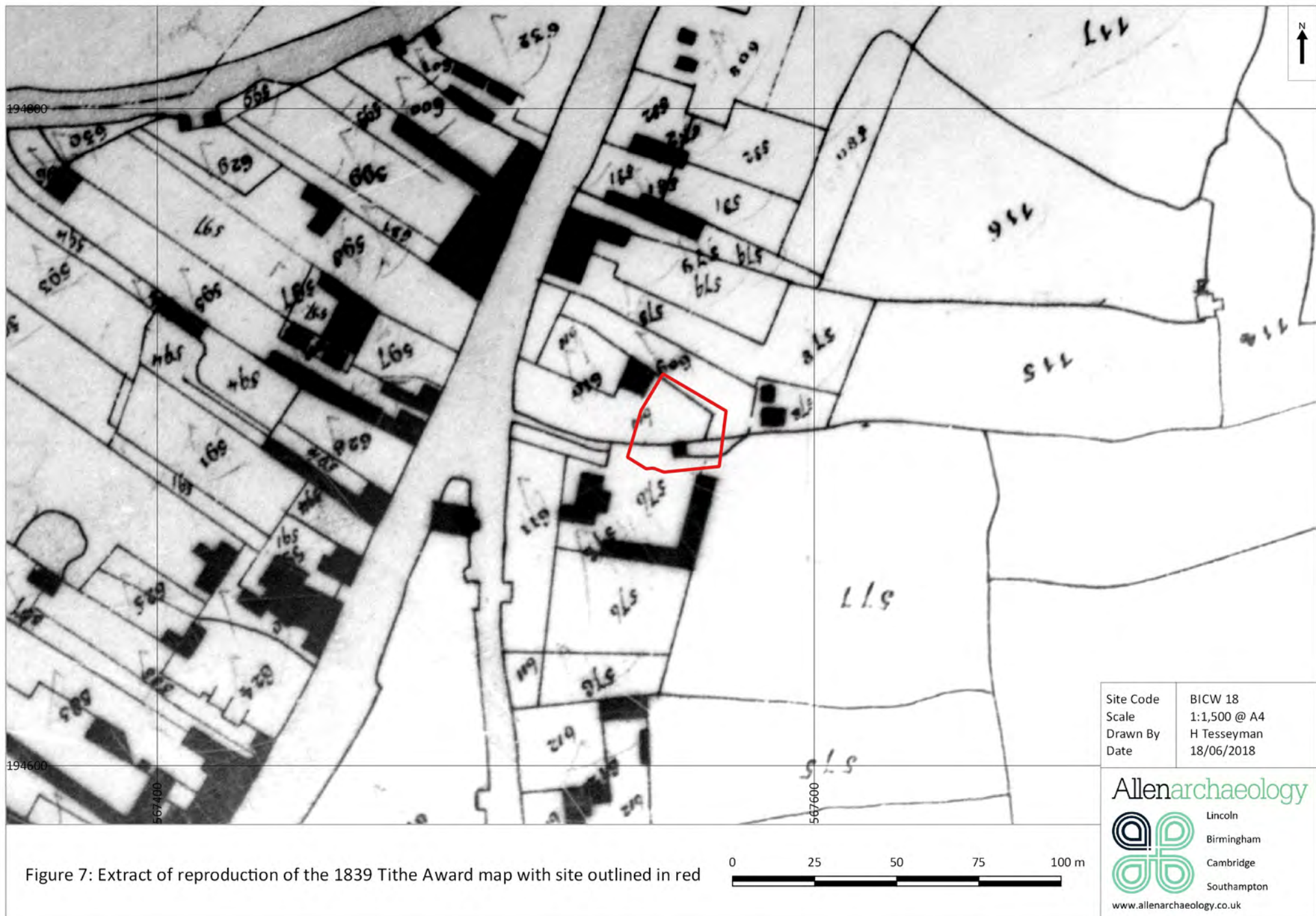
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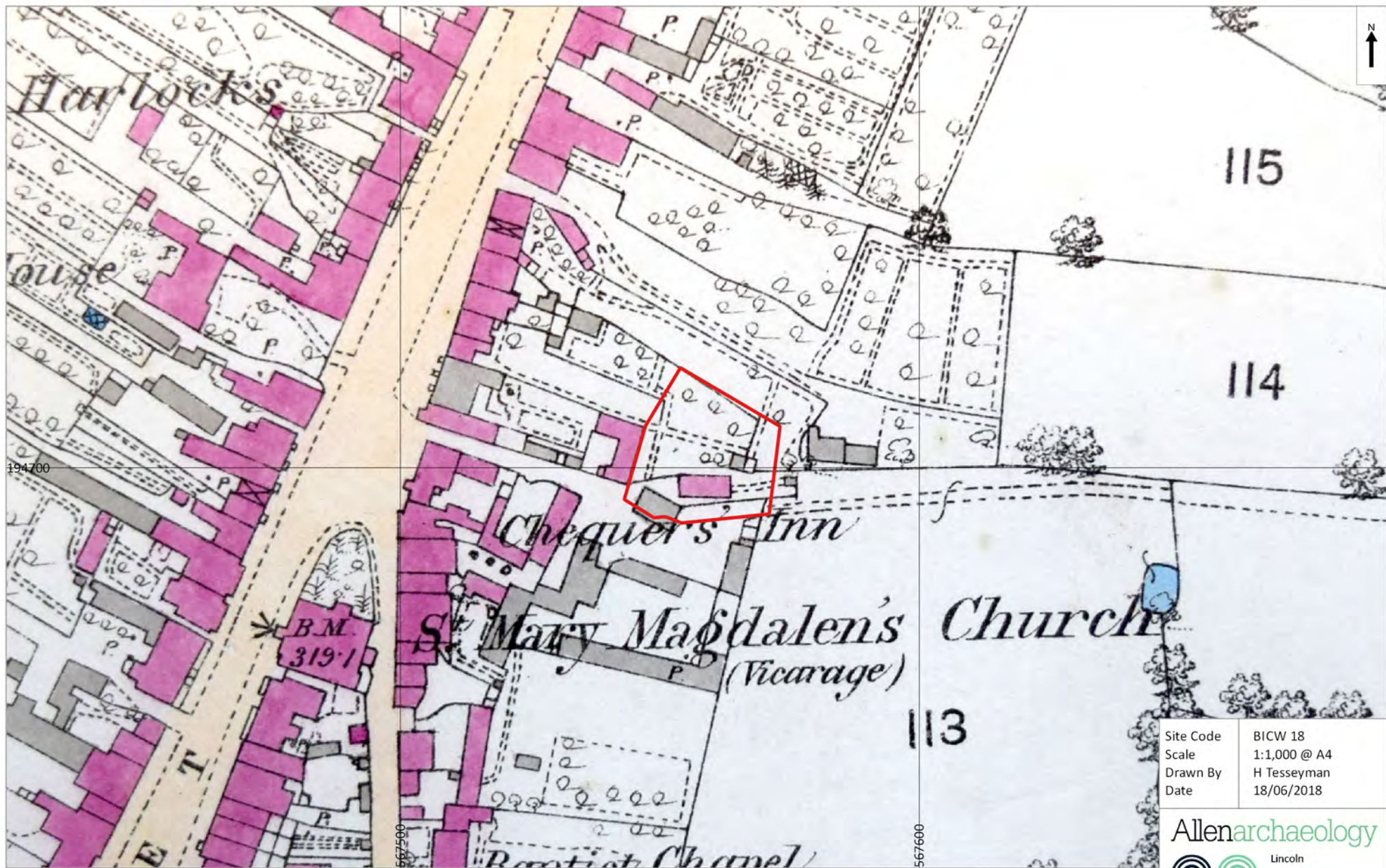


Figure 8: Extract of c.1874 Ordnance Survey map with site outlined in red



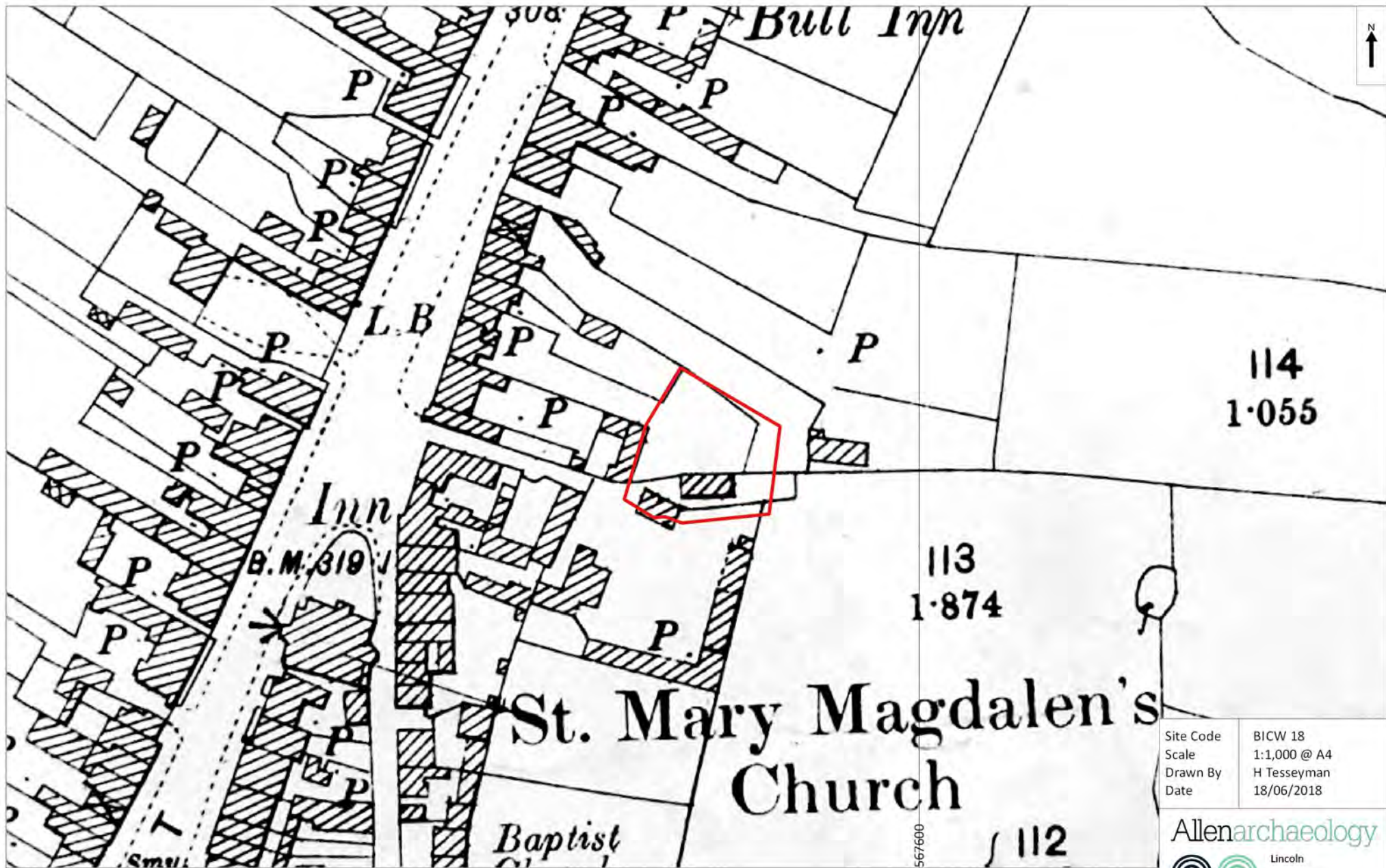


Figure 9: Extract of 1896 Ordnance Survey map with site outlined in red

Site Code	BICW 18
Scale	1:1,000 @ A4
Drawn By	H Tesseyman
Date	18/06/2018

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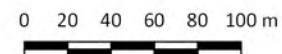


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Figure 10: Extract of 1946 Ordnance Survey map with site outlined in red



Site Code	BICW 18
Scale	1:3,500 @ A4
Drawn By	H Tesseyman
Date	18/06/2018

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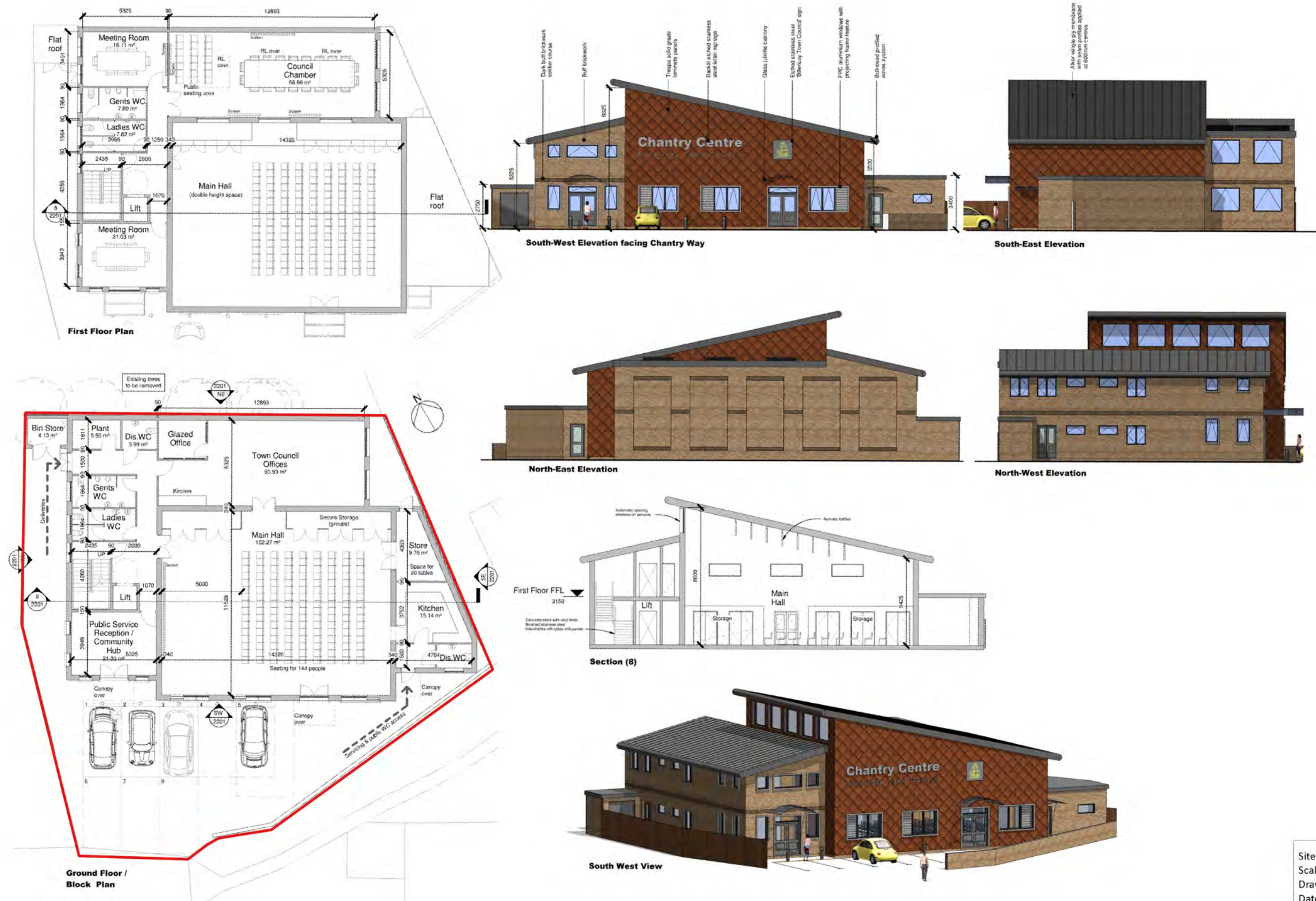


Figure 11: Proposed development plan provided by client with site outlined in red

Site Code	BICW 18
Scale	1:300 @ A3
Drawn by	H Tesseyman
Date	21/06/2018

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ARVON

DRAIN CLEARING SPECIALISTS

CCTV Survey Report



Unit 2 Boyton Hall Farm,
Roxwell,
Chelmsford,
Essex CM1 4LN

Telephone: 01245 249499
Fax: 01245 249429
Email: info@arvondrains.com

Project-information

Project name
THE CHANTRY CENTRE

Contract Number

Contact

Date
17/05/2018

Client: **INGLETON WOOD LLP**
 Contact Name: **DANNY LAWSON**
 Department:
 Road: **WOODBROOK CRESCENT**
 Town: **BILLERICAY**
 County: **ESSEX**
 Telephone:
 Fax:
 Mobile:
 E-mail:

Site: **THE CHANTRY CENTRE**
 Contact Name:
 Department:
 Road: **CHANTRY WAY**
 Town: **BILLERICAY**
 County: **ESSEX**
 Telephone:
 Fax:
 Mobile:
 E-mail:

Contractor **Arvon Drain Clearing Ltd**
 Contact Name:
 Department:
 Road: **Unit 2, Boyton Hall farm**
 Town: **Chelmsford**
 County: **Essex**
 Telephone: **01245249499**
 Fax: **01245249429**
 Mobile:
 E-mail: **info@arvondrains.com**

Defect Grade Description

Project Name :
THE CHANTRY CENTRE

Contact Number :

Contact :

Date :
17/05/2018

1:

Brick: No Structural Defects
Pipe: No Structural Defects

Acceptable Structural Condition

2:

Brick: Minor cracking, Surface mortar loss, Spalling slight, wear slight
Pipe: Circumferential crack, Moderate joint defects, Spalling slight, Wear slight

Minor collapse risk in short term but potential for further deterioration

3:

Brick: Total mortar loss without other defects, single brick displaced, Deformation up to 5%, Spalling medium, Wear medium
Pipe: Fractures with deformation up to 5%, Longitudinal cracking or multiple cracking, Minor loss of level, More severe joint

! Collapse unlikely in near future but future deterioration likely !

4:

Brick: Total mortar loss with deformation greater than 10%, Deformation up to 10% and fractured, Displaced/hanging brickwork, Small number of missing bricks
Pipe: Broken, Deformation up to 10% and broken, Fractured with deformation 5 - 10%, Multiple

!! Collapse likely in foreseeable future !!

5:

Brick: Already Collapsed, Missing invert, Deformation over 10% and fractured, Displaced/hanging brickwork and deformation over 10%, Extensive missing bricks
Pipe: Already collapsed, Deformation over 10% and broken, Extensive areas of fabric missing

!!! Collapsed or collapse imminent !!!

GRADE 3,4 & 5 Summary

STRUCTURAL DEFECTS

Structural defects			
Section	PLR	Grade	Fault description
3	BUILDING X	5	Multiple defects at 0.1m

Grade 3; Best practice suggests consideration be given to repair in the medium term

Grade 4; Best practice suggests consideration be given to a repair to avoid potential collapse

Grade 5; Best practice suggests this pipe is at risk of collapse at any time; urgent consideration should be given to a repair to avoid collapse

SERVICE / OPERATIONAL DEFECTS

Service defects			
Section	PLR	Grade	Fault description
2	MH1 X	5	Roots, mass at joint, 40% cross-sectional area loss
5	MH2 X	3	Roots, mass at joint, 5% cross-sectional area loss

Grade 3; Best practice suggests consideration be given to maintenance activities in the medium term

Grade 4; Best practice suggests consideration be given to maintenance activity to avoid potential blockage

Grade 5; Best practice suggests this pipe is at immediate risk of backing up / causing flooding

Abandoned Surveys

Camera no access		
Section	PLR	Fault description
All Surveys Completed		

Information

These summaries are based on the SRM grading from the WRC

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Inspection report

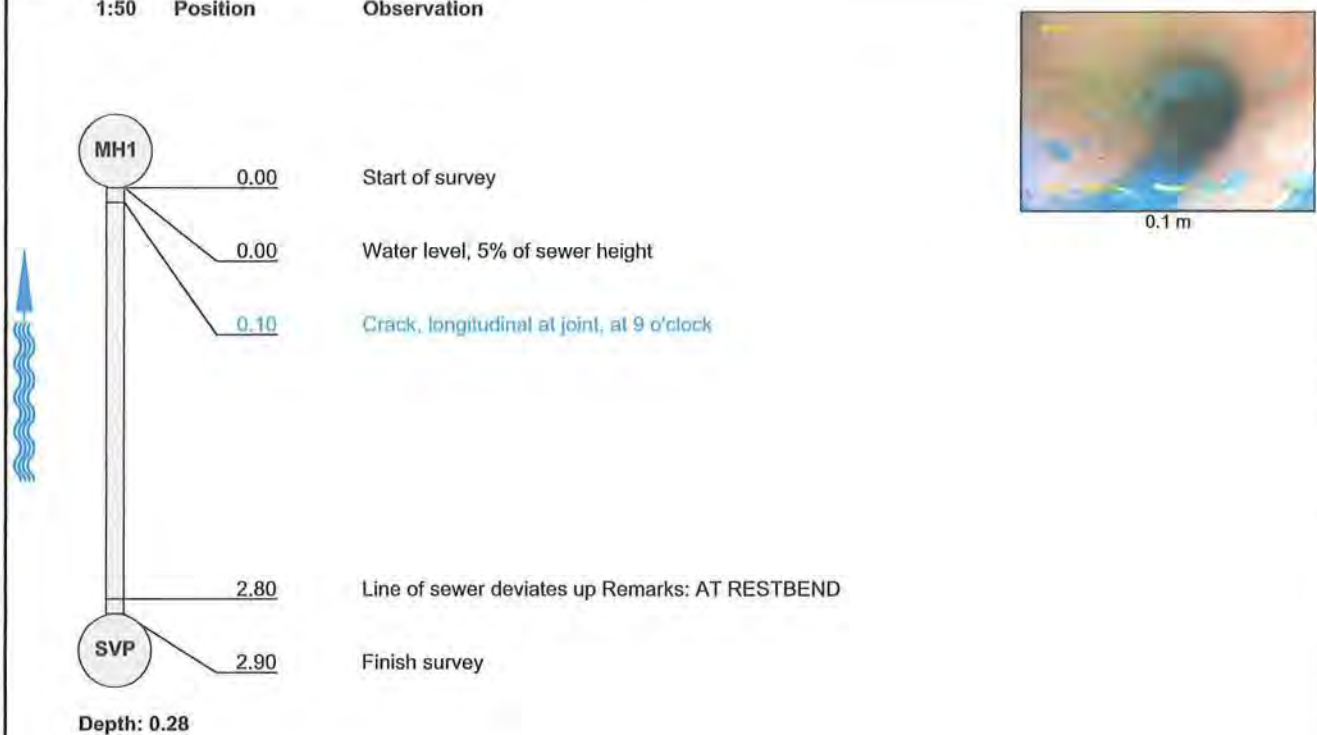
Date : 17/05/2018	Job number :	Weather : Dry	Sewer category:	Section number : 1	PLR suffix : X
Present :	Vehicle : VEHICLE 1	Camera : camera 1	Preset :	Cleaned : no	Operator : DARREN

Place : Road : Location Inspection	THE CHANTRY CENTRE CHANTRY WAY MH1 (U/S) SVP	Location details: Catchment: BILLERICAY Tape number : Pipe length :	U/S MH : SVP U/S Depth : 0.28 D/S MH : MH1 D/S Depth :
---	--	--	---

Use: Combined	Pipe shape : Circular
Year laid :	Pipe size : 100 mm
Purpose : Sample survey to determin asset condition	Pipe material : Vitrified clay
Total length :	Lining :

Comment :

1:50 Position Observation



STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
1	10	3.45	10	2	0	0	0	0	1

Inspection pictures

Place : THE CHANTRY CENTRE	Road : CHANTRY WAY	Date : 17/05/2018	Section number : 1	PLR suffix : X
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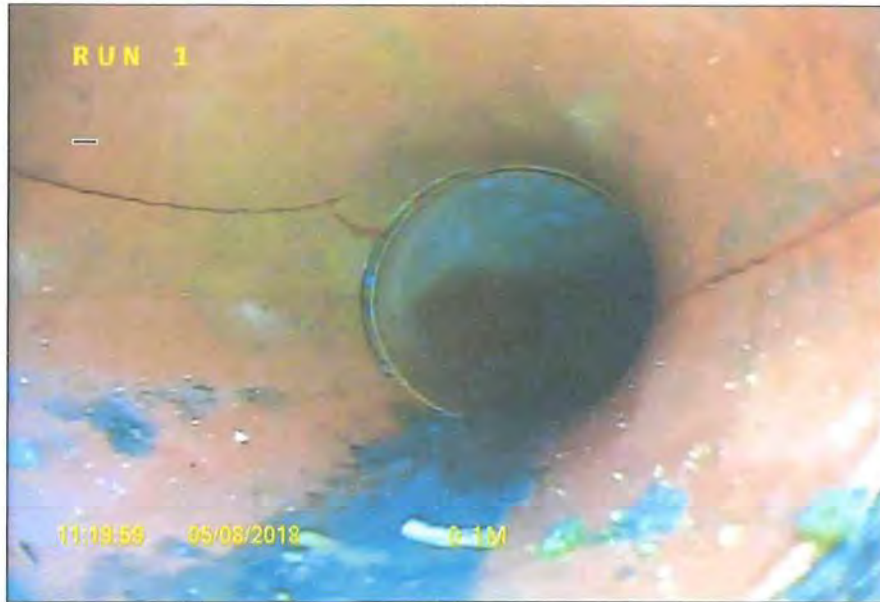


Photo: 1_1_4_A.jpg
0.1m, Crack, longitudinal at joint, at 9 o'clock

Inspection report

Date : 17/05/2018	Job number :	Weather : Dry	Sewer category:	Section number : 2	PLR suffix : X
Present :	Vehicle : VEHICLE 1	Camera : camera 1	Preset :	Cleaned : no	Operator : DARREN

Place : Road : Location Inspection	THE CHANTRY CENTRE CHANTRY WAY MH1 (D/S) MH2	Location details: Catchment: Tape number : Pipe length :	BILLERICAY	U/S MH : U/S Depth : D/S MH : D/S Depth :	MH1 0.23 MH2
Use: Year laid : Purpose : Total length :	Combined Sample survey to determin asset condition	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay	Comment :	

1:105 Position
Depth: 0.23

Observation



Start of survey

Water level, 5% of sewer height

Crack, circumferential, from 12 to 12 o'clock

Crack, circumferential, from 6 to 9 o'clock

Joint displaced, medium (between 1.0 and 1.5 times the pipe wall thickness)

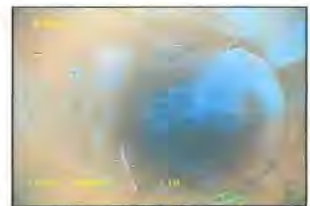
Junction, at 9 o'clock, 100mm diameter Remarks: TAKES KITCHEN X 2 SINKS

Roots, mass at joint, 40% cross-sectional area loss

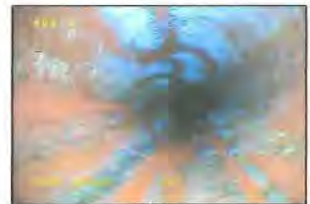
Junction, at 9 o'clock, 100mm diameter Remarks: BELIEVED TO BE REDUNDANT

Manhole Remarks: MH2

Finish survey



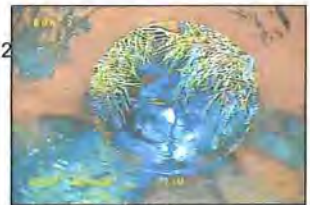
0.1 m



4 m



8.8 m



12.5 m

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
3	10	1.59	21	2	1	10	0.76	10	5

Inspection pictures

Place : THE CHANTRY CENTRE	Road : CHANTRY WAY	Date : 17/05/2018	Section number : 2	PLR suffix : X
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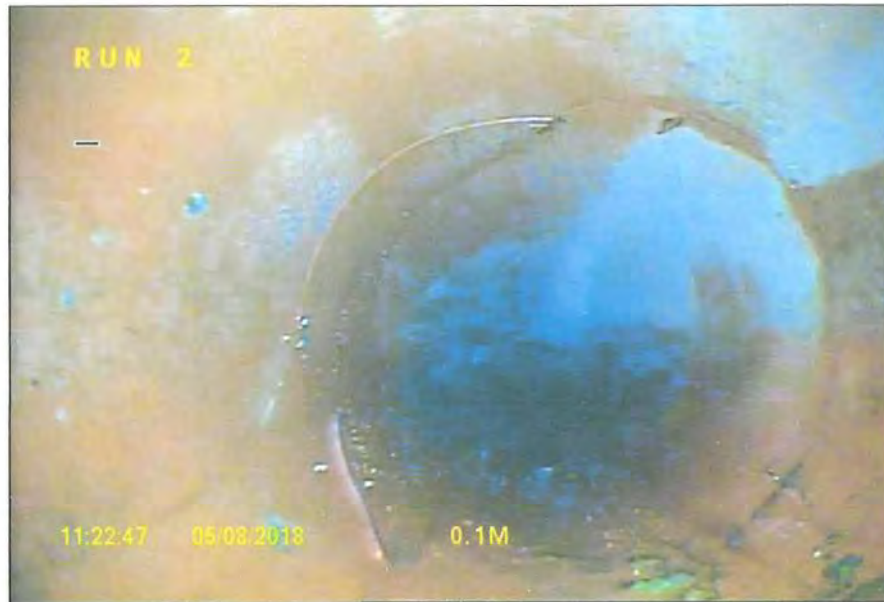


Photo: 3_3_10_A.jpg
0.1m, Crack, circumferential, from 12 to 12 o'clock

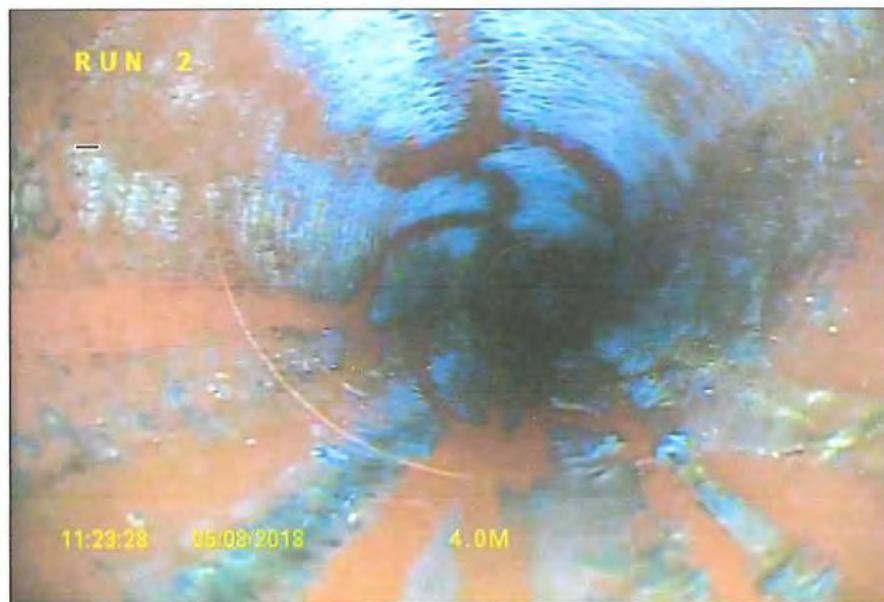


Photo: 3_3_11_A.jpg
4m, Crack, circumferential, from 6 to 9 o'clock

Inspection pictures

Place : THE CHANTRY CENTRE	Road : CHANTRY WAY	Date : 17/05/2018	Section number : 2	PLR suffix : X
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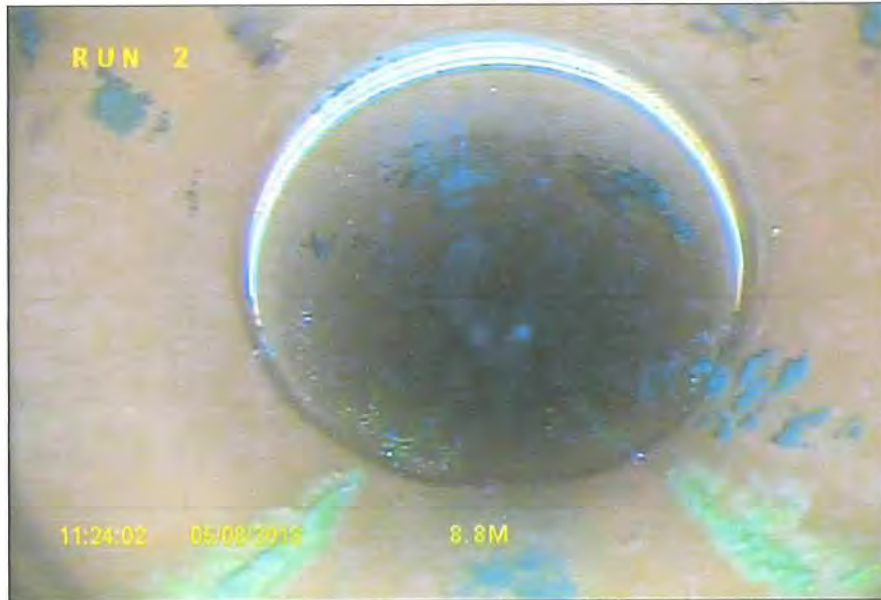


Photo: 3_3_12_A.jpg
8.8m, Joint displaced, medium (between 1.0 and 1.5 times the pipe wall thickness)



Photo: 3_3_14_A.jpg
12.5m, Roots, mass at joint, 40% cross-sectional area loss

Inspection report

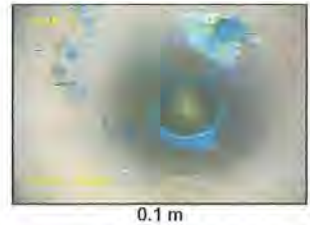
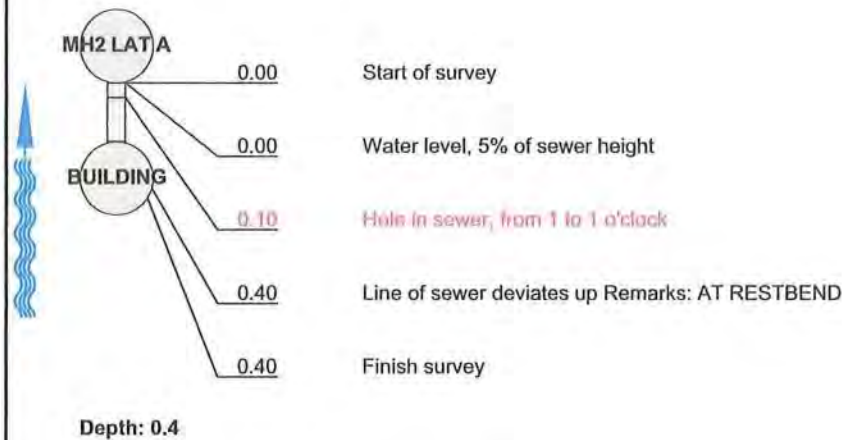
Date : 17/05/2018	Job number :	Weather : Dry	Sewer category:	Section number : 3	PLR suffix : X
Present :	Vehicle : VEHICLE 1	Camera : camera 1	Preset :	Cleaned : no	Operator : DARREN

Place : Road : Location Inspection	THE CHANTRY CENTRE CHANTRY WAY MH2 LAT A (U/S) BUILDING	Location details: Catchment: BILLERICAY Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	BUILDING 0.4 MH2 LAT A
---	---	--	--	------------------------------

Use: Year laid : Purpose : Total length :	Combined Sample survey to determin asset condition	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay
--	---	--	--------------------------------------

Comment :

1:50 Position Observation



0.1 m

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
1	165	412.5	165	5	0	0	0	0	1

Inspection pictures

Place : THE CHANTRY CENTRE	Road : CHANTRY WAY	Date : 17/05/2018	Section number : 3	PLR suffix : X
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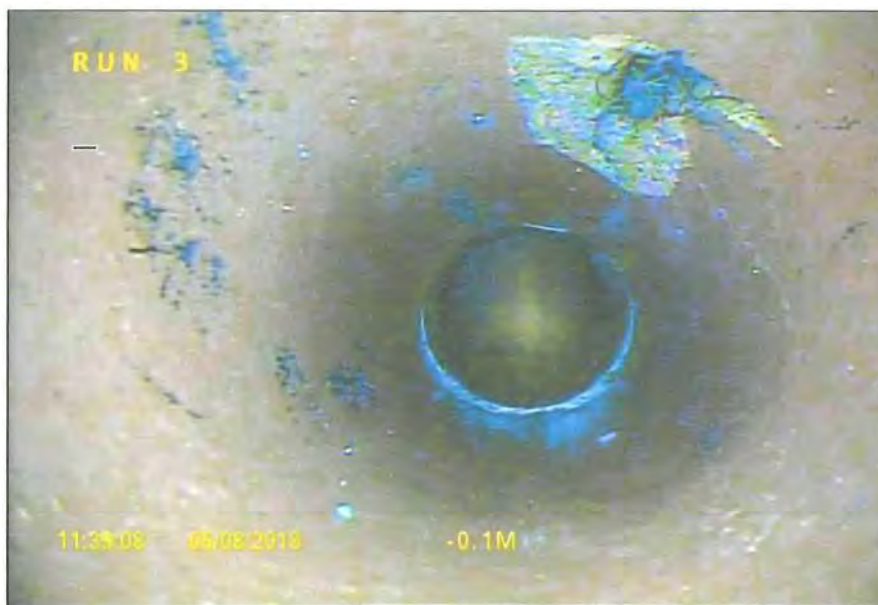


Photo: 4_4_20_A.jpg
0.1m, Hole in sewer, from 1 to 1 o'clock

Inspection report

Date : 17/05/2018	Job number :	Weather : Dry	Sewer category:	Section number : 4	PLR suffix : X
Present :	Vehicle : VEHICLE 1	Camera : camera 1	Preset :	Cleaned : no	Operator : DARREN

Place : Road : Location Inspection	THE CHANTRY CENTRE CHANTRY WAY MH2 LAT B (U/S) GULLY	Location details: Catchment: BILLERICAY Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	GULLY 0.4 MH2 LAT B
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Use: Year laid : Purpose : Total length :	Combined Sample survey to determin asset condition	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Polyvinyl chloride (PVC)
--	---	--	--

Comment :

1:105 Position

Observation

MH2 LAT B

0.00

Start of survey

0.00

Water level, 5% of sewer height

0.80

Line of sewer deviates right

6.50

Junction, at 9 o'clock, 100mm diameter Remarks: FOR SURFACE WATER GULLY

6.50

Line of sewer deviates right

12.10

General observation Remarks: AT GULLY POT

GULLY

12.10

Finish survey

Depth: 0.4

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1

Inspection report

Date : 17/05/2018	Job number :	Weather : Dry	Sewer category:	Section number : 5	PLR suffix : X
Present :	Vehicle : VEHICLE 1	Camera : camera 1	Preset :	Cleaned : no	Operator : DARREN

Place : Road : Location Inspection	THE CHANTRY CENTRE CHANTRY WAY MH2 (D/S) MH3	Location details: Catchment: BILLERICAY Tape number : Pipe length :	U/S MH : MH2 U/S Depth : 0.5 D/S MH : MH3 D/S Depth :
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Use: Year laid : Purpose : Total length :	Combined Sample survey to determin asset condition	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay
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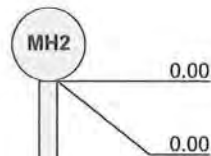
Comment :

1:75 Position
Depth: 0.5

Observation



2.3 m



Start of survey

Water level, 5% of sewer height

2.10

Junction, at 12 o'clock, 100mm diameter

2.30

Roots, mass at joint. 5% cross-sectional area loss

7.90

Manhole Remarks: MH3



Finish survey

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	1	2	0.25	2	3

Inspection pictures

Place : THE CHANTRY CENTRE	Road : CHANTRY WAY	Date : 17/05/2018	Section number : 5	PLR suffix : X
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Photo: 6_6_33_A.jpg
2.3m, Roots, mass at joint, 5% cross-sectional area loss

Inspection report

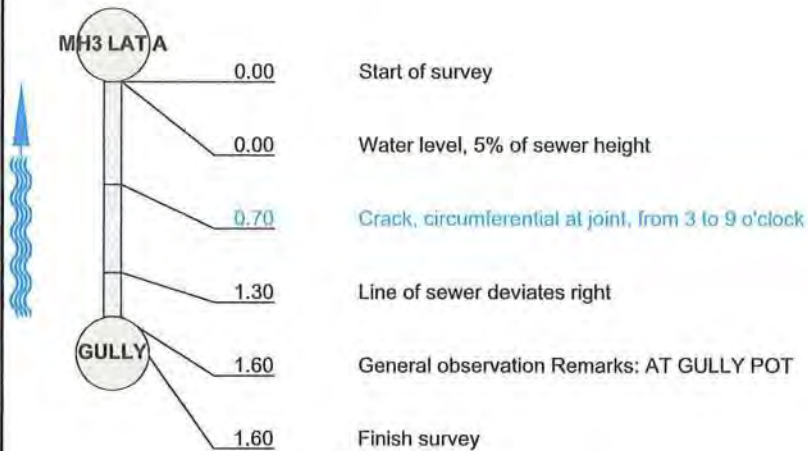
Date : 17/05/2018	Job number :	Weather : Dry	Sewer category:	Section number : 6	PLR suffix : X
Present :	Vehicle : VEHICLE 1	Camera : camera 1	Preset :	Cleaned : no	Operator : DARREN

Place : Road : Location Inspection	THE CHANTRY CENTRE CHANTRY WAY MH3 LAT A (U/S) GULLY	Location details: Catchment: BILLERICAY Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	GULLY 0.69 MH3 LAT A
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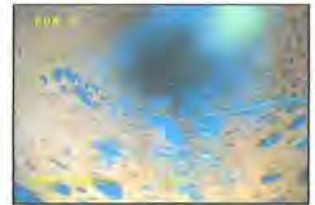
Use: Year laid : Purpose : Total length :	Combined Sample survey to determin asset condition	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay
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Comment :

1:50 Position Observation



Depth: 0.69



0.7 m

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
1	10	6.25	10	2	0	0	0	0	1

Inspection pictures

Place : THE CHANTRY CENTRE	Road : CHANTRY WAY	Date : 17/05/2018	Section number : 6	PLR suffix : X
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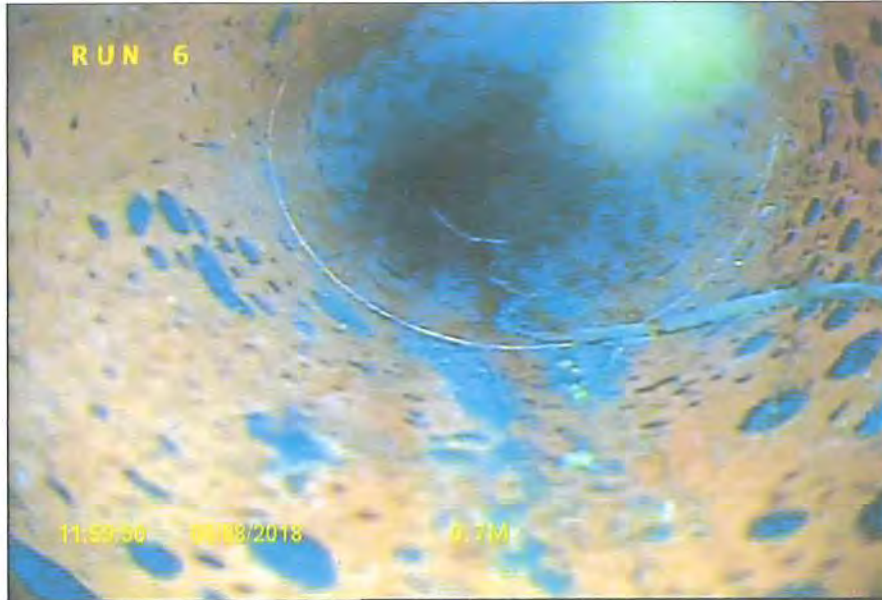


Photo: 7_7_38_A.jpg
0.7m, Crack, circumferential at joint, from 3 to 9 o'clock

Inspection report

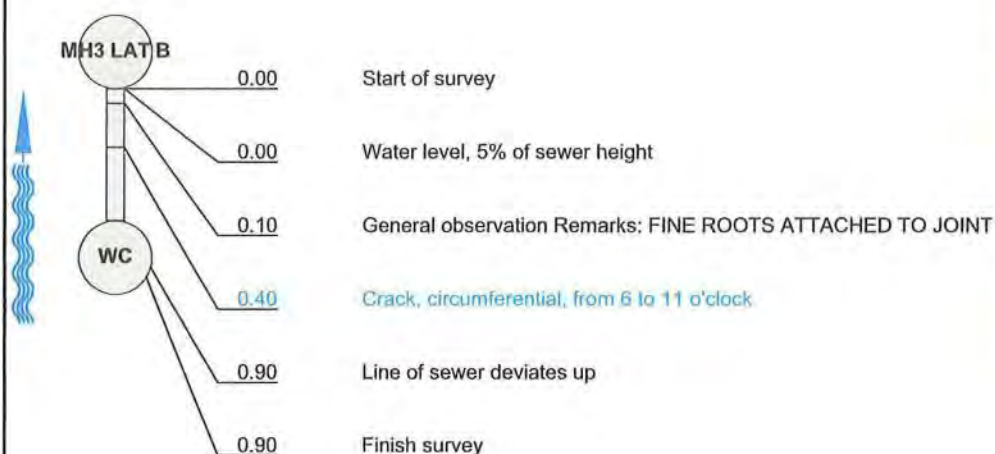
Date : 17/05/2018	Job number :	Weather : Dry	Sewer category:	Section number : 7	PLR suffix : X
Present :	Vehicle : VEHICLE 1	Camera : camera 1	Preset :	Cleaned : no	Operator : DARREN

Place : Road : Location Inspection	THE CHANTRY CENTRE CHANTRY WAY MH3 LAT B (U/S) WC	Location details: Catchment: BILLERICAY Tape number : Pipe length :	U/S MH : WC U/S Depth : 0.69 D/S MH : MH3 LAT B D/S Depth :
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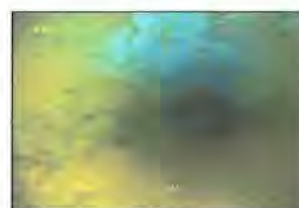
Use: Year laid : Purpose : Total length :	Combined Sample survey to determin asset condition	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay
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Comment :

1:50 Position Observation



Depth: 0.69



STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
1	10	11.11	10	2	0	0	0	0	1

Inspection pictures

Place : THE CHANTRY CENTRE	Road : CHANTRY WAY	Date : 17/05/2018	Section number : 7	PLR suffix : X
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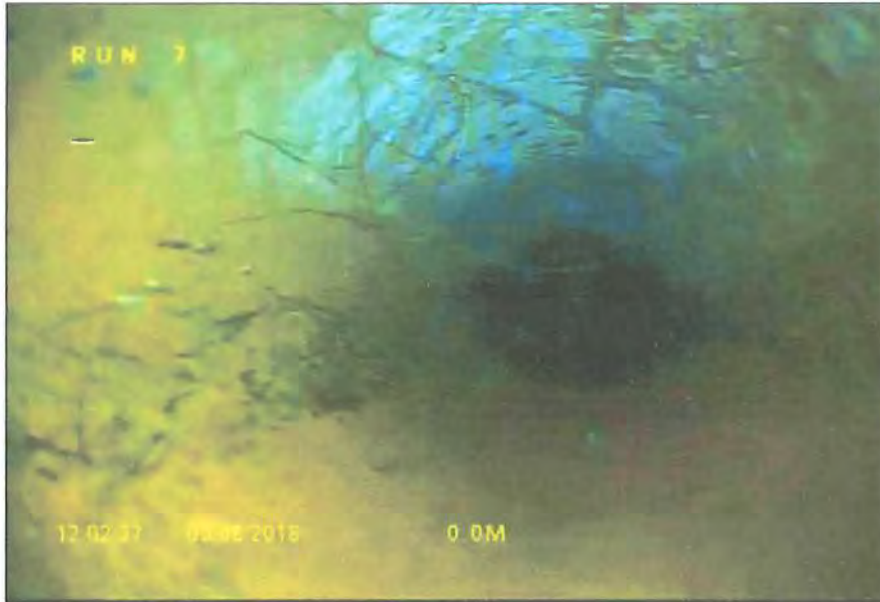


Photo: 8_8_44_A.jpg

0.1m, General observation Remarks: FINE ROOTS ATTACHED TO JOINT

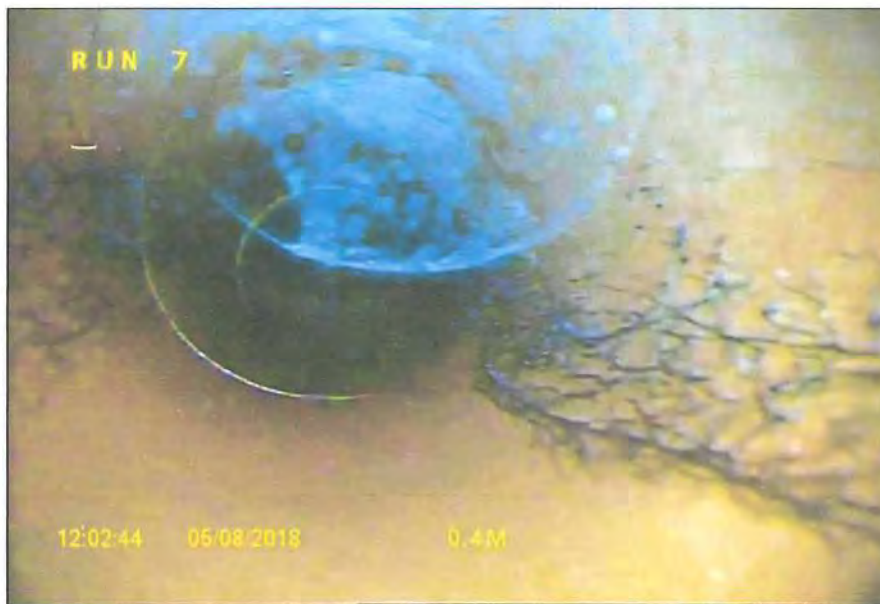


Photo: 8_8_45_A.jpg

0.4m, Crack, circumferential, from 6 to 11 o'clock

Inspection report

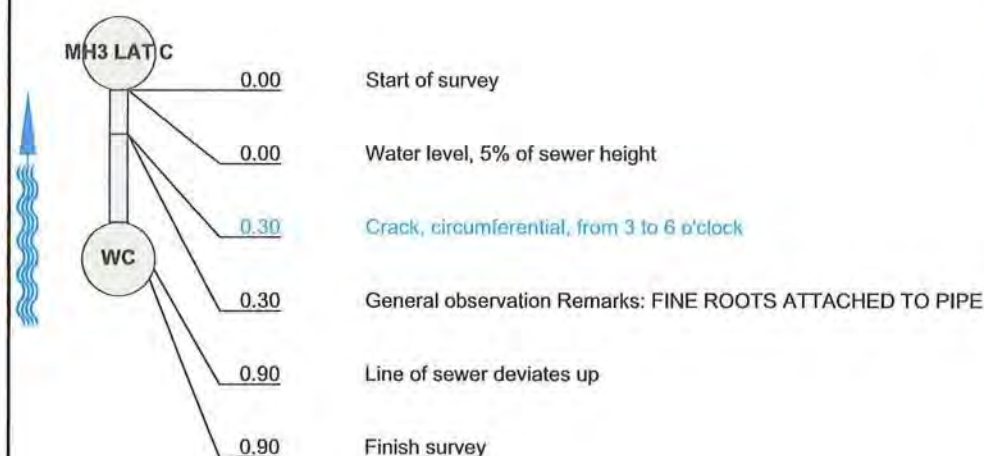
Date : 17/05/2018	Job number :	Weather : Dry	Sewer category:	Section number : 8	PLR suffix : X
Present :	Vehicle : VEHICLE 1	Camera : camera 1	Preset :	Cleaned : no	Operator : DARREN

Place : THE CHANTRY CENTRE	Location details:	U/S MH : WC
Road : CHANTRY WAY	Catchment: BILLERICAY	U/S Depth : 0.69
Location Inspection MH3 LAT C (U/S) WC	Tape number :	D/S MH : MH3 LAT C
	Pipe length :	D/S Depth :

Use: Combined	Pipe shape : Circular
Year laid :	Pipe size : 100 mm
Purpose : Sample survey to determin asset condition	Pipe material : Vitrified clay
Total length :	Lining :

Comment :

1:50 Position Observation



Depth: 0.69



0.3 m

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
1	10	11.11	10	2	0	0	0	0	1

Inspection pictures

Place : THE CHANTRY CENTRE	Road : CHANTRY WAY	Date : 17/05/2018	Section number : 8	PLR suffix : X
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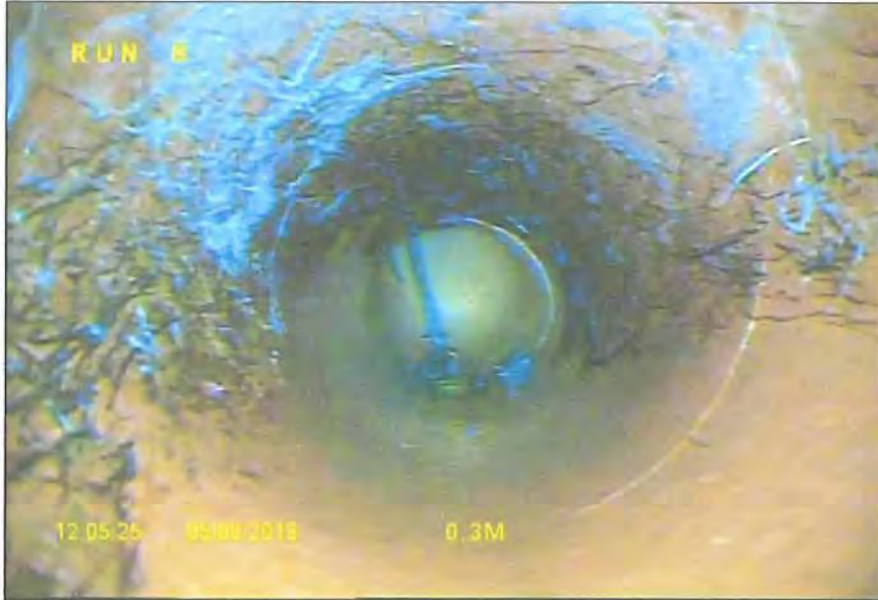


Photo: 9_9_50_A.jpg
0.3m, Crack, circumferential, from 3 to 6 o'clock

Inspection report

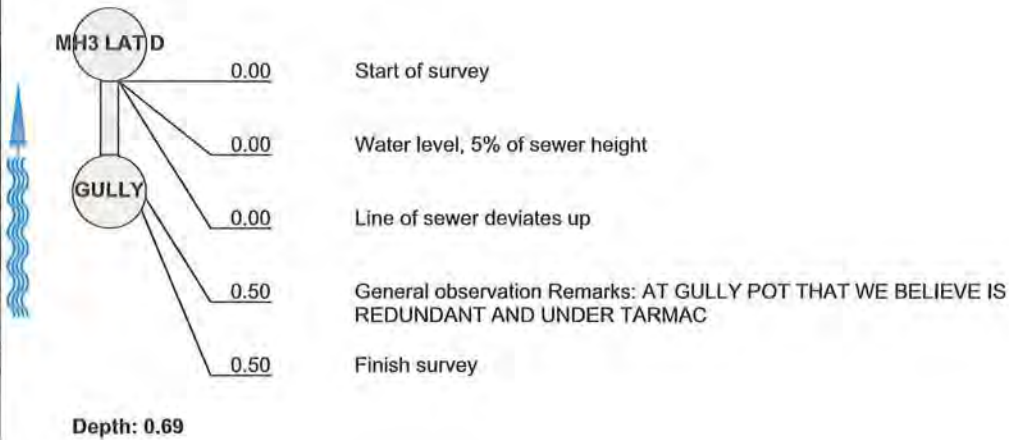
Date : 17/05/2018	Job number :	Weather : Dry	Sewer category:	Section number : 9	PLR suffix : X
Present :	Vehicle : VEHICLE 1	Camera : camera 1	Preset :	Cleaned : no	Operator : DARREN

Place : Road : Location Inspection	THE CHANTRY CENTRE CHANTRY WAY MH3 LAT D (U/S) GULLY	Location details: Catchment: BILLERICAY Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	GULLY 0.69 MH3 LAT D
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Use: Year laid : Purpose : Total length :	Combined Sample survey to determin asset condition	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay
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Comment :

1:50 Position Observation



STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1

Inspection report

Date : 17/05/2018	Job number :	Weather : Dry	Sewer category:	Section number : 10	PLR suffix : X
Present :	Vehicle : VEHICLE 1	Camera : camera 1	Preset :	Cleaned : no	Operator : DARREN

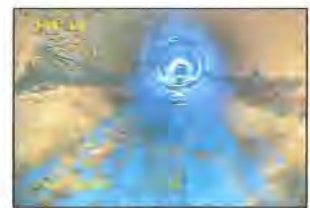
Place : Road : Location Inspection	THE CHANTRY CENTRE CHANTRY WAY MH3 (D/S) MH4	Location details: Catchment: BILLERICAY Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	MH3 0.69 MH4
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Use: Year laid : Purpose : Total length :	Combined Sample survey to determin asset condition	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay
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Comment :

1:50 Position
Depth: 0.69

Observation



0.8 m

MH3	0.00	Start of survey
	0.00	Water level, 5% of sewer height
	0.80	General observation Remarks: FINE ROOTS ATTACHED THROUGHOUT
	2.50	Manhole Remarks: MH4
MH4	2.50	Finish survey

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1

Place : THE CHANTRY CENTRE

Arvon Drain Clearing Ltd
Unit 2, Boyton Hall farm
Chelmsford
Tel: 01245249499
Fax: 01245249429
Email: info@arvondrains.com

Inspection pictures

Place :
THE CHANTRY CENTRE

Road :
CHANTRY WAY

Date :
17/05/2018

Section number :
10

PLR suffix :
X

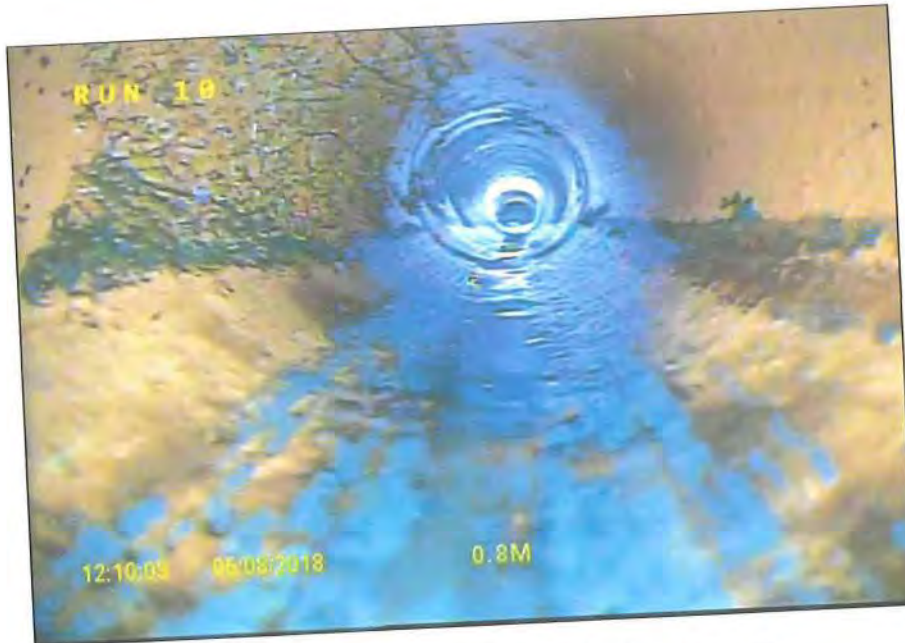


Photo: 11_11_61_A.jpg
0.8m, General observation Remarks: FINE ROOTS ATTACHED THROUGHOUT

Inspection report

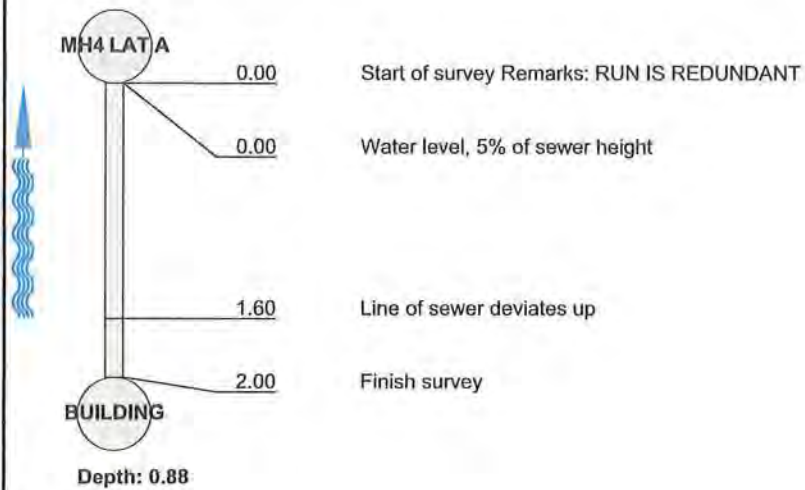
Date : 17/05/2018	Job number :	Weather : Dry	Sewer category:	Section number : 11	PLR suffix : X
Present :	Vehicle : VEHICLE 1	Camera : camera 1	Preset :	Cleaned : no	Operator : DARREN

Place : THE CHANTRY CENTRE	Location details:	U/S MH : BUILDING
Road : CHANTRY WAY	Catchment: BILLERICAY	U/S Depth : 0.88
Location MH4 LAT A (U/S) BUILDING	Tape number :	D/S MH : MH4 LAT A
Inspection	Pipe length :	D/S Depth :

Use: Combined	Pipe shape : Circular
Year laid :	Pipe size : 100 mm
Purpose : Sample survey to determin asset condition	Pipe material : Vitrified clay
Total length :	Lining :

Comment :

1:50 Position Observation



STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1

Inspection report

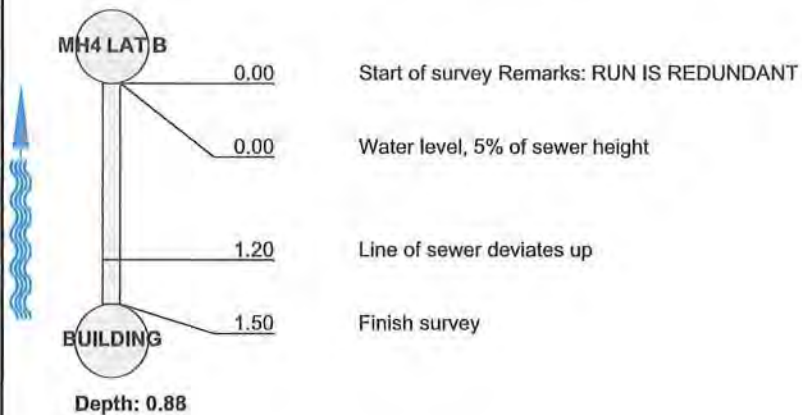
Date : 17/05/2018	Job number :	Weather : Dry	Sewer category:	Section number : 12	PLR suffix : X
Present :	Vehicle : VEHICLE 1	Camera : camera 1	Preset :	Cleaned : no	Operator : DARREN

Place : Road : Location Inspection	THE CHANTRY CENTRE CHANTRY WAY MH4 LAT B (U/S) BUILDING	Location details: Catchment: BILLERICAY Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	BUILDING 0.88 MH4 LAT B
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Use: Year laid : Purpose : Total length :	Combined Sample survey to determin asset condition	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay
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Comment :

1:50 Position Observation



STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1

Inspection report

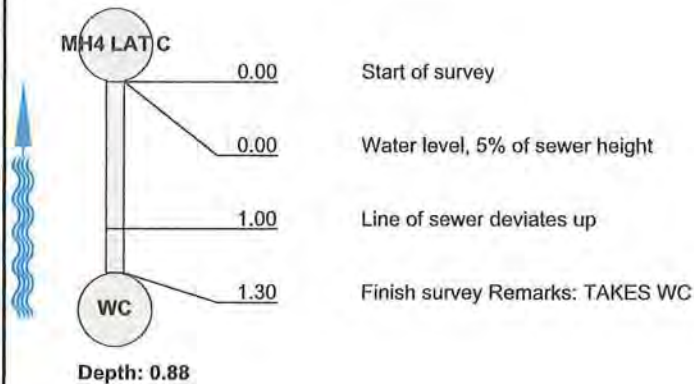
Date : 17/05/2018	Job number :	Weather : Dry	Sewer category:	Section number : 13	PLR suffix : X
Present :	Vehicle : VEHICLE 1	Camera : camera 1	Preset :	Cleaned : no	Operator : DARREN

Place : Road : Location Inspection	THE CHANTRY CENTRE CHANTRY WAY MH4 LAT C (U/S) WC	Location details: Catchment: BILLERICAY Tape number : Pipe length :	U/S MH : WC U/S Depth : 0.88 D/S MH : MH4 LAT C D/S Depth :
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Use: Year laid : Purpose : Total length :	Combined Sample survey to determin asset condition	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay
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Comment :

1:50 Position Observation



STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1

Inspection report

Date : 17/05/2018	Job number :	Weather : Dry	Sewer category:	Section number : 14	PLR suffix : X
Present :	Vehicle : VEHICLE 1	Camera : camera 1	Preset :	Cleaned : no	Operator : DARREN

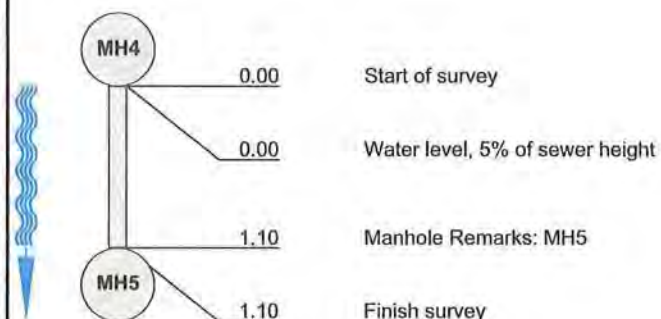
Place : THE CHANTRY CENTRE	Location details:	U/S MH : MH4
Road : CHANTRY WAY	Catchment: BILLERICAY	U/S Depth : 0.88
Location	Tape number :	D/S MH : MH5
Inspection MH4 (D/S) MH5	Pipe length :	D/S Depth :

Use: Combined	Pipe shape : Circular
Year laid :	Pipe size : 100 mm
Purpose : Sample survey to determin asset condition	Pipe material : Vitrified clay
Total length :	Lining :

Comment :

1:50 Position Observation

Depth: 0.88



STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1

Inspection report

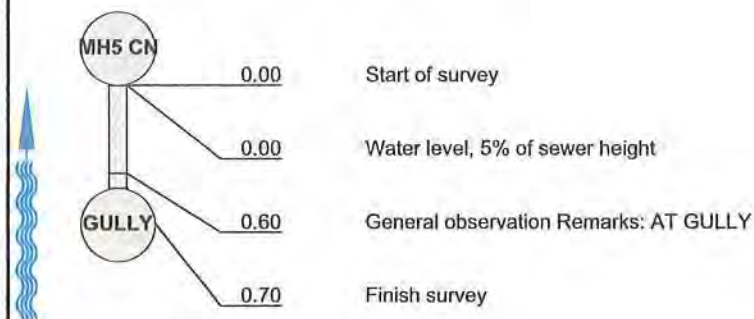
Date : 17/05/2018	Job number :	Weather : Dry	Sewer category:	Section number : 15	PLR suffix : X
Present :	Vehicle : VEHICLE 1	Camera : camera 1	Preset :	Cleaned : no	Operator : DARREN

Place : Road : Location Inspection	THE CHANTRY CENTRE CHANTRY WAY MH5 CN (U/S) GULLY	Location details: Catchment: BILLERICAY Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	GULLY 0.33 MH5 CN
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Use: Year laid : Purpose : Total length :	Combined Sample survey to determin asset condition	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay
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Comment :

1:50 Position Observation



Depth: 0.33

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1

Inspection report

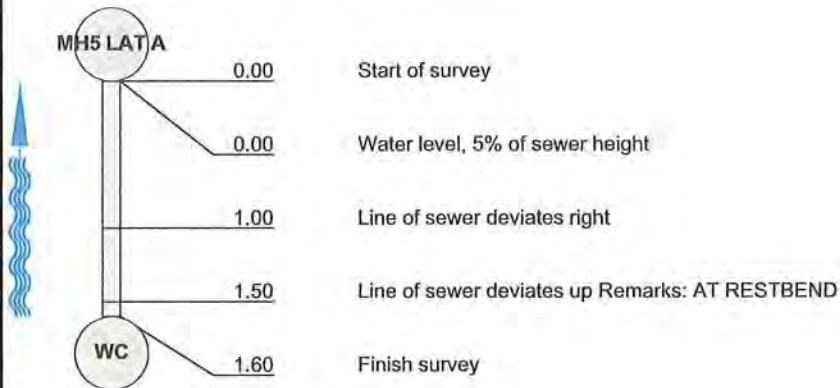
Date : 17/05/2018	Job number :	Weather : Dry	Sewer category:	Section number : 16	PLR suffix : X
Present :	Vehicle : VEHICLE 1	Camera : camera 1	Preset :	Cleaned : no	Operator : DARREN

Place : Road : Location Inspection	THE CHANTRY CENTRE CHANTRY WAY MH5 LAT A (U/S) WC	Location details: Catchment: BILLERICAY Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	WC 1.05 MH5 LAT A
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Use: Year laid : Purpose : Total length :	Combined Sample survey to determin asset condition	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay
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Comment :

1:50 Position Observation



Depth: 1.05

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1

Inspection report

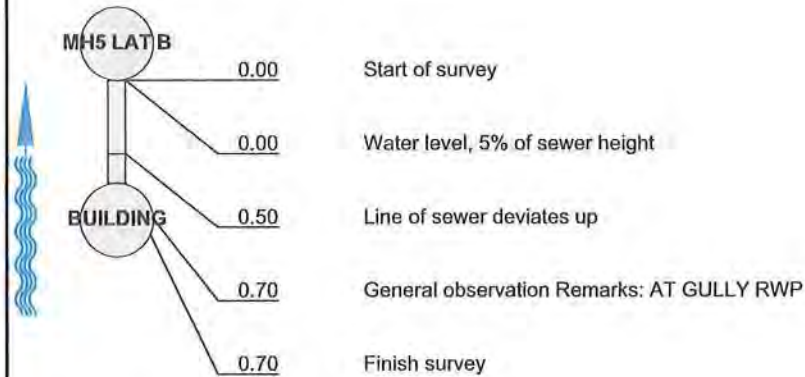
Date : 17/05/2018	Job number :	Weather : Dry	Sewer category:	Section number : 17	PLR suffix : X
Present :	Vehicle : VEHICLE 1	Camera : camera 1	Preset :	Cleaned : no	Operator : DARREN

Place : THE CHANTRY CENTRE	Location details:	U/S MH : BUILDING
Road : CHANTRY WAY	Catchment: BILLERICAY	U/S Depth : 1.05
Location MH5 LAT B (U/S) BUILDING	Tape number :	D/S MH : MH5 LAT B
Inspection	Pipe length :	D/S Depth :

Use: Combined	Pipe shape : Circular
Year laid :	Pipe size : 100 mm
Purpose : Sample survey to determin asset condition	Pipe material : Vitrified clay
Total length :	Lining :

Comment :

1:50 Position Observation



STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1

Inspection report

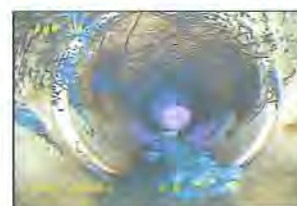
Date : 17/05/2018	Job number :	Weather : Dry	Sewer category:	Section number : 18	PLR suffix : X
Present :	Vehicle : VEHICLE 1	Camera : camera 1	Preset :	Cleaned : no	Operator : DARREN

Place : THE CHANTRY CENTRE	Location details:	U/S MH : MH5
Road : CHANTRY WAY	Catchment: BILLERICAY	U/S Depth : 1.05
Location Inspection MH5 (D/S) MH6	Tape number :	D/S MH : MH6
	Pipe length :	D/S Depth :

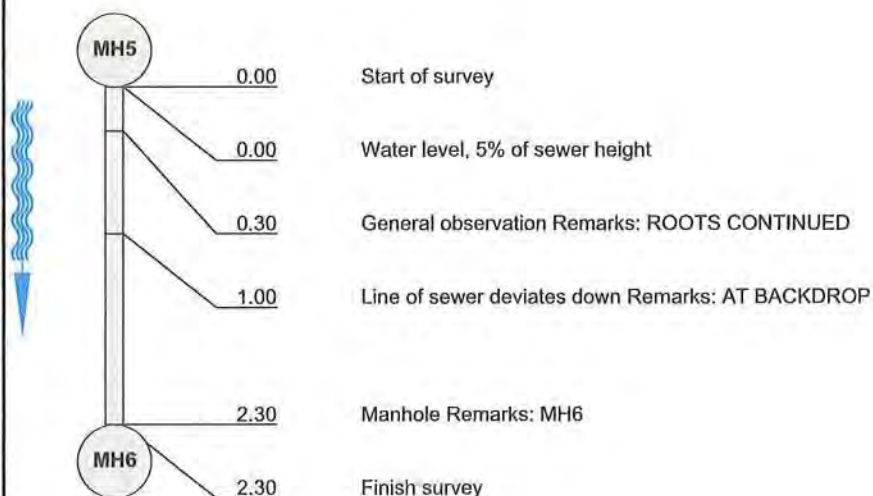
Use: Combined	Pipe shape : Circular
Year laid :	Pipe size : 100 mm
Purpose : Sample survey to determin asset condition	Pipe material : Vitrified clay
Total length :	Lining :

Comment :

1:50 Position
Depth: 1.05

Observation

0.3 m



STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1

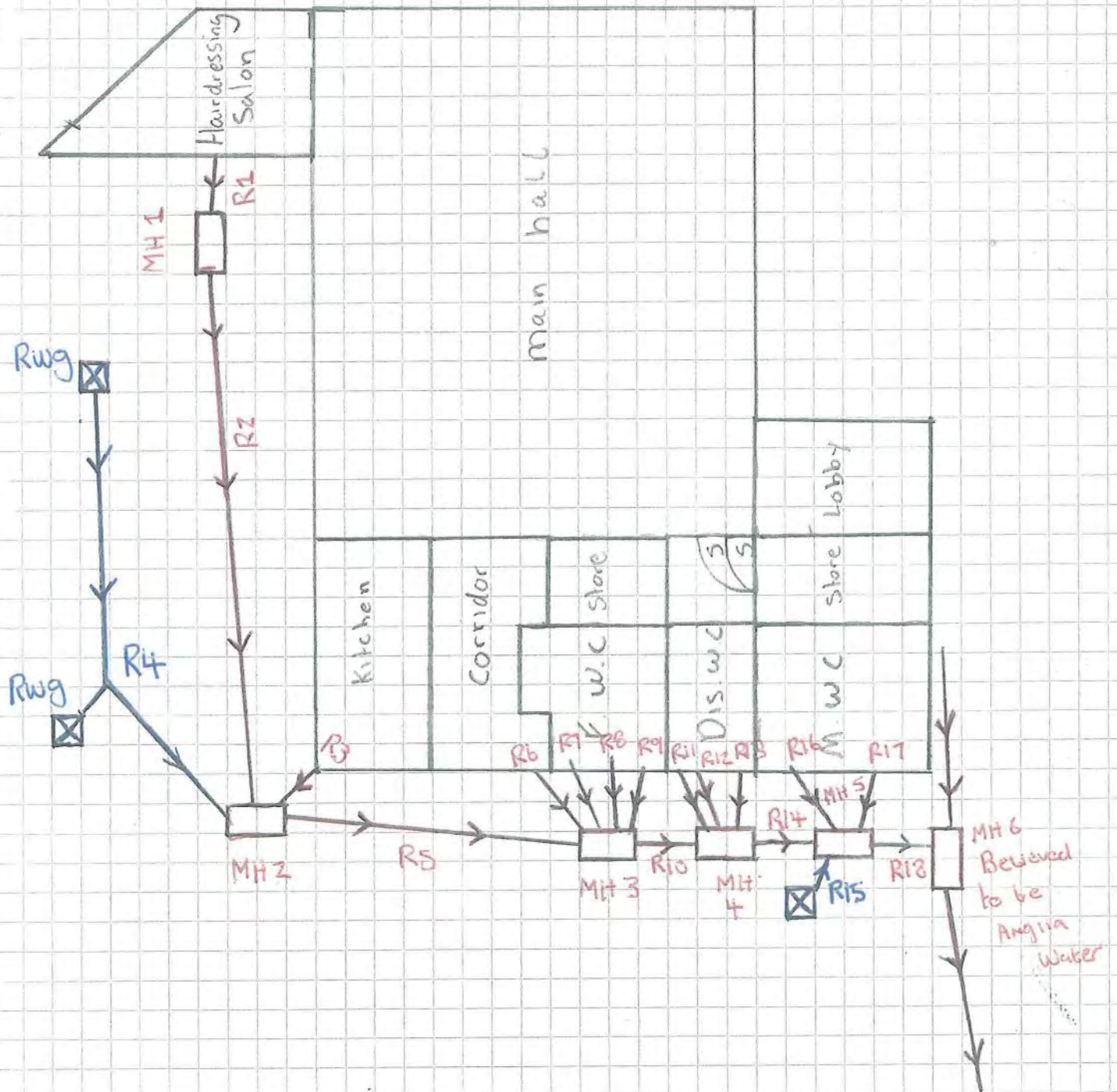
Inspection pictures

Place : THE CHANTRY CENTRE	Road : CHANTRY WAY	Date : 17/05/2018	Section number : 18	PLR suffix : X
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Photo: 19_19_97_A.jpg

0.3m, General observation Remarks: ROOTS CONTINUED



☒ = Rain water gully



ARVON

DRAIN CLEARING SPECIALISTS

The Chantry Centre, Billericay

Written Summary

Conclusions/Recommendations:

Run 1

MH1 to Soil Vent Pipe

There is a crack in the pipe at 0.1 metres, we would recommend the installation of 1 x 600mm structural patch liner.

Run 2

MH1 to MH2

There is a crack in the pipe at 0.1 metres and 4 metres, as well as root ingress at 12.5 metres. There is also a displaced joint at 8.8 metres, we would recommend the installation of 2 x structural patch liners. There are two options for the roots growing at the second junction, these are to either remove the root and then place a patch over what is believed to be a redundant junction (£300 + VAT) , or to excavate and investigate junction and if this is redundant to put back straight pipe/if not to repair with a new junction (£675 + VAT) . *We have not included these prices in the below totals.*

Run 3

MH2 Latural A to Building

There is a hole in the pipe at 0.1 metres, we would recommend the installation of 1 x structural patch liner.

Run 5

MH2 to MH3

There is root ingress at 2.3 metres, we would recommend the installation of 1 x structural patch liner.

Unit 2 Boyton Hall Farm, Roxwell Chelmsford, Essex CM1 4LN

Telephone: 01245 249499 Fax: 01245 249429 Email: info@arvondrains.com

VAT No: 164599858 Company Registration No: 5888948





ARVON

DRAIN CLEARING SPECIALISTS

Run 6

MH3 Latural A to Gully

There are cracks in the pipe at 0.7 metres, we would recommend the installation of 1 x structural patch liner.

Run 7

MH3 Latural A to WC

There are fine roots attached to the pipe and at 0.4 metres there are cracks in the pipe, we would recommend the installation of 1 x structural patch liner.

Run 8

MH3 Latural C to WC

There are fine roots attached to the pipe and at 0.3 metres there are cracks in the pipe, we would recommend the installation of 1 x structural patch liner.

Run 10

MH3 to MH4

There are fine roots attached to the pipe that continue for the length, we would recommend the installation of 2 x 1 metre structural patch liners.

Run 18

MH5 to MH6

There are fine roots attached to the pipe, we would recommend the installation of 1 x structural patch liner and high pressure water jetting to remove the roots.

Total of 11 patches @ £300 each (all 100mm in diameter) = £3,300 + VAT

We would also recommend that Anglian Water are called in regards to MH6 due to debris at the bottom restricting flow in both directions (manhole is approx 2 metres deep)

If you have any questions regarding this survey please do not hesitate to contact us on 01245 249499

Unit 2 Boyton Hall Farm, Roxwell Chelmsford, Essex CM1 4LN

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