DESIGN & ACCESS STATEMENT | ACCESS PARK, GLOUCESTER

DECEMBER 2021

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CANMOOR

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1.0 | INTRODUCTION

Site Location

1.0 Introduction

The Design and Access Statement has been set out to assist in the understanding of the design/planning drawings and supporting material submitted as part of this full planning application for the site at Access Park, Gloucester.

The total site area of the site is 53,142m2 / 5.31ha

The current scheme comprises the development of 14 industrial warehouse units with E(g)(iii), B2 and B8 uses and ancillary offices, car parking, service areas & soft landscaping.

E(g)(iii) – Light Industry
B2 - General Industry
B8 - Wholesale warehouse, distribution centre & repositories.

The Design and Access Statement addresses the design considerations and processes in arriving at the scheme layout and design.

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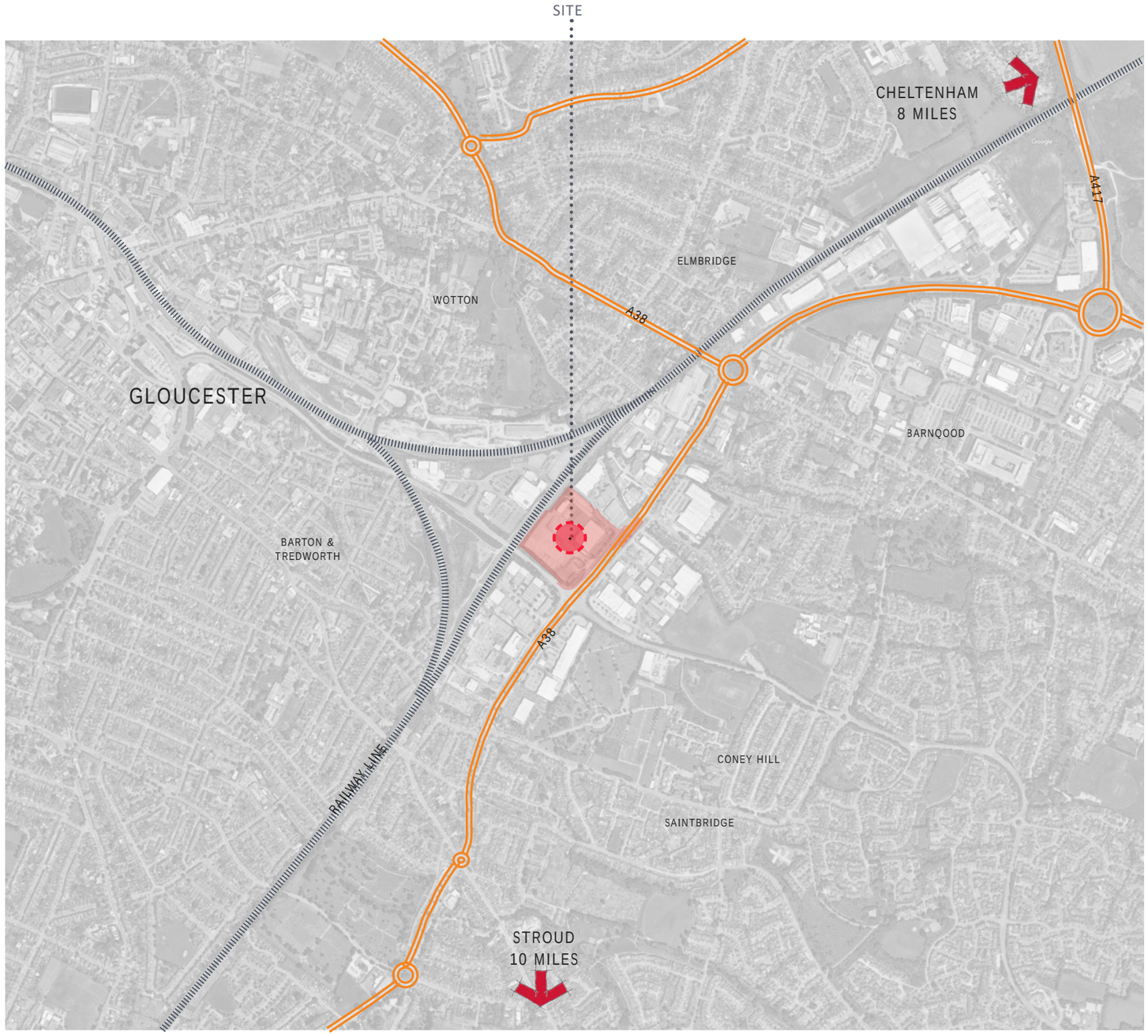
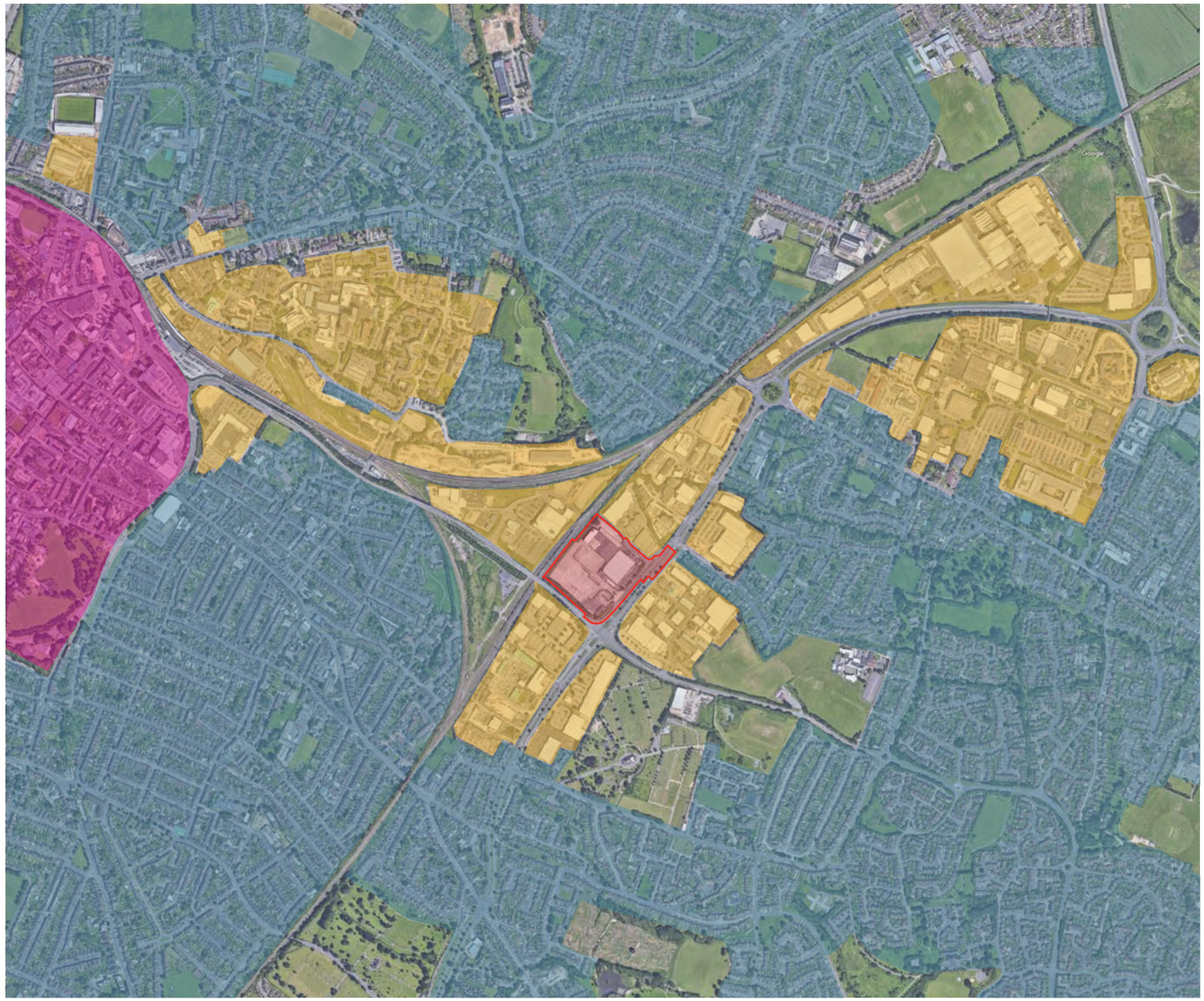


Site Location

2.1 Site Location

The site is located on the south eastern side of the City of Gloucester, in the county of Gloucestershire, approximately 3 miles northeast of Bristol, 9 miles west of Cheltenham and 35 miles north west of Swindon. The area has good connections and is located off junctions 11a and 12 of the M5 motorway.

The application site is located approximately 1.5miles east of the city centre close to the main north-south railway line and on the A38 (Eastern Avenue). It sits on the junction of the A38 and A4302 trunk roads and is directly accessed off the A38.



Aerial of surrounding site context

2.2 Site Context

The site is currently a vacant plot in the center of a main industrial area on the fringes of Gloucester city.

Prior to being vacant the site was home to a collection of under-utilised warehouse buildings with associated offices and service yards, these were vacated fully in September 2017. The existing units were demolished by the previous landowner in 201 and since then the site has remained vacant.

The site is primarily accessed off of the A38 (Eastern Avenue) however there are secondary access points off Chancel Close on the north eastern boundary. Eastern Avenue is a primary north-south distributor road, this being a 2 to 3 lane dual carriageway adjoining the site. The road is subject to a 30mph speed limit with a footpath along its eastern side and a shared footway/cycle way along its western side.

The north west boundary of the site is bounded by the north south railway line running between Cheltenham and Stroud and beyond the railway tracks is a new supermarket and further employment units.

The site is bound by three roadways; the A38, Eastern Avenue to the southwest, Chancel Close to north east and the A5302 Metz Way to the south west. There is little existing vegetation on site, apart from a dense collection of woodland trees along the Metz Way boundary which forms a buffer between the development site and the road.

The neighbouring properties to the site comprise a selection of smaller industrial units with employment uses, which extend beyond the immediate boundaries to both the north-east and south-east to form a much larger industrial and employment sector to the city.

Aerial of development site

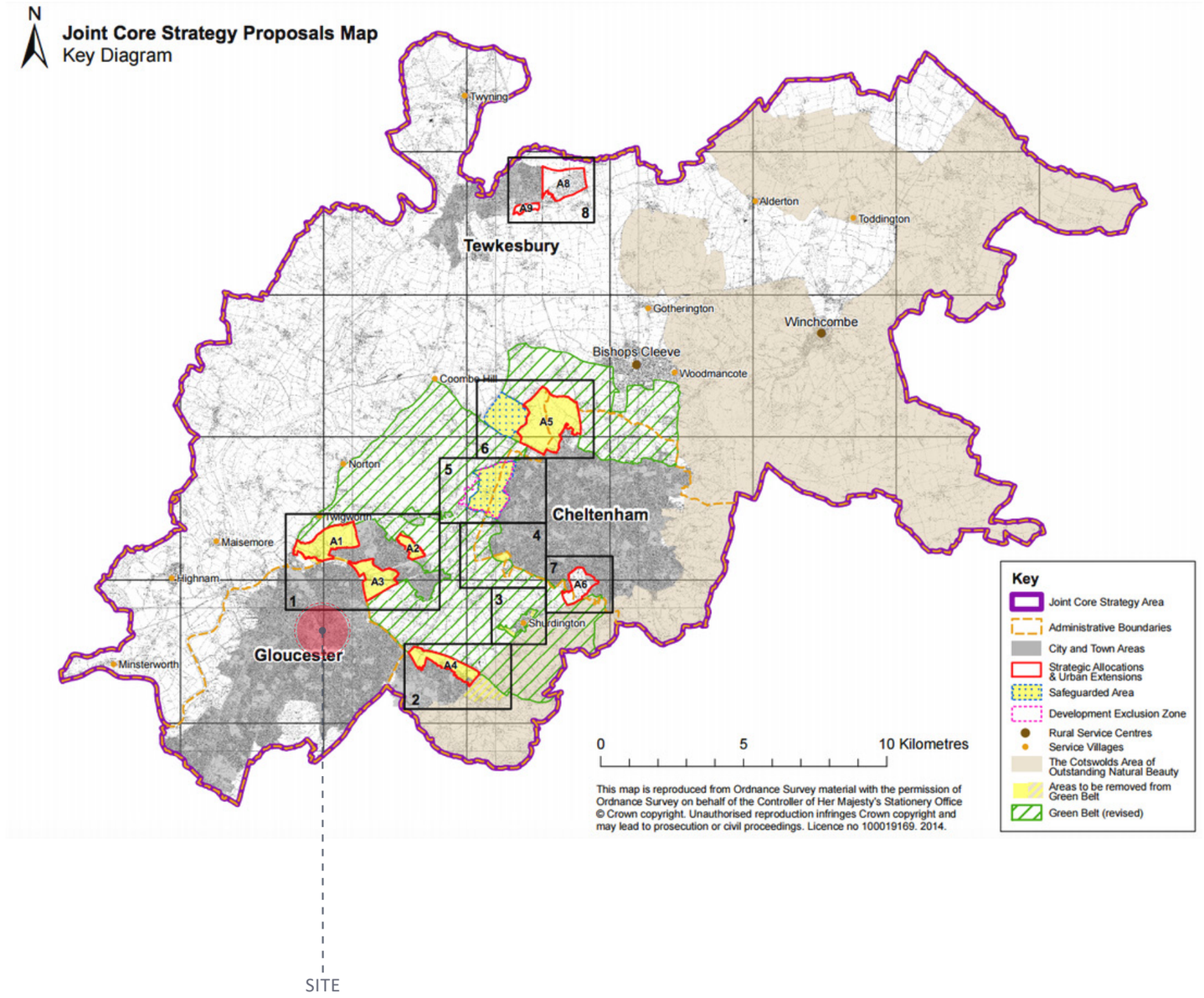
2.3 Planning Context

The application site has an established historic employment use, with warehouse and distribution uses having been on the site since a least 1974, its perhaps most well-known for the previous occupation by the Whitbread drinks company and its successors Interbrew (inBev), The site is often referred to as 'The Former Interbrew site'.

Between 1974 and 1998 the warehouse and office buildings were extended on the numerous occasions. Other planning permissions also included works to outbuildings, additional car parking and façade amendments.

More recently the site has been subject to a couple of proposed redevelopment plans which although approved were not implemented, these include:

- In 2013 (13/01261/OUT): the demolition of the existing buildings and the proposal of 13,025sqm building to provide wholesale /retail warehouse club, alongside a new signalised access and junction on eastern avenue. This application was granted on 20th August 2014.
- In 2018 (18/01444/FUL): Demolition of vacant buildings and comprehensive redevelopment for employment units falling within Use Classes B1, B2 and B8 (totalling 9,574 sq.m); a DIY retail warehouse within Use Class A1 and/or a terrace with up to 5 x trade units within Use Class B8 (4,703 sq.m); a 44 bedroom hotel within Use Class C1 with associated restaurant/ pub within Use Class A3/ A4 (2,018 sq.m); and a drive-thru restaurant within Use Class A3/A5 (totalling 255 sq.m); together with associated car parking, servicing and access; landscaping and all associated works. This application was granted on 17th September 2020



Joint Core Strategy Map

2.3.1 Planning Policy

The planning determination process is guided by below noted statutory development plan documents:

- Gloucester, Cheltenham and Tewkesbury Joint Core Strategy (JCS)
- City of Gloucester Local Plan and Emerging Local Plan - Gloucester City Plan (GPC)

In addition, below noted documents should be considered:

- National Planning Policy Framework
- National Planning Practice Guidance
- Gloucester Local Plan
- Local Supplementary Planning Documents and Guidance
- Local Plan Evidence Base
- Regeneration and Economic Development Strategy

The site does not have any specific site planning use class designation however it is a historic / established employment use site.

This is in line with Gloucester, Cheltenham and Tewkesbury Joint Core Strategy (JCS) Policy SD1. This specifically supports re-development of existing employment sites for further employment uses within Gloucester as a high priority.

The Gloucester City Council Emerging Local Plan (not yet adopted) also has Policy B3 which encourages the intensification of existing employment land along with Policy B2 which safeguards existing employment sites.

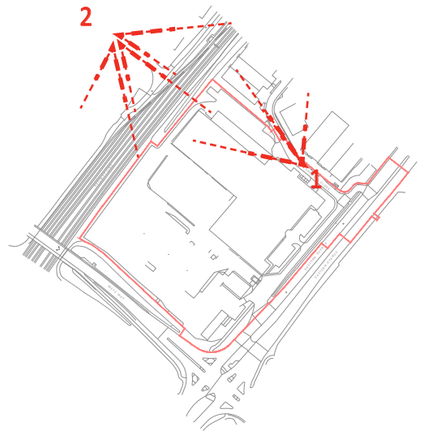
Gloucester City Council Planning Policy (Officer Adam Gooch) was approached prior to submission of the application, who confirmed the council have indicated support for an amendment of the previously approved planning consent (18/01444/FUL) for a fully industrial scheme (E(g)(iii), B2 and B8 uses). He also noted that the proposal of an employment only development was much preferred to the previous approved mixed-use scheme.

Planning policy therefore supports development of the site for employment uses E(g)(iii), B2 and B8.

2.4 Site Conditions

The site consists of predominately very poor concrete hardstanding and piles of rumble left over from the demolition of the previous warehouses which occupied the site. There is limited existing vegetation or trees on the site, apart from a dense group of trees towards the north western boundary, a minor section of this being within the site but it is mostly outside the site boundary.

1. View NW into site from the SW boundary along Eastern Avenue



Existing Site Plan

1. View SE across full extent of the site, taken from boundary to railway line

2.4 Site Conditions

1. View along SW boundary to Metz Way

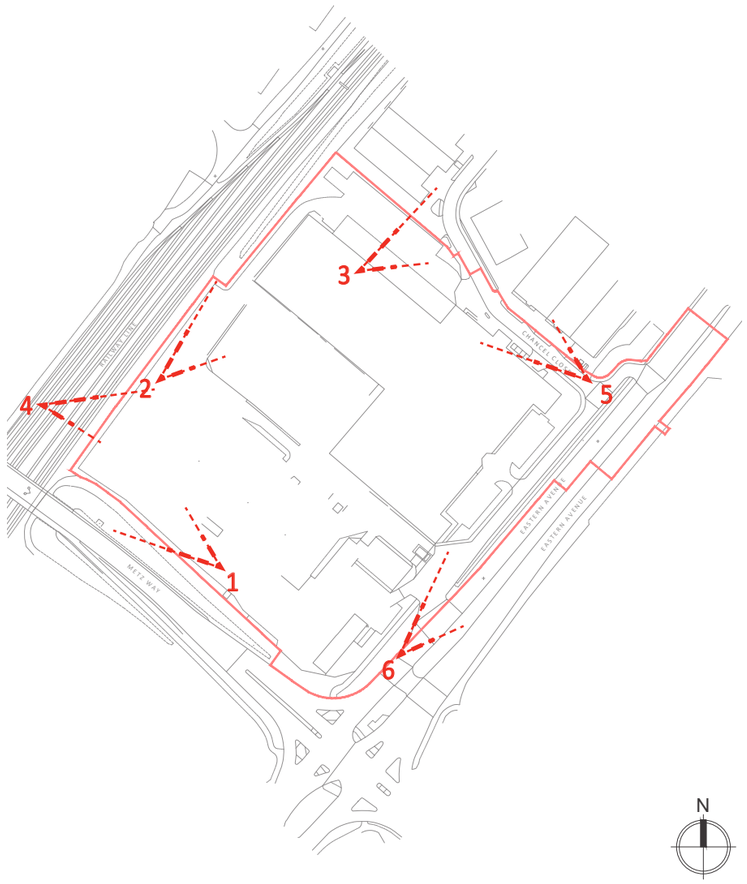
2. View along NW boundary to railway line

3. View of boundary to Chancel close

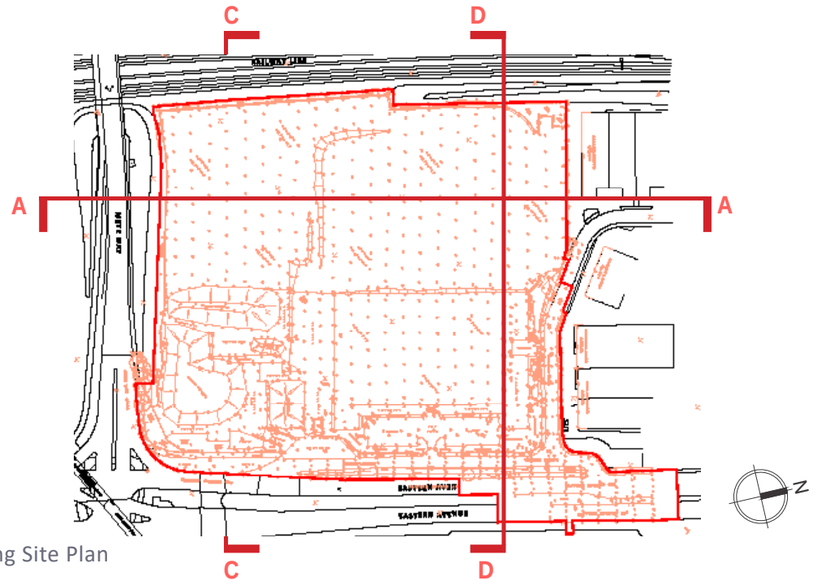
4. View SE from Metz Way bridge into site

5. View NW along Chancel close into site

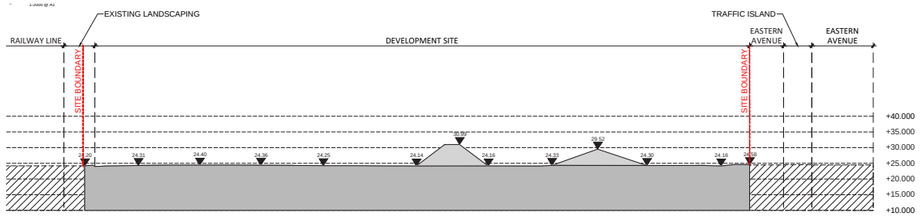
6. View along existing access road on Eastern Avenue



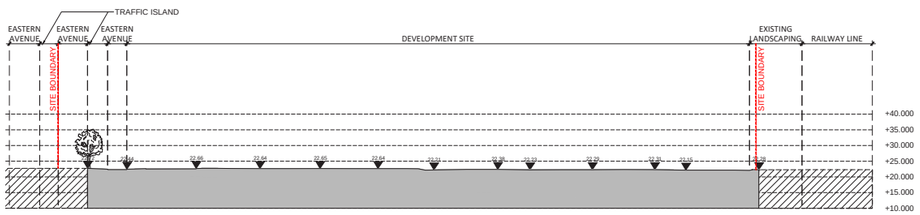
Existing Site Plan



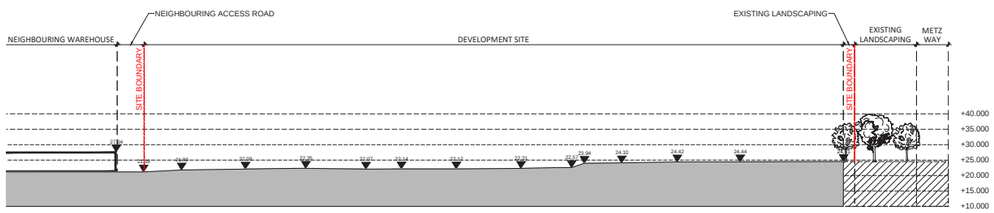
Existing Site Plan



Section C-C



Section D-D



Section A-A

2.5 Levels & Boundaries

The site is relatively flat along the north west to south east alignment. The north-east to south-west alignment of the site slopes down very gradually from the Metz Way boundary to Chancel Close, with an approximate 3.5m change in level.

The levels are indicated on the existing and proposed site sections submitted with the planning application. These indicate the buildings' outlines and their relationship to the site boundaries, noting the existing levels and landscaping areas.

The north-western boundary of the site is bound by the north south railway line running between Cheltenham and Stroud. Beyond the railway, there is a new supermarket and employment units.
The site is bound by three roadways; A38 (Eastern Avenue) to the southwest, Chancel Close to the north east and A5302 (Metz Way) to the south west. There is little existing vegetation on site, Apart from a dense group of woodland trees which are mainly outside of the Metz Way boundary, and which forms a buffer between the development site and the road.

The site's existing boundaries are mainly fenced with galvanised palisade fencing. However, a small portion of the boundary to Eastern Avenue (where the prior office building once stood) is not enclosed, allowing for an open frontage to the Eastern Avenue and Chancel Close. Parts of the existing palisade fencing, particularly that facing the adjoining employment site on Chancel Close, will need to be refurbished. The open frontage along Eastern Avenue and around Chancel Close will be retained to compliment the wider estate appearance.

The smaller industrial units 4 to 14 are positioned near the property's Eastern Avenue boundary, while the medium to larger sized units 1 to 3 are located to the southwest corner and rear of the development site, complementing the surrounding industrial units' heights and the site level changes.

3.0 | Design Statement

Proposed Site Plan

3.1 Proposal

The proposal is to develop the site with the construction of 14 new industrial buildings with flexible E(g)(iii), B2 & B8 uses with ancillary offices, service areas, car parking and accompanying soft landscaping. Existing entrances off Eastern Avenue and Chancel Close will be improved as necessary.

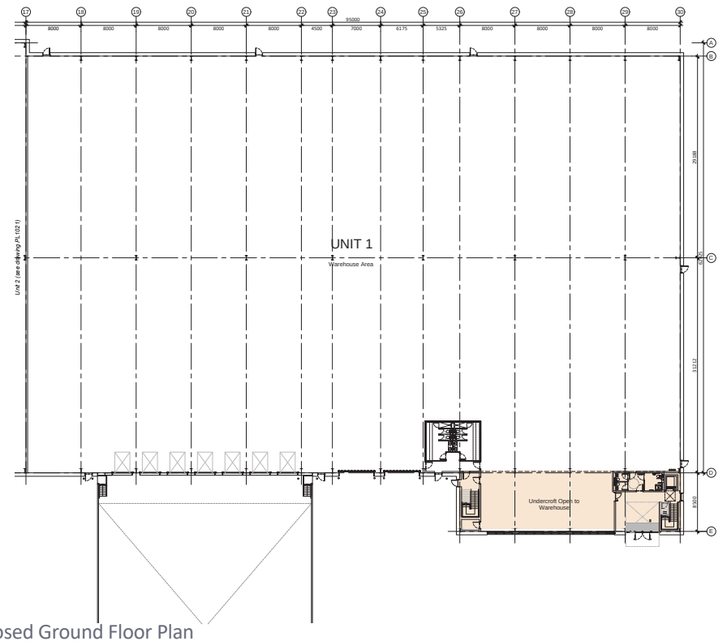
3.2 Proposal Layout

The proposed layout evolved from a broad analysis of the existing site constraints, such as site access for HGVs and cars, and the context of the existing surrounding environment, as well as the site topography and boundary conditions, to provide the best solution for a building of this size, while keeping the current industrial market demands in mind. The previous site occupation and layout, together with the recent other planning applications, have been taken into account as part of the creation of a well-thought out and comprehensive design. At the time of writing, the development is speculative.

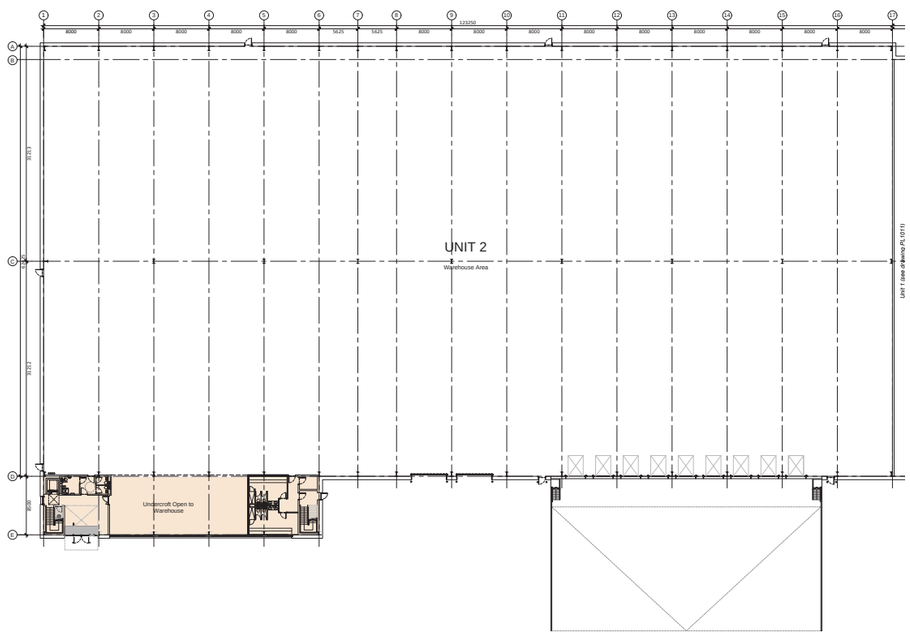
The site layout has been designed to place the larger/medium sized units to the rear of the site, while the smaller units occupy the front of the site, allowing them to be positioned appropriately in relation to the existing surrounding buildings and site levels while avoiding visually dominating the public frontage to Eastern Avenue.

The road layout at the site was designed to allow all vehicles to manoeuvre and turn inside their allocated service areas. All service yard areas have been designed to face inwards to ensure that they aren't visually and acoustically intrusive with separate car parking areas for the larger units proposed to maintain separate traffic flows. A shared pedestrian and cycle route has been provided from along Eastern Avenue and into site, to enable safe pedestrian and cyclist access to the building entrances.

All four boundaries around the property have been designed to widen the current vegetation and landscaping through well-planned planting in order to increase both the ecological and visual effect of the site from neighbouring buildings along with the approach from Eastern Avenue.



Unit 1 Proposed Ground Floor Plan

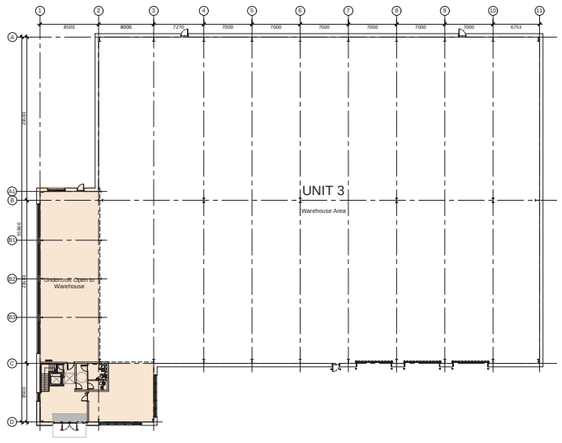


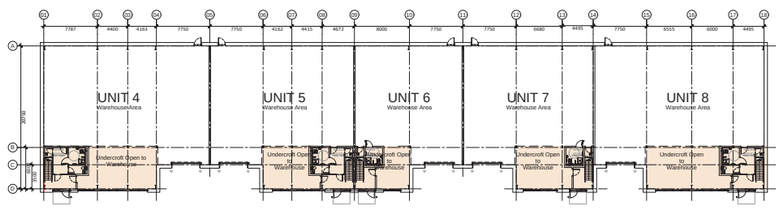
3.3 Areas

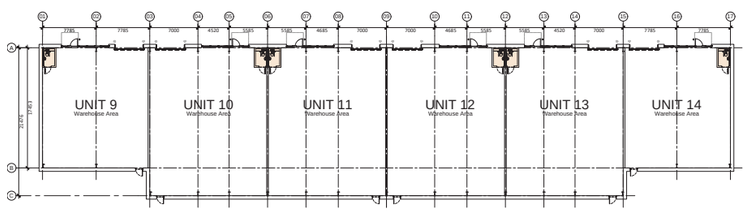
The total site area is 53,142 m² / 5.31ha
The total internal floor area (GIA) of the development is 23,333 m².

AREA SCHEDULE (GIA)

Unit 1	**6,522 m²**	**70,200 ft²**
Warehouse	6,001 m²	64,600 ft²
Office FF	251 m²	2,700 ft²
Office SF	269 m²	2,900 ft²
Unit 2	**8,689 m²**	**93,530 ft²**
Warehouse	8,031 m²	86,450 ft²
Office FF	319 m²	3,430 ft²
Office SF	339 m²	3,650 ft²
Unit 3	**3,730 m²**	**40,150 ft²**
Warehouse	3,379 m²	36,375 ft²
Office SF	351 m²	3,775 ft²
Unit 4	**567 m²**	**6,100 ft²**
Warehouse	469 m²	5,050 ft²
Office SF	98 m²	1,050ft²
Unit 5	**480 m²**	**5,170 ft²**
Warehouse	402 m²	4,330 ft²
Office SF	78 m²	840 ft²
Unit 6	**340 m²**	**3,660 ft²**
Warehouse	294 m²	3,160 ft²
Office SF	46 m²	500ft²
Unit 7	**429 m²**	**4,620 ft²**
Warehouse	362 m²	3,900 ft²
Office SF	67 m²	720 ft²
Unit 8	**584 m²**	**6,290 ft²**
Warehouse	483 m²	5,195 ft²
Office SF	102 m²	1,095 ft²







3.3 Areas

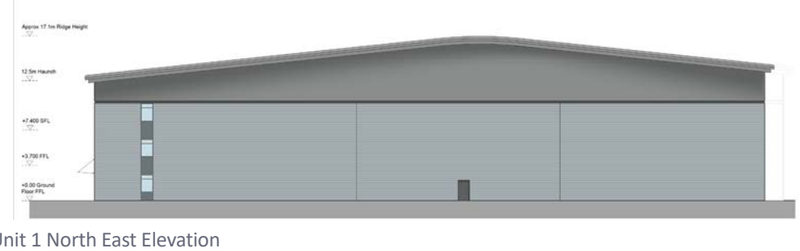
Unit 9	**267 m²**	**2,875 ft²**
Warehouse	267 m²	2,875ft²
Unit 10	**364 m²**	**3,915 ft²**
Warehouse	364 m²	3,915 ft²
Unit 11	**365 m²**	**3,925 ft²**
Warehouse	365 m²	3,925 ft²
Unit 12	**365 m²**	**3,925 ft²**
Warehouse	365 m²	3,925 ft²
Unit 13	**364 m²**	**3,915 ft²**
Warehouse	364 m²	3,915 ft²
Unit 9	**267 m²**	**2,875 ft²**
Warehouse	267 m²	2,875ft²

The proposed layout shows 197 car parking spaces which is under the maximum parking standards set by the council standards and distributed evenly to each unit.

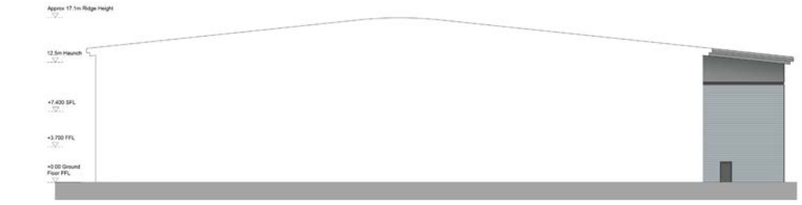
Car Parking Spaces	196
Accessible Bays	25
EV Charging Bays	58
Cycle Spaces	74

Car parking and HGV/LGV movement is dealt with in more detail in David Tucker Associates' Transport Assessment submitted with this application.

Unit 1 South East Elevation



Unit 1 North East Elevation



Unit 1 North East Elevation

Unit 1 North West Elevation

3.4 Appearance

The elevations submitted with this application indicate the general appearance of the industrial buildings.
The forms are simple and well-proportioned for buildings of this type where clear internal heights and volumes are required.

The elevations combine the use of contemporary materials using profiled metal cladding with crisp, modern and simple detailing using a small number of cladding profiles and colours/tones within a considered palette of silver, mid grey and dark grey cladding to create a strong, clear and high-quality appearance together with the offices elements which provide additional visual focus.

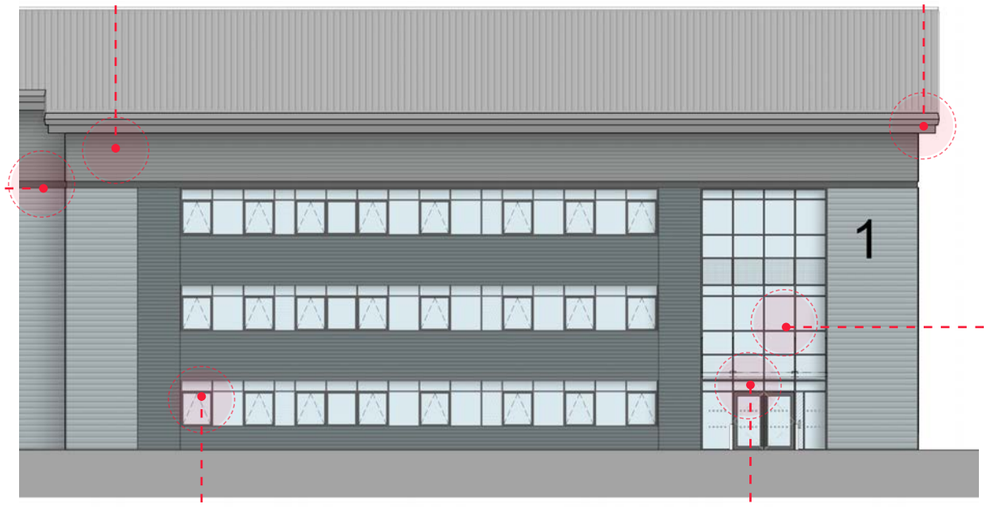
The elevations will feature the use of profiled metal cladding with double glazed dark grey framed aluminium windows to the offices as well as the loading doors. The cladding is used in a simple manner and will feature fine inverted fin detailing to the corners of the buildings and vertical fins within the horizontal cladding itself. This together with the details around the windows to the offices will create a finely detailed elevational treatment with a scale which is clearly discernible to the eye.

3.5.1 Appearance - Material Examples - Office Element

Unit 1 South East Elevation

Cladding
32/100 R Horizontal profile

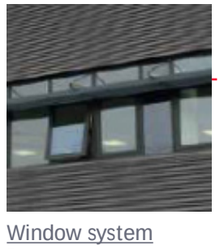
Roof Eaves



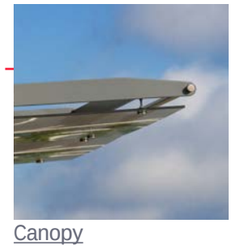
Unit 1 South East Elevation

Horizontal Feature

Main entrance
Thermally broken Curtain Wall System with powder-coated



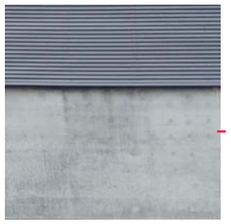
Window system
Double glazed window in polyester powder-



Canopy

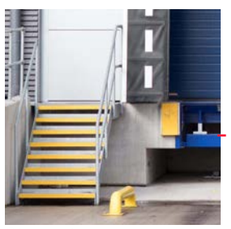
3.5.2 Appearance - Material Examples - Loading Element

Unit 1 South East Elevation



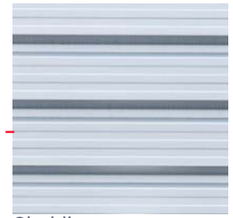
Precast Concrete

Dock leveller



Steel stairs

Unit 1 South East Elevation



Cladding
MW5C profile
Colour: Sirius (RAL

Bollard

Loading Door

4.0 | Access Statement

Site Access

4.1 General access to the plot

The site is currently accessed from Eastern Avenue via an existing a one-way service road, which runs adjacent to Eastern Avenue, via a left-in/ left-out arrangement. A secondary access to the site is located off Chancel Close, which is a single carriageway cul-de-sac servicing an area of small businesses with around 13 units.

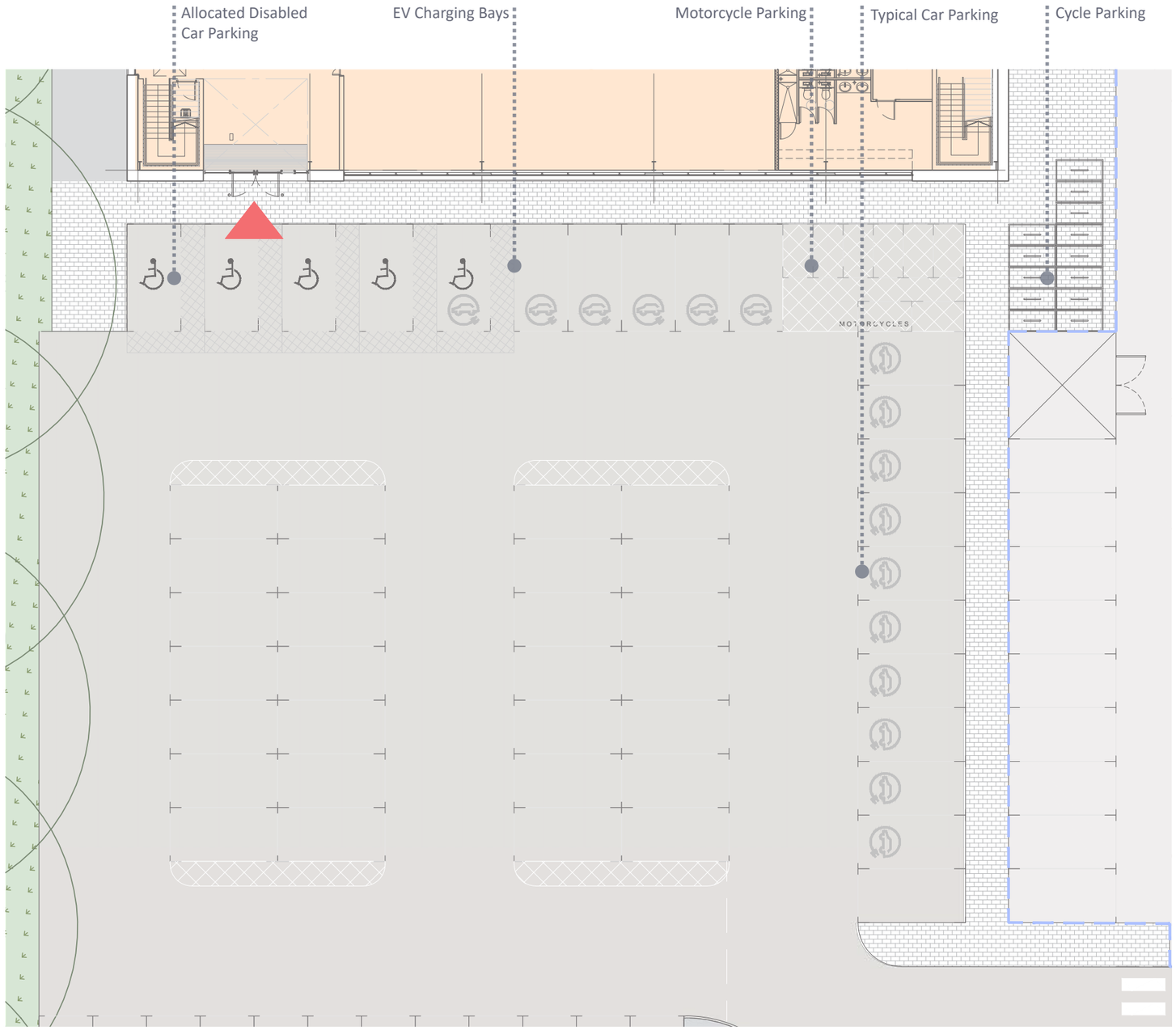
In line with the previous planning application, the proposals have been designed to improve the pedestrian and cycle environment along the site frontage as well as rationalising the existing access points and providing a new all-movement signalised junction which will serve the development and adjacent industrial uses. .

The development will have two access points off Eastern Avenue. The previously agreed-upon all-movement signalised T-junction with Eastern Avenue and Chancel Close will be formed to the north-east. The current main access to the site will be kept and formalised to enable an in-only access served off of Eastern Avenue to the south-east. As part of the access proposals, the existing service road adjacent to Eastern Avenue will be closed, and an enhanced 3m wide shared foot/cycleway would be created along the Eastern Avenue frontage and onto the site, as approved in the previous application. Along Chancel Close two access points are proposed - the existing access with be retained and improved so as to allow two-way HGV access in and out of the site, with a secondary smaller access to the south east to access the smaller units directly.

The site is readily accessible via public transport, a bus stop is located along Metz Way to the south east of the site, approximately 400m away, providing direct services to and from Gloucester Railway Station.

Further details of the road layout, access and improvements are provided in the Transport Assessment and Travel Plan provided by David Tucker Associates and submitted as part of this application.

4.0 | Access Statement



Typical unit entrance and parking

4.2 Inclusive Level Access

Level access will be provided to all ground floor entrances. Dedicated, wheelchair accessible parking bays will be provided close to the main entrance of the building. External surfaces will be specified to facilitate easy and safe access.

The buildings will be designed and built to comply with Building Regulations Approved Document M.

4.3 Emergency Access

Adequate emergency access has been designed as part of the scheme design in accordance with Part B of the Building Regulations. Fire Vehicle access to the exterior of the buildings is an integral part of the design of the proposal.

5.0 | Supplemental Reporting

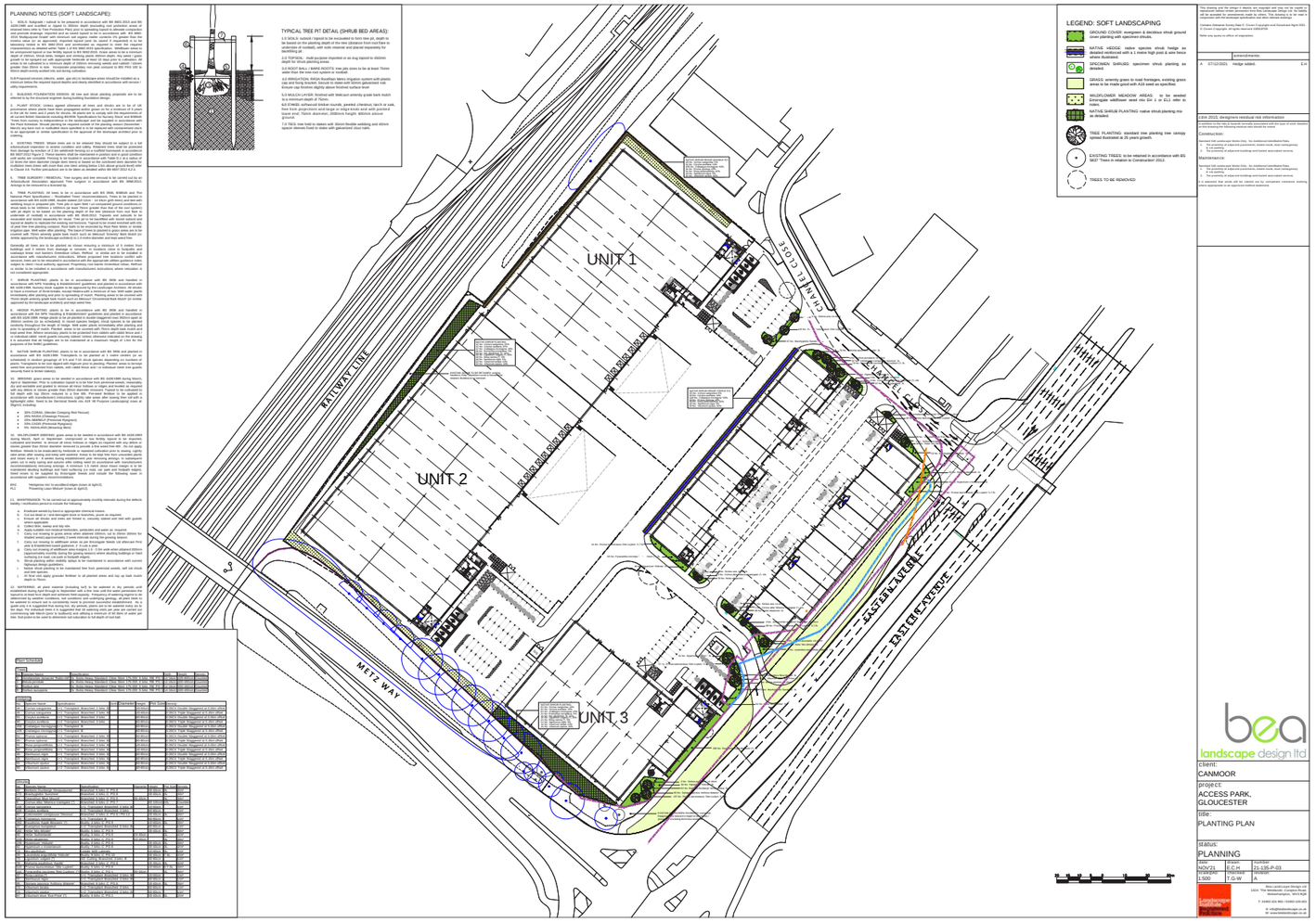
Exploratory Hole Location Plan by Deltasimons

5.1 Geo Environmental Report Ph1 & Ph2

A Geo-Environmental Assessment & Ground Investigation Report was carried out by WSP for the previous application on the site in 2016 and then updated in 2018. As no change has occurred since then the report is included as part of this planning application for informational purposed. A further update to the ground investigation was identified as being necessary post demolition and will be submitted as additional information when available.

The geo-environmental considerations can be summarised as follows:-

- The ground investigation across accessible parts of the site recorded asbestos containing materials in made ground WS103, which will require management during construction via safe systems of work. Should the development proceed as per the current masterplan, potential human health pathways to the potential asbestos will be broken by hard standing. No other potential pollutant linkages for human health have been recorded.
- Impacted perched groundwater was recorded surrounding the former diesel tant recorded in 2016. Results from the 2018 ground investigation did not record any TPH impact at the same location and it is conjectured that perched impacted groundwater has been flushed and/or diluted by rainwater ingress since the fuel tank was removed by the tenant. It is considered possible that some locally impacted soils and possibly perched groundwater may be present below the former tank location.
- The area surrounding the substation and former caustic soda store was not accessible for ground investigation and some shallow soil sampling to validate soils beneath these features will be required post demolition. Although localized contamination may be present associated with these features, the presence of low permeability geology beneath the site should reduce the risk of contaminant migration, and thus potential liability, which is also indicated by the absence of widespread groundwater impact.

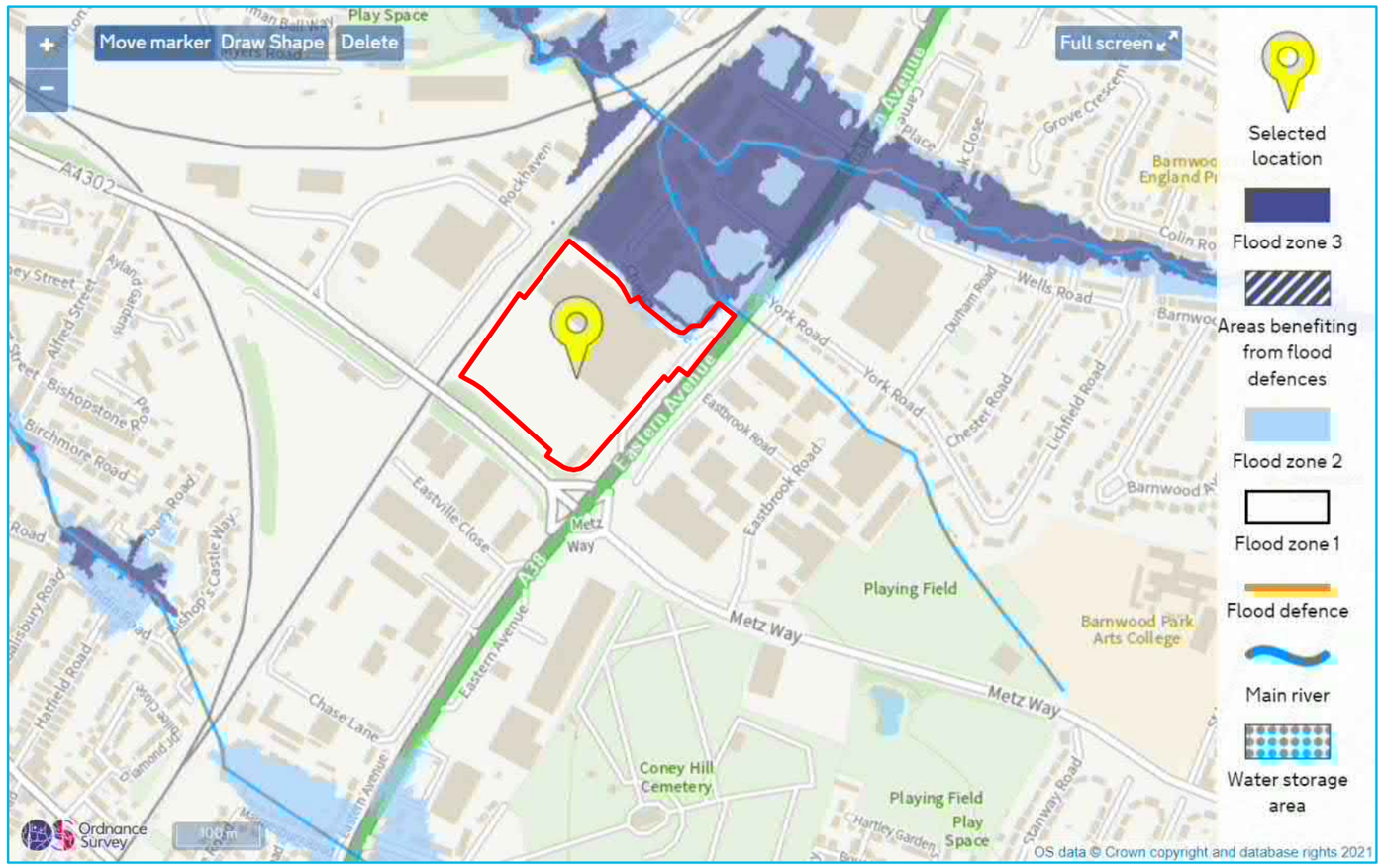


5.2 Landscaping Design & Tree Survey

A soft landscape plan, illustrated to the left, has been prepared by BEA Landscape and reflects the requirements of Clarkson & Woods' Ecology Report.

The tree survey was carried out by BEA Landscape as has been the tree constraints plan and tree retention & removal plan. These have all been submitted with the planning application.

Soft Landscaping Plan by BEA Landscaping



Flood Map by EH

5.3 Flood Risk Assessment & Drainage Statement Summary

A Flood Risk Assessment & Drainage Strategy has been prepared by IL Consulting and is submitted in support of the application.

The existing flood risk to the development area from all sources has been assessed from a review of all available data. Future climate change has also been considered. Using the proposed development plan, the extent of the flood risk has been determined for the site as well as the effect that the development might have on flood risk elsewhere.
The assessment can be summarized as follows:

- The site is located in Flood Zone 1.
- The site is at low risk of flooding from all sources.
- The proposed development is classified as 'Less Vulnerable' and suitable for this location.
- The proposed development work would not increase the risk of flooding from any sources;
- A drainage strategy is proposed in consideration with the local and national standard and would not increase the flood risk.
- Recommendation provided in the South Gloucestershire Local Plan: Core Strategy, is for sites to reduce surface water flows back to greenfield (urban – Brownfield site) runoff and incorporate SUDS where applicable. The proposal therefore is to limit the discharge from the developed site to the Greenfield (Urban) rate of 41.5L/s for 1 year storm and 74.9L/s for storms up to and including 1 in 100year + 40%cc
- A geotechnical assessment by WSP has recorded superficial deposits below the site consisting of Blue Lias and Charmouth Mudstone, stiff clay. These soils have a very low to infiltration rate. The proposal includes SuDS measure in the form of attenuation tank and possibly porous paving for parking areas.
-

In conclusion, the proposed development work will not increase the risk of flooding to the site or surrounding areas in accordance with the provisions of relevant national and local planning policies.

6.4 Transport Assessment & Travel Plan

A Transport Statement, which includes a Travel Plan, has been prepared by Vectos in support of this application. Their report can be summarized as follows:-

- The application site is located some 2.5km east of the City Centre and extends to circa 13 acres. It is currently significantly underutilised, comprising vacant and dated warehouse buildings and associated office space, alongside what was once open storage and lorry parking.
- The existing main building is L-shaped in footprint and occupies the north-eastern part of the site. The building comprises two warehouse units with an open canopy area and two store offices. The office units face onto Eastern Avenue and side onto Chancel Close, with the warehouses behind. The total floor area amounts to some 13,748sqm (148,000sqft).
- The site has been fully vacant since September 2017, although occupation and activity steadily decreased for the 9 months prior to this. The open storage element is currently secured via perimeter fencing. A planning application for the mixed-use redevelopment of the site to provide employment use, along with a retail store, hotel/pub/restaurant and drive-thru was granted planning permission in December 2018 (ref: 18/01444/FUL). The impact of the current development proposals has been reviewed within the context of this existing planning consent.
- This report has reviewed the accessibility of the site in line with local and national policy, and demonstrates that the site is well located in terms of sustainable accessibility. Opportunities for enhancing connectivity by sustainable modes between the site and local area have also been identified. These measures are supported by a Framework Travel Plan which sets out a strategy for encouraging and facilitating travel by sustainable modes.
- A review of the most recent five year personal injury collision data for the local highway network has been undertaken and does not highlight any existing safety issues that would need to be mitigated as part of the development proposals.
- The proposed vehicle access strategy is consistent with that agreed with Gloucestershire County Council for the previously consented mixed-use scheme on the site, which was subject to a Stage F/1 Road Safety Audit.
- In considering the potential impact of the proposed development on the local highway network, an assessment of the change in vehicle traffic generation resulting from the development proposals has been undertaken. This demonstrates that the level of peak hour traffic generated by the proposals is less than that assessed as part of the 2018 planning consent. Consequently, it is concluded that the cumulative impacts of the proposals on the road network would not be severe.

Overall, it is concluded that the proposed development is in full accordance with the transport policy tests for new developments as set out in the National Planning Policy Framework.

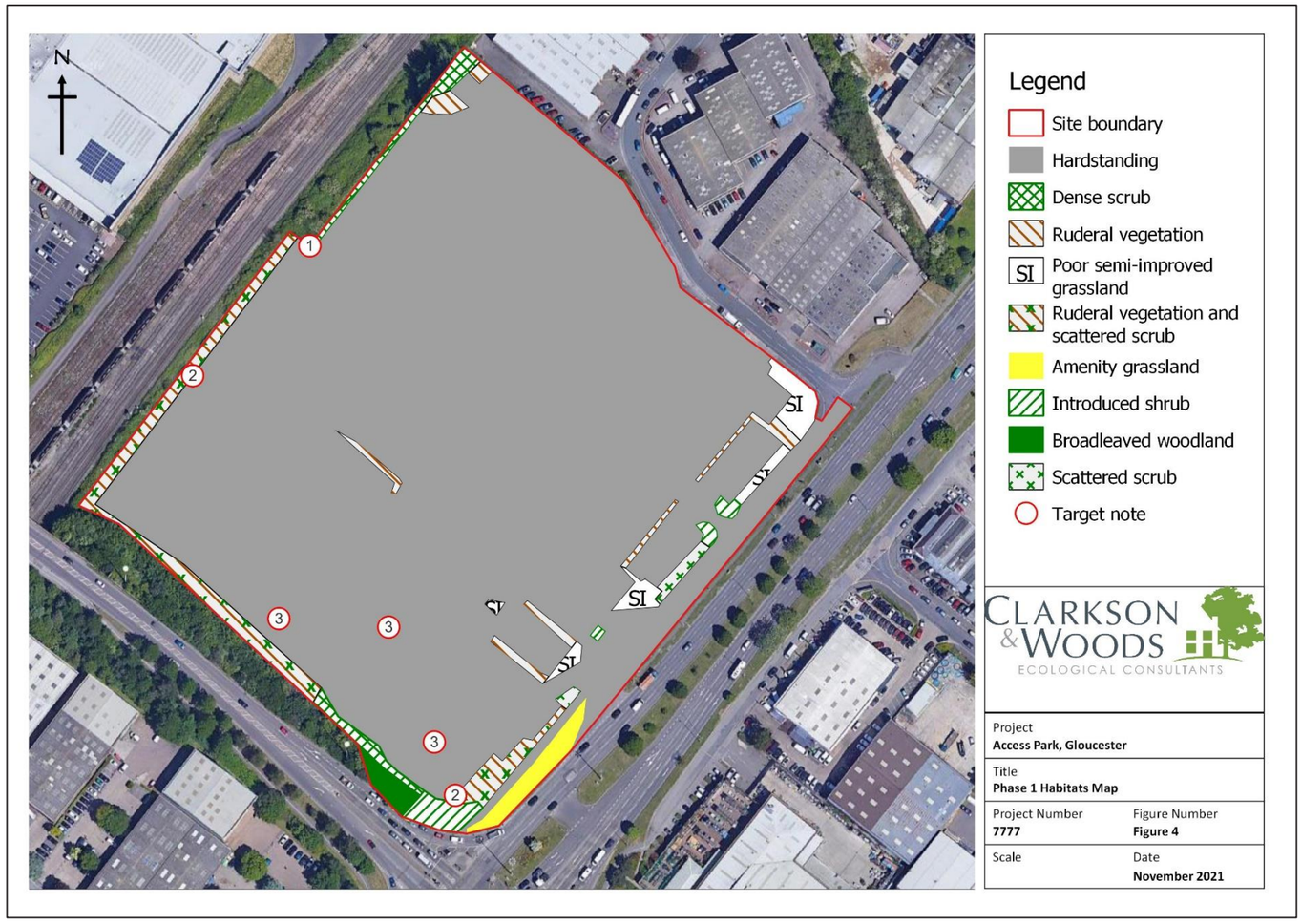


Figure 4: Phase 1 Habitats Map

5.5 Ecology Assessment

An Ecological Survey has been carried out by Clarkson & Woods and is submitted as part of this application. The report discusses the likely effects of the proposed development on the ecology of the site using information collected during site survey and investigation. The report can be summarized as follows:

- Retention of the north-western vegetated railway corridor;
- Protection of retained habitats during construction;
- Removal of non-native/invasive buddleia and cotoneaster;
- Sensitive working methods during site clearance and construction to avoid impacts on reptiles, nesting birds and hedgehogs;
- New native tree, shrub and species-rich grassland planting: providing a range of habitats for different species;
- A sensitive lighting strategy which preserves a dark corridor around the north-western and south-western boundaries; and
- Provision of a range of bat and bird boxes and a reptile hibernaculum as enhancements.

A LEMP will be produced which will detail relevant enhancement, management and monitoring measures.

Assuming the successful implementation of the measures described above, the proposed development can be considered in line with planning policy SD9: Biodiversity and Geodiversity, due to the quantifiable net gain in biodiversity the scheme is due to provide, as well as the enhancements for biodiversity which will be installed.

Habitats Map by Clarkson & Woods

5.0 | Supplemental Reporting

Aerial of development site

5.6 Air Quality Assessment

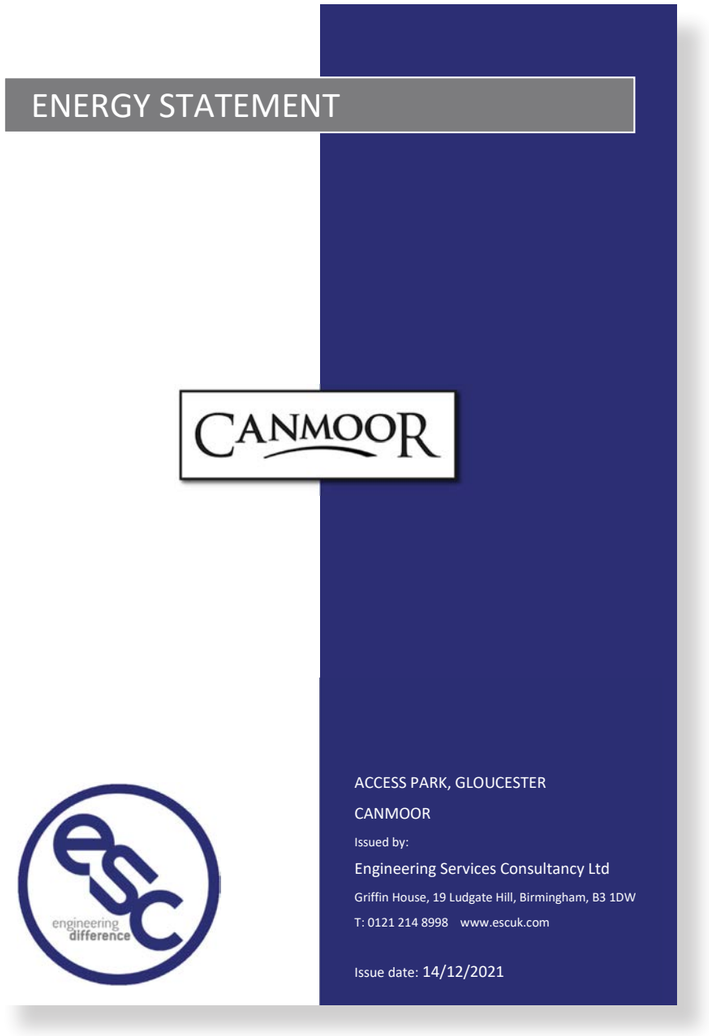
An Air Quality Assessment has been prepared by Hoare Lea and is included in this planning application.

This report details the potential air quality impacts associated with the construction and operation of a proposed development, and can be summerised as follows:

The Application Site is not located within an Air Quality Management Area and monitored pollutant concentrations in the development locale have been below the relevant UK air quality objectives in recent years.

During the construction phase, there is the potential for an increase in fugitive dust emissions associated with earthworks, construction and vehicles travelling to and from the site which can result in dust soiling impacts in the development locale as well as human health impacts. These impacts are however short-term and temporary in nature and will be effectively controlled through the implementation of mitigation measures.

The operation of the Proposed Development has the potential to lead to an increase in pollution in the development locale from emissions associated with increased road traffic travelling to and from the Application Site. An assessment of potential impacts has been undertaken and mitigation measures will be included where necessary.



5.7 Energy Statement

An Energy Strategy has been prepared by ESC and is submitted as part of the application. The report can be summerised as follows:

The development aims to mitigate any negative impacts it might have on the environment and minimise and consequential risks whilst maximising efficiencies and opportunities to deliver an intrinsically sustainable building.

The Proposed Development has established the following aims:

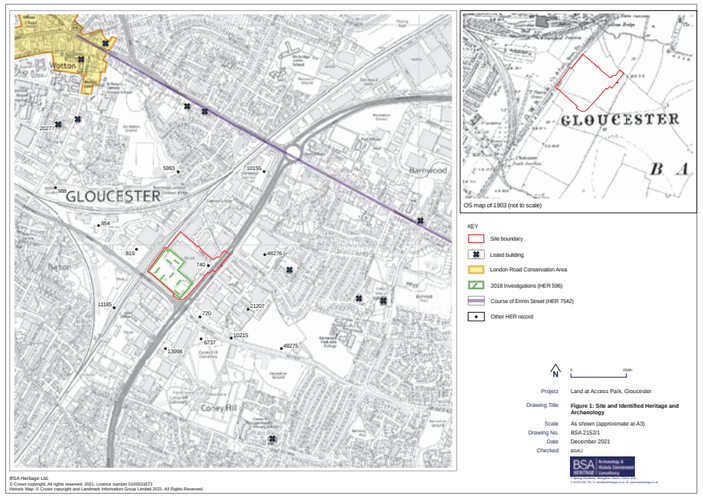
- Meet the challenges of climate change.
- Conserve and enhance the natural environment.
- Prevent and minimise pollution.
- Reduce energy use and greenhouse emissions.

Energy consumption reduction objectives have been established to meet the long term aims and include actions throughout the planning, design, construction and operation phases of the development.
The objectives will be delivered through the implementation of:

- The policies established in SD3.
- Approved Document Part L2a of the Building Regulations (2013)

Photovoltaics will be introduced to provide onsite generation of electricity to offset approximately 10% of the regulated electricity use of the building (at Practical Completion).

It concludes that:
Sustainable development aims to meet the needs of the present without compromising the ability of future generations to meet their own needs.
The Proposed Development aims to mitigate negative impacts and target opportunities relating to the environment. The development has been designed to incorporate several sustainability measures to address the aims and objectives established so that an intrinsically sustainable building is delivered.
With any new building there will be unavoidable negative impacts resulting from energy use however the planning, design, construction and operation of the Proposed Development has been and will be managed so that the effect is minimised and mitigated where possible.
Photovoltaics will be introduced to provide onsite generation of electricity to offset approximately 10% of the regulated electricity use of the building (at Practical Completion).



Site identified heritage and archaeology by BSA Heritage

5.8 Archaeology & Heritage

An Archaeology and Heritage Assessment has been prepared by BSA Heritage and is submitted in support of this application. The report looks at the implications of a desk-based assessment and a site walkover and can be summarized as follows:

- The site area does not contain any features of heritage interest. Indeed, the area has seen considerable change in the 20th century following its development by the military in the 20th century and redevelopment in the 1980s. The site has no historic landscape interest as a result.

- The HER records limited archaeological sites in the area, reflecting that the area remained agricultural into recent centuries. The important Roman road, Ermin Street, connecting Glevum to Cirencester and beyond does lie half a kilometre north of the site and work during construction of Metz Way in the 1980s identified a possible Roman villa approximately 200 metres south east of the site.

- Despite the find of a Roman building on the line of Metz Way, a considerable body of more recent archaeological investigations has not identified anything of interest close to the site. In particular, trial trenching within the site in the last decade, in the eastern corner of the site and its south western half, found only one truncated furrow, one piece of Roman pottery and two fragments of possible Roman roof tile and suggested the site had been terraced in the past to provide a level building platform.

- Although the north of the site has not been evaluated, this area certainly contained a large structure, construction of which is also likely to have led to the disturbance of any earlier remains, if not their total removal. The finds of some limited Roman material is consistent with known activity in the area, but not an indication of remains on site.

- Any remains of medieval furrows such as that found in the trench in the east of the site or of the original line of the 19th century railway on the site's north western boundary would rate as of negligible interest. The same is true of any vestigial remains relating to the RAF's use of the site.

- It is concluded that the site has low archaeological potential and may not warrant further investigation. If further work is required, it could be secured as a condition of planning permission and limited to a watching brief during initial construction activity in the areas which have not previously been evaluated.

- No designated heritage assets lie close to the site. The closest are Grade II listed buildings to the south, east and north of the site which all lie more than 700 metres distant. The closest conservation area to the site is that centred on London Road, almost a kilometre to the north west. The rich remains of central Gloucester lie a greater distance west of the site.

- The site visit confirmed that the surroundings of the site are entirely modern and also largely commercial and of a larger scale. Level topography, distance and intervening buildings and vegetation screen the site and its environs from the centre of Gloucester and other peripheral designated heritage assets. Consequently, development of the site would in no way harm the significance or an appreciation of the significance of any designated heritage assets.

Aerial view of site and location of nearest sensitive dwelling by Hoare Lea

5.9 Noise Impact Assessment

A noise impact assessment has been prepared by Hoare Lea and is included in this planning application.
This report details the potential noise impacts associated with the operation of the proposed industrial development, The findings of the assessment are as follows:

- Assessment carried out for this report indicates that the noise climate in the vicinity of the proposed development site is mostly attributable to road traffic noise. It is considered that this noise will determine background sound levels at existing dwellings nearest to the development site.
- Assessment of activity noise levels for the proposed development indicates that the BS 8233 daytime and night time internal and external criteria for new dwellings would readily be achieved at the nearest residential properties. BS 8233 internal criteria would be achieved with open windows at the nearest dwellings.
- Assessment of activity noise levels in accordance with BS 4142 indicates that noise from the proposed development would achieve a condition of 'low impact' at the nearest existing residential properties at all times and would be unlikely to give rise to noise disturbance.
- It is noted that the predicted noise levels at the dwellings from the proposed development are significantly below the existing ambient and background noise climate and, consequently, are unlikely to be noticeable.
- It will be necessary to implement noise limit criteria for any plant installations associated with the proposed new development in order to prevent disturbance at the nearest residential properties. Limit criteria in this respect have been determined in accordance with BS 4142:2014.
- It is noted that the proposed development does not represent the introduction of new noise sources to this site and noise from plant, HGV movements and loading and unloading activities will have occurred previously at the development site. Similar activities occur at existing commercial and industrial premises which are closer to the nearest dwellings than the proposed development.

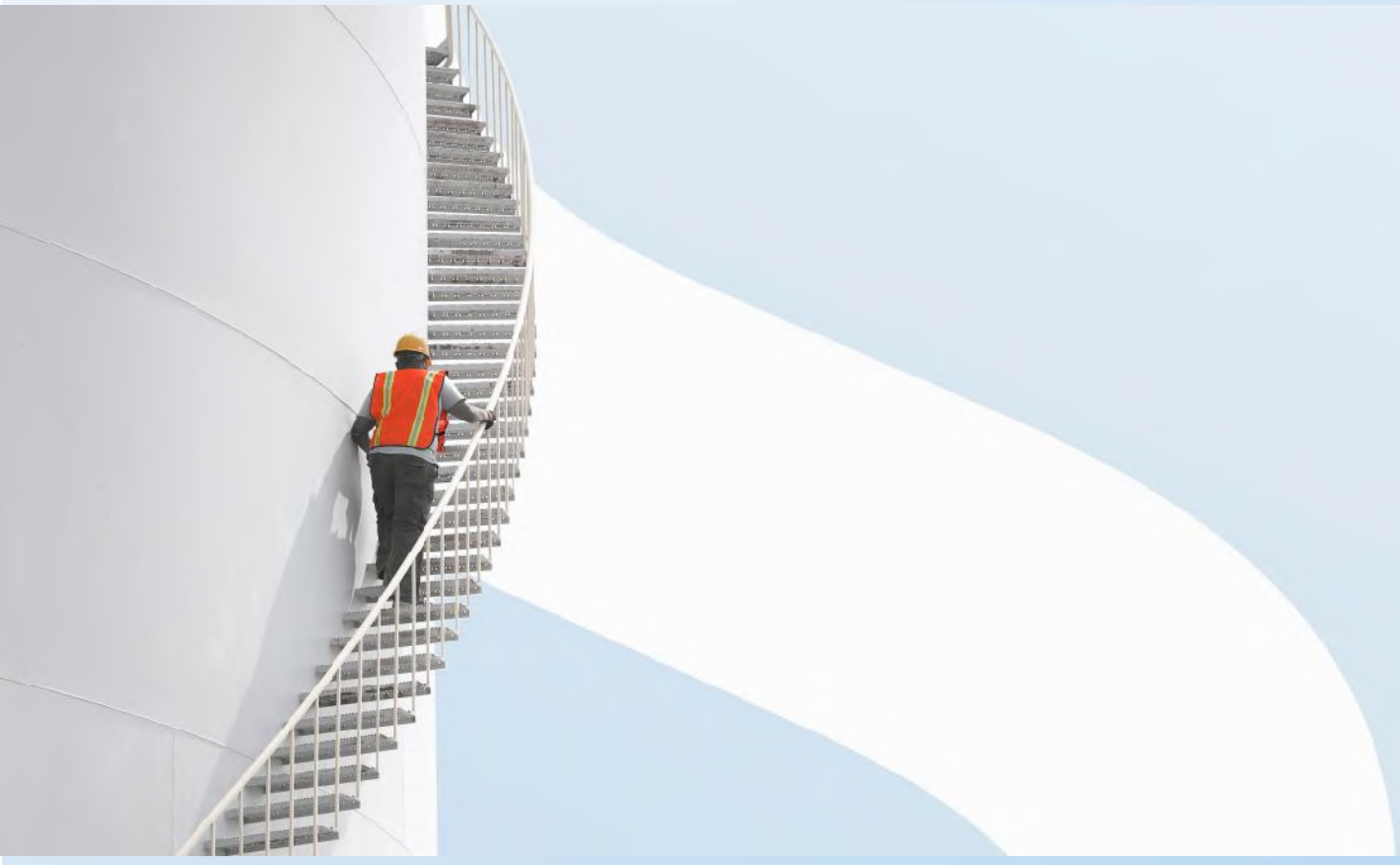
6.0 Drawings Submitted

21078 PL1001-00	Site Location Plan	21078 PL1041-01	Unit 4- 8 GA Ground & First Floor Plans
21078 PL1002-00	Existing Site Plan	21078 PL1043-01	Unit 4- 8 GA Roof Plan
21078 PL1003-04	Proposed Site Plan	21078 PL1044-03	Unit 4- 8 GA Elevations
21078 PL1004-01	Site Block Plan	21078 PL1091-03	Unit 9- 14 GA Ground Floor Plan
21078 PL1005-01	Proposed Fence Line Drawing	21078 PL1093-01	Unit 9- 14 GA Roof Plan
21078 PL1006-01	Waste Management Plan	21078 PL1094-03	Unit 9- 14 GA Elevations
21078 PL1201-01	Existing Site Section A-A & B-B		
21078 PL1202-01	Existing Site Section C-C & D-D		
21078 PL1205-01	Proposed Site Section A-A & B-B		
21078 PL1206-01	Proposed Site Section C-C & D-D		
21078 PL1011-01	Unit 1 GA Ground Floor Plan		
21078 PL1012-01	Unit 1 GA GF Main Entrance, FF & SF Office Plan		
21078 PL1013-01	Unit 1 GA Roof Plan		
21078 PL1014-01	Unit 1 GA Elevations		
21078 PL1021-01	Unit 2 GA Ground Floor Plan		
21078 PL1022-01	Unit 2 GA GF Main Entrance, FF & SF Office Plan		
21078 PL1023-01	Unit 2 GA Roof Plan		
21078 PL1024-02	Unit 2 GA Elevations		
21078 PL1031-02	Unit 3 GA Ground Floor Plan		
21078 PL1032-02	Unit 3 GA GF Main Entrance & FF Office Plan		
21078 PL1033-01	Unit 3 GA Roof Plan		
21078 PL1034-02	Unit 3 GA Elevations		

Paloma I (Industrial II) Unit Trust

SUPPLEMENTARY GROUND INVESTIGATION

Access Park, Gloucester



70020138-R03
APRIL 2018

CONFIDENTIAL

Paloma **I (Industrial II) Unit Trust**

SUPPLEMENTARY GROUND INVESTIGATION

Access Park, Gloucester

TYPE OF DOCUMENT (VERSION) CONFIDENTIAL

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APPENDICES

Appendix A – Drawings

Appendix B – Photos

Appendix C – Desk Study Records

Appendix D – Exploratory Hole Records

Appendix E – Data Tables

Appendix F – Ground Gas and Groundwater Monitoring Results

Appendix G – Chemical Data and Screening Sheets

Appendix H – Geotechnical Laboratory Data

Appendix I – Geotechnical Data Plots

EXECUTIVE SUMMARY

Introduction	Paloma I (Industrial II) Unit Trust instructed WSP to undertake a supplementary ground investigation and prepare an updated Geo-environmental Assessment for the Access Park, Gloucester (former Interbrew site). The purpose of the report is to provide an interpretative assessment to inform the discharge of planning conditions and aid in development design.
Site Description and History	The site is a former kegged drinks distribution facility. Potential contamination sources from the former land use include diesel above ground storage tank (AST), an electrical substation, fork lift maintenance area and an engine oil store. The historical uses of the site included agricultural fields, former railway land, a Royal Air Force facility, unlabelled tanks, a suspected former caustic soda store and a backfilled pond.
Ground and Groundwater Conditions	Ground conditions encountered during the investigation comprised hardstanding (concrete and asphalt), overlying limestone gravel sub-base, and localised cohesive Made Ground. Underlying natural strata comprised the Blue Lias Formation and Charmouth Mudstone Formation (BLCMF), which was encountered as a stiff clay. Groundwater strikes were recorded in Made Ground at three locations, Alluvium at two locations and at three locations in the underlying BLCMF. Visual and olfactory evidence of contamination (hydrocarbon odours and staining in Made Ground) was recorded in WS10 only (2016), located adjacent to the diesel AST.
Environmental Risk Assessment	Concentrations of contamination in soil were not recorded above the applied human health assessment criteria for a commercial land use. Asbestos containing materials were recorded in Made Ground in WS103. This will require management during construction, but risks to human health will be mitigated by the presence of hardstanding post-development. An elevated concentration of petroleum hydrocarbons (TPH) was recorded in perched groundwater from adjacent to the diesel storage tank in 2016. During the 2018 ground investigation, no elevated concentrations of TPH were recorded, but vigilance should be maintained during construction for the presence of residual contamination.
Preliminary Geotechnical Constraints	Spread or strip foundations onto BLCMF are expected to be suitable to support lightly loaded, low rise structures. For heavier structures, piled foundations into the unweathered BLCMF are expected to be suitable. Made Ground and Alluvium are not suitable founding strata without reengineering or pre-treatment. Relic foundations from historically demolished structures may be present and will require removal. Depending on the requirements for the development, Made Ground underlying foundations or pavement construction will need to excavated and re-compacted to a suitable engineering specification, treated in-situ, or removed and replaced with engineered fill.
Conclusions and Recommendations	Management of asbestos in Made Ground will be required during construction via safe systems of work, but the risk to human health will be low post-development. Based on observations during the 2016 investigation, there is potential for residual contamination to be present around the former diesel AST. Any observations of contamination during construction should be reported for further assessment. Areas of the site were inaccessible during the ground investigation (electrical substation and caustic soda store), and limited shallow soils validation will be required following demolition.

Please note: This summary forms part of WSP's Geo-environmental Assessment (ref.: 70020138-R03). Under no circumstances is it to be used as an independent document.

George Baggott

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1 INTRODUCTION

1.1 AUTHORISATION

Chase Commercial on behalf of Paloma I (Industrial II) Unit Trust instructed WSP UK Limited (WSP) to undertake a Supplementary Geo-environmental Assessment (as per proposal reference 70020138-P02, dated November 2017). The works have been requested to support the planning process and updated preliminary design information for the proposed commercial redevelopment of Access Park, Gloucester (the site).

1.2 BACKGROUND AND PROPOSED REDEVELOPMENT

The site is located to the west of Eastern Avenue, approximately 2km to the east of Gloucester city centre. The site is currently vacant and comprises warehouse and office buildings with large areas of external hard standing. The site was formerly used by DHL Tradeteam as a drinks distribution facility, who vacated the site in late 2016.

WSP have previously prepared a Geo-Environmental Risk Summary (reference 70020138-R01, dated June 2016) and a Geo-Environmental Assessment (Former Interbrew Site, reference 70020138-R02, dated September 2016) for the site. This report supersedes the works presented previously.

At the time of reporting, the most recent development masterplan was shown on Roberts Limrick Architects Drawing No. 8437-SK11A included within **Appendix A**. The masterplan shows that the following proposed land uses:

- A DIY store in the central and eastern portion of the site with a rectangular warehouse, car parking, a bagged goods area, a garden centre and deliveries yard;
- A lodge (hotel) with attached pub and a drive through fast food restaurant in the south of the site; and,
- The western and northern portions of the proposed development comprise a series of six warehouse units (ranging in size from approximately 10,000sqft to 29,500sqft) with delivery yards and car parking.

1.3 SCOPE OF WORKS

This Supplementary Geo-environmental Assessment comprises the following scope of works:

- A review of the desk study information and previous WSP reports prepared for the site;
- A preliminary conceptual site model considering pollutant pathways and linkages;
- Factual description of the ground investigation works, ground conditions and chemical testing results;
- A revised Generic Quantitative Risk Assessment to identify potential risks to human health or controlled waters from soil or groundwater contamination, in line with the requirements of CLR 11 and the National Planning Policy Framework;
- A revised ground gas risk assessment;
- Revised conceptual site model based on the findings of the risk assessments;
- Revised preliminary geotechnical advice on potential foundation solutions and preliminary pavement design; and
- Recommendations/scope for further work or mitigation, if required.

1.4 CONFIDENTIALITY AND LIMITATIONS

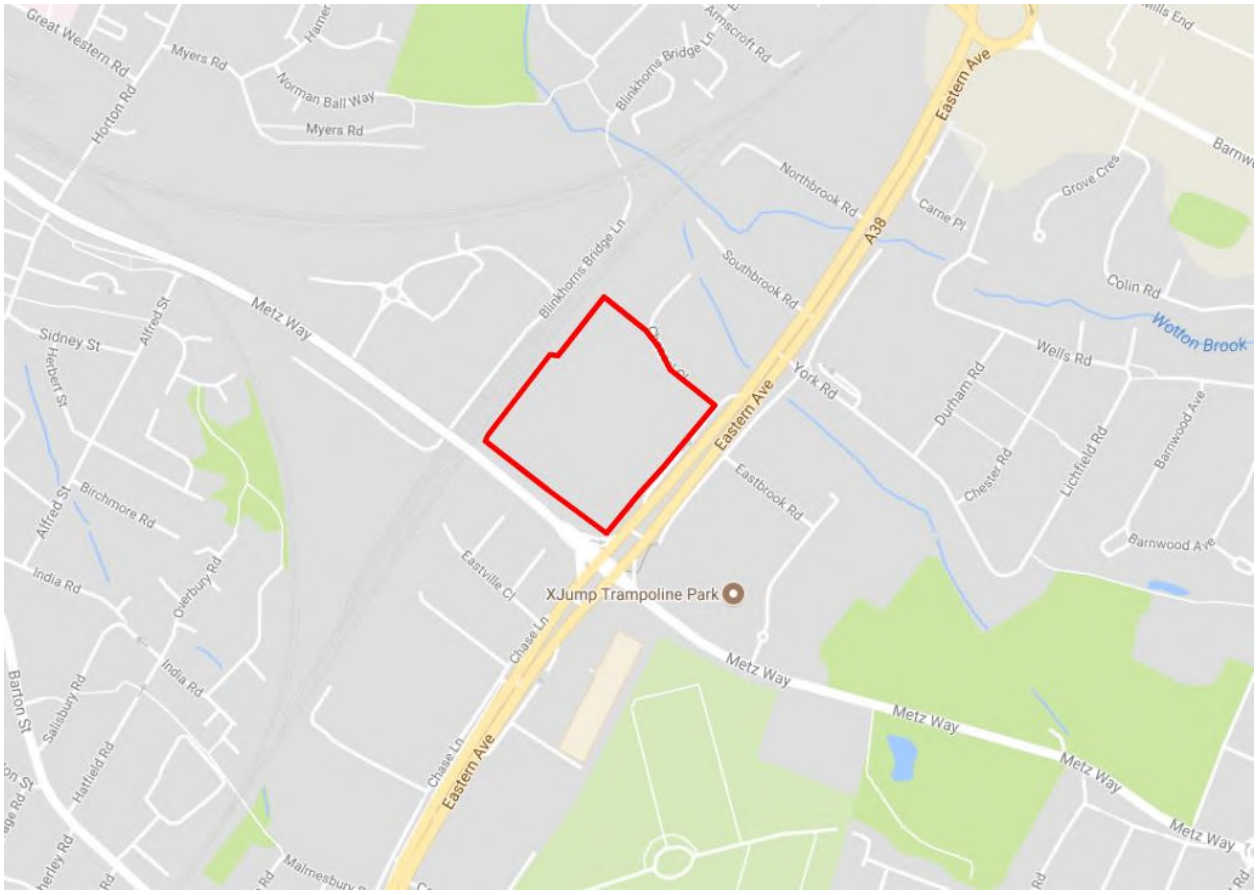
This assessment has been prepared for the sole use and reliance of Paloma I (Industrial II) Unit Trust under the terms agreed within the Appointment. No responsibility will be accepted where this report is used, either in its entirety or in part, by any other party without a formal agreement on reliance.

2 SITE INFORMATION

2.1 SITE LOCATION AND DETAILS

The location of the site is shown in **Figure 1**, below:

Figure 1 – Site Location Plan



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Details of the site location and a site description are presented in **Table 2.1**, based on site reconnaissance completed by a WSP consultant prior to the ground investigation in February 2018. The observed site features discussed below are shown on **Drawing 70020138-001** within **Appendix A**. A selection of site photographs is included in **Appendix B**.

Table 2.1 - Site Location and Description

ITEM	DESCRIPTION / DETAIL
Site Location	Former Interbrew Site, Eastern Avenue, Gloucester, GL4 6SW
Grid Reference	384911, 217892
Approximate Area	4.49 Hectares
Site Description	The site is currently vacant and comprises a large warehouse / two-storey office building across the majority of the northern part of the site, with a large expanse of external concrete hardstanding and an area of bituminous hardstanding to the east of the offices (**Photo 1**), which previously served as staff/visitor parking.

ITEM	DESCRIPTION / DETAIL
	Former bike sheds and a single story structure (the previous forklift maintenance shed) are located in the southern corner of the site (**Photo 2**). A former vehicle washing area was located in along the western boundary of the site. An Aco drain surrounded the vehicle wash area which collected vehicle wash drainage. A surface water drainage interceptor was noted nearby in the former lorry parking area, but it could not be confirmed from the visual inspection if drainage from the vehicle wash passed through the interceptor. A concrete pad marks the former location of an above ground diesel storage tank (**Photo 3**), and is located to the north of the vehicle washdown area. A storage shed labelled 'Paint Store' is present at the south-eastern end of the concrete pad, and contains numerous oil and paint tins. A number of archaeological trenches had been excavated and backfilled within the southern part of the site (**Photo 4**), as a result several large mounds of reinforced concrete, and exposed rebar were located in this region.
Topography	The site is split over two elevations, divided roughly in half aligned southeast to northwest. The southern part of this divide lies at 24.63m AOD, whilst the elevation of the northern area is lower at 21.96m AOD.
Asbestos Containing Materials (ACM)	An Asbestos Management Plan was reviewed during the site walkover in 2016. The roof of the forklift maintenance building comprised asbestos containing materials (asbestos bonded cement sheeting). Other areas with asbestos containing materials were present within the main warehouse and office areas; however, the extent of the asbestos was not assessed during the walkover, or as part of this report. Whilst an Asbestos Management Plan was reviewed during the walkover undertaken as part of the previous phase of ground investigation, a Demolition / Refurbishment Survey will be required prior to the commencement of demolition works.
Site Setting and Surrounding Area	Commercial properties are located to the north/ northeast and southeast of the site, including a number of motor industries and Homebase. A branch of the Great Western Union Railway is present to the northwest of the site, with Morrison's supermarket and fuel station beyond. Metz Avenue bound the site to the southwest, with further commercial industries beyond.

2.2 HISTORICAL LAND USE

A study of Ordnance Survey maps provided within the Landmark Envirocheck report (ref. 88327116_1_1 dated June 2016) has been undertaken to assess the former land uses, both on-site and in the surrounding area. A selection of historical maps is included in **Appendix C**.

In addition, a Pre-Desk Study Assessment by Zetica Limited (an unexploded ordnance specialist) has been obtained and is included in **Appendix C**.

Table 2.2 – Site History

Date	Onsite
1884	The site is shown predominantly as an agricultural field with an access track crossing the site from east to west. A disused railway is partially present at the north western boundary, although the land is likely to comprise open ground (as indicated on the 1946 aerial photograph), with no apparent infrastructure present within the site boundary.
1902	The railway is shown to have been re-activated, but is located off-site to the northwest.

Date	Onsite
1946	Historical aerial photography shows that the site is occupied by a warehouse building (covering approximately 30% of the site area) located in the east of the site, and approximately 20 other smaller buildings spread throughout the south, centre and north of the site. A pond is also shown in the north of the site area adjacent to the northwest of the main building.
1955	The site structures are labelled as 'government buildings' that are part of a wider facility.
1985	The pond is no longer shown and has been replaced with an extension to the main warehouse. Two tanks are also shown to the northwest of the depot extension. Some of the government buildings in the central, northern and southern areas of the site are demolished and are open un-labelled areas (assumed to be yard areas).
1994-2000	The warehouse has extended in the northwest of the site, the tanks to the northwest of the warehouse are no longer shown and one of the larger government buildings in the centre of the site appears demolished.
2006	Two of the three remaining government buildings are shown to be demolished in the south.
2016	During the course of the 2016 WSP investigations the centre and west of the site comprised a lorry loading / unloading area (for empty kegs), keg storage areas, a refuelling point (with tank) and lorry parking along the southwestern and north western boundaries. To the northeast of the lorry unloading area, a goods inwards yard was present with lorry parking bays to receive full kegs. A staff car park was present in the south of the site. The north and east of the site were predominantly occupied by two warehouse buildings, with keg storage in the northern warehouse, and palletised drinks (such as bottled products) in the eastern warehouse. Visitor car parking was present along the south eastern boundary of the site and a small storage yard was present along the north eastern boundary. A building situated in the south of the site, in the staff car park, was being used as a forklift maintenance area.

A summary of pertinent potentially contaminative land uses within 250m of the site is presented in **Table 2.3**. Dates referenced are those provided in the Envirocheck Report maps on which the features appear.

Table 2.3 – Pertinent Historical Surrounding Land Use within 250m

Surrounding Feature	Map Dates	Direction	Distance from Site
'Government Buildings' Then Commercial / Industrial Estate	1947 – 1990 1990 – Present	Southwest	Adjacent
'Government Buildings' Then Commercial / Industrial Estate	1947 – 1990 1990 – Present	Northeast	Adjacent
'Government Buildings' Then Commercial / Industrial Estate	1947 – 1990 1990 – Present	Southeast	50m
Railway Lines	1884 – Present	North	100m
Industrial Estate	1975 – Present	Northeast	150 to 250m

Surrounding Feature	Map Dates	Direction	Distance from Site
Railway Lines	1884 – Present	West	200m
Train parking area Then Morrison's Superstore	1903 – 2016 2016 – Present	Northwest	200m
'Government Buildings' *Then* Commercial Estate	1947 – 1975 1975 – Present	East	200 to 250m
Commercial Estate	1975 – Present	Southeast	200 to 250m
Locomotive Shed *Then* Depot	1903 – 1975 1975 – Present	Northwest	230m
Cemetery	1947 – Present	South	250m
Ambulance Station *Then* Commercial / Industrial Estate	1975 – 2006 2006 – Present	Southwest	250m
Wagon Works *Then* Engineering Works *Then* Avon Foundry *Then* Emlyn Works *Then* Trading Estate *Then* Residential Housing	1884 – 1903 1903 – 1924 1924 – 1955 1955 – 1990 1990 – 2000 2000 – Present	West	250m

2.3 UNEXPLODED ORDNANCE

A UXO Desk Study and Risk Assessment Report (Referenced P7336-17-R1, dated 29 November 2017) has been obtained for the site. The report states during World War II, the site was part of Royal Air Force (RAF) Barnwood, comprising permanent office buildings, shown to be present on site in 1947 and through to 1961. All operations ceased on the site in 1978. The site formed part of RAF Barnwood that was an administrative centre, tasked with collating, organising and archiving records. A large building was present on site, identified as a printing workshop and equipment store for His Majesty's Stationery Office.

The report states no records of bombing, military activity, or other UXO hazards have been identified for the site. No bomb damage was identified on site from historical photographs. As such the report considered the site to have a low UXO hazard level, as there is no positive evidence of UXO present on site, but their occurrence cannot be totally discounted.

3 REGULATORY INFORMATION AND CONSULTATION

3.1 REGULATORY DATABASE

A review of environmental data obtained from information databases in the Landmark Envirocheck Report (88327116_1_1) dated June 2016 was undertaken, and the results are presented in **Table 3.1** below.

Table 3.1 – Regulatory Database Summary

	0 – 249m	250 – 500m	Details
Integrated Pollution Controls / Pollution Prevention and Controls	1	0	Poeton (Gloucester) Limited hold an integrated pollution control (dated 2013) for surface treating of metals and plastics at a site location approximately 140m northeast.
Local Authority Pollution Prevention and Control (LAPPC)	2	5	The nearby Morrison's Superstore (located approximately 190m northwest of the site) holds two LAPPCs for dry cleaning processes and the sale / storage of petroleum products. Five further LAPPCs are located between approximately 270m and 465m southwest, west and northwest of the site for a range of processes including aggregate storage, vehicle repairs and a crematorium.
Pollution Incidents to Controlled Waters	12	5	A total of 12 pollution incidents are recorded between approximately 95m and 170m, east and northeast of the site. These incidents are classified as Category 3 – Minor, and dates range from 1995 to 1997. Incidents include storm sewage overflow, organic wastes, inert solids and oils. Pollution incidents further afield located between approximately 250m and 475m from the site relate primarily to sewage company overflows, inert solids from construction sites and litter. These are classified as Category 3 – Minor incidents.
Prosecutions relating to Authorised Processes	0	2	Two prosecutions for a site designated as 'Chase Lane' were recorded approximately 405m southwest of the site for treating a controlled waste without a license. Prosecutions are dated 2006 and 2007.
Substantiated Pollution Incident Register	4	1	Four incidents are located between approximately 205m and 235m north of the site, these are designated as air impact incidents and are not likely to affect the subject site. One incident is located approximately 380m southwest and involved vehicles and vehicle parts in 2006, and was classified as a Category 3 – Minor incident for soil impact.
Historical Landfill Sites	0	1	One historical landfill record is located approximately 290m southeast of the site. No further details are available within the Envirocheck Report.
Licensed Waste Management	0	7	Seven waste management sites are located between approximately 270m and 415m southwest and northwest of

	0 – 249m	250 – 500m	Details
Facilities			the site and relate to metal recycling, end of life vehicles, waste transfer stations and treatment facilities.
Potentially Infilled Land	0	4	Four areas of potentially infilled land are recorded between approximately 440m and 475m southwest of the site, infill dates range between 1938 and 1955. The purposes of these and the material excavated / deposited is unknown.
Registered Waste Transfer Sites	0	2	Two sites are located approximately 280m (northeast) and 350m (southwest) and relate to end of life vehicle recycling and transfer of waste.
Registered Waste Treatment or Disposal Sites	0	3	Three sites are located between approximately 310m and 410m southwest and northwest of the site, and relate to end of life vehicle recycling and aggregate processing.
Fuel Station Entries	1	0	An active fuel station is located approximately 190m northwest of the site at the nearby Morrison's superstore.

Other listed entries within the Envirocheck Report (related to contaminated land) are not identified or are listed as Revoked / Ceased / Obsolete and are therefore not considered to be relevant to the findings of this study.

The majority of items identified in the table above are located at a reasonable distance from the site, or the time elapsed since the incident or item occurred indicate that the majority have a low potential risk to the site. Items which may be of significance and will be considered further within this assessment include:

- Fuel station entry located 190m northwest;
- Use of dry cleaning chemicals 190m northwest; and,
- Various registered waste transfer, treatment and disposal facilities within 500m of the site.

3.2 CONSULTEES

3.2.1 LOCAL AUTHORITY CONTAMINATED LAND OFFICER

The Contaminated Land Officer (CLO) at Gloucester City Council were contacted as part of the 2016 ground investigation to determine whether the site is within the Council's contaminated land inspection strategy and whether the Council holds any pertinent information relevant to the site.

The CLO responded on 13 July 2016 and stated the following:

- "*The site and surrounding areas are not classified as Contaminated Land under Part 2A of the Environmental Protection Act 1990;*
- *The subject site has been identified as a site of potential concern under the Council's Contaminated Land Inspection Strategy due to historical use as 'MOD Offices' (Government Buildings) reference PCL_471. The site has been allocated a Low priority;*
- *There is no record of landfill or mineral extraction on or in the near vicinity of the subject site;*
- *No records of pollution incidents have been identified on, or in the vicinity of the site; and,*
- *No information has been identified relating to environmentally sensitive areas in the near vicinity of the site*."

Whilst the comments made by the CLO above were from the 2016 ground investigation phase, it is considered unlikely that their position on the site as changed since.

3.2.2 ENVIRONMENT AGENCY FLOODING DATA

The Environment Agency website indicates the majority of the site is located within Flood Zone 1, where the chance of flooding is defined as 1 in a 1000 (or <0.1%) in a given year.

The north eastern area of the site (between the warehouse building and the site boundary fence) is partially located within Flood Zones 2 and 3, where the chance of flooding is defined as between 1 in 100 and 1 in 1,000 (0.5% - 0.1%) and more than 1 in 100 (>1%) in any given year. This is likely to be associated with the nearby unnamed drain and Wotton Brook, as well as lower lying land to the northeast of the site.

The Environment Agency surface water flood maps indicate that the peripheries of the main warehouse building (particularly the current goods inwards area) have a 'Low' to 'High' chance of surface water flooding. The remainder of the site is not indicated by the Environment Agency to be at risk of surface water flooding. It should be noted that this review and summary of existing information does not constitute a formal flood risk assessment.

3.2.3 PUBLIC HEALTH ENGLAND – RADON

According to the Public Health England website (accessed 09 April 2018), the site is located within an area where less than 1% of homes are above the Action Level for Radon. Therefore, radon protection measures are considered unlikely to be required for the proposed development.

3.2.4 COAL AUTHORITY

The Coal Authority website was accessed on 09 April 2018 and the site is not located within a Coal Authority designated mining area; as such, risks are considered to the site from coal mining are considered to be low.

4 ENVIRONMENTAL SETTING

4.1 HYDROLOGY

A summary of surface water features within 500m of the site is presented in **Table 4.1**.

Table 4.1 – Summary of Hydrological Features within 500m

Surface Water Feature	Ecological Quality*	Chemical Quality*	Distance	Direction
Un-named drainage ditch	N/A	N/A	90m	Northeast
Wotton Brook	Moderate	Good	160m	Northeast

** - Chemical and ecological water quality according to the Environment Agency Catchment Data Explorer; N/A = Not Assessed*

The Wotton Brook to the northeast of the site flows towards the northwest (varying between culverted sections and open channel), joining the River Severn at a confluence approximately 3.5km northwest of the site.

The un-named drainage ditch located 90m northeast also alternates between culverted and open channel sections, and flows northwest. The drainage ditch joins the Wotton Brook approximately 160m northeast of the site. As the un-named drainage ditch has a connection to the Wotton Brook within close proximity to the site, it is likely that a direct potential linkage for potential contaminants entering the ditch to the Wotton Brook is present.

No recorded surface water abstractions or likely discharge consents are present within 500m of the site.

4.2 GEOLOGY AND HYDROGEOLOGY

British Geological Survey (BGS) map Sheet 234, Gloucester, 1:50,000, Solid & Drift edition (1975), and online BGS published geological data (www.bgs.ac.uk) shows the geological sequence (presented in **Table 4.2**) to underlie the site and immediate surrounds.

Table 4.2 – Summary of Anticipated Geological Strata

Group	Unit and description	Aquifer Status
Superficial Deposits	**Alluvium** *'Normally soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel. A stronger, desiccated surface zone may be present.'*	Secondary (A) Aquifer
Bedrock	**Blue Lias Formation and Charmouth Mudstone Formation (Undifferentiated)** *'Dark grey laminated shales, and dark, pale and bluish grey mudstones; locally concretionary and tabular limestone beds; abundant argillaceous limestone, phosphatic or ironstone (sideritic mudstone) nodules in some areas'*	Secondary (Undifferentiated) Aquifer

Alluvium is not indicated to be present on-site, but is mapped as present to the northeast of the site along the line of the Wotton Brook. The brook is fed by a number of smaller un-named drainage ditches (such as the one 90m northeast), it is considered likely that deposits of Alluvium are present further afield than the mapping suggests, and may therefore be present beneath the site.

A cluster of five BGS historical borehole logs are located approximately 160m northeast of the site (designated SO81NE8/A to SO81NE8/E, as presented in **Appendix C**). The boreholes indicate a generalised sequence comprising topsoil, overlying yellowish brown clay, which in turn overlies stiff to hard dark grey clay. These

descriptions appear to correspond to Alluvium and the Blue Lias and Charmouth Mudstone Formation respectively.

One groundwater abstraction is recorded within 1km of the site. The abstraction is for cooking sanitary and washing and is located approximately 490m to west of the site. Based on BGS geological mapping, the abstraction is likely to be from the Cheltenham Sand and Gravel which is not mapped in the vicinity of the site. Based on this and the flow direction of local surface water features, it is considered likely that this abstraction is located up-hydraulic gradient of the site.

The site is not within a groundwater Source Protection Zone (SPZ).

4.3 ECOLOGY

The Multi-Agency Geographical Information for the Countryside (MAGIC) website was accessed on 09 April 2018 to determine potential ecological constraints for the site.

No statutory or non-statutory ecological designations were identified within 500m of the site.

5 PRELIMINARY CONCEPTUAL SITE MODEL

Table 5.1 – Relevant Sources and Receptors

	Sources	Potential Contaminants of concern	Receptors	Pathways
On site	Made Ground	Metals, PAH, TPH, asbestos	**Human Health** – current and future site users, construction and maintenance workers. Adjacent site users. **Controlled Waters** - underlying aquifers within the Alluvium (Secondary A Aquifer) and Blue Lias and Charmouth Mudstone (Secondary Undifferentiated Aquifer). **Buildings and infrastructure** – existing buildings, infrastructure such as plastic drainage pipes and below ground concrete. **Third Party Land** – Adjacent commercial properties.	**Direct contact** with shallow soils, dust and groundwater; ingestion and inhalation of soil bound contaminated dust and fibres; and inhalation of ground gas or volatile vapours. **Leaching** of contamination into groundwater from soil followed by the lateral migration of contamination in permeable strata (Made Ground and Alluvium) off-site towards surface water features. **Vertical migration** of contamination in groundwater from the superficial deposits into underlying Alluvium and Blue Lias and Charmouth Mudstone Formation aquifers. **Ingestion and gas accumulation** via cracked slab or service entry point and explosion, and permeation of contamination into water pipelines. **Migration** of contamination via groundwater or migration of ground gas onto adjacent sites via permeable Made Ground or within the underlying Alluvium.
		Ground gas		
	Alluvium	Ground gas		
	Former areas of bulk fuel and chemical storage	TPH, PAH, SVOCs and VOCs		
	Electrical Substation	TPH and PCBs		
	Former infilled pond and areas of potential backfilling following demolition of previous structures on site	Ground Gas		
		Metals , PAH, TPH and asbestos		
Offsite	Potential contamination from offsite neighbouring industries (current and historical) including former RAF facilities	Metals, TPH, PAH, SVOCs and VOC		

6 GROUND INVESTIGATION

6.1 INVESTIGATION RATIONALE

The ground investigation was designed to target environmental areas of concern associated with the potential pollutant linkages considered in **Section 5**, and provide general coverage for ground conditions characterisation purposes in the remainder of the site. Additionally, investigation across areas of the site previously inaccessible when the site was operational was completed. A summary of the techniques and the investigation rationale used is presented below in **Table 6.1**.

Table 6.1 – Summary of Fieldworks and Rationale

Method	Number	Depth (m bgl)	Rationale
Cable Percussion Borehole	5 (2016)	6.40 to 7.40	General site coverage, characterisation of deeper ground conditions and assessment of groundwater in the underlying Blue Lias and Charmouth Mudstone Formation. Also in-situ standard penetrations tests, collection of bulk and un-disturbed samples and the installation of deeper ground gas and groundwater monitoring wells.
	4 (2018)	8.45	
Windowless Sampler Borehole	12 (2016)	0.46 to 4.60	General site coverage, specific assessment of ground conditions around existing diesel tank, to target former RAF buildings and the pond, allow the collection of environmental samples and the installation of shallow groundwater and ground gas monitoring wells.
	10 (2018)	5.45	
Trial Pitting	6 (2018)	2.20	Establish the presence or otherwise of relic foundations from the former RAF buildings and assess potential contamination within the Made Ground.
Hand Pit	2 (2018)	1.20	Allow collection of environmental samples around the decommissioned diesel tank.
Plate Test Trial Pits	5 (2018)	1.00	Trial pits were excavated to perform plate testing to provide California Bearing Ratio values to inform pavement design.

An exploratory hole plan is presented as **Drawing 70020138-002** in **Appendix B** and the exploratory hole logs from all phases of investigation are presented in **Appendix D**.

Constraints encountered on the site during the course of this investigation included:

- Locations WS106, WS107 and HP101 were terminated on shallow ground obstructions.
- Access to the external areas to the north of the site (in the area of the former caustic soda store and electrical substation) were limited by the presence of a publically accessible area informally used for car parking.
- Locations WS02 and WS11 were terminated on shallow obstructions at 0.50m bgl and 0.8m bgl respectively, as the obstructions could not be discounted as potential utilities.

6.2 GROUND GAS AND GROUNDWATER MONITORING

Details of ground and groundwater conditions, in-situ testing and well installation details are included in the exploratory hole records presented in **Appendix D**. A summary of the monitoring wells installed in selected boreholes is presented in **Table E.1** within **Appendix E**. Ground gas and groundwater monitoring was undertaken on four occasions between 14 June and 13 July 2016 and two occasions between 21 February and 13 March 2018.

During monitoring visits, groundwater elevation and the potential presence of Light Non-Aqueous Phase Liquid (LNAPL) / Dense Non-Aqueous Phase Liquid (DNAPL) were monitored using an electrical interface meter. Groundwater samples were obtained using low flow techniques with a peristaltic pump and multi-parameter monitoring meter. Ground gas monitoring results are included in **Appendix F**.

6.3 LABORATORY ANALYSIS

The chemical and geotechnical laboratory analysis undertaken as part of both phases of ground investigation (2016 and 2018) are summarised in **Tables 6.2 and 6.3** below:

Table 6.2 – Summary of Chemical Laboratory Analysis

Analyte	Number of Tests					
	Soil		Leachate		Groundwater	
	2016	2018	2016	2018	2016	2018
Metals Suite	17	14	9	4	6	3
Total Cyanide	20	14	5	4	6	3
pH	22	14	-	-	6	3
Sulphate	11	4	-	-		3
Polycyclic Hydrocarbon Suite (PAH)	26	16	-	-	6	4
Speciated Total Petroleum Hydrocarbon (TPHCWG) Suite	26	19	-	-	6	4
Hexavalent Chromium	20	14	-	-	6	3
Chloride	-	4	-	-	-	-
Volatile Organic Compound Suite (VOC)	14	2	-	-	6	-
Semi Volatile Organic Compound Suite (SVOC)	15	2	-	-	6	-
Asbestos Screen	17	15	-	-	-	-

Table 6.3 – Summary of Geotechnical Laboratory Analysis

Analyte	Number of Tests	
	2016	2018
Moisture Content	8	13
California Bearing Ratio (CBR)	-	2
One Dimensional Consolidation	2	2
Compaction	-	3
Plasticity (Atterberg Limit*)	8	13
Particle Size Distribution (PSD)	6	8

Analyte	Number of Tests	
	2016	2018
Sedimentation	4	8
Triaxial Effective Stress (Multi-stage)	1	3

7 GROUND MODEL

7.1 GROUND CONDITIONS

A summary of the strata encountered is presented in **Table 7.1** below.

Representative cross sections are included as **Drawings 70010138-003**, **70020138-004** and **70020138-005**.

Table 7.1 - Summary of Strata Encountered

Stratum Name	Typical Description	Depth to Base (m bgl)	Elevation of Base of Stratum (m AOD)	Thickness (m)	Distribution
Concrete/ Asphalt	Concrete/ Asphalt	0.10 to 0.53	24.39 to 21.66	0.11 to 0.60	Site Wide
Granular Sub Base	Light pinkish grey fine and medium angular GRAVEL of limestone.	0.23 to 2.00*	24.19 to 20.61 *20.37	0.11 to 1.12 1.90*	Greater thicknesses of sub-base were encountered in locations WS06 (1.0m), WS10 (1.12m), BH05 (0.6m), BH102 (1.1m), WS108 (0.68m) and WS109 (0.87m). Sub-base was absent in WS04 where concrete was directly underlain by cohesive Made Ground.
Made Ground	Soft dark brown slightly sandy slightly gravelly CLAY. Gravel is fine angular to sub-rounded of quartz and limestone fragments. Occasional re-bar and steel cable fragments encountered. Brownish yellow slightly gravelly slightly sandy CLAY. Gravel is fine to coarse sub-angular of sandstone and brick. Orangish brown slightly clayey slightly gravelly fine to coarse SAND. Gravel is fine and medium angular of brick, concrete and sandstone.	0.20 to 2.11	23.49 to 20.38	0.20 to 1.55	Made Ground was encountered across the site; most typically with Granular Made Ground overlying Cohesive Made Ground. A plot showing thickness of Made Ground is included as **Drawing 70020138-006**.
Alluvium	Soft to firm yellowish brown slightly sandy slightly	1.20 to 3.40	23.04 to 19.84	0.45 to	Alluvium was encountered in BH01-05

Stratum Name	Typical Description	Depth to Base (m bgl)	Elevation of Base of Stratum (m AOD)	Thickness (m)	Distribution
	gravelly CLAY. Gravel is fine of flint, sandstone and mudstone with occasional coal.			2.50	BH103, TP204, WS07, WS12 and WS103. Predominantly in the southern portion of the site.
Blue Lias and Charmouth Mudstone Formation*	Stiff bluish grey slightly sandy, slightly gravelly silty CLAY. Gravel of fine angular mudstone. Sand is fine to medium.	Not proven (8.38)	Not proven (14.01)	Not fully penetrated (7.08)	Blue Lias and Charmouth Mudstone Formation was encountered in all exploratory holes, with the exception of WS106, WS107 and HP101 and HP102 which terminated in Made Ground. A plot showing the depth to top of Blue Lias and Charmouth Mudstone Formation is included as **Drawing 70020138-007**.

Brackets indicate maximum unproven depth and thickness

7.2 GROUNDWATER CONDITIONS

7.2.1 GROUNDWATER STRIKES

Groundwater strikes encountered during the course of this investigation are presented in **Table E.2** in **Appendix E**.

In summary, groundwater strikes were encountered at two locations (BH01 and WS12) in the southwest and northwest of the site within Alluvium at 0.70 and 1.30m bgl (23.34 and 23.69m AOD) and at three locations (WS07, WS10 and WS106) in granular Made Ground between 0.50 and 1.70m bgl (20.78 and 24.07m AOD). Groundwater strikes encountered in Made Ground are likely to represent perched and discontinuous groundwater.

Three groundwater strikes were encountered in the underlying Blue Lias and Charmouth Mudstone Formation in BH03, WS101 and WS109 at depths of 2.30m bgl and 3.00m bgl (19.80m AOD and 22.10m AOD).

7.2.2 MONITORED GROUNDWATER ELEVATIONS AND FLOW DIRECTION

A summary of groundwater elevations recorded during both the 2016 and 2018 groundwater and ground gas monitoring periods are presented in **Table E.3** in **Appendix E**. A representative groundwater elevation plot is included as **Drawing 70020138-008**.

Monitored groundwater elevations within monitoring wells installed in Made Ground were between 0.4 and 1.55m bgl (20.94m and 24.00m AOD). Groundwater was recorded within monitoring wells installed in Alluvium between 0.96m bgl and 5.78m bgl (21.90m AOD and 22.30m AOD). Monitored groundwater elevations within the Blue Lias and Charmouth Mudstone Formation varied between 0.01 and 7.36m bgl (15.25m and 24.25m AOD). Whilst groundwater was recorded close to ground level in some boreholes, this is not considered representative of the underlying groundwater table but flooded monitoring installations located in low permeability clay.

The monitoring results indicate that perched groundwater is likely present within Made Ground, with a deeper groundwater body present within the underlying Blue Lias and Charmouth Mudstone Formation. Downward migration of perched groundwater in Made Ground is possible, but considered unlikely to be readily occurring based on the generally cohesive Alluvium and Blue Lias and Charmouth Mudstone Formation.

The groundwater elevations recorded indicate that groundwater flow within the Blue Lias and Charmouth Mudstone Formation is to the northeast, towards the nearest surface water feature and in line with the surface profile of the bedrock.

7.3 RECORDED OBSERVATIONS

7.3.1 CONTAMINATION OBSERVATIONS

Contamination observations were recorded in location WS10 and TP106.

Hydrocarbon odours and staining were noted at depths of between 0.8 and 1.3m bgl in granular Made Ground at location WS10. It is considered likely that the contamination observation is linked to the adjacent former diesel AST (removed following the 2016 ground investigation phase).

Sulphurous odours were noted in TP106 between 0.60 and 1.3m bgl, within Cohesive Made Ground.

7.3.2 RECORDED OBSTRUCTIONS

Shallow obstructions (not likely to associated with bedrock) during the 2016 ground investigation phase were encountered in exploratory locations WS02 (potential buried concrete floor slab) and WS11 (potential buried utility) which prevented further drilling.

During the 2018 ground investigation, obstructions were encountered in locations WS106 (2.10m bgl) and WS107 (0.63m bgl) within the backfilled pond area. The obstructions (where visible) were noted to comprise sandstone blocks used as backfill within the pond area. Location HP101 recorded an obstruction (potentially a buried utility) in Made Ground at 0.44m bgl, and was terminated.

In the staff car parking area in the south of the site, a hole in the asphalt surfacing was noted, which had exposed an underlying brick surface, it is not clear whether this was an isolated find or representative of a wider feature with similar underlying obstructions in the south of the site.

Historical aerial photography indicates that the staff car park is over the location of a former structure, but that exploratory hole location WS02 is within soft landscaping. Therefore, the obstructions in the staff car park appear to relate to former buildings whereas the obstruction beneath location WS02 is of unknown origin.

It is possible that further shallow obstructions may be present throughout the central, western and southern areas of the site where former building footprints are present.

8 GENERIC QUANTITATIVE RISK ASSESSMENT

8.1 HUMAN HEALTH

To assess the analytical soil data for the site, Soil Guideline Values (SGV) and CLEA compliant risk based Generic Assessment Criteria (GAC) have been selected based on a future commercial and industrial land use assuming 1% soil organic matter (SOM) content, in line with recorded site SOM concentrations. Chemical laboratory data and screening sheets are included within **Appendix G**.

A concentration of lead of 13,300mg/kg was recorded in 2016 in WS05 at 0.65m bgl, which is in excess of the current GAC (1,390mg/kg). No obvious source for the lead was noted in the Made Ground other than metal fragments. During the 2018 ground investigation, trial pit TP106 was located adjacent to WS05 in order to further characterise Made Ground in this area. No obvious source of lead was noted in the Made Ground which was a mixture of sand with brick fragments similar to that recorded in WS05, overlying cohesive fill containing brick fragments and bricks. The recorded concentration of lead in the sample obtained from TP106 at 0.6m bgl was 73.5mg/kg, which is below the applied GAC.

The proposed development layout referenced in this assessment indicates that the area around TP106 and WS05 to be beneath a proposed access road from Chancel Close. The presence of hardstanding will break potential pathways for human contact and reduce the risk associated with the single elevated lead concentration recorded.

Made Ground samples were screened for the presence of asbestos by the laboratory. Of the 32 samples analysed, one sample recorded the presence of asbestos containing materials (WS103 at 0.25m bgl), in which chrysotile (white) asbestos was identified. Windowless sampler borehole WS105 is located beneath a proposed building footprint, and the presence of hardstanding will limit the potential for human exposure post development. However, controls will be required during construction to be protective of human health.

8.2 CONTROLLED WATERS

8.2.1 ASSESSMENT CRITERIA

Laboratory results for soil leachate and groundwater analysis have been compared to appropriate Water Quality Standards (WQS), where available, comprising:

- UK Drinking Water Quality Standards (UKDWS) from The Water Supply (Water Quality) Regulations 2000 (amended 2004).
- Environmental Quality Standards (EQS) from The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.
- CL:AIRE 'Petroleum Hydrocarbons in Groundwater: Guidance on assessing petroleum hydrocarbons using existing hydrogeological risk assessment methodologies' v1.1 March 2017.
- European Commission Drinking Water Directive 1998.
- World Health Organisation Petroleum Products in Drinking Water (2008) (WHO 2008).
- World Health Organisation Guidelines for Drinking Water Quality 2017.

Laboratory data and data screening sheets are included in **Appendix G**.

8.2.2 SOIL LEACHATE RESULTS

A total of nine soil samples were subject leachate analysis for a suite of metals and cyanide. The sample from WS04 at 0.3m bgl recorded a total chromium concentration of 4.84µg/l compared to a WQS of 4.70µg/l. The exceeding concentration is considered to be marginal, and total chromium was not recorded at an elevated concentration in the soil analytical results.

Copper recorded in samples from BH01, BH02, BH04, TP106 and WS04 at a maximum concentration of 2.23µg/l, and lead in samples from BH01 and TP106 at a maximum concentration of 2.41µg/l exceeding EQS. Both EQS for lead and copper are 1µg/l, and given that the concentrations only marginally exceed the assessment criteria, no further assessment is considered necessary.

The recorded concentrations of inorganic contaminants are not considered indicative of a contamination source that may represent a potential risk to controlled waters. The site will also be covered by hardstanding with hard drainage installed, limiting the potential for contaminant leaching.

8.2.3 GROUNDWATER RESULTS

A summary of the recorded concentrations exceeding the WQS is presented in **Table E.6** in **Appendix E**.

8.2.3.1 INORGANIC CONTAMINATION

Concentrations of arsenic, nickel, copper, lead, chromium, mercury, sulphate and selenium exceeding the applied criteria were recorded in groundwater samples obtained during the 2016 and 2018 ground investigations. Whilst potential sources of inorganic contamination from historical and current land use have been identified on the site, concentrations of inorganic contamination recorded in groundwater are generally low.

Concentrations of sulphate and selenium do not appear to relate to direct source of contamination on site, and may be attributable to naturally occurring concentrations in the underlying mudstone or off-site sources.

Recorded total and leachable concentrations of arsenic or nickel were low, indicating site soils are unlikely to be the source of the low level impact recorded in groundwater. In addition, concentrations of arsenic recorded are above the WQS for drinking water (but not in excess of the EQS relating to surface water quality) and the aquifer beneath the site is unlikely to be an important drinking water extraction due to the likely low yields.

Recorded concentrations of copper, lead, chromium and mercury are marginally above the most sensitive bioavailable EQS, but are within the same order of magnitude as their respective assessment criteria. The concentrations are considered to be typical of an industrial site of this nature, and are unlikely to represent an impact to surface water features at a distance of approximately 90m.

As such, the concentrations of inorganic contamination at the site are considered to represent a low risk to controlled waters.

8.2.3.2 ORGANIC CONTAMINATION

A sample of perched groundwater taken in 2016 from location WS10 (in proximity to the former diesel AST) recorded elevated concentrations of TPH (up to 45,800µg/l), which may have represented a potential risk to controlled waters receptors and human health. However, following removal of the diesel AST by the tenant, a contemporary sample was obtained from WS10 during the 2018 ground investigation and the sample did not contain an elevated concentration of TPH (49µg/l).

It is considered likely that the perched groundwater around the tank has been diluted and/or flushed by rainwater ingress following removal of the tank. Although it is possible that residual concentrations of TPH may remain in perched water below the concrete hardstanding, no current requirement for remediation of perched groundwater has been established. Diligence should be maintained during the construction works with any observations of potential contamination (in soil or groundwater) reported for further assessment.

Samples from remaining borehole locations were obtained from monitoring wells with the screened interval present in the underlying Blue Lias and Charmouth Mudstone Formation. Relatively low concentrations of selected PAH compounds were recorded above the WQS in BH02 and WS03. With the exception of the concentration of benzo(b)fluoranthene recorded in location BH02 (0.113µg/l against a WQS of 0.017µg/l), concentrations of PAH compounds in these locations only marginally exceed the WQS.

The concentration of total TPH in BH02 (75µg/l), WS03 (13µg/l) and WS10 (49µg/l) were only marginally above the Environment Agency WQS of 10µg/l. Samples recovered from monitoring wells installed as part of the 2018 ground investigation did not contain concentrations of TPH above the laboratory limit of detection.

The low concentrations of organic contaminants recorded indicate that there is not widespread contamination in groundwater beneath the site. Locations WS03 and BH02 are on the south-eastern edge of the site and based on the recorded groundwater flow direction, the potential source of the hydrocarbon contamination recorded in these locations may be off-site. The recorded contaminant concentrations are considered to represent a low risk to controlled waters off-site.

9 GROUND GAS RISK ASSESSMENT

9.1 ASSESSMENT METHODOLOGY

The ground investigation and risk assessment is undertaken in general accordance with the following guidance:

- CIRIA (2007) C665 – Assessing Risks Posed by Hazardous Gases to Buildings;
- BS 8576 (2013) Guidance on investigations for Ground Gas – Permanent Gases and Volatile Organic Compounds; and,
- BS 8485 (2015) Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings.

9.2 MONITORING RESULTS

Ground gas monitoring records are summarised in **Table E.4** within **Appendix E**, and are provided in full as **Appendix F**. A summary of the monitoring results carried out over both the 2016 and 2018 ground investigations is presented below:

- Atmospheric pressures ranged from 990mB to 1026mB during the course of the monitoring period, with monitoring visits undertaken during rising, stable and falling pressure conditions;
- Steady state gas flows were generally recorded as <0.1 l/hr, with the exception of WS01 on Visit 1 which recorded a steady state flow of 5.3l/hr;
- Carbon dioxide was detected in the majority of locations during the monitoring period, at steady state concentrations ranging between <0.1%v/v and 8.5%v/v (BH04 on Visit 2) but was typically <2%v/v;
- Methane was generally recorded as <0.1%v/v, with occasionally recorded concentrations up to 0.1%v/v;
- Oxygen concentrations generally ranged between 4.2 and 22.0%v/v;
- Volatile organic vapours were detected in the majority of locations, but concentrations did not exceed 10ppm;
- Carbon monoxide concentrations were recorded between the limit of detection (<1ppm) and 2ppm; and,
- Hydrogen sulphide concentrations were less than the limit of detection (<1ppm) in all locations.

9.3 SUITABILITY OF THE DATASET

In the context of the proposed commercial redevelopment and guidance documents CIRIA C665 and BS:8576, summary of the ground gas monitoring undertaken is presented in **Table 9.1**.

Table 9.1 - Ground Gas Data Requirements

Category	Ground Gas Generation Potential	Sensitivity of proposed use	CIRIA C665 Guidance	Output	Actions
Hole Spacing	Low	Low	Approximate hole spacing should be wide (50-75m)	The site is approximately 4.49 hectares indicating approximately eight monitoring points are recommended.	A total of 17 ground gas monitoring wells were installed.
Monitoring Period	Very Low	Low	Monitoring may not be necessary or should be over a two month period	Monitoring period should comprise a minimum of four visits over a two month period.	Boreholes were monitored on a total of six occasions over two separate monitoring periods.
Monitoring Frequency			Monitoring frequency should be four visits		

The table above demonstrates that the monitoring well spacing and the number of monitoring visits are in general accordance with guidance referenced in **Section 9.1**.

On all monitoring visits, groundwater levels were recorded above the screened interval in monitoring wells at BH03, WS03, WS04 and WS07 (summarised in **Table E-5** in **Appendix E**). In addition, monitoring wells BH01, BH02, BH04, WS01, WS06, WS101 and WS103 were flooded during part of the monitoring period.

High groundwater levels may impede the migration of ground gas into the monitoring well and often gives rise to falsely high gas flow rates and high concentrations of methane and / or carbon dioxide. Given that flooding of boreholes can interfere with monitoring results, high concentrations and flow rates have not been considered in the assessment below where they occur in flooded borehole locations. Where high values have been discounted the next highest value has been considered.

9.4 DATA INTERPRETATION

Based on the justification provided in **Section 9.3** above, the following values have been utilised for the assessment presented below:

- Maximum steady carbon dioxide concentration of 5.0%v/v (from BH04 on 14 June 2016);
- Maximum steady methane concentration of 0.1%v/v (from WS103 on 21 February 2018); and,
- Maximum recorded steady gas flow rate of 0.1l/hr (representing the limits of detection for the equipment used, and accounting for flows attributable to flooded wells).

The maximum calculated Gas Screening Values (GSVs) (gas concentration as fraction multiplied by the maximum-recorded flow) are as follows:

Table 9.2 - Ground Gas Risk Classification

	Carbon Dioxide	Methane	Flow
Max values (%v/v)	5.0	0.10	0.1
GSV based on Max Values (l/h)	0.025	0.02	-

The assessment of results and derivation of GSVs indicate a Characteristic Situation 1 - Very Low Risk, with no ground gas protection measures required.

Whilst it is recognised that a proportion of boreholes were flooded throughout the entirety of the monitoring period, the remaining monitoring locations recorded typically low ground gas concentrations and low flow rates. The underlying natural strata have a very low ground gas generation potential. As such, it is considered that the assessment presented is considered to be representative of the potential ground gas risks at the site.

10 REVISED CONCEPTUAL SITE MODEL

As a result of the GQRA, the preliminary conceptual model (**Section 4**) has been revised below in **Table 10.1**. The CSM considers the proposed redevelopment for continued use of site commercial use with extensive hardstanding surface cover.

Table 10.1 - Revised Conceptual Site Model

Sources	Contaminant of concern	Discernible Risk to Human Health?	Discernible risk to controlled waters?
Site Sources			
▪ Site wide Made Ground.	Metals, PAH, TPH and Asbestos	Asbestos containing materials in Made Ground around the locations of WS103 should be considered during construction works, proposed warehouse should break pathways post-development.	None assessed.
	Ground gas	None assessed.	Not applicable.
▪ Areas of bulk fuel and chemical storage from current on-site activities.	TPH, PAH, SVOCs and VOCs	None assessed.	Previous concentrations recorded in 2016 not recorded in 2018. Potential for isolated residual perched groundwater impact around the former above ground fuel tank.
▪ Electrical Substation.	TPH and PCB	No access to this area at the time of the ground investigation.	No access to this area at the time of the ground investigation.
▪ Former infilled pond and potential areas of backfilling following historical demolition.	Ground gas	None assessed.	Not applicable.
	Metals, PAH, TPH and Asbestos	None assessed.	None assessed.
Off-site Sources			
▪ Potential contamination from off-site sources including neighbouring industrial land use and historical RAF activities.	Metals, TPH, PAH, SVOC and VOC	None assessed.	None assessed

11 PRELIMINARY ENGINEERING ASSESSMENT

11.1 SCOPE AND OBJECTIVES

This section assesses the geotechnical ground conditions under the site and summarises potential ground risks.

11.2 GEOTECHNICAL PARAMETERS

The ground model is described in **Section 7**. A summary of the typical stratigraphy of the site comprises of:

- Granular Sub-base;
- Made Ground;
- Alluvium; and
- Weathered Blue Lias and Charmouth Mudstone Formation.

Geotechnical laboratory results are included in **Appendix H** with interpretive geotechnical data plots presented in **Appendix I**. Geotechnical parameters provided take consideration of all available data from the 2016 and 2018 Ground Investigations.

11.2.1 GRANULAR SUB-BASE

Granular sub-base material was typically recorded under a reinforced concrete / asphalt hardstanding. In exploratory holes WS06, WS10, WS108, WS109, BH05 and BH102 the sub-base was thicker (up to 1.12m) suggesting infilling of historic excavation (e.g. grubbed out foundations) and / or general ground raising and levelling of the site. CBR testing was carried out on the Sub-Base and this is discussed in **Section 11.6**.

A single SPT was carried out which returned a value of 9 at 1.2m bgl in WS10.

11.2.2 COHESIVE MADE GROUND

The Cohesive Made Ground was recorded in exploratory holes across the site at a thickness of between 0.20m to 1.55m. The exploratory hole logs suggest the cohesive Made Ground comprises reworked Alluvium. Based on the in-situ and laboratory testing, soil parameters are assumed in **Table 11.1**.

Table 11.1 - Parameters for Cohesive Made Ground

Parameter		Range (number of tests)	Characteristic Value	Comments
Unit Weight (kN/m²)		Not directly measured	18	BS8002:2015
SPT “N” Value		7-20 (4)	10	
Atterberg Limits	Plastic Limit (%)	22-23 (2)	22	
	Liquid Limit (%)	54-56 (2)	55	
	Plasticity Index	31-34 (2)	32	
	Natural Moisture Content (%)	25.7 – 26.4 (2)	26	
Internal Angle of Friction (°)		24	24	From Unmodified Plasticity Index (BS8002:2015)
Compaction	Max Dry Density (Mg/m^3)	1.72 (1)	1.72	
	Optimum MC (%)	19 (1)	19	

11.2.3 GRANULAR MADE GROUND

The Granular Made Ground was recorded in exploratory holes across the site at a thickness of between 0.11m to 1.12m. The exploratory hole logs suggest that the Granular Made Ground comprises a clayey, gravelly sand

with brick, concrete and sandstone. Based on the in-situ and laboratory testing, soil parameters are assumed in **Table 11.2**.

Table 11.2 - Parameters for Granular Made Ground

Parameter		Range (number of tests)	Characteristic Value	Comments
Unit Weight (kN/m²)		Not directly measured	21	BS8002:2015
SPT "N" Value		13-50 (2)	25	
Compaction	Max Dry Density (Mg/m^3)	1.69 (1)	1.69	
	Optimum MC (%)	13 (1)	13	

11.2.4 ALLUVIUM

Geological cross sections (**Drawings 70020138-003 to 70020138-005**) indicate that Alluvium was encountered in various boreholes across the site, though it is not a continuous stratum. Borehole BH05 recorded a 2.50m thickness of Alluvium which is significantly thicker than in other exploratory holes. However, the base elevation of the stratum in BH05 is similar to that recorded in other exploratory holes, and thinner alluvial deposits have likely been recorded elsewhere on site due to removal of Alluvium to create a level development platform, or replacement by Made Ground.

In-situ and laboratory testing, as outlined in **Section 6**, has allowed the derivation of the following parameters. Related geotechnical plots are presented in **Appendix I**. Based on the in-situ and laboratory testing, soil parameters are assumed in **Table 11.3**.

Table 11.3 - Parameters for Alluvium

Parameter		Range (number of tests)	Characteristic Value	Comments
Unit Weight (kN/m²)		Not directly measured	18	BS8002:2015
SPT "N" Value		8-21 (9)	10	
Atterberg Limits	Plastic Limit (%)	14-24 (7)	15	
	Liquid Limit (%)	34-65 (7)	50	
	Plasticity Index	20-41 (7)	30	
	Natural Moisture Content (%)	5.8 – 25.3 (7)	22	
Internal Angle of Friction (°)		Not directly measured	24	From Unmodified Plasticity Index (BS8002:2015)

11.2.5 BLUE LIAS AND CHARMOUTH MUDSTONE FORMATION

The Blue Lias and Charmouth Mudstone Formation underlie the whole site. The ground investigation only encountered the weathered upper section of the formation to a maximum proven thickness of 7.08m. A gradational transition to unweathered mudstone is expected below the depths investigated.

Geotechnical laboratory and in situ testing (outlined in **Section 6**) has allowed the derivation of the following parameters:

Table 11.4 Parameters for Blue Lias and Charmouth Mudstone Formation

Parameter	Range (number of tests)	Characteristic Value	Comments
Unit Weight (kN/m²)	Not directly measured	20	BS8002:2015
SPT "N" Value	4-55 (95)	Increases with depth	Uncorrected values.

Parameter		Range (number of tests)	Characteristic Value	Comments
				See design line on SPT vs depth plot (**Appendix I**)
Atterberg Limits	Plastic Limit (%)	18-28 (11)	23	Average value
	Liquid Limit (%)	48-69 (11)	58	
	Plasticity Index	27-45 (11)	36	
Internal Angle of Friction (°)		24	24	From Unmodified Plasticity Index (BS8002:2015)
Young modulus(E')(MPa)		Not directly measured	0.42 x N_{60}	From SPT "N" Value (Stroud 1989) N_{60} is variable
Undrained Shear Strength (Cu) (kPa)	Correlation	Not directly measured	4.2 x N_{60}	From SPT "N" Value (Stroud 1974) N_{60} is variable
	Unconsolidated Undrained Triaxial Test	40 – 68 (3)	50	Average of lower Cu value taken from each set of tests
Oedometer	Mv (m^2/MN)	0.018 - 0.16 (5)	Varies with load (see test certificate)	Pressure (kPa) 160 - 1280
		0.012 – 0.052 (5)		Pressure (kPa) 200 - 1600
	Cv (m^2/yr)	0.52 – 0.78	Varies with load (see test certificate)	Pressure (kPa) 160 - 1280
		0.35 – 2.40		Pressure (kPa) 200 - 1600

11.3 FOUNDATION SOLUTIONS

11.3.1 BUILDING FOUNDATIONS

The weathered Blue Lias and Charmouth Mudstone Formation is expected to be fairly incompressible, therefore are considered to be a suitable founding stratum for lightly loaded, low rise structures. The likely bearing capacity would be expected to be approximately 250kPa, assuming an undrained shear strength of approximately 50kPa. Spread foundations will be suitable but trench fill may be required where the depth of the overlying Made Ground lowers to the north.

The Made Ground and Alluvium are not suitable for founding on because they are highly variable, soft, compressible units of soil. They are unlikely to provide sufficient bearing capacity and are likely to undergo large and unpredictable settlement. Made Ground may be excavated and recompacted to an engineering specification depending on the required bearing capacity and settlement tolerances.

For heavy column loads foundation piles embedded into the unweathered mudstone of the Blue Lias and Charmouth Mudstone Formation would be expected to be suitable. The likely bearing capacity would be expected to be approximately 600kPa, assuming founding on extremely weak mudstone.

The modified plasticity index indicates that the weathered Blue Lias and Charmouth Mudstone Formation, as well as the Alluvium, has a medium to high volume change potential. This means that foundations should be placed at a minimum depth of 0.9m provided foundation is outside the zone of influence of trees, or a minimum depth of 1.25m with restricted new planting (NHBC, 2016).

If excavations extend below the groundwater table then ingress of groundwater may be an issue. Pumping techniques and/or shoring off the excavations may be required to control the groundwater level.

11.3.2 GROUND BEARING SLABS

Ground bearing floor slabs are a feasible solution in areas of fill provided the Made Ground and the softer Alluvium are removed prior to fill material being placed to a performance specification. The upper layers of the weathered Blue Lias and Charmouth Mudstone Formation may have been softened by weathering and may exhibit increased settlement which may cause problems for a ground bearing slab.

The geotechnical properties of the proposed formation layer should be determined to confirm they comply with the floor slab designer's requirements. As a minimum the formation is likely to require proof rolling and the provision of a sub-base of granular fill. Cohesive Made Ground may require some form of treatment to adjust moisture content and/or may require excavation and recompaction depending on the slab tolerance required.

Ground bearing slabs can be detrimentally affected by hard spots formed by buried obstructions. It is therefore important that all buried obstructions are removed to a depth of at least 1.5m below floor slab locations.

11.4 EARTHWORKS

Details of proposed earthworks have not been provided. The current topography of the site is in a series of level plateaus suggesting major earthworks are not expected. If proposed developments require larger flat plateaus then cut and fill earthworks could be used to level the site. Retaining walls could be required to retain the approximate 2m height difference across the site.

Should earthworks be required an earthworks specification will be required along with classification of site won materials to for re-use. The Granular Sub-base is expected to be suitable for re-use as engineered fill, subject to earthworks classification and validation. Excavations into the Blue Lias and Charmouth Mudstone Formation are also expected to yield material suitable for re-use. Alluvium is not expected to be suitable for re-use in earthworks.

If present at founding depth, Made Ground would need to be excavated and recompacted to an engineering specification as part of earthworks, or replaced with granular fill. Testing on Cohesive Made Ground shows that it is typically significantly wet of optimum with a natural moisture content of 26% and an optimum moisture content of 19%. The Cohesive Made Ground would need to be dried to be suitable for use as engineering fill.

Any soft material encountered should not be re-used as backfill beneath any planned structures, road pavements, hardstanding areas or other areas that may be sensitive to future settlement.

A historical pond has been identified within the footprint of a warehouse in the north of the site (as shown on **Drawing 70020138-001**). The material used and the quality of the infilling work has not been confirmed. It is recommended that infilled material is excavated and replaced with a suitable engineered fill material to prevent hard spots beneath the road and proposed DIY store.

Demolition of buildings in the southern section of the site is proposed. As part of the demolition works, grubbing out of the foundations should be undertaken to a depth of 1.5m below finished ground level. To refill the areas excavated as part of the grubbing out it is expected that demolition rubble can be sorted and crushed to produce a granular fill material. Such a material would be suitable to infill the grubbed out foundation excavations as well as use to infill excavations of Made Ground.

11.5 OBSTRUCTIONS

Prior to excavation, any utilities services are to be disconnected and removed under the footprints of the proposed areas of works.

Historical demolitions within the site area may have taken structures down to ground level and left foundations or decommissioned services in the ground. Limited evidence of former foundations has been recorded as part of the ground investigation, but some shallow obstructions were encountered locally. There is therefore potential for relic foundations to be encountered and these will require removal if beneath any proposed development footprints. Areas from which obstructions are removed from the ground may need to be infilled with suitable granular engineered fill material (e.g. sorted and crushed demolition rubble, see **Section 11.4**).

It is recommended that the upper 1.5m of the ground is turned over and re-compacted to identify any potential obstructions under proposed new structures.

11.6 PAVEMENT DESIGN

Indicative road layouts and areas of car parking have been provided, but were not fixed at the time of reporting.

CBR values of the Granular Sub-Base were determined from 5 No. plate bearing tests undertaken on site during the 2018 ground investigation. In addition 1 No. remoulded CBR was carried out in the laboratory on the sample from BH102 at 0.6m. A summary of CBR testing for the Sub-Base is given in **Table 11.4**.

Table 11.4: CBR results for Sub-Base

Test Type	Strata	CBR Value (%)		
		Max	Min	Characteristic Value
Plate Bearing	Crushed Rock and Fines (Sub-Base)	24.0	4.9	8
Remoulded	Slightly gravelly sandy silty clay[1] (Sub-base)	2.3	2.3	2.3

[1] Sample description differs from borehole log description

There is likely to be a variable quantity and type of material at formation level, the characteristic values in Table 11.4 above are therefore conservative estimates.

CBR testing was not undertaken for the weathered Blue Lias and Charmouth Mudstone Formation. Using the Highways England's IAN 73 (Table 5.1) an equilibrium CBR value of 2.5% can be derived using the characteristic plasticity index.

Any roads on site should be constructed in accordance with the Design Manual for Roads and Bridges (DMRB) Volume 4, Section 1, Part 1 (HA44/91), and Volume 7, Section 2, Part 2 (HD25/94). Further ground investigation should include CBR testing once founding levels and layouts for the roads are fixed, in order to assist in the design of roads. If CBR tests are found to be lower than proposed (i.e. soft spots are found on site) the material in the area should be excavated and replaced with suitable engineered fill.

Particular care should be taken to avoid excessive trafficking in areas of proposed pavement, and pavements should be constructed soon after excavation in order to limit deterioration and softening of the formation.

11.7 CHEMICAL ATTACK ON BURIED CONCRETE

Laboratory testing undertaken on the Blue Lias and Charmouth Mudstone Formation has been used to derive a Design Sulphate Class and an ACEC Class. As the stratum contains pyrite and it may be disturbed during foundation construction, the additional steps 6 to 8 in Section C5.1.2 of CIRIA Special Digest 1 have been carried out as well as using Table C2, to derive the classification of Design Sulphate Class DS-2 and ACEC Class AC-2.

The Design Sulphate class of Made Ground is DS-1 and ACEC Class AC-1. No sulphate testing was carried out on the Alluvium.

11.8 GEOTECHNICAL RISK REGISTER

A preliminary geotechnical risk register is included in **Table 11.3** identifying geotechnical hazards and risks associated with the site. The risks have been rated using a simple rating for probability and impact of 1 to 5, where 1 represents a negligible probability / impact and 5 being a very high probability / impact. The risk rating has been calculated by multiplying the probability and impact.

Table 11.5: Geotechnical Risk Register

Risks	Consequence	Control Measures	Probability	Impact	Risk Rating
Presence of unexpected Alluvium below proposed foundations.	Excessive foundation settlement and potential bearing capacity failure.	The Alluvium is not considered to be suitable as founding stratum. Foundation excavations encountering Alluvium should over excavate the Alluvium and replace it with engineered fill.	3	2	6
Buried obstructions under foundations.	Additional work to remove obstructions and refill any additional excavations.	Turning over and compaction of the top 1 to 2m of ground under historical building footprints should identify and remove any obstructions efficiently.	2	3	6
In situ CBRs lower than expected.	Additional thickness of sub-base required for pavement design.	In situ CBR tests should be undertaken in areas of proposed pavement to confirm equilibrium CBR determined from plasticity index.	2	2	4
UXO encountered during construction.	Risk to construction workers, members of the public and structures Delays to construction programme.	An unexploded ordnance assessment should be carried out by a specialist consultant.	1	4	4
Encountering buried services during construction.	Risk to construction workers. Delays to construction programme.	Obtain buried services plans for the area and arrange service diversions, wayleaves or avoid services as necessary.	1	3	3
Unforeseen ground conditions due to lack of GI coverage due to lack of access during works.	Design changes resulting in additional cost / time.	Further ground investigation once access to areas is possible to confirm ground conditions.	2	3	6
Soft spots in the Alluvium / Made Ground.	Differential settlement in structures and pavements.	Over excavate and re fill soft spots. Make allowance for soft spots in foundation and pavement design.	3	2	6
Relic shear surfaces in the weathered Blue Lias Formation.	Failure of slopes / foundations due to movement along relic shear surfaces.	In the event that cut slopes are incorporated into the development, further investigation will be required to assess if there are shear surfaces present. Slope stability design for cut slopes on site.	2	2	4
Perched ground water in the Made Ground / granular sub-base.	Water ingress into excavation resulting in excavation instability	Inflow is expected to be encountered and mitigated by the use temporary sumps and associated pumping.	3	1	4

12 CONCLUSIONS AND RECOMMENDATIONS

12.1 INTRODUCTION

This report provides a revised ground model, Generic Quantitative Risk Assessments and revised conceptual site model based on the findings of the 2016 and 2018 ground investigations carried out across the site. The available information has been used to assess potential environmental constraints and preliminary geotechnical considerations for the redevelopment for continued use of the site for a commercial land use.

12.2 GEO-ENVIRONMENTAL CONSIDERATIONS

The ground investigation across accessible parts of the site has recorded asbestos containing materials in Made Ground at WS103, which will require management during construction via safe systems of work. Should the development proceed as per the current masterplan, potential human health pathways to the potential asbestos will be broken by hardstanding. No other potential pollutant linkages for human health have been recorded.

Impacted perched groundwater was recorded surrounding the former diesel tank recorded in 2016. Results from the 2018 ground investigation did not record any TPH impact at the same location and it is conjectured that perched impacted groundwater has been flushed and/or diluted by rainwater ingress since the fuel tank was removed by the tenant. It is considered possible that some locally impacted soils and possibly perched groundwater may be present below the former tank location. It would be prudent to include some allowance for soils removal and off-site disposal should also be made within the project budget. This is considered to be the responsibility of the former tenant.

The area surrounding the substation and former caustic soda store were not accessible for ground investigation, and some shallow soil sampling to validate soils beneath these features will be required post demolition. Although localised contamination may be present associated with these features, the presence of low permeability geology beneath the site should reduce the risk of contaminant migration, and thus potential liability, which is also indicated by the absence of widespread groundwater impact.

12.3 GEOTECHNICAL CONSIDERATIONS

The following typical stratigraphy has been identified within the site:

- Granular Sub-base;
- Made Ground;
- Alluvium, and;
- Weathered Blue Lias and Charmouth Mudstone Formation.

Spread foundations in the weathered Blue Lias and Charmouth Mudstone Formation are expected to be suitable to support lightly loaded, low rise structures. Heavier or more settlement sensitive structures are likely to require pile foundations founding in the unweathered Blue Lias and Charmouth Mudstone Formation.

A risk of obstructions in the form of relic building foundations has been identified which can be addressed by turning over a 1.5m deep layer of ground under proposed building footprints. This could be carried out as part of any demolition works.

The backfilled pond contains deep uncompacted Made Ground and has not been proven to full depth. Made Ground within the former pond may need to be excavated and replaced with suitable engineered material if buildings or structures are to be located above the pond, and to prevent hard spots beneath roads and pavements.

Compaction of the Made Ground may be necessary to support ground bearing slabs, depending on the suitability of the material. Made Ground present at founding depth will need to be excavated and recompacted, or replaced with engineered fill. It is noted that cohesive Made Ground is generally wet of optimum and will need to be dried prior to placement during earthworks.

The strength of the Alluvium is expected to vary around the site, hence it is not considered to be suitable as founding stratum. Foundation excavations encountering Alluvium should over excavate the Alluvium and replace it with engineered fill.

Appendix A

DRAWINGS

When printed correctly, at A1, this line will measure 75mm at full size

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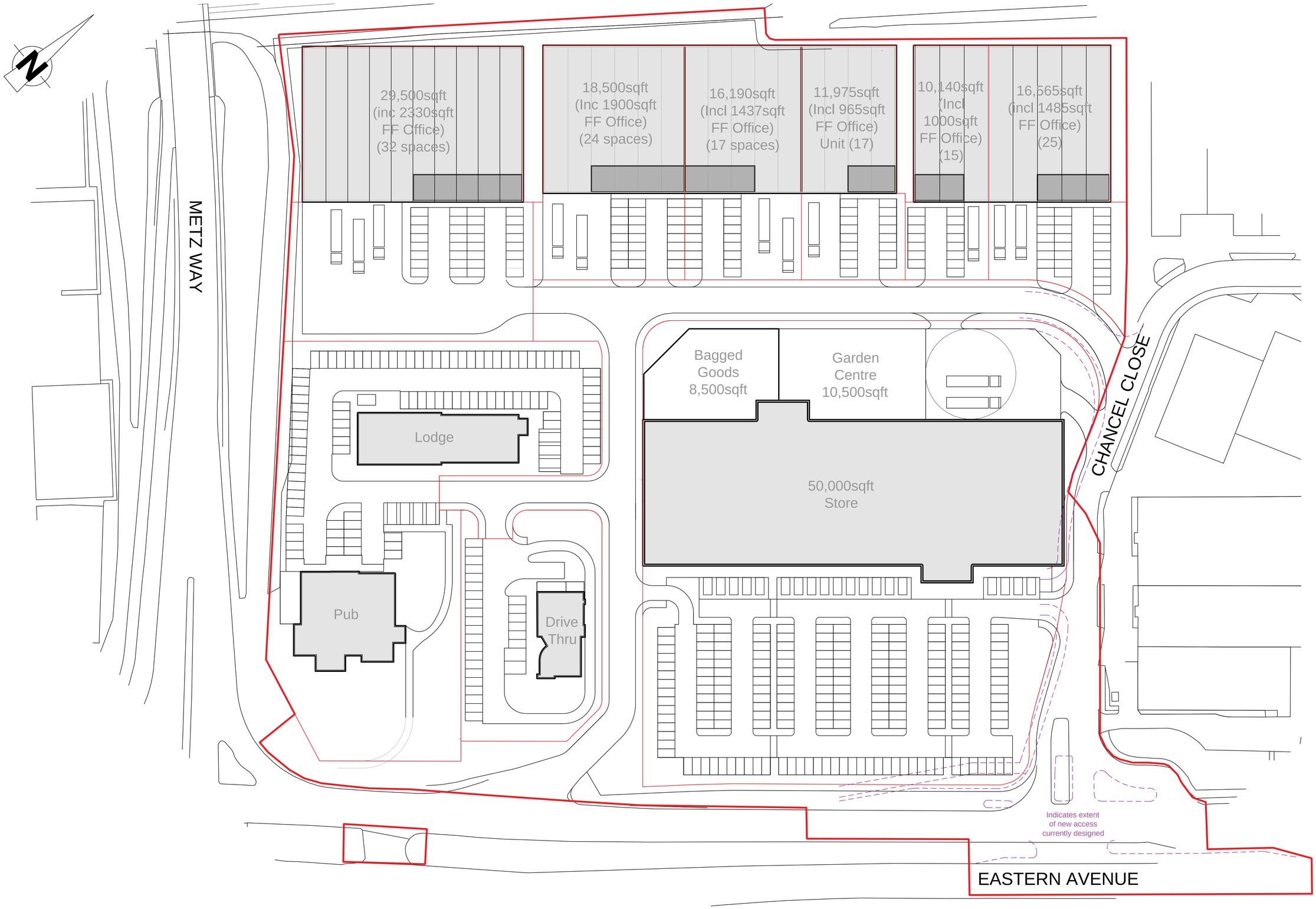
When printed correctly, at A1, this line will measure 75mm at full size



Paloma

Access Park, Eastern Avenue, Gloucester

Masterplan

The Carriage Building, Bruton Way, Gloucester, GL1 1DG
[redacted]

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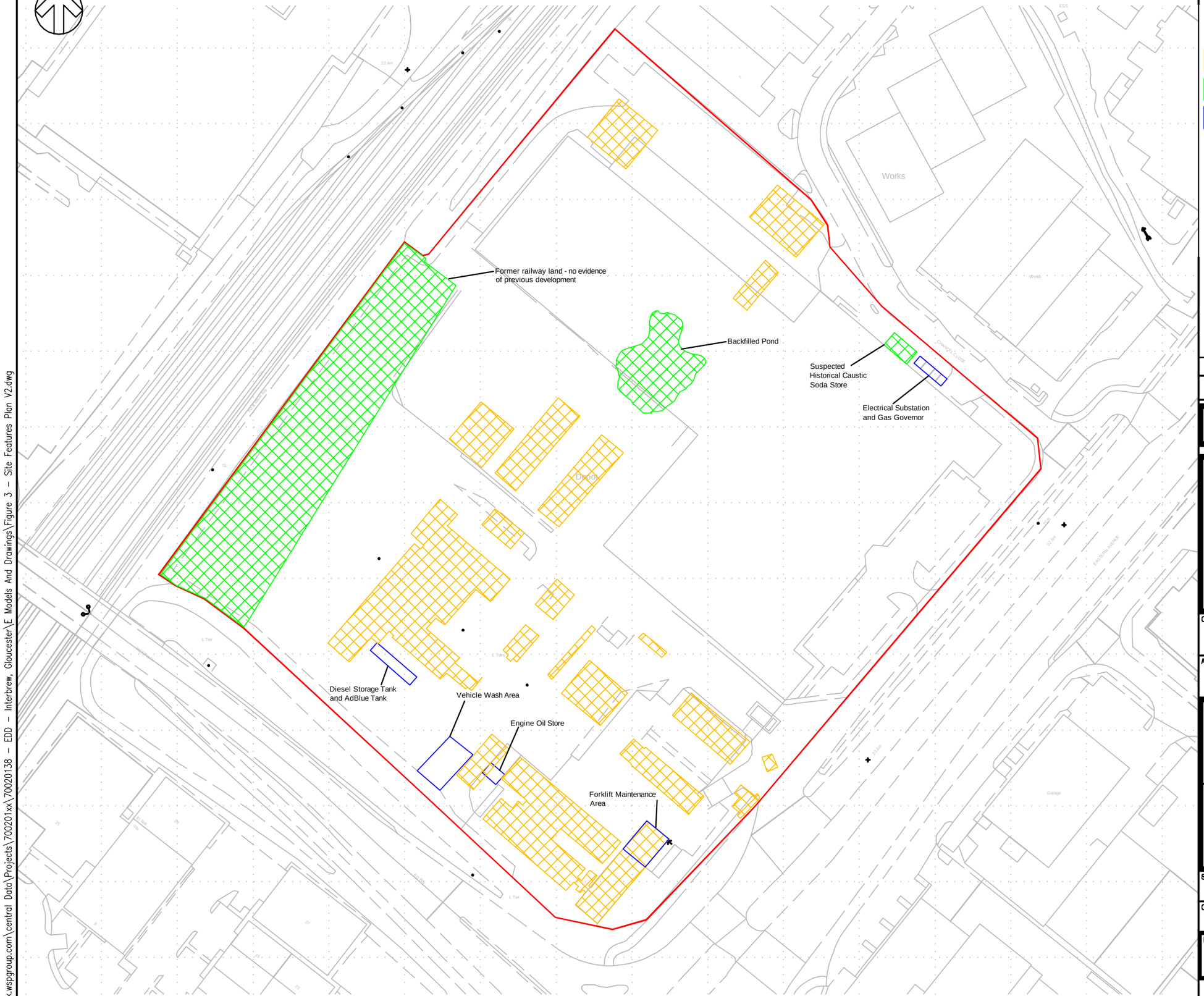

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\\uk.wspgroup.com\central Data\Projects\700201xx\70020138 - EDD - Interbrew, Gloucester\E Models And Drawings\Figure 3 - Site Features Plan V2.dwg

DO NOT SCALE

- Site Boundary
- Former Government / MOD Buildings
- Historical potential contamination sources
- Current potential contamination sources

REV	DATE	BY	DESCRIPTION	CHK	APD

DRAWING STATUS: FOR INFORMATION ONLY

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One Queens Drive Birmingham West Midlands B5 4PJ

[redacted]

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CLIENT: PALOMA CAPITAL LLP

ARCHITECT: N / A

PROJECT: FORMER TRADETEAM SITE, GLOUCESTER

TITLE: SITE FEATURES PLAN

SCALE @ A3:	CHECKED:	APPROVED:
1:1,250@A3	JMC	CLR
CAD FILE:	**DESIGN-DRAWN:**	**DATE:**
001	GEB	21 July 2016

PROJECT No:	DRAWING No:	REV:
70020138	70020138-001	-

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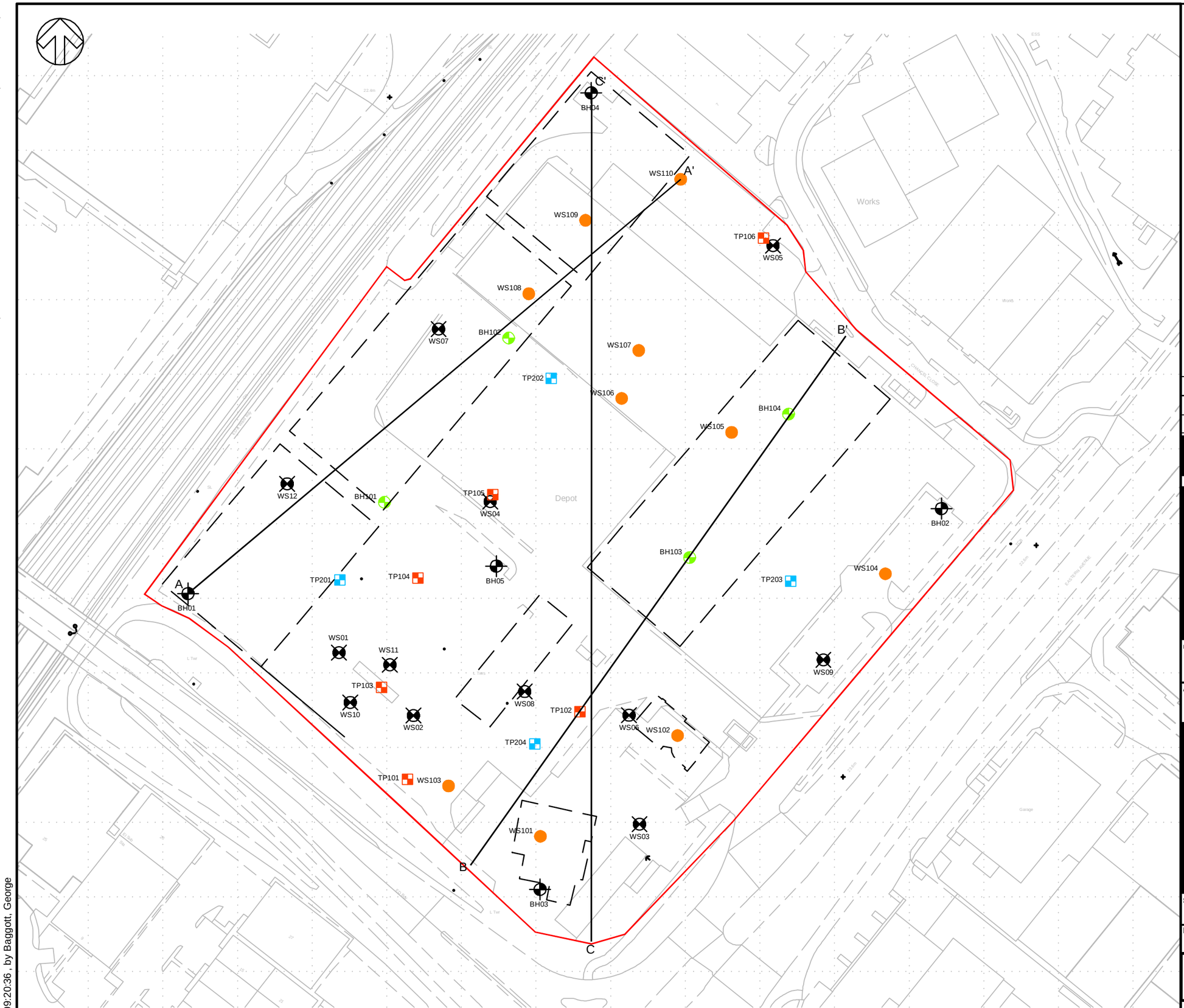

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DO NOT SCALE

- Site Boundary
- Indicative Proposed Building Footprint
- WS01 — 2016 Windowless Sample Borehole
- BH01 — 2016 Cable Percussion Borehole
- BH101 — 2018 Cable Percussion Borehole
- WS101 — 2018 Windowless Sample Borehole
- TP101 — 2018 Shallow Trial Pit
- TP201 — 2018 Plate Test
- A—A' — Lines of Cross Section

REV	DATE	BY	DESCRIPTION	CHK	APP
P02	20/02/2018	JMC	AMENDED BUILDING FOOTPRINTS		
P01	10/11/2017	JMC	FIRST ISSUE		

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CLIENT: PALOMA I (INDUSTRIAL II) UNIT TRUST

ARCHITECT: ROBERTS LIMBRICK ARCHITECTS

PROJECT: FORMER INTERBREW SITE, GLOUCESTER

TITLE: EXPLORATORY HOLE LOCATION PLAN

SCALE @ A3:	CHECKED:		APPROVED:
1:1000	JMC		JMC
PROJECT No:	DESIGNED:	DRAWN:	DATE:
70020138		GEB	APRIL 2018

DRAWING No: 70020138-002 REV: -

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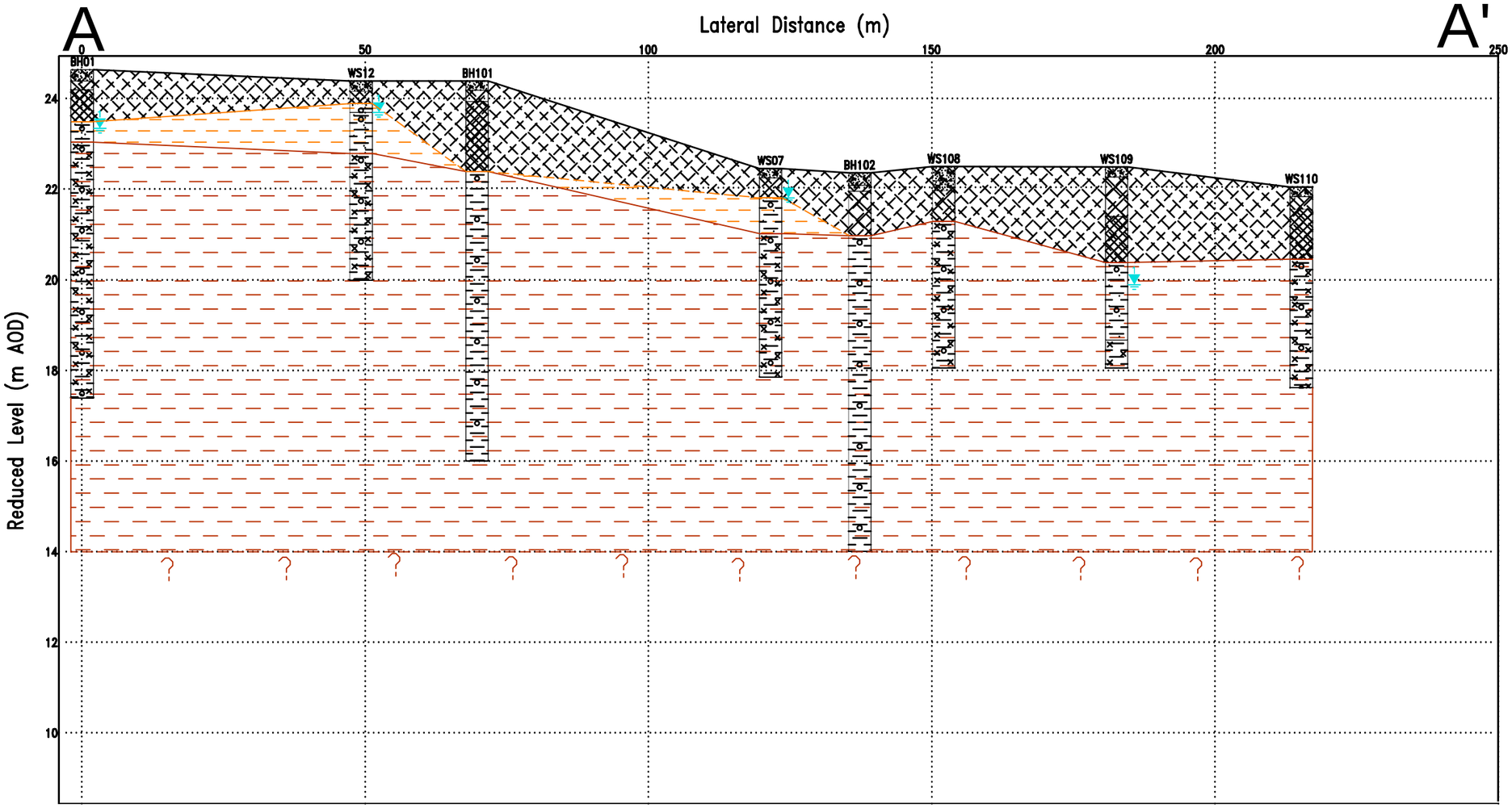
File name \\UK.WSPGROUP.COM\CENTRAL DATA\PROJECTS\700201XX\70020138 - EDD - INTERBREW, GLOUCESTER\05) R03 DRAWINGS AND MODELS\CESTERIE MODELS AND DRAWINGS\05) R03 DRAWINGS\70020138-ENV-001.DWG , printed on 16 April 2018 09:20:36 , by Baggott, George

File name \\UK.WSPGROUP.COM\CENTRAL DATA\PROJECTS\70020138 - EDD - INTERBREW, GLOUCESTER\6 DRAWINGS\5) R03 DRAWINGS\CROSSSECTIONS\A-A' FENCE.DWG, printed on 16 April 2018 08:41:16, by Baggott, George



This is a generalised section based on ground conditions encountered in exploratory holes. Actual ground conditions including depths and the properties of strata may vary.

Key

DO NOT SCALE

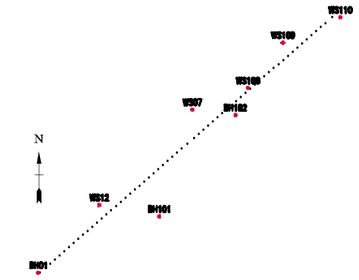
MADE GROUND

Water strike during drilling

Water level during monitoring (approx)

Alluvium

Blue Lias Formation and Charmouth Mudstone Formation (Undifferentiated)



REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS: S2 - FOR INFORMATION

wsp

One Queens Drive, Birmingham, B5 4PJ, UK
[redacted]
wsp.com

CLIENT: PALOMA CAPITAL

ARCHITECT: ROBERTS LIMBRICK ARCHITECTS

PROJECT: FORMER INTERBREW SITE, GLOUCESTER

TITLE: GEOLOGICAL CROSS SECTION A-A'

SCALE @ A3:	CHECKED:		APPROVED:
NTS	GEB		JMC
PROJECT No:	DESIGNED:	DRAWN:	DATE:
70020138		BF	April 18

DRAWING No:	REV:
70020138-003	P01

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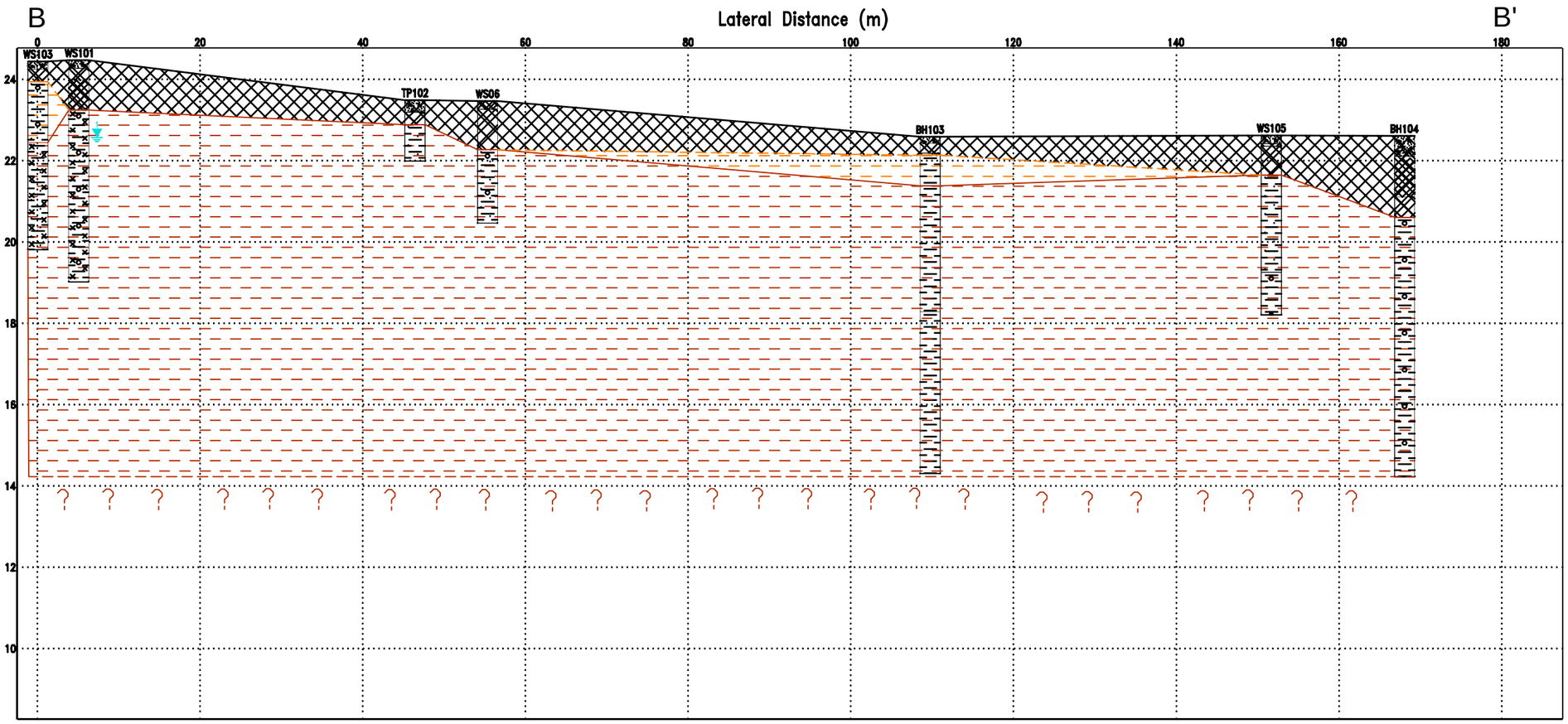
File name \\UK.WSPGROUP.COM\CENTRAL DATA\PROJECTS\70020XX\70020138 - EDD - INTERBREW, GLOUCESTER\MODELS AND DRAWINGS\5) DRAWINGS\CROSSSECTIONS\B-B' FENCE.DWG, printed on 16 April 2018 08:45:54, by Baggott, George



This is a generalised section based on ground conditions encountered in exploratory holes. Actual ground conditions including depths and the properties of strata may vary.

Key

DO NOT SCALE

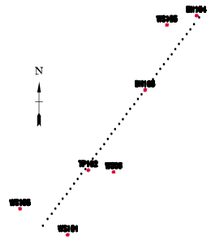
MADE GROUND

Water strike during drilling

Water level during monitoring (approx)

Alluvium

Blue Lias Formation and Charmouth Mudstone Formation (Undifferentiated)



REV	DATE	BY	DESCRIPTION	CHK	APP

DRAWING STATUS: S2 - FOR INFORMATION

wsp
One Queens Drive, Birmingham, B5 4PJ, UK
[redacted]
wsp.com

CLIENT: PALOMA CAPITAL

ARCHITECT: ROBERTS LIMBRICK ARCHITECTS

PROJECT: FORMER INTERBREW SITE, GLOUCESTER

TITLE: GEOLOGICAL CROSS SECTION B-B'

SCALE @ A3:	CHECKED:		APPROVED:
NTS	GEB		JMC
PROJECT No:	DESIGNED:	DRAWN:	DATE:
70020138		BF	April 18

DRAWING No:	REV:
70020138-004	-

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Date Modified: APRIL 2018

Drawn By: GEB

File:

Key

Exploratory Holes

Thickness of MG

Metres

- 0.23 - 0.42
- 0.43 - 0.61
- 0.62 - 0.79
- 0.8 - 0.98
- 0.99 - 1.2
- 1.3 - 1.4
- 1.5 - 1.5
- 1.6 - 1.7
- 1.8 - 1.9
- 2 - 2.1

BH04 WS110 WS109 TP106 WS05 WS108 WS07 BH102 WS107 TP202 BH104 WS105 BH02 WS12 TP105 WS04 BH101 TP201 TP104 BH05 BH103 TP203 WS104 BH01 WS01 HP102 WS11 TP103 WS10 HP101 WS02 WS08 TP102 WS06 WS102 TP204 WS09 TP101 WS103 WS101 WS03 BH03

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0 5 10 20 30 40 50 Meters

wsp

TITLE:

FORMER INTERBREW SITE, GLOUCESTER THICKNESS OF MADE GROUND

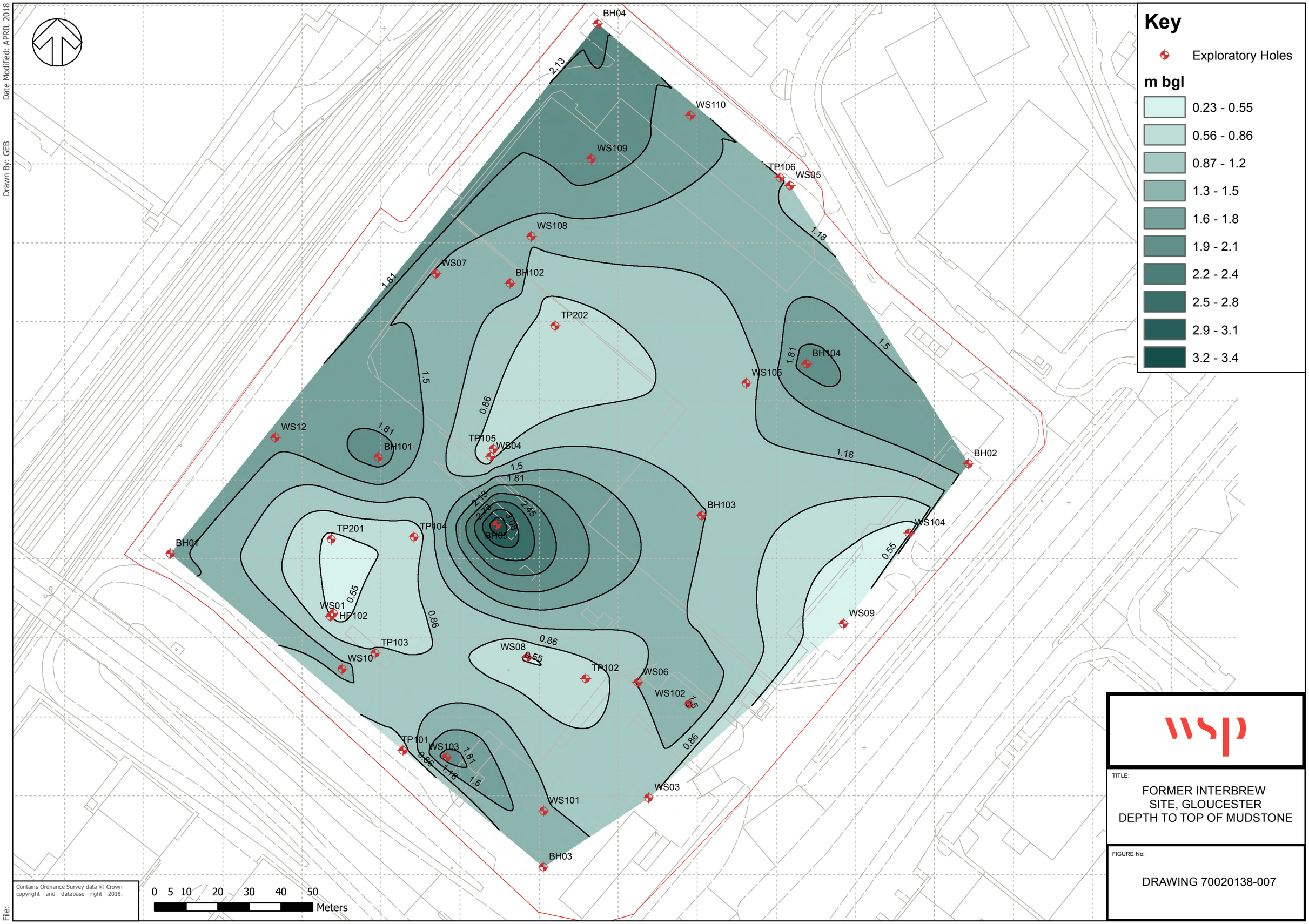
FIGURE No:

DRAWING 70020138-006

Date Modified: APRIL 2018

Drawn By: GEB

File:



Key

Exploratory Holes

m bgl

- 0.23 - 0.55
- 0.56 - 0.86
- 0.87 - 1.2
- 1.3 - 1.5
- 1.6 - 1.8
- 1.9 - 2.1
- 2.2 - 2.4
- 2.5 - 2.8
- 2.9 - 3.1
- 3.2 - 3.4

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0 5 10 20 30 40 50 Meters

wsp

TITLE:

FORMER INTERBREW SITE, GLOUCESTER
DEPTH TO TOP OF MUDSTONE

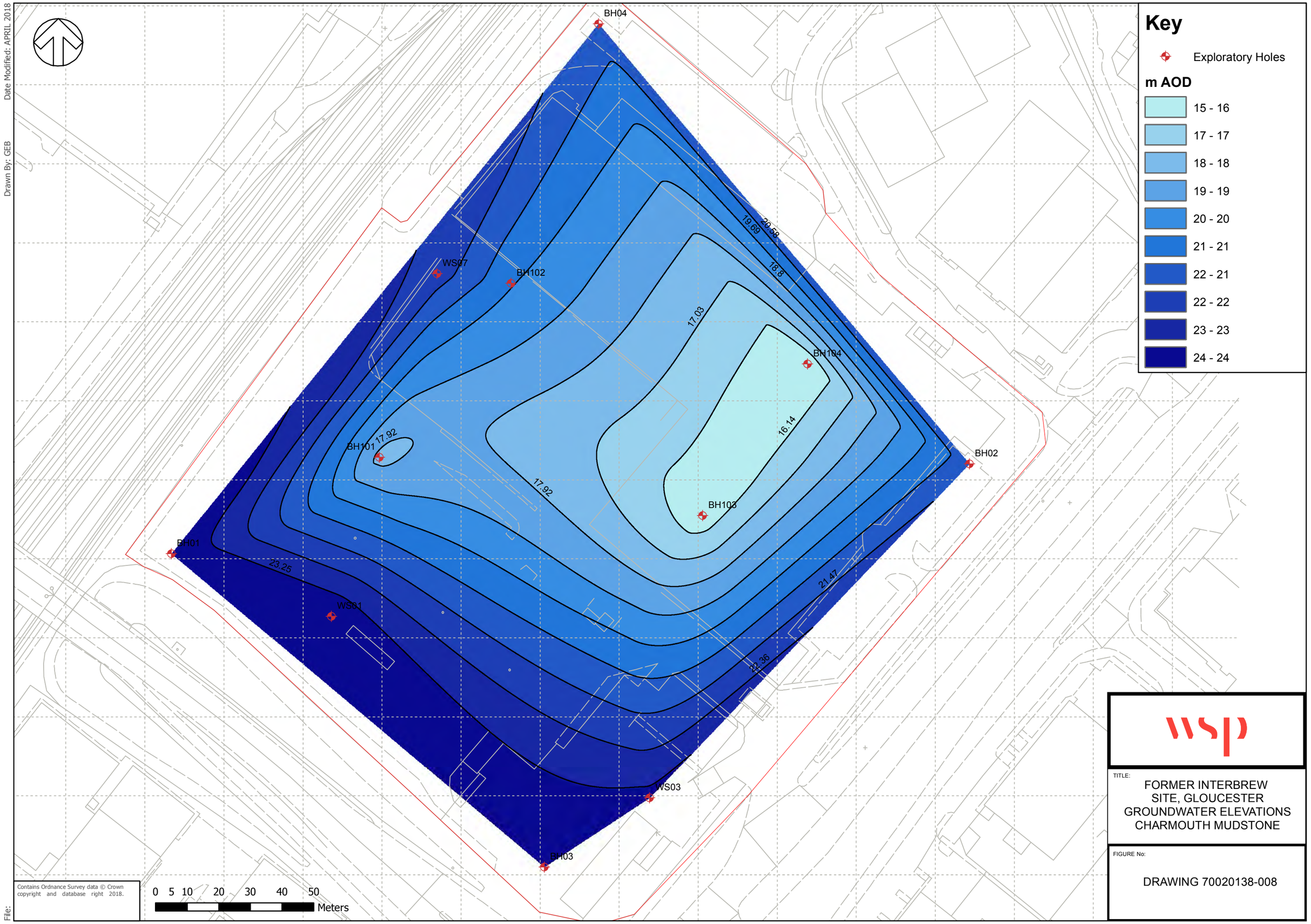
FIGURE No:

DRAWING 70020138-007

Date Modified: APRIL 2018

Drawn By: GEB

File:



Key

Exploratory Holes

m AOD

- 15 - 16
- 17 - 17
- 18 - 18
- 19 - 19
- 20 - 20
- 21 - 21
- 22 - 21
- 22 - 22
- 23 - 23
- 24 - 24

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0 5 10 20 30 40 50 Meters

wsp

TITLE:

FORMER INTERBREW SITE, GLOUCESTER
GROUNDWATER ELEVATIONS
CHARMOUTH MUDSTONE

FIGURE No:

DRAWING 70020138-008

Appendix B

PHOTOGRAPHIC RECORD

1. Car Parking east of offices

2. Former Fork Lift Repair Building

3. Former diesel AST

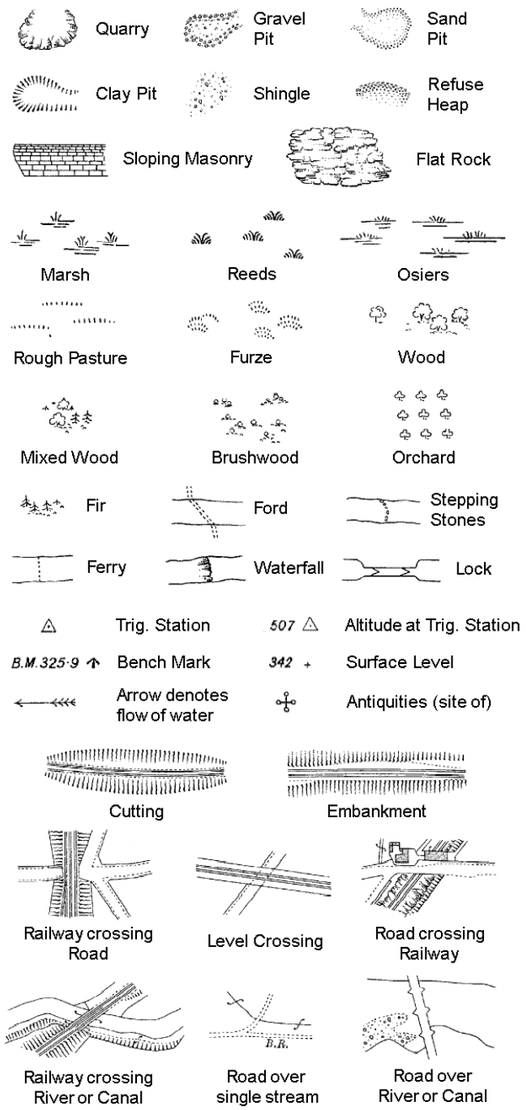
4. Archaeological Trenches

Appendix C

DESK STUDY RECORDS

Historical Mapping Legends

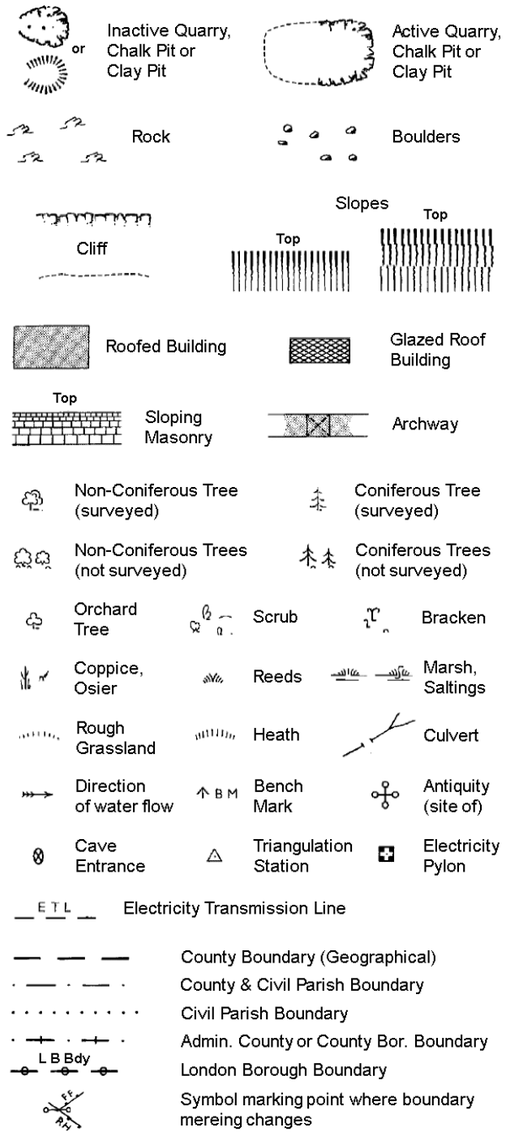
Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
Co. Boro. Bdy. County Borough Boundary (England)
Co. Burgh Bdy. County Burgh Boundary (Scotland)

B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	St.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

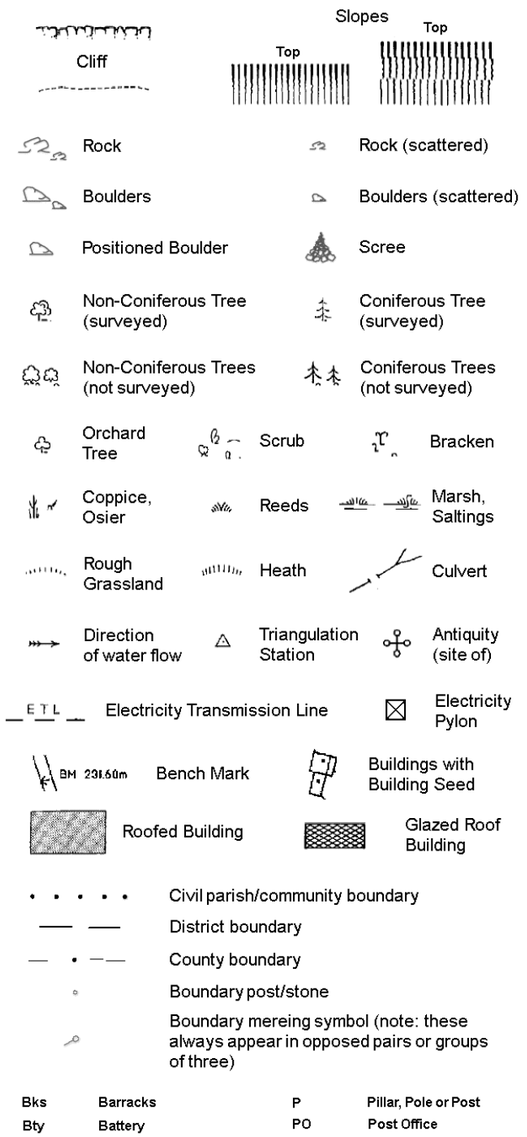
Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



County Boundary (Geographical)
County & Civil Parish Boundary
Civil Parish Boundary
Admin. County or County Bor. Boundary
L B Bdy London Borough Boundary
Symbol marking point where boundary mereing changes

BH	Beer House	P	Pillar, Pole or Post
BP, BS	Boundary Post or Stone	PO	Post Office
Cn, C	Capstan, Crane	PC	Public Convenience
Chy	Chimney	PH	Public House
D Fn	Drinking Fountain	Pp	Pump
El P	Electricity Pillar or Post	SB, S Br	Signal Box or Bridge
FAP	Fire Alarm Pillar	SP, SL	Signal Post or Light
FB	Foot Bridge	Spr	Spring
GP	Guide Post	Tk	Tank or Track
H	Hydrant or Hydraulic	TCB	Telephone Call Box
LC	Level Crossing	TCP	Telephone Call Post
MH	Manhole	Tr	Trough
MP	Mile Post or Mooring Post	Wr Pt, Wr T	Water Point, Water Tap
MS	Mile Stone	W	Well
NTL	Normal Tidal Limit	Wd Pp	Wind Pump

Large-Scale National Grid Data 1:2,500 and 1:1,250



Civil parish/community boundary
District boundary
County boundary
Boundary post/stone
Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

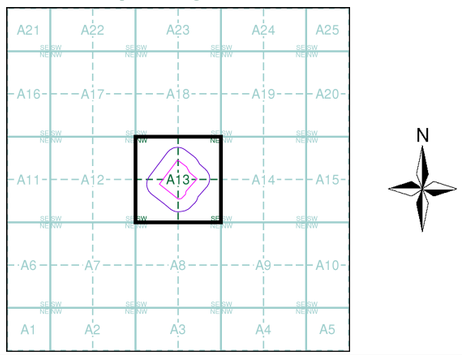
Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El Sub Sta	Electricity Sub Station	SP, SL	Signal Post or Light
FB	Filter Bed	Spr	Spring
Fn / D Fn	Fountain / Drinking Ftn.	Tk	Tank or Track
Gas Gov	Gas Valve Compound	Tr	Trough
GVC	Gas Governer	Wd Pp	Wind Pump
GP	Guide Post	Wr Pt, Wr T	Water Point, Water Tap
MH	Manhole	Wks	Works (building or area)
MP, MS	Mile Post or Mile Stone	W	Well

WSP

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Gloucestershire	1:2,500	1884 - 1886	2
Gloucestershire	1:2,500	1902	3
Gloucestershire	1:2,500	1923	4
Gloucestershire	1:2,500	1936	5
Historical Aerial Photography	1:1,250	1946	6
Ordnance Survey Plan	1:1,250	1955 - 1956	7
Ordnance Survey Plan	1:2,500	1956	8
Ordnance Survey Plan	1:1,250	1963 - 1971	9
Ordnance Survey Plan	1:2,500	1965	10
Supply of Unpublished Survey Information	1:1,250	1973 - 1975	11
Ordnance Survey Plan	1:1,250	1975 - 1976	12
Additional SIMs	1:1,250	1984 - 1988	13
Additional SIMs	1:1,250	1987 - 1991	14
Additional SIMs	1:1,250	1988 - 1992	15
Additional SIMs	1:1,250	1989	16
Additional SIMs	1:1,250	1991	17
Large-Scale National Grid Data	1:1,250	1994	18
Large-Scale National Grid Data	1:1,250	1996	19

Historical Map - Segment A13



Order Details

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Customer Ref: 70020138-001
National Grid Reference: 384910, 217910
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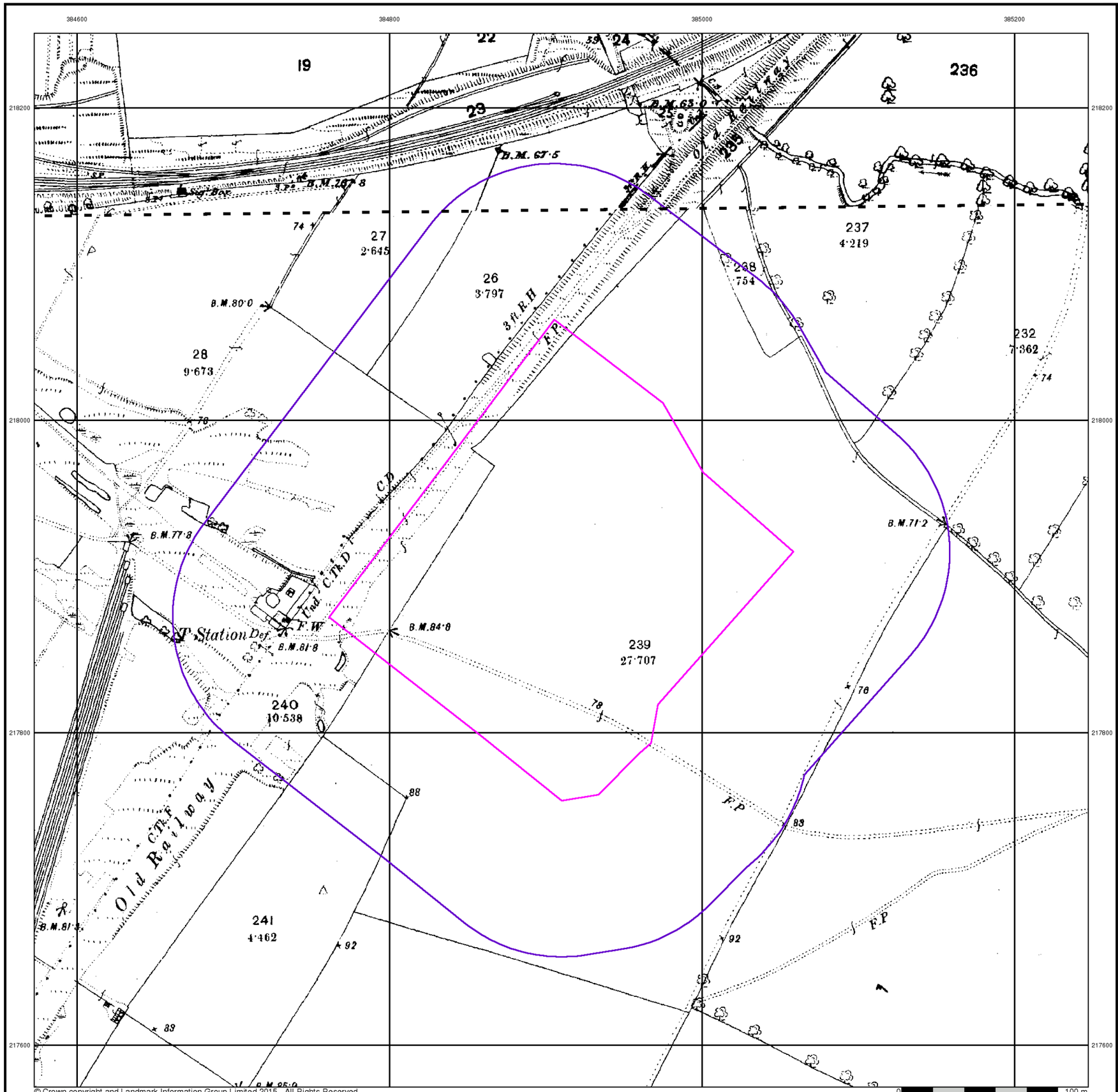
Site Area (Ha): 4.76
Search Buffer (m): 100

Site Details

Interbrew UK Ltd, Eastern Avenue, GLOUCESTER, GL4 6SW

Landmark Information Group

[redacted]



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0 100 m

WSP

Gloucestershire

Published 1884 - 1886

Source map scale - 1:2,500

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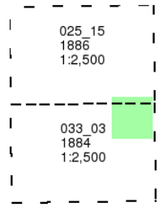
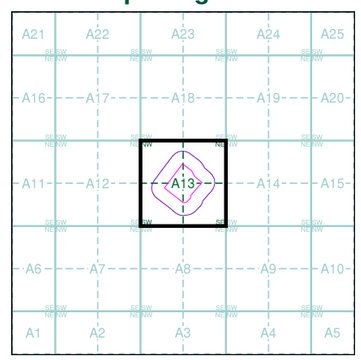
Map Name(s) and Date(s)



Historical Map - Segment A13



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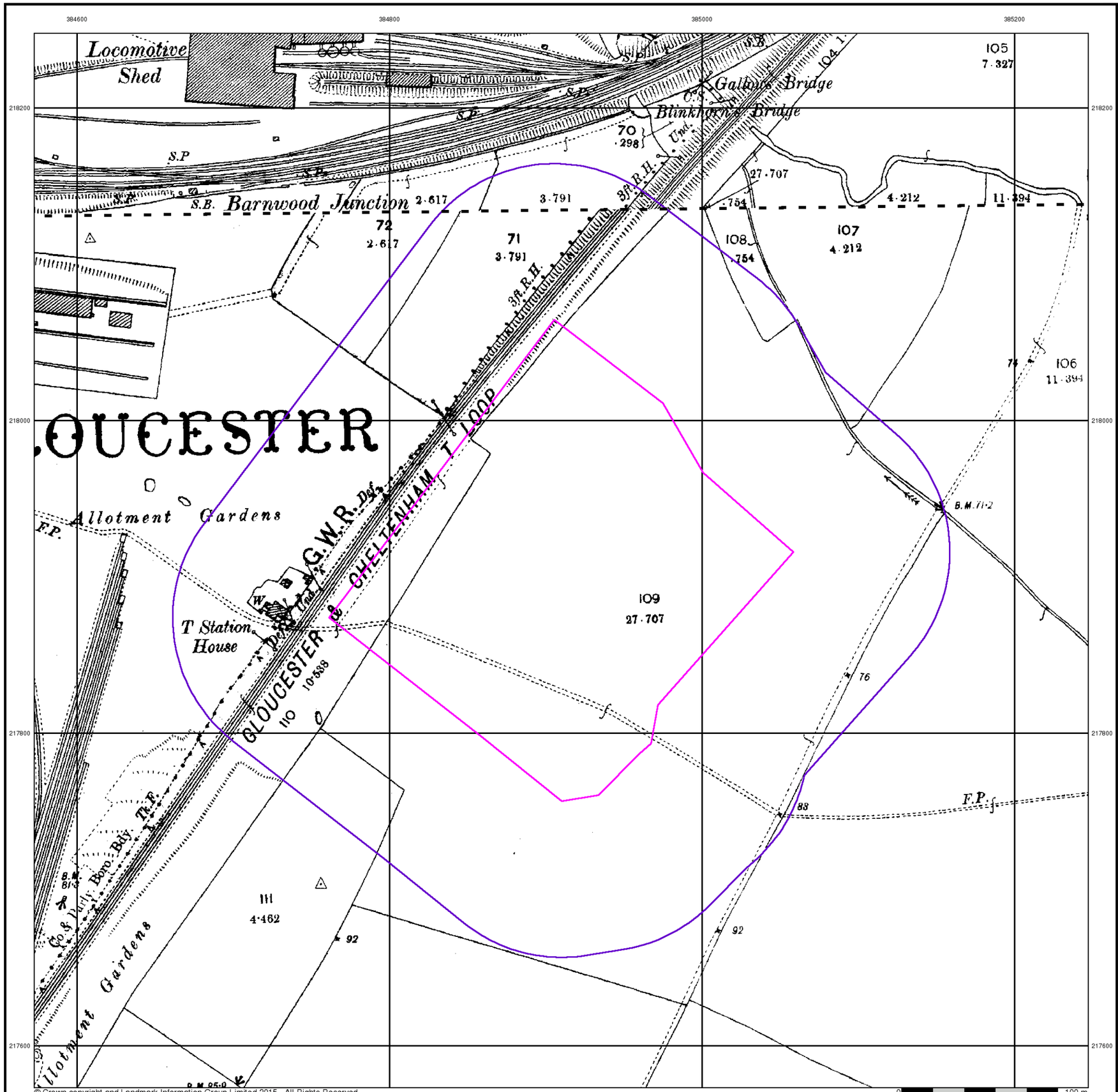
Search Buffer (m):	100

Site Details

Interbrew UK Ltd, Eastern Avenue, GLOUCESTER, GL4 6SW

Landmark Information Group



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Gloucestershire

Published 1902

Source map scale - 1:2,500

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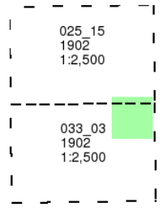
Map Name(s) and Date(s)



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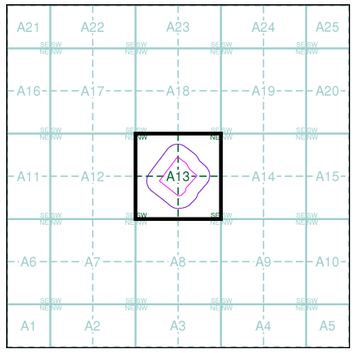

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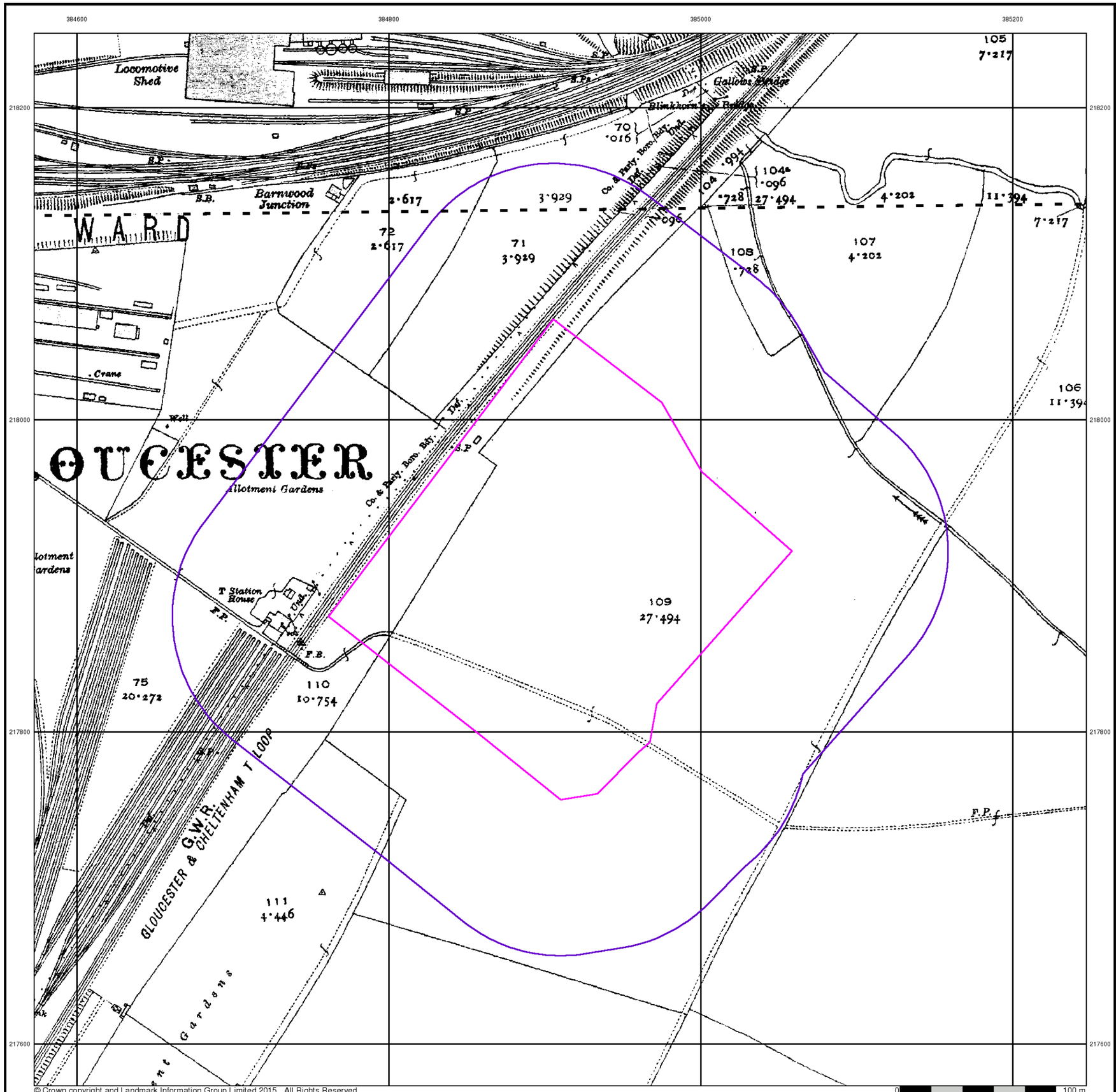
Site Details

Interbrew UK Ltd, Eastern Avenue, GLOUCESTER, GL4 6SW

Landmark Information Group



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WSP

Gloucestershire

Published 1923

Source map scale - 1:2,500

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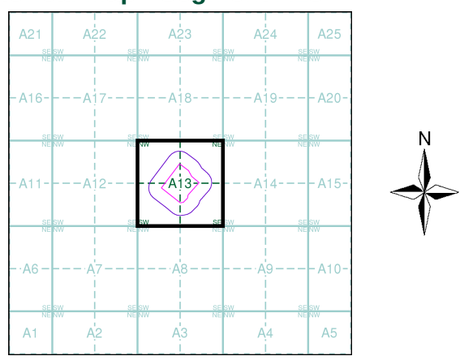
Map Name(s) and Date(s)

025_15
1923
1:2,500

033_03
1923
1:2,500

Historical Map - Segment A13



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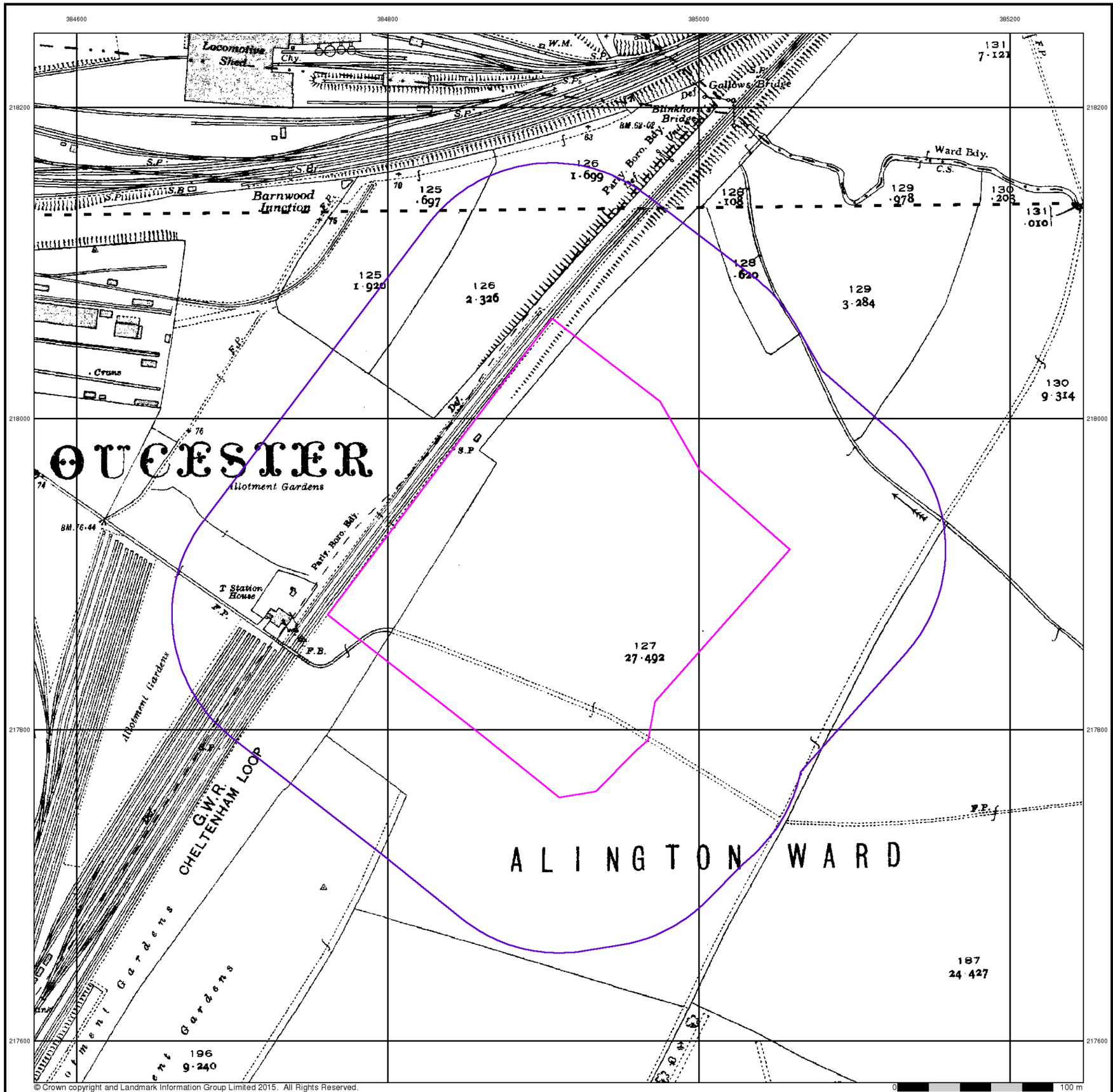
Site Details

Interbrew UK Ltd, Eastern Avenue, GLOUCESTER, GL4 6SW

Landmark Information Group



WSP

Gloucestershire

Published 1936

Source map scale - 1:2,500

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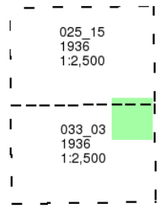
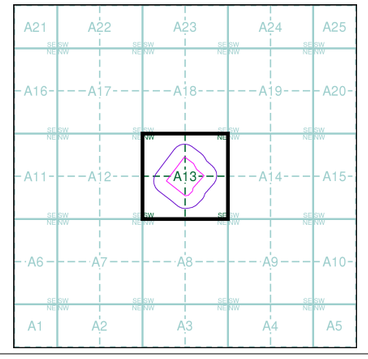
Map Name(s) and Date(s)



Historical Map - Segment A13



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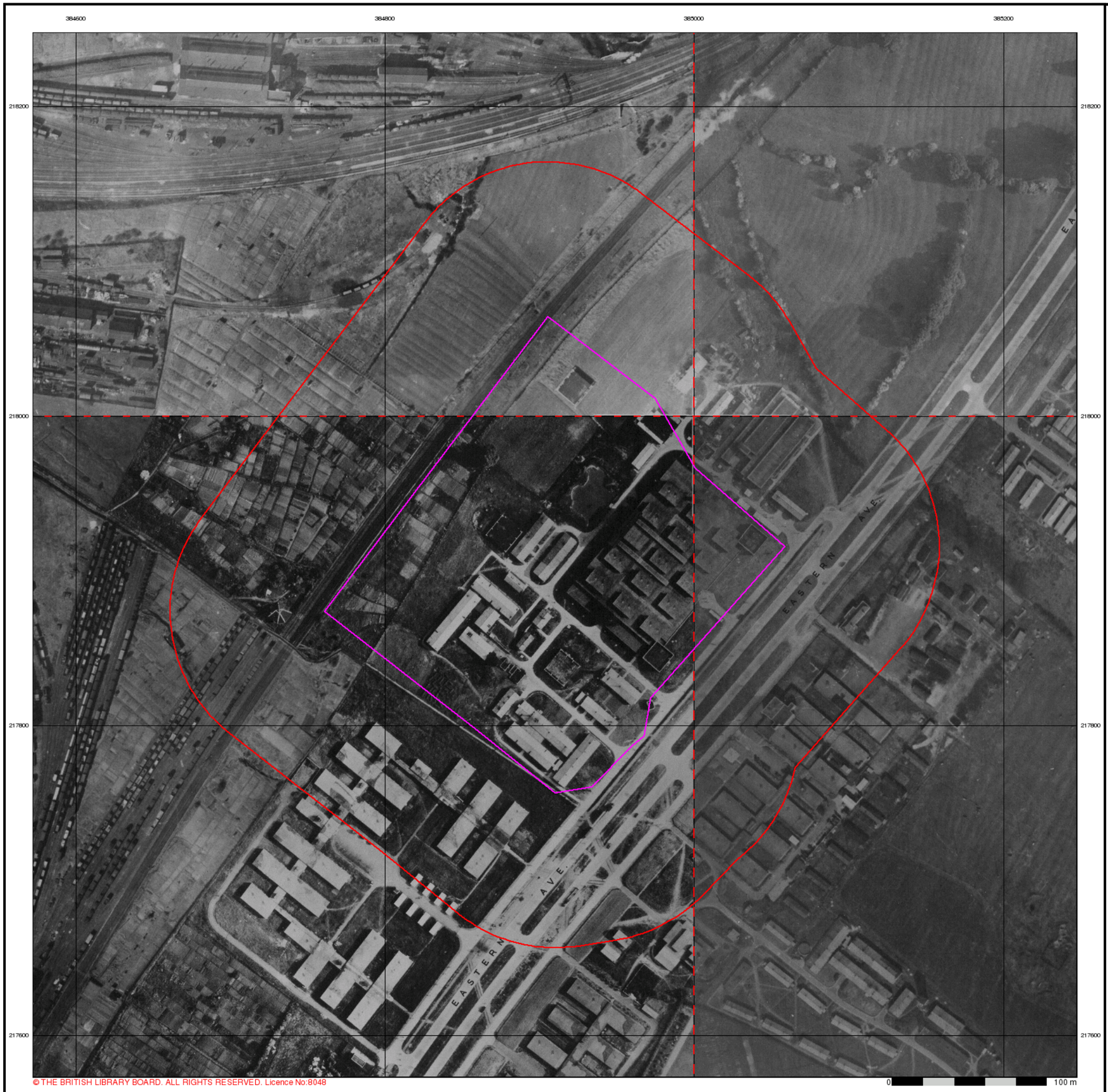
Site Details

Interbrew UK Ltd, Eastern Avenue, GLOUCESTER, GL4 6SW

Landmark Information Group



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Historical Aerial Photography

Published 1946

Source map scale - 1:1,250

The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the 1950's meant that every photograph was re-checked for potentially unsafe information with security sites replaced by fake fields or clouds. The original editions were withdrawn and only later made available after a period of fifty years although due to the accuracy of the editing, without viewing both revisions it is not easy to spot the edits. Where available Landmark have included both revisions.

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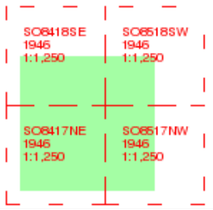
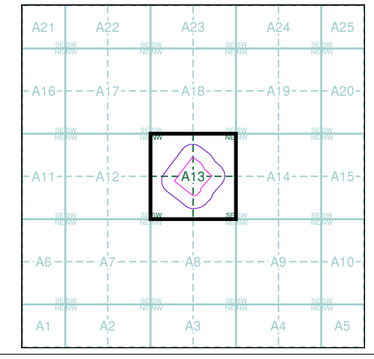
Map Name(s) and Date(s)



Historical Aerial Photography - Segment A13



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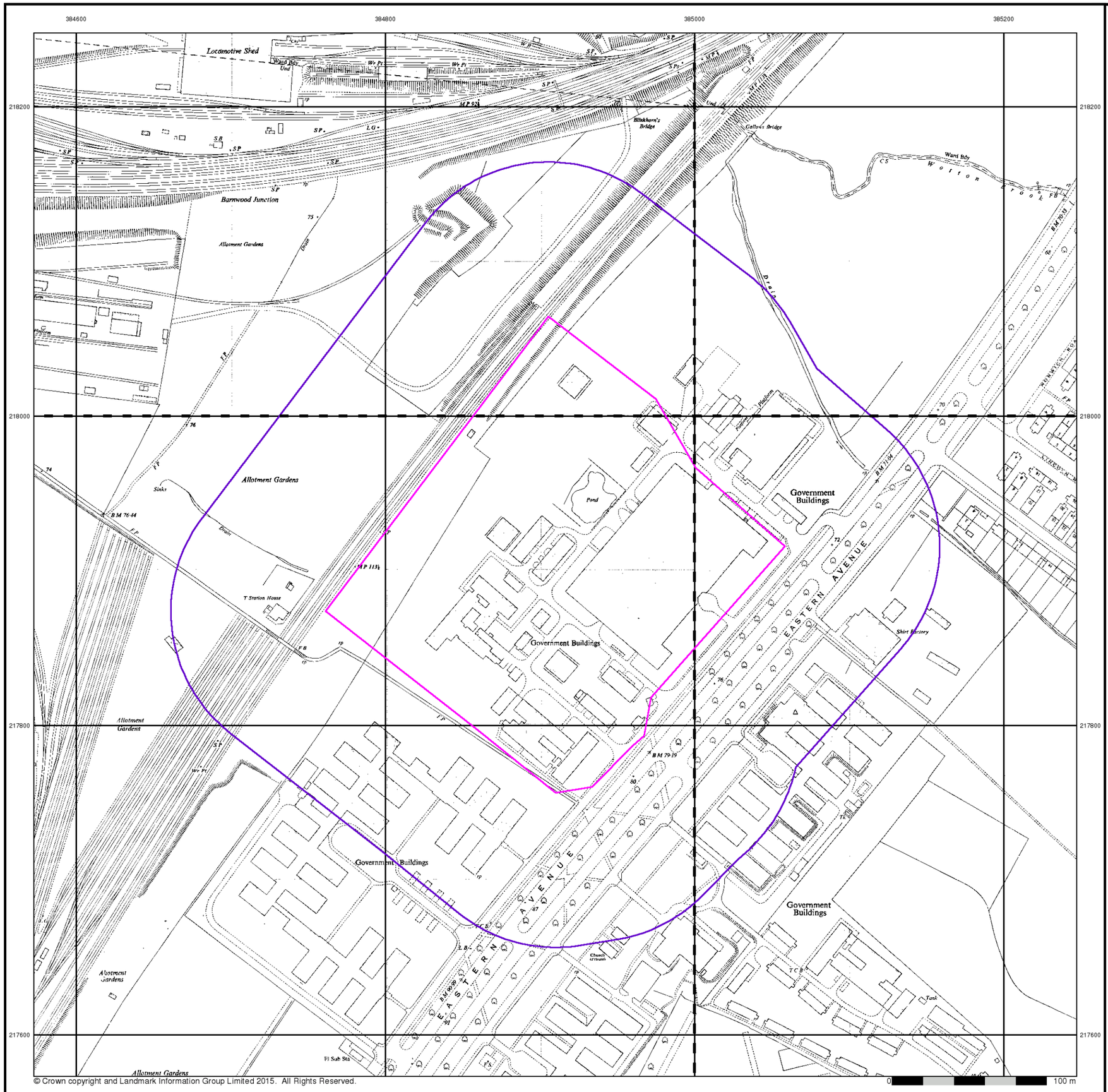
Interbrew UK Ltd, Eastern Avenue, GLOUCESTER, GL4 6SW



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WSP

Ordnance Survey Plan

Published 1955 - 1956

Source map scale - 1:1,250

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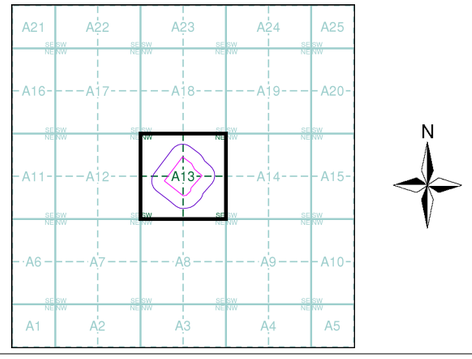
Map Name(s) and Date(s)

SO8418SE 1955 1:1,250
SO8518SW 1956 1:1,250
SO8417NE 1955 1:1,250
SO8517NW 1955 1:1,250

Historical Map - Segment A13



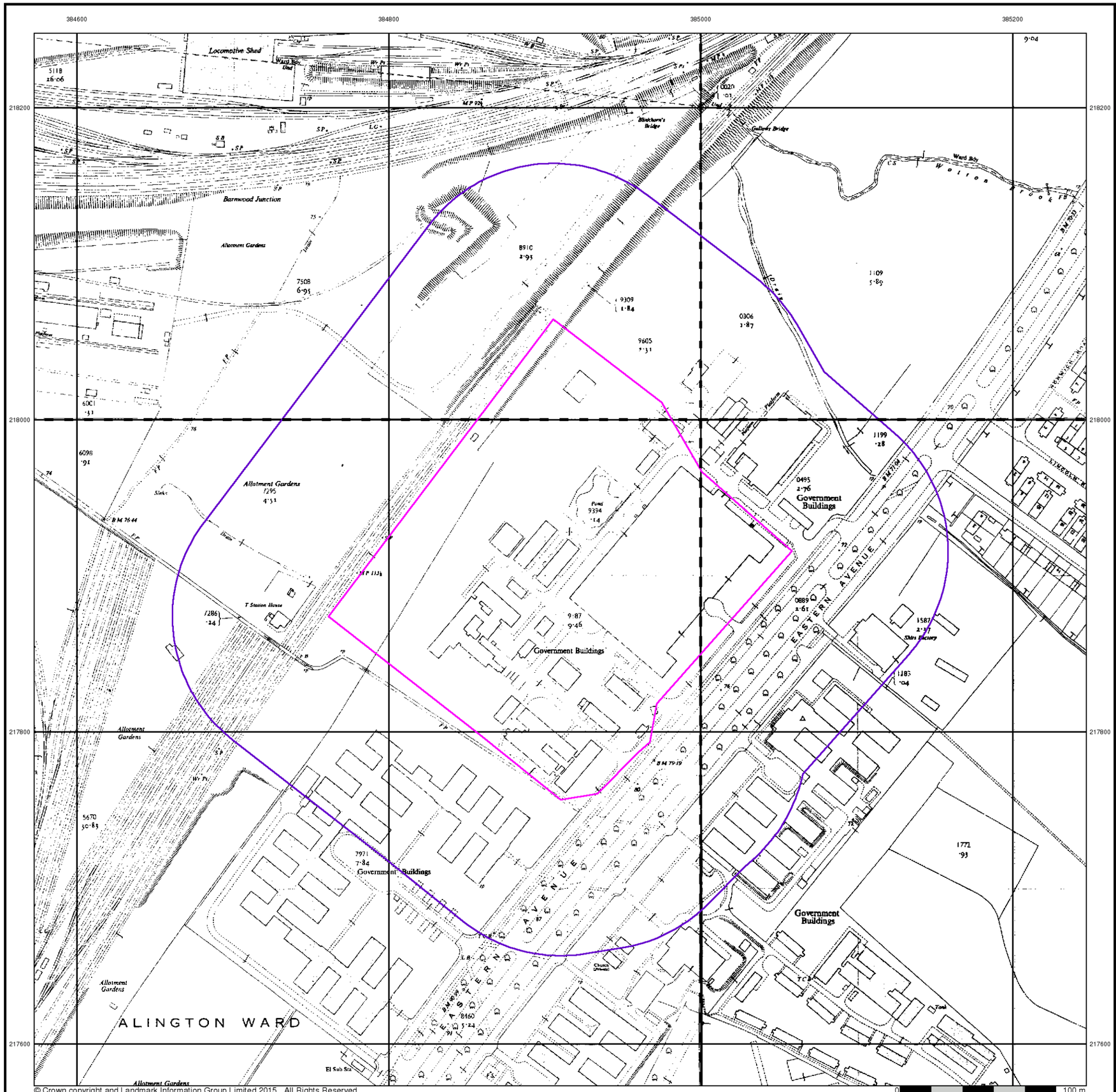
Order Details

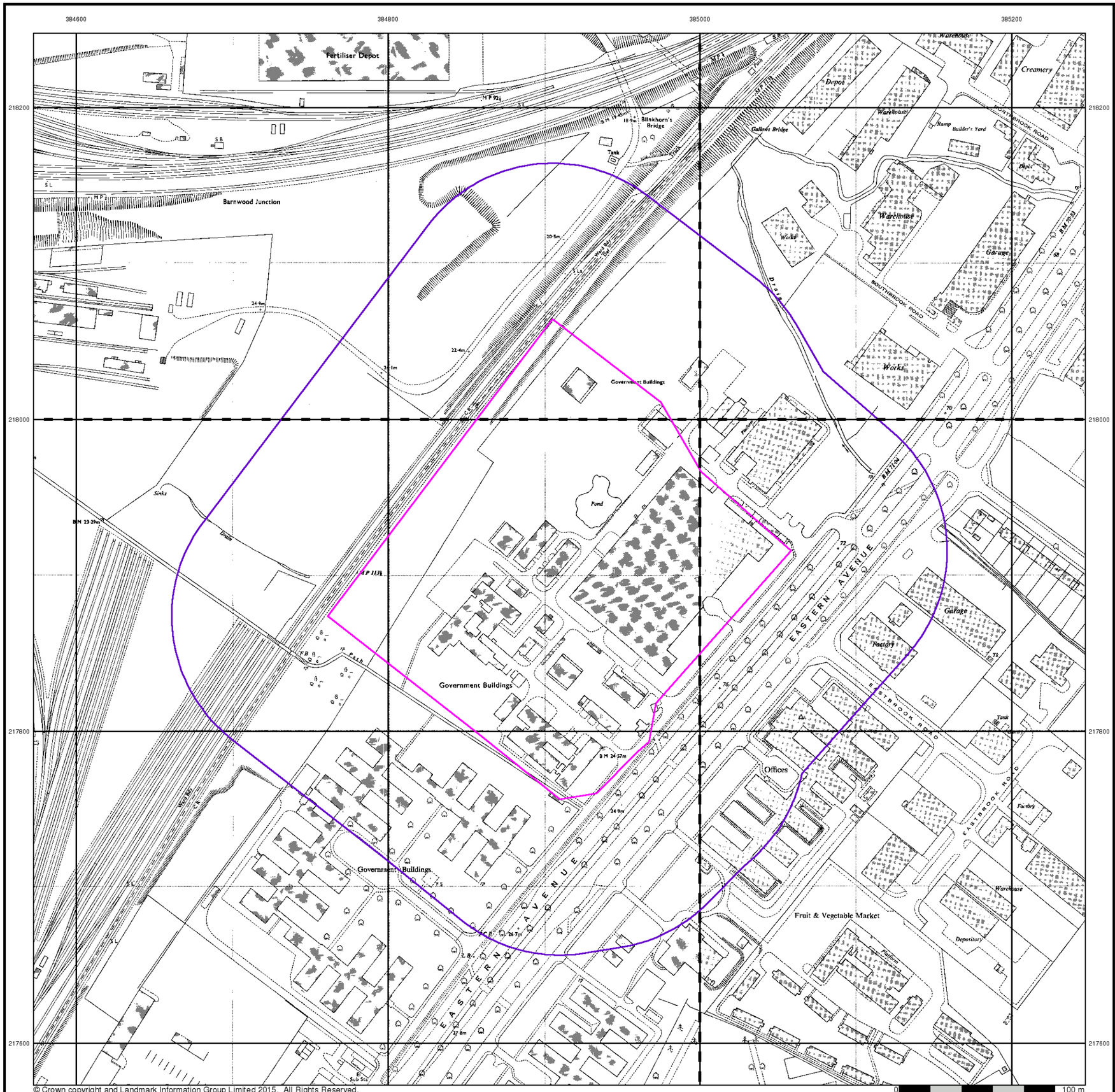
Order Number:	88327116_1_1
Customer Ref:	70020138-001
National Grid Reference:	384910, 217910
Slice:	A
Site Area (Ha):	4.76
Search Buffer (m):	100

Site Details

Interbrew UK Ltd, Eastern Avenue, GLOUCESTER, GL4 6SW

Landmark Information Group


384600
384800
385000
385200
218200
218000
217800
217600
Locomotive Shed
Barnwood Junction
Allotment Gardens
Allotment Gardens
1295
Government Buildings
Government Buildings
Government Buildings
Government Buildings
Government Buildings
Eastern Avenue
Eastern Avenue
Eastern Avenue
Gallows Bridge
Blackburn's Bridge
Ward Bdy
Ward Bdy
Ward Bdy



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WSP

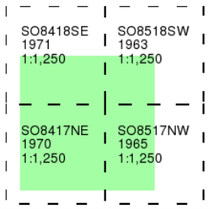
Ordnance Survey Plan

Published 1963 - 1971

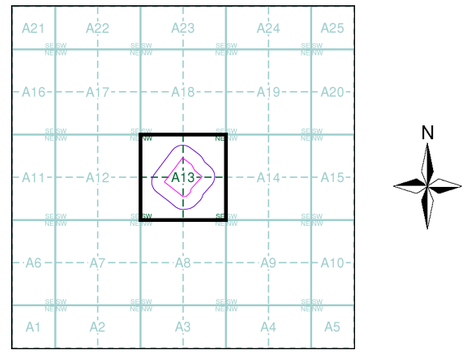
Source map scale - 1:1,250

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

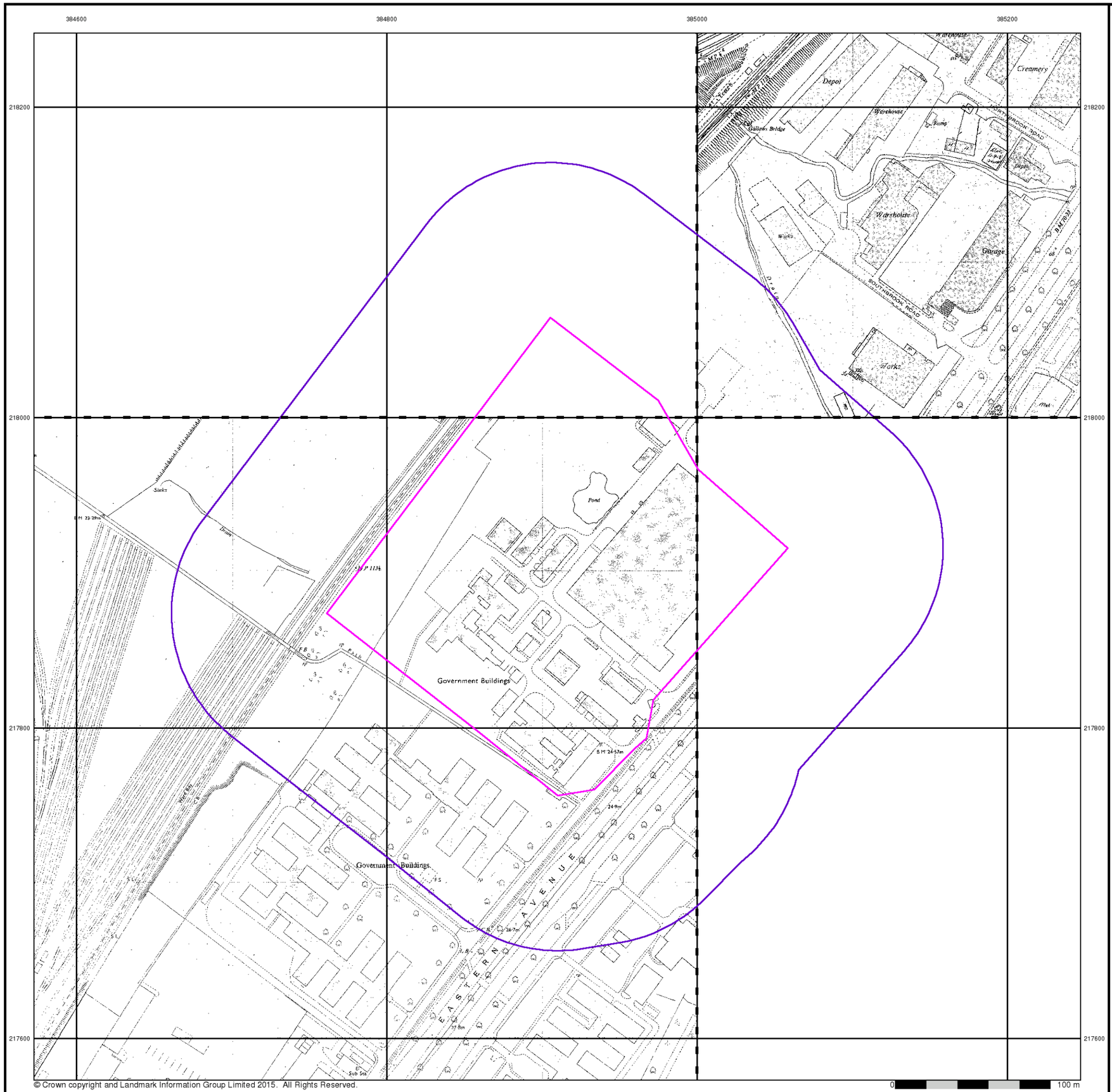
Order Number:	88327116_1_1
Customer Ref:	70020138-001
National Grid Reference:	384910, 217910
Slice:	A
Site Area (Ha):	4.76
Search Buffer (m):	100

Site Details

Interbrew UK Ltd, Eastern Avenue, GLOUCESTER, GL4 6SW

Landmark Information Group

[redacted]



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WSP

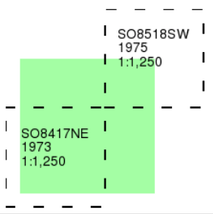
Supply of Unpublished Survey Information

Published 1973 - 1975

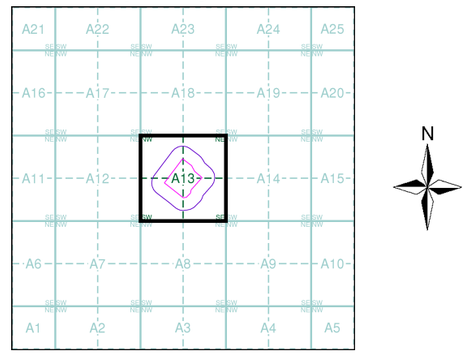
Source map scale - 1:1,250

SUSI maps (Supply of Unpublished Survey Information) were produced between 1972 and 1977, mainly for internal use at Ordnance Survey. These were more of a `work-in-progress' plan as they showed updates of individual areas on a map. These maps were unpublished, and they do not represent a single moment in time. They were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

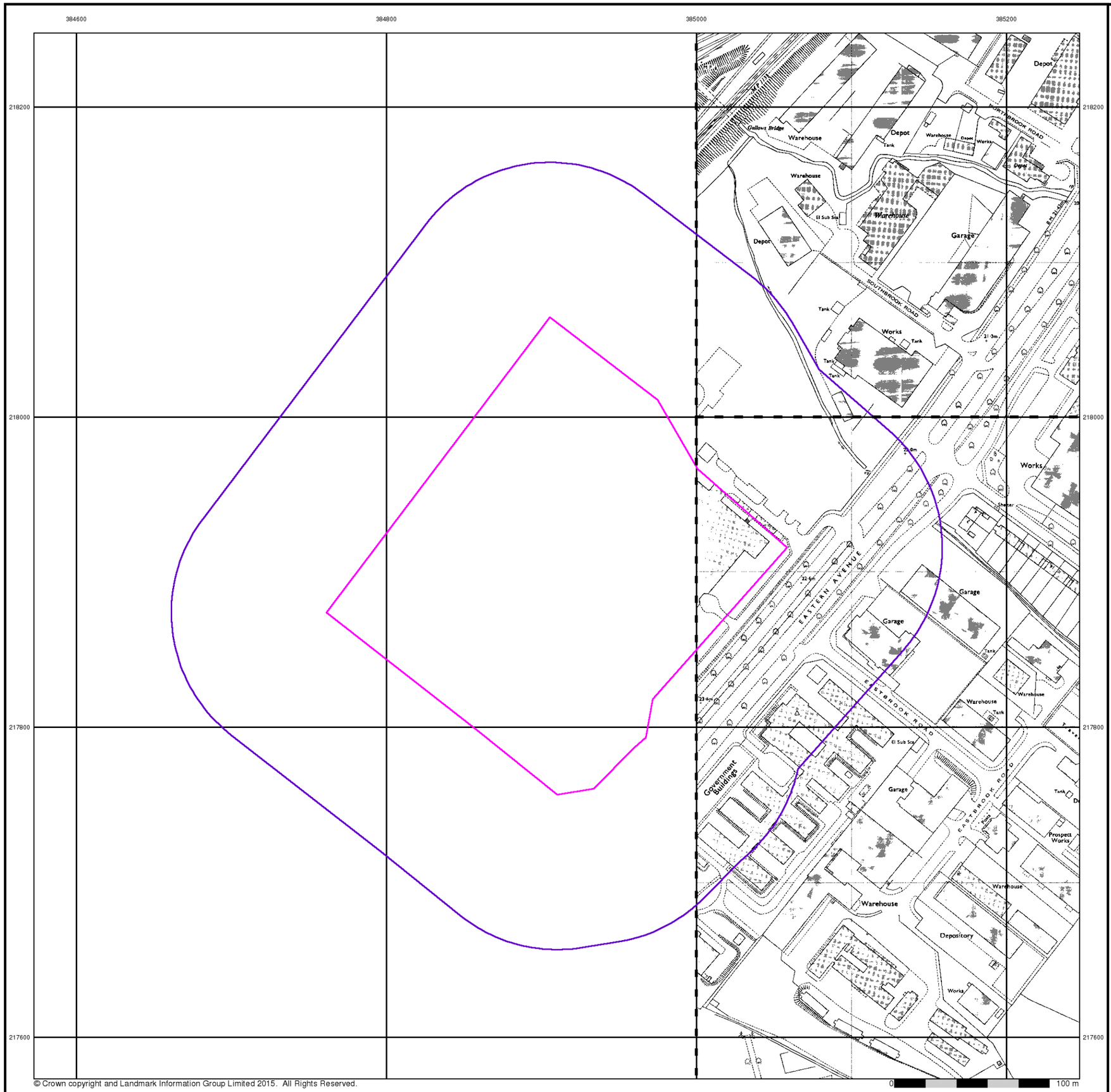
Order Number:	88327116_1_1
Customer Ref:	70020138-001
National Grid Reference:	384910, 217910
Slice:	A
Site Area (Ha):	4.76
Search Buffer (m):	100

Site Details

Interbrew UK Ltd, Eastern Avenue, GLOUCESTER, GL4 6SW

Landmark Information Group

[redacted]



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WSP

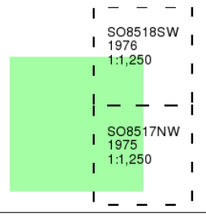
Ordnance Survey Plan

Published 1975 - 1976

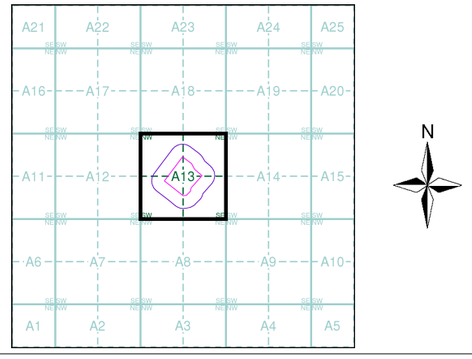
Source map scale - 1:1,250

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



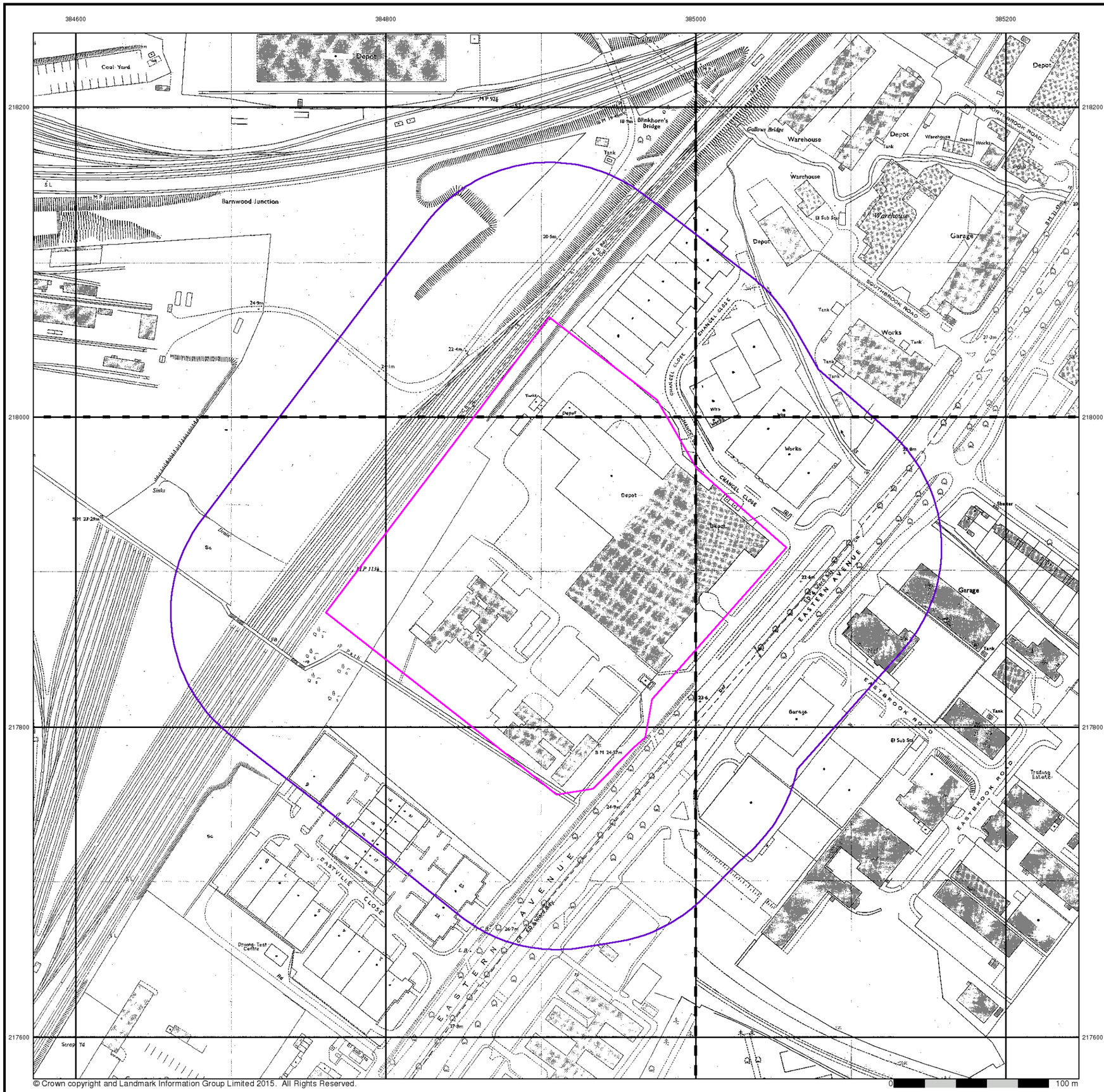
Order Details

Order Number:	88327116_1_1
Customer Ref:	70020138-001
National Grid Reference:	384910, 217910
Slice:	A
Site Area (Ha):	4.76
Search Buffer (m):	100

Site Details

Interbrew UK Ltd, Eastern Avenue, GLOUCESTER, GL4 6SW

Landmark Information Group



WSP

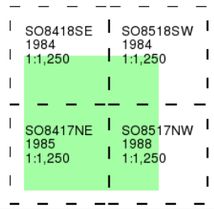
Additional SIMs

Published 1984 - 1988

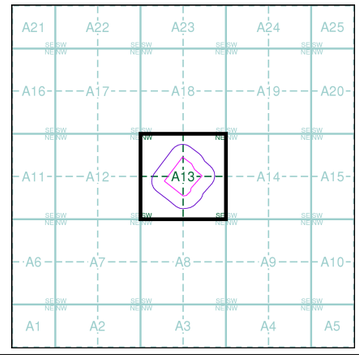
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



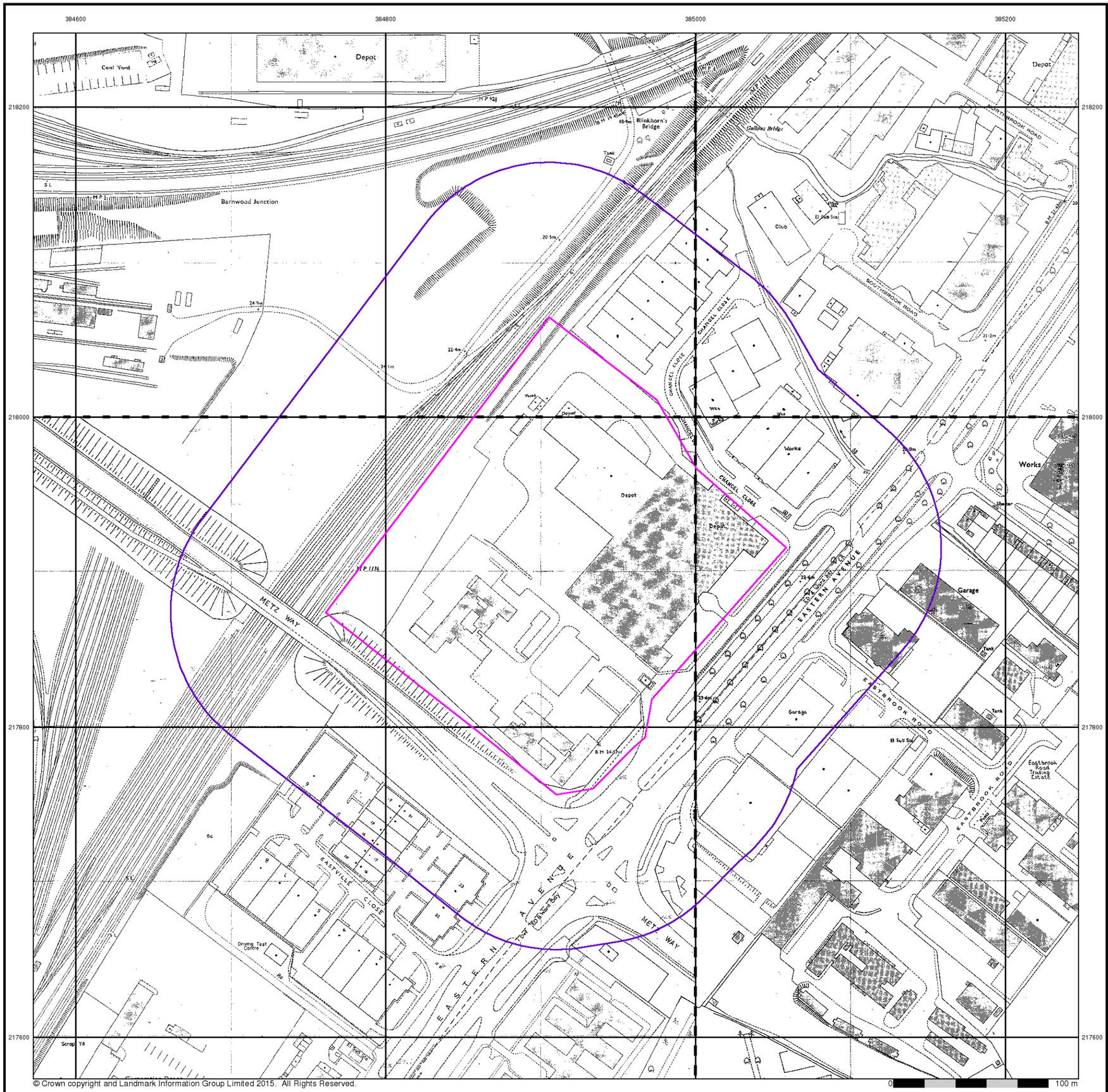
Order Details

Order Number:	88327116_1_1
Customer Ref:	70020138-001
National Grid Reference:	384910, 217910
Slice:	A
Site Area (Ha):	4.76
Search Buffer (m):	100

Site Details

Interbrew UK Ltd, Eastern Avenue, GLOUCESTER, GL4 6SW

Landmark Information Group



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WSP

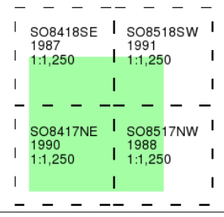
Additional SIMs

Published 1987 - 1991

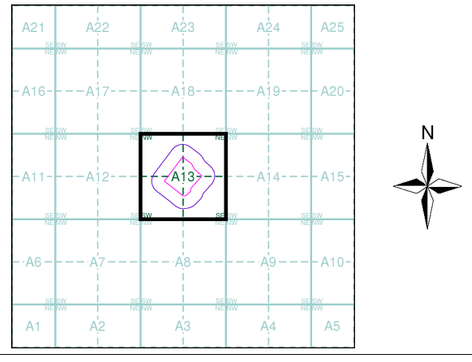
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

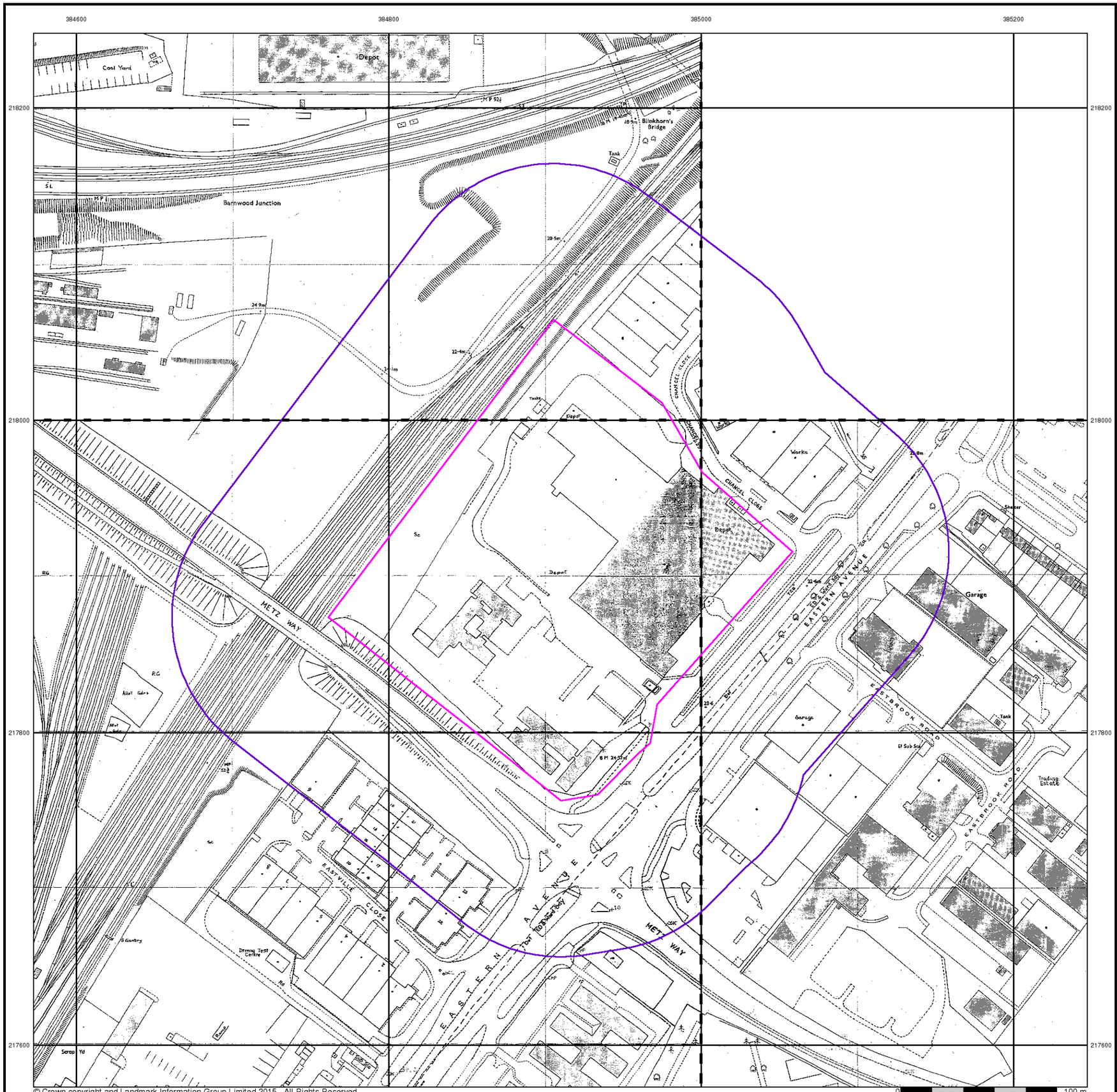
Order Number:	88327116_1_1
Customer Ref:	70020138-001
National Grid Reference:	384910, 217910
Slice:	A
Site Area (Ha):	4.76
Search Buffer (m):	100

Site Details

Interbrew UK Ltd, Eastern Avenue, GLOUCESTER, GL4 6SW

Landmark Information Group

[redacted]



WSP

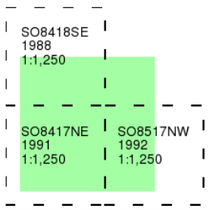
Additional SIMs

Published 1988 - 1992

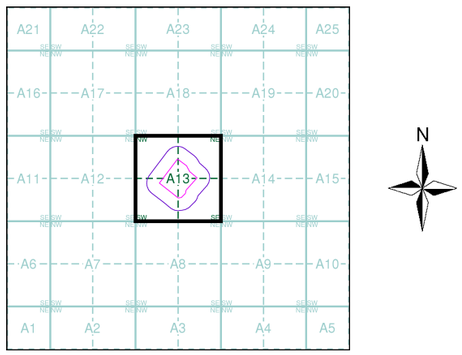
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



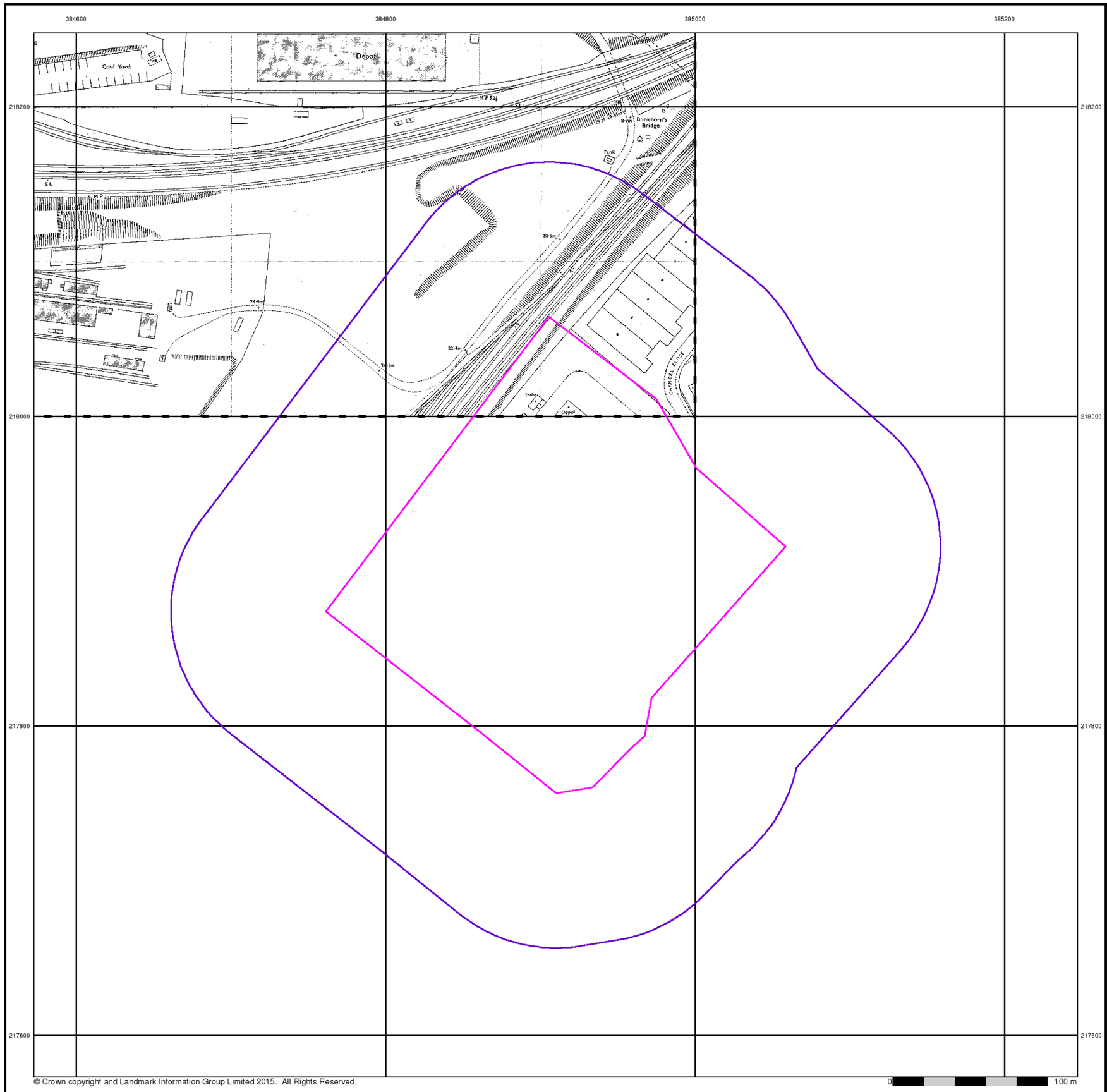
Order Details

Order Number:	88327116_1_1
Customer Ref:	70020138-001
National Grid Reference:	384910, 217910
Slice:	A
Site Area (Ha):	4.76
Search Buffer (m):	100

Site Details

Interbrew UK Ltd, Eastern Avenue, GLOUCESTER, GL4 6SW

Landmark Information Group



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WSP

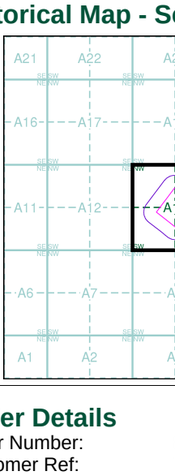
Additional SIMs

Published 1989

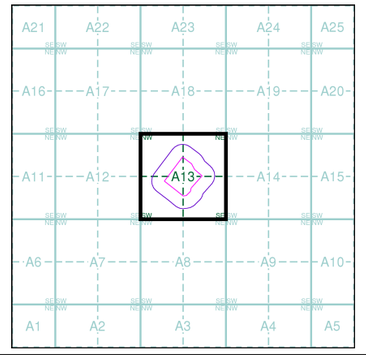
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	88327116_1_1
Customer Ref:	70020138-001
National Grid Reference:	384910, 217910
Slice:	A
Site Area (Ha):	4.76
Search Buffer (m):	100

Site Details

Interbrew UK Ltd, Eastern Avenue, GLOUCESTER, GL4 6SW

Landmark Information Group

WSP

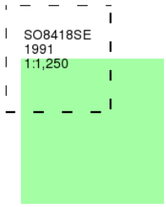
Additional SIMs

Published 1991

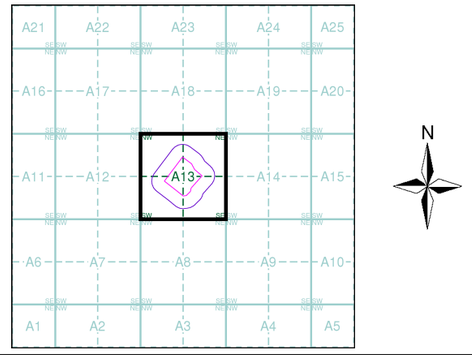
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	88327116_1_1
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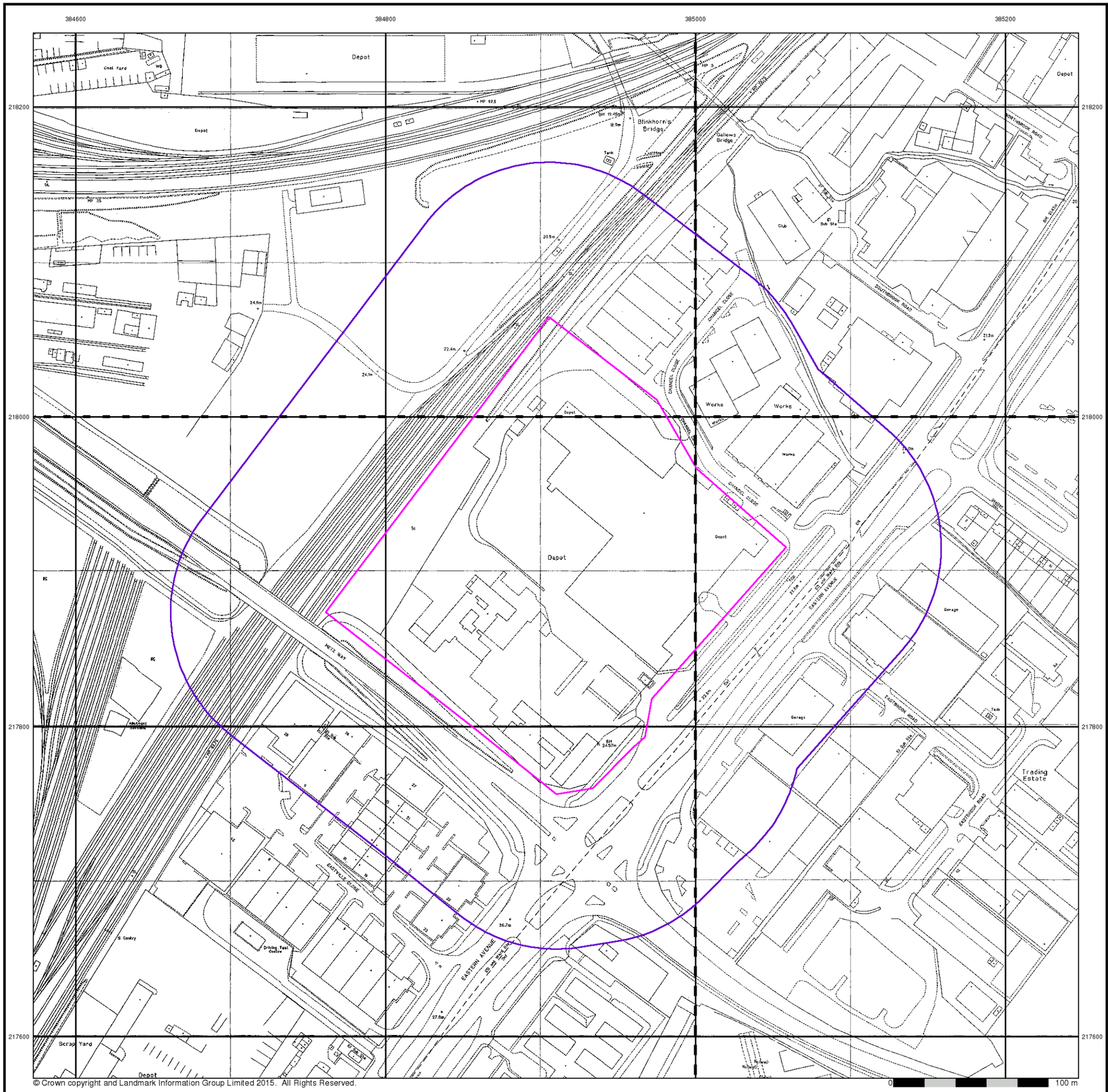
National Grid Reference:	384910, 217910
Slice:	A
Site Area (Ha):	4.76
Search Buffer (m):	100

Site Details

Interbrew UK Ltd, Eastern Avenue, GLOUCESTER, GL4 6SW

Landmark Information Group



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WSP

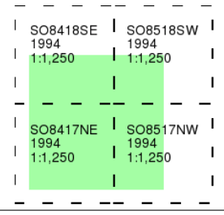
Large-Scale National Grid Data

Published 1994

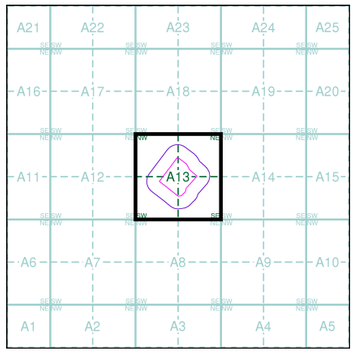
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



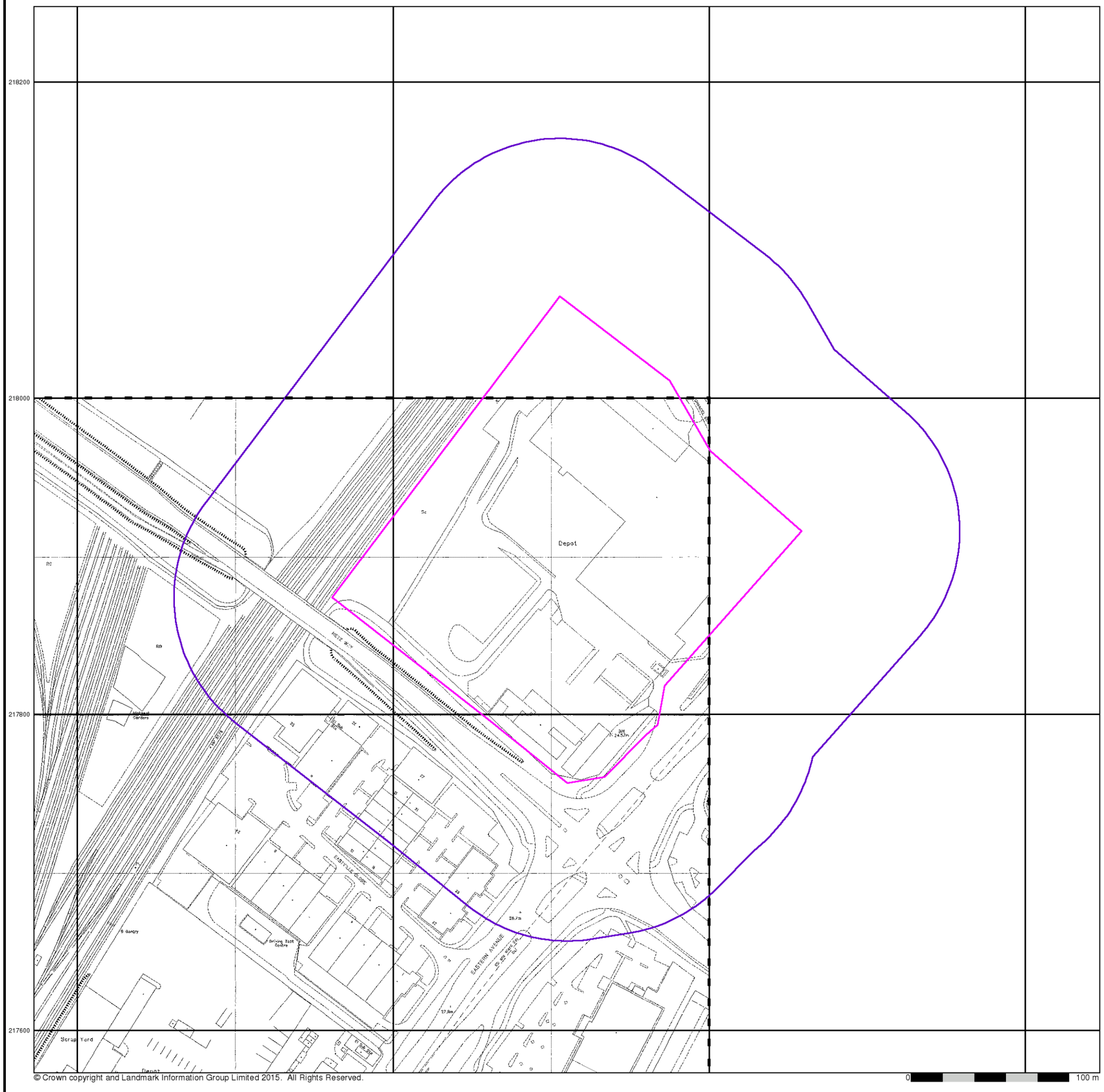
Order Details

Order Number:	88327116_1_1
Customer Ref:	70020138-001
National Grid Reference:	384910, 217910
Slice:	A
Site Area (Ha):	4.76
Search Buffer (m):	100

Site Details

Interbrew UK Ltd, Eastern Avenue, GLOUCESTER, GL4 6SW

Landmark Information Group



WSP

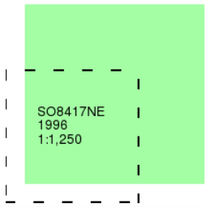
Large-Scale National Grid Data

Published 1996

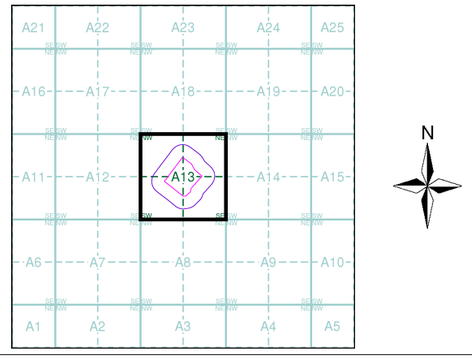
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	88327116_1_1
Customer Ref:	70020138-001
National Grid Reference:	384910, 217910
Slice:	A
Site Area (Ha):	4.76
Search Buffer (m):	100

Site Details

Interbrew UK Ltd, Eastern Avenue, GLOUCESTER, GL4 6SW

Landmark Information Group

Name of Shaft or Bore given by Geological Survey:

SO 81 NE/8A

Name and Number given by owner:
Borehole No. 1.

For whom made

Town or Village Gloucester County

Exact site

Attach a tracing from a map, or a sketch-map, if possible.

Purpose for which made

Nat. Grid Reference
85133 [redacted]

1" N.S. Map No.	1" O.S. Map No.	Confidential or not
234		

Ground Level at shaft bore relative to O.D. If not ground level give O.D. of beginning of shaft bore

Made by Date of sinking

Information from Date received

Examined by

SPECIMEN NUMBERS AND ADDITIONAL NOTES

(For Survey use only) Geological Classification	DESCRIPTION OF STRATA	Thickness Ft	Thickness in.	Depth Ft	Depth in.
	Top soil	1	0	(M) (0.30) 1	0
	Firm to stiff grey and brown slightly silty clay	4	9	(1.75) 5	9
	Stiff grey shaley clay with occasional iron-stained shale layers	7	9	(4.11) 13	6
	Very stiff grey clay shale with occasional stiff clay, silty and brittle in parts	9	6	(7.01) 23	0

British Geological Survey

Name of Shaft or Bore given by Geological Survey:

SO 81 NE/8B

Name and Number given by owner: Borehole No. 2

Nat. Grid Reference: 85129 18120

For whom made

Town or Village: Gloucester County

Exact site

Attach a tracing from a map, or a sketch-map, if possible.

1"N.S. Map No.	1"O.S. Map No.	Confidential or not
234		

Purpose for which made

Ground Level at shaft bore relative to O.D. If not ground level give O.D. of beginning of shaft bore

Made by Date of sinking

Information from Date received

Examined by

SPECIMEN NUMBERS AND ADDITIONAL NOTES

(For Survey use only) Geological Classification	DESCRIPTION OF STRATA	Thickness Ft	Thickness in.	Depth (m) Ft	Depth in.
	Loamy topsoil	1	0	(0.30) 1	0
	Firm becoming stiff with depth, yellowish and mottled clay	3	3	(1.30) 4	3
	Stiff grey, weathered yellow in part, silty shaley clay becoming stiffer with increasing depth	8	3	(3.81) 12	6
	Very stiff grey shaley clay with occasional hard shale layers	9	0	(6.55) 21	6

Name of Shaft or Bore given by Geological Survey:

SO 81 NE/ [redacted] 8C

Name and Number given by owner:
Borehole No. 3.

Nat. Grid Reference
85138 18155

For whom made

Town or Village Gloucester County

Exact site

Attach a tracing from a map, or a sketch-map, if possible.

1"N.S. Map No.	1"O.S. Map No.	Confidential or not
234		

Purpose for which made

Ground Level at shaft bore relative to O.D. If not ground level give O.D. of beginning of shaft bore

Made by Date of sinking

Information from Date received

Examined by

SPECIMEN NUMBERS AND ADDITIONAL NOTES

(For Survey use only) Geological Classification	DESCRIPTION OF STRATA	Thickness Ft	Thickness in.	Depth Ft	Depth in.
	Topsoil		9	(M) (0.73)	9
	Fine yellowish silty clay	2	9	(1.07) 3	6
	Brownish silty clay		6	(1.22) 4	0
	Firm to stiff mottled silty clay becoming stiff and shaley with increasing depth	4	9	(2.67) 8	9
	Very stiff grey shaley clay with occasional hard shale layers	12	3	(6.40) 21	0

RECORD OF SHAFT OR BORE FOR MINERALS

SO 81 NE/8D

Name of Shaft or Bore given by Geological Survey:

Name and Number given by owner: Borehole No. 4.

Nat. Grid Reference: 85164 18150

For whom made

Town or Village: Gloucester County

Exact site

Attach a tracing from a map, or a sketch-map, if possible.

Purpose for which made

1"N.S. Map No.	1"O.S. Map No.	Confidential or not
234		

Ground Level at shaft / bore relative to O.D. If not ground level give O.D. of beginning of shaft / bore

Made by Date of sinking

Information from Date received

Examined by

SPECIMEN NUMBERS AND ADDITIONAL NOTES

(For Survey use only) Geological Classification	Description of Strata	Thickness Ft	Thickness in.	Depth Ft	Depth in.
	Topsoil	1	0	(M) 1 (0.30)	0
	Firm to stiff yellowish brown silty clay	3	0	(1.22) 4	0
	Firm to stiff mottled silty fissured clay	1	3	(1.60) 5	3
	Stiff grey shaley clay with some hard shale layers	15	3	(6.25) 20	6

British Geological Survey

Name of Shaft or Bore given by Geological Survey:

SO 81 NE/8E

Name and Number given by owner: Borehole No. 5.

Nat. Grid Reference: 85138 18130

For whom made

Town or Village Gloucester County

Exact site (Attach a tracing from a map, or a sketch-map, if possible.)

1" N.S. Map No.	1" O.S. Map No.	Confidential or not
234		

Purpose for which made

Ground Level at shaft bore relative to O.D. If not ground level give O.D. of beginning of shaft bore

Made by Date of sinking

Information from Date received

Examined by

SPECIMEN NUMBERS AND ADDITIONAL NOTES

(For Survey use only) Geological Classification	DESCRIPTION OF STRATA	Thickness Ft	Thickness In.	Depth Ft	Depth In.
	Topsoil	1	0	(m) (0.30) 1	0
	Firm, becoming stiff with increasing depth, yellowish and mottled clay	3	9	(1.45) 4	9
	Stiff, becoming very stiff, grey shaley clay	11	3	(4.88) 16	0
	Hard grey shaley clay, silty and iron-stained in parts	5	6	(6.55) 21	6

[redacted]

To: [redacted]
Subject: RE: Eastern Avenue, Gloucester

From: [redacted]
Sent: 14 June 2016 14:40
To: [redacted]
Cc: [redacted]
Subject: RE: Eastern Avenue, Gloucester

[redacted]

Please find below a pre-desk study assessment for the site. It appears that the site was part of an RAF facility during WWII (RAF Barnwood), with an associated military camp possibly related to a local Anti-Aircraft (AA) gun battery and as accomodation for American troops in the build-up to D-Day. Likely that some more detailed research would unveil some useful plans indicating exact use of each building.

Hope this helps for now. If you have any questions, don't hesitate to contact us.

zeticaUXO

Pre-Desk Study Assessment

Site:	Eastern Avenue, Gloucester
Client:	WSP Parsons Brinckerhoff
Contact:	[redacted]
Date:	14th June 2016
Pre-WWI Military Activity on or Affecting the Site	None identified.
WWI Military Activity on or Affecting the Site	None identified.
WWI Strategic Targets (within 5km of Site)	The following strategic targets were located within the vicinity of the Site: ■ Docklands, with associated wharves and warehouses. ■ Industries important to the war effort, including engineering works, saw mills and timber yards. ■ Public utilities and transport infrastructure, including the Gloucester & Sharpness Canal.
WWI Bombing	None identified on the Site.
Interwar Military Activity on or Affecting the Site	None identified.
WWII Military Activity on or Affecting the Site	Royal Air Force (RAF) Barnwood and an associated military camp were established on land surrounding the Site. RAF Barnwood was an administrative centre, which was tasking with organising and coordinating the movement of personnel and equipment. A camp was constructed to accommodate RAF staff, in addition to troops which manned nearby Anti-Aircraft (AA) defences. The camp was also used to accommodate American troops prior to D-Day.

WWII Strategic Targets (within 5km of Site)	The following strategic targets were located in the vicinity of the Site: ■ RAF Barnwood and military camp. ■ Docklands, with associated wharves and warehouses. ■ Industries important to the war effort, including engineering works, saw mills and timber yards. ■ Public utilities and transport infrastructure, including the Gloucester & Sharpness Canal. ■ 1No. military depot at Gloucester Docks. ■ RAF technical school. ■ AA and anti-invasion defences.
WWII Bombing Decoys (within 5km of Site)	None.
WWII Bombing	During WWII the Site was located in the County Borough (CB) of Gloucester which officially recorded 7No. High Explosive (HE) bombs with a very low regional bombing density of 1.5 bombs per 405 hectares (ha). No readily available records have been found indicating that HE bombs fell on the Site.
Post-WWII Military Activity on or Affecting the Site	After WWII the camp was gradually dismantled. RAF Barnwood itself continued to operate until the 1970s.
Recommendation	During WWII, the Site comprised part of an RAF establishment and associated military camp, which involved the occupation of American troops. The exact use of the military facilities surrounding the Site is unknown at this stage of the research. Given this, a detailed desk study is recommended to assess, and potentially zone, the Unexploded Ordnance (UXO) hazard level on the Site.
This summary is based on a cursory review of readily available records. Caution is advised if you plan to action work based on this summary. It should be noted that where a potentially significant source of UXO hazard has been identified on the Site, the requirement for a detailed desk study and risk assessment has been confirmed and no further research will be undertaken at this stage. It is possible that further in-depth research as part of a detailed UXO study and risk assessment may identify other potential sources of UXO hazard on the Site.	

Kind regards

[redacted]

[redacted]
Lead Researcher
Zetica Limited

[redacted] | W. www.zetica.com | T. @ZeticaLtd

Appendix D

EXPLORATORY HOLE LOGS

WSP UK Limited 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700	**BOREHOLE LOG**	Hole No. **BH01**
	Project: Former Interbrew Site, Gloucester	Sheet: 1 of 2
Job No: 70020138	Client: Paloma Capital LLP	Date: 02-06-16 02-06-16

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Dando 2000	[redacted]	E 384783.386 N 217876.620	24.643

SAMPLES & TESTS							STRATA						
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	Install / Backfill	Dia. mm
							24.39	0.25	Reinforced CONCRETE.		CONC		
							24.19	0.45	Light pinkish brown sandy fine and medium angular GRAVEL of limestone. Sand is medium to coarse. (MADE GROUND)		GMG		
0.50-1.00	B							(0.70)	Soft dark brown slightly sandy slightly gravelly CLAY. Gravel is fine angular to sub-rounded of quartz and limestone fragments. Sand is medium to coarse. Occasional re-bar and steel cable fragments encountered. (MADE GROUND)		CMG		
0.50-0.50	D												
0.60-0.60	ES						23.49	1.15					
1.20	SPT	18,7,2 7,7,5 N=21(S)				1	23.04	1.60	Soft dark yellowish brown slightly sandy slightly gravelly CLAY. Gravel is fine angular to rounded of flint, sandstone and occasional coal fragments. Sand is medium to coarse. (ALLUVIUM)		ALV		
1.20-1.20	D								Firm dark bluish grey silty slightly gravelly CLAY. Gravel is fine sub-angular of flint. Occasional shell fragments. (Weathered BLUE LIAS FORMATION and CHARMOUTH MUDSTONE FORMATION)				
1.20-1.20	ES												
1.50-1.50	D												
1.80-1.80	ES												
2.00	SPT	4,4,3 4,4,4 N=15(S)											
2.00-2.00	D												
2.50-3.00	B												
2.50-2.50	D												
3.00-3.00	D												
3.00-3.25	U100	100 blows 50% recovery											
3.50-3.50	D												
4.00	SPT	7,9,8 9,10,10 N=37(S)							4.00 Becoming stiff 4.00 - 4.00 Becoming stiff				
4.00-4.00	D							(5.65)			CHAM		
4.50-4.50	D												
5.00	SPT	4,6,7 8,8,11 N=34(S)											
5.00-5.00	D												
5.50-6.00	B												
5.50-5.50	D												
6.00	SPT	9,10,9 10,13,18 N=50/ 0.28(S)							6.45 Becoming weathered mudstone 6.45 - 6.45 Becoming weathered mudstone				
6.00-6.00	D												
6.50-6.50	D												
7.00	SPT	10,14,26 24,0,0 N=50/ 0.145(S)					17.39	7.25					
7.00-7.00	D								Hole terminated at 7.25m bgl on effective refusal		END		

Boring Progress						Water Strikes					
Date	Time	Depth	Casing Dpt	Dia. (mm)	Water Dpt	Date	Time	Strike	Minutes	Standing	Casing
						02-06-16		1.30			

Chiselling				Water Added	
From	To	Hours	Tool	From	To

General Remarks

Hole terminated at 7.25m bgl on effective refusal. Groundwater encountered at 1.30m bgl. No visual or olfactory evidence of contamination encountered.

Scale 1:62.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP BH LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

LEGEND

CONCRETE

GRANULAR MADE GROUND

COHESIVE MADE GROUND

Sandy gravelly CLAY

Silty gravelly CLAY

WSP UK Limited 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700	**BOREHOLE LOG**	Hole No. **BH02**
	Project: Former Interbrew Site, Gloucester	Sheet: 1 of 2
Job No: 70020138	Client: Paloma Capital LLP	Date: 06-06-16 06-06-16

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Dando 2000	[redacted]	E 385035.798 N 217905.083	22.532

SAMPLES & TESTS							STRATA					
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	Install / Backfill Dia. mm
							22.38	0.15	ASPHALT.		TARMAC	
							22.23	0.30	Dark pinkish brown sandy fine and medium angular GRAVEL of limestone. Sand is medium to coarse. (MADE GROUND)		GMG	
							22.13	0.40	Light orangish brown fine sub-angular to rounded GRAVEL of quartz. (MADE GROUND)		GMG	
0.50-1.00	B							(1.30)	Firm dark yellowish brown slightly sandy slightly gravelly CLAY. Gravel is fine and medium angular to sub-rounded of flint and occasional mudstone. Sand is medium. (ALLUVIUM)		ALV	
0.50-0.50	D						20.83	1.70	Stiff dark bluish grey silty slightly gravelly CLAY. Gravel is fine angular of mudstone. Occasional shell fragments encountered. (Weathered BLUE LIAS FORMATION and CHARMOUTH MUDSTONE FORMATION)		CHAM	
0.50-0.50	ES						15.23	7.30	Hole terminated at 7.30m bgl on effective refusal		END	
1.20	SPT	1,2,2 2,3,3 N=10(S)										
1.20-1.20	D											
1.50-1.50	D											
1.80-1.80	ES											
2.00-2.50	B											
2.00-2.00	D											
2.00-2.00	U100	93 blows										
2.50-2.50	D											
3.00	SPT	6,6,6 7,9,10 N=32(S)										
3.00-3.00	D											
3.50-3.50	D											
4.00	SPT	6,7,7 8,10,10 N=35(S)										
4.00-4.00	D											
4.50-4.50	D											
5.00	SPT	6,7,8 11,13,15 N=47(S)										
5.00-5.00	D											
5.50-5.50	D											
6.00	SPT	6,8,12 17,17,4 N=50/ 0.23(S)										
6.00-6.00	D											
6.50-7.00	B											
6.50-6.50	D											
7.00	SPT	7,7,10 21,19,0 N=50/ 0.21(S)										
7.00-7.00	D											

Boring Progress						Water Strikes					
Date	Time	Depth	Casing Dpt	Dia. (mm)	Water Dpt	Date	Time	Strike	Minutes	Standing	Casing

Chiselling				Water Added	
From	To	Hours	Tool	From	To

General Remarks

Hole terminated at 7.30m bgl on effective refusal. No groundwater encountered. No visual or olfactory evidence of contamination encountered.

Scale 1:62.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

LEGEND

Tarmac

GRANULAR MADE GROUND

Sandy gravelly CLAY

Silty gravelly CLAY

WSP UK Limited 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700	**BOREHOLE LOG**	Hole No. **BH03**
	Project: Former Interbrew Site, Gloucester	Sheet: 1 of 2
Job No: 70020138	Client: Paloma Capital LLP	Date: 06-06-16 06-06-16

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Dando 2000	[redacted]	E 384901.364 N 217777.526	24.396

SAMPLES & TESTS							STRATA					
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	Install / Backfill Dia. mm
							24.30	0.10	ASPHALT.		TARMAC	
							24.15	0.25	CONCRETE.		CONC	
							24.00	0.40	Light orangish brown slightly clayey sandy fine and medium angular GRAVEL of limestone. Sand is medium. (MADE GROUND)		GMG	
0.40-0.40	ES											
0.50-0.50	D											
0.80-0.80	ES							(1.00)	Firm locally stiff dark yellowish brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine angular of flint and mudstone. Sand is medium. (ALLUVIUM)		ALV	
1.00-1.50	B											
1.20	SPT	2,2,3 2,3,3 N=11(S)					23.00	1.40				
1.20-1.20	D								Stiff dark bluish grey silty slightly gravelly CLAY. Gravel is fine angular of mudstone. Occasional shell fragments. (Weathered BLUE LIAS FORMATION and CHARMOUTH MUDSTONE FORMATION)			
1.50-1.50	D											
2.00-2.50	B											
2.00-2.00	D					1						
2.00-2.45	U100	93 blows										
3.00	SPT	4,5,5 6,7,9 N=27(S)										
3.00-3.00	D											
3.50-3.50	D											
4.00	SPT	4,6,6 8,9,9 N=32(S)						(5.90)			CHAM	
4.00-4.00	D											
4.50-4.50	D											
5.00	SPT	6,3,7 7,8,10 N=32(S)										
5.00-5.00	D											
5.50-5.50	D											
6.00	SPT	5,6,9 10,16,15 N=50/ 0.777(S)										
6.00-6.00	D											
6.50-7.00	B											
6.50-6.50	D											
7.00	SPT	5,7,11 29,10,0 N=50/ 0.155(S)					17.10	7.30				
7.00-7.00	D								Hole terminated at 7.30m bgl on effective refusal		END	

Boring Progress						Water Strikes					
Date	Time	Depth	Casing Dpt	Dia. (mm)	Water Dpt	Date	Time	Strike	Minutes	Standing	Casing
						06-06-16		2.30			

Chiselling				Water Added	
From	To	Hours	Tool	From	To

General Remarks

Hole terminated at 7.30m bgl on effective refusal. Groundwater encountered at 2.30m bgl. No visual or olfactory evidence of contamination encountered.

Scale 1:62.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

LEGEND

Tarmac

CONCRETE

GRANULAR MADE GROUND

Sandy gravelly CLAY

Silty gravelly CLAY

WSP UK Limited 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700	**BOREHOLE LOG**	Hole No. **BH04**
	Project: Former Interbrew Site, Gloucester	Sheet: 1 of 2
Job No: 70020138	Client: Paloma Capital LLP	Date: 02-06-16 03-06-16

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Dando 2000	[redacted]	E 384918.479 N 218044.298	22.036

SAMPLES & TESTS							STRATA						Install / Backfill
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology		Dia. mm
							21.74	0.30	Reinforced CONCRETE.		CONC		
							21.44	0.60	Light pinkish brown sandy fine and medium angular GRAVEL of limestone. Sand is fine to coarse. (MADE GROUND)		GMG		
0.50-1.00	B							(0.50)	Dark brown slightly sandy slightly gravelly CLAY. Gravel is fine and medium angular to sub-rounded of limestone, quartz and occasional brick fragments. Sand is medium to coarse. (MADE GROUND)		CMG		
0.50-0.50	D						20.94	1.10					
0.70-0.70	ES												
1.20	SPT	1,1,2 2,2,2 N=8(S)							Soft dark yellowish brown slightly sandy slightly gravelly CLAY. Gravel is fine angular to sub-rounded of flint, sandstone and occasional coal fragments. Sand is medium. (ALLUVIUM)				
1.20-1.20	D							(1.10)			ALV		
1.20-1.20	ES								1.50 Becoming mottled orange / brown				
1.50-2.00	B								1.50 - 1.50 Becoming mottled orange / brown				
1.50-1.50	D						19.84	2.20					
2.00-2.00	D								Firm dark bluish grey silty slightly gravelly CLAY. Gravel is fine angular of mudstone. Occasional shell fragments. (Weathered BLUE LIAS FORMATION and CHARMOUTH MUDSTONE FORMATION)				
2.00-2.45	U100	100 blows											
2.50-2.50	D												
3.00	SPT	5,6,6 6,5,7 N=24(S)											
3.00-3.00	D												
3.50-3.50	B												
3.50-3.50	D												
4.00	SPT	6,7,6 7,8,9 N=30(S)							4.00 Becoming stiff				
4.00-4.00	D								4.00 - 4.00 Becoming stiff				
4.50-4.50	D							(5.20)			CHAM		
5.00	SPT	7,9,9 10,9,11 N=39(S)											
5.00-5.00	D												
5.50-5.50	ES												
6.00	SPT	6,9,11 14,14,11 N=50/ 0.275(S)											
6.00-6.00	D												
6.50-6.50	D												
7.00	SPT	7,9,11 15,17,7 N=50/ 0.275(S)					14.64	7.40					
7.00-7.00	D								Hole terminated at 7.40m bgl on effective refusal		END		

Boring Progress						Water Strikes					
Date	Time	Depth	Casing Dpt	Dia. (mm)	Water Dpt	Date	Time	Strike	Minutes	Standing	Casing

Chiselling				Water Added	
From	To	Hours	Tool	From	To

General Remarks

Hole terminated at 7.40m bgl on effective refusal. No groundwater encountered. No visual or olfactory evidence of contamination encountered.

Scale 1:62.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP BH LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

LEGEND

CONCRETE

GRANULAR MADE GROUND

COHESIVE MADE GROUND

Sandy gravelly CLAY

Silty gravelly CLAY

WSP UK Limited 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700	**BOREHOLE LOG**	Hole No. **BH05**
	Project: Former Interbrew Site, Gloucester	Sheet: 1 of 2
Job No: 70020138	Client: Paloma Capital LLP	Date: 03-06-16 03-06-16

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Dando 2000	[redacted]	E 384886.675 N 217885.806	24.223

SAMPLES & TESTS							STRATA					
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	Install / Backfill Dia. mm
							23.92	0.30	Reinforced CONCRETE.		CONC	
0.50-0.50	D						23.32	(0.60) 0.90	Light brown sandy fine and medium angular to sub-angular GRAVEL of limestone. Sand is fine to medium. (MADE GROUND)		GMG	
0.85-0.85	ES											
1.00-1.50	B								Soft to firm dark yellowish brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is fine sub-angular of mudstone. Sand is medium. (ALLUVIUM)			
1.20	SPT	2,2,2 2,3,3 N=10(S)										
1.20-1.20	D											
1.20-1.20	ES											
1.50-1.50	D											
2.00	SPT	2,3,4 4,4,5 N=17(S)						(2.50)			ALV	
2.00-2.00	D											
2.50-2.50	D											
3.00	SPT	2,3,4 4,6,7 N=21(S)							3.00 - 3.40 Becoming bluish grey			
3.00-3.00	D						20.82	3.40				
3.50-3.50	D								Stiff dark bluish grey silty slightly gravelly CLAY. Gravel is fine angular of mudstone. (Weathered BLUE LIAS FORMATION and CHARMOUTH MUDSTONE FORMATION)			
3.50-3.50	ES											
4.00	SPT	4,5,7 9,9,11 N=36(S)										
4.00-4.50	B											
4.00-4.00	D											
4.50-4.50	D							(3.00)			CHAM	
5.00	SPT	5,8,10 17,15,8 N=50/ 0.235(S)										
5.00-5.00	D											
5.50-6.00	B											
5.50-5.50	D											
6.00	SPT	7,9,11 15,17,7 N=50/ 0.24(S)					17.82	6.40				
6.00-6.00	D								Hole terminated at 6.40m bgl on effective refusal		END	

Boring Progress						Water Strikes					
Date	Time	Depth	Casing Dpt	Dia. (mm)	Water Dpt	Date	Time	Strike	Minutes	Standing	Casing

Chiselling				Water Added	
From	To	Hours	Tool	From	To

General Remarks

Hole terminated at 6.40m bgl on effective refusal. No groundwater encountered. No visual or olfactory evidence of contamination encountered.

Scale 1:62.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP BH LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

LEGEND

CONCRETE

GRANULAR MADE GROUND

Sandy gravelly CLAY

Silty gravelly CLAY

WSP UK Limited 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700	**BOREHOLE LOG**	Hole No. **BH101**
	Project Former Interbrew Site, Gloucester	Sheet 1 of 2
Job No 70020138	Client Paloma Capital LLP	Date 08-02-18 09-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Borehole Solutions Limited	Dando 2000	[redacted]	E 384849.224 N 217907.171	24.390

SAMPLES & TESTS							STRATA					Install / Backfill
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	Dia. mm
							24.19	0.21	CONCRETE. Geotextile membrane at base.		CONC	
0.30-0.30	ES		0				23.94	0.45	Reddish brown sandy fine to coarse very angular to subrounded GRAVEL of limestone. Geotextile membrane at base. (MADE GROUND)		GMG	
0.50-0.50	D		0						Firm light bluish grey mottled brown slightly gravelly slightly sandy CLAY. Gravel is medium and coarse angular to subrounded of mudstone and limestone. (MADE GROUND)			
0.60-0.60	ES											
1.00-1.00	D							(1.55)			CMG	
1.50	SPT	1,2,2 1,2,2 N=7(S)					22.39	2.00				
1.50-1.50	D								Firm dark bluish grey slightly gravelly CLAY. Gravel is fine subrounded to rounded of mudstone. With rare shell fragments.			
2.00-2.00	U	65 blows										
2.50-2.50	D											
3.00	SPT	2,2,3 4,5,5 N=17(S)										
3.00-3.00	D											
3.50-3.50	D											
4.00-4.45	U	160 blows										
4.50-4.50	D											
5.00	SPT	5,5,8 9,10,14 N=41(S)						(6.38)			CHAM	
5.00-5.00	D											
6.00-6.45	D											
6.50	SPT	5,7,10 13,16,11 N=50/ 0.269(S)										
6.50-6.50	D											
7.50-7.50	D											
8.00	SPT	7,8,11 15,21,3 N=50/ 0.23(S)					16.01	8.38				
8.00-8.38	D								Borehole completed at 8.38m bgl.		END	

Boring Progress						Water Strikes					
Date	Time	Depth	Casing Dpt	Dia. (mm)	Water Dpt	Date	Time	Strike	Minutes	Standing	Casing

Chiselling				Water Added		General Remarks
From	To	Hours	Tool	From	To	Hand dug trial pit to 1.50m bgl. No groundwater encountered. No visual or olfactory evidence of contamination encountered. Hole complete at 8.45m bgl.

Scale 1:62.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP BH LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

LEGEND

CONCRETE

GRANULAR MADE GROUND

COHESIVE MADE GROUND

Gravelly CLAY

WSP UK Limited 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700	**BOREHOLE LOG**	Hole No. **BH102**
	Project: Former Interbrew Site, Gloucester	Sheet: 1 of 2
Job No: 70020138	Client: Paloma Capital LLP	Date: 08-02-18 08-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Borehole Solutions Limited	Dando 2000	[redacted]	E 384890.831 N 217962.196	22.360

SAMPLES & TESTS							STRATA					
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	Install / Backfill Dia. mm
							22.09	0.27	Reinforced CONCRETE. Reinforcing bar at 0.175m.		CONC	
0.30-0.50	ES		0				21.96	0.40	Brown clayey slightly sandy medium and coarse subrounded to angular GRAVEL of limestone. (MADE GROUND)		GMG	
0.30-0.40	ES											
0.50-0.50	B											
0.60	D		0					(0.98)	Greenish brown slightly clayey slightly gravelly medium and coarse SAND. Gravel is fine and medium subrounded and angular of limestone. (MADE GROUND)		GMG	
0.75	ES											
1.20	D						20.98	1.38				
1.40	ES		0						Firm dark bluish grey slightly gravelly CLAY. Gravel is fine subrounded of mudstone.			
1.45-1.45	ES		0									
1.50-1.95	U100											
1.60-1.60	ES											
2.00	SPT	2,2,2 2,3,4 N=11(S)										
2.50	D											
2.60	D											
3.00-3.45	U											
3.50	D											
4.00	SPT	4,4,4 6,7,9 N=26(S)							4.00 Becoming stiff			
4.00-4.45	D											
4.00	D											
4.50	D							(6.97)			CHAM	
5.00-5.45	U100											
5.50	D											
6.50	SPT	3,6,9 15,18,8 N=50/ 0.24(S)										
6.50	D											
7.50	D											
8.00	SPT	9,14,15 18,17,0 N=50/ 0.2(S)					14.01	8.35				
8.00	D								Borehole completed at 8.35m bgl.		END	

Boring Progress						Water Strikes					
Date	Time	Depth	Casing Dpt	Dia. (mm)	Water Dpt	Date	Time	Strike	Minutes	Standing	Casing

Chiselling				Water Added	
From	To	Hours	Tool	From	To
				3	4
				6	6.5

General Remarks
Hand dug trial pit to 1.50m bgl
No groundwater encountered.
No visual or olfactory evidence of contamination.
Hole complete at 8.45m bgl.

Scale 1:62.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP BH LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

LEGEND

CONCRETE

GRANULAR MADE GROUND

Gravelly CLAY

WSP UK Limited 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700	**BOREHOLE LOG**	Hole No. **BH103**
	Project: Former Interbrew Site, Gloucester	Sheet: 1 of 2
Job No: 70020138	Client: Paloma Capital LLP	Date: 08-02-18 08-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Borehole Solutions Limited	Dando 2000	[redacted]	E 384951.467 N 217888.677	22.586

SAMPLES & TESTS							STRATA					
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	Install / Backfill Dia. mm
							22.43	0.16	CONCRETE.		CONC	
0.25-0.40	ES		2				22.19	0.40	Light grey slightly clayey sandy fine to coarse very angular to subangular GRAVEL of limestone. (MADE GROUND)		GMG	
0.30-0.40	ES						22.14	0.45			GMG	
0.50-1.00	B		3					(0.75)	Light grey coarse angular GRAVEL of limestone with frequent cobbles of limestone. (MADE GROUND)		ALV	
0.50-0.50	D											
0.60-0.70	ES											
0.75-0.75	ES						21.39	1.20	Soft very dark brown CLAY with rare fragments of wood and relic plant shoots. (ALLUVIUM)			
1.00-1.00	D											
1.20	SPT	1,2,1 2,2,2 N=7(S)							Stiff bluish grey mottled brown CLAY.			
1.20-1.20	D											
1.45-1.45	ES											
1.80	D											
1.80-1.80	D											
2.00-2.45	U											
2.50-2.50	ES		0					(3.10)			CHAM	
3.00	SPT	3,3,7 8,8,9 N=32(S)										
3.00-3.00	D											
3.50-3.50	D											
4.00-4.45	U						18.29	4.30				
									Stiff very dark bluish grey CLAY with pockets of reddish brown sand.			
4.50-4.50	D											
5.00	SPT	4,6,11 13,16,14 N=54/ 0.285(S)										
6.00-6.00	D											
								(3.98)			CHAM	
6.50	SPT	6,9,17 26,7,0 N=50/ 0.16(S)										
8.00	SPT	7,74,22 28,0,0 N=50/ 0.135(S)					14.31	8.28				
									Borehole completed at 8.28m bgl.		END	
8.00-8.10	D											

Boring Progress						Water Strikes					
Date	Time	Depth	Casing Dpt	Dia. (mm)	Water Dpt	Date	Time	Strike	Minutes	Standing	Casing
				140							

Chiselling				Water Added	
From	To	Hours	Tool	From	To

General Remarks

Hand dug trial pit to 1.10m bgl.
No groundwater encountered.
No visual or olfactory evidence of contamination encountered.
Hole complete at 8.1m bgl

Scale 1:62.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP BH LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

LEGEND

CONCRETE

GRANULAR MADE GROUND

CLAY

WSP UK Limited 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700	**BOREHOLE LOG**	Hole No. **BH104**
	Project Former Interbrew Site, Gloucester	Sheet 1 of 2
Job No 70020138	Client Paloma Capital LLP	Date 09-02-18 09-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Borehole Solutions Limited	Dando 2000	[redacted]	E 384984.602 N 217936.742	22.611

SAMPLES & TESTS							STRATA					
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	Install / Backfill Dia. mm
							22.27	0.34	Reinforced CONCRETE. Reinforcing bar at 0.3m.		CONC	
							22.06	0.55	Firm very dark brown sandy slightly gravelly CLAY. Gravel is medium and coarse angular to subrounded of brick and tile fragments, occasional coarse glass fragments and fine ash. Pockets of orangish brown clay. (MADE GROUND)		CMG	
0.50-0.50	ES		0					(0.95)				
0.50	ES											
0.60-1.20	B		0									
0.60-0.60	D											
0.80-0.80	ES								Soft light brown mottled orange gravelly CLAY. Gravel is fine to coarse angular to subrounded of mudstone. (MADE GROUND)		CMG	
0.80	ES						21.11	1.50				
1.20-1.20	D											
1.30-1.30	ES							(0.50)	Multi-coloured medium and coarse angular to subangular GRAVEL of foundary slag with with frequent cobble sized fragments of slag. (MADE GROUND)		GMG	
1.50-2.00	B											
1.50-2.00	U						20.61	2.00				
2.00	SPT	2,2,2 2,2,2 N=8(S)	0						Stiff locally very stiff light bluish grey slightly gravelly CLAY. Gravel is fine and medium angular to subrounded of mudstone.			
2.00	D											
2.00	ES											
2.50	D											
3.00	SPT	2,2,3 3,4,5 N=15(S)										
3.00	D											
3.50	D											
4.00	SPT	3,3,5 7,8,8 N=28(S)										
4.00	D											
4.50	D											
5.00	SPT	7,8,9 9,11,12 N=41(S)						(6.38)			CHAM	
5.00	D											
6.00	D											
6.50	SPT	6,9,10 15,18,7 N=50/ 0.24(S)										
6.50	D											
7.50	D											
8.00	SPT	8,15,25 25 N=50/ 0.125(S)					14.23	8.38				
8.00	D								Borehole completed at 8.38m bgl.		END	

Boring Progress						Water Strikes					
Date	Time	Depth	Casing Dpt	Dia. (mm)	Water Dpt	Date	Time	Strike	Minutes	Standing	Casing

Chiselling				Water Added	
From	To	Hours	Tool	From	To

General Remarks
Hand dug trial pit to 1.50m bgl
No groundwater encountered
No visual or olfactory evidence of contamination
Hole complete at 8.38m bgl.

Scale 1:62.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP BH LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

LEGEND

CONCRETE

COHESIVE MADE GROUND

GRANULAR MADE GROUND

Gravelly CLAY

WSP UK Limited
1 Queens Drive
Birmingham, B5 4PJ
Telephone: 0121 352 4700

WINDOW SAMPLE LOG

Hole No. **WS01**

Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No	Client	Date
70020138	Paloma Capital LLP	06-06-16 06-06-16

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Premier 110	[redacted]	E 384833.997 N 217856.831	24.504

SAMPLES & TESTS							STRATA					
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	Install / Backfill Dia. mm
							24.28	0.22	Reinforced CONCRETE.		CONC	
0.30-0.30	ES	.	10				23.94	(0.34) 0.56	Pinkish brown sandy slightly clayey fine to coarse angular to sub-angular GRAVEL of limestone. Sand is fine to coarse. (MADE GROUND)		GMG	
0.70-0.70	ES	.	10						Stiff bluish grey slightly sandy slightly gravelly silty CLAY. Gravel is fine and medium angular of mudstone. Sand is fine to medium. (Weathered BLUE LIAS FORMATION and CHARMOUTH MUDSTONE FORMATION)			
1.20	(S)	1,1,3 4,4,5 N=16.						(2.74)			CHAM	
2.00	(S)	3,4,5 5,6,10 N=26.										
3.00	(S)	6,6,10 11,15,14 N=50/ 0.245.					21.20	3.30				
									Hole terminated at 3.3m bgl on effective refusal		END	

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing

General Remarks
Hole terminated at 3.30m bgl due to effective refusal. No groundwater encountered. No visual or olfactory evidence of contamination encountered.

Scale 1:37.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP WINDOW SAMPLE LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

WSP UK Limited
1 Queens Drive
Birmingham, B5 4PJ
Telephone: 0121 352 4700

WINDOW SAMPLE LOG

Hole No. **WS02**

Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No: 70020138

Client: Paloma Capital LLP

Date: 06-06-16
06-06-16

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Premier 110	[redacted]	E 384858.903 N 217835.753	24.483

SAMPLES & TESTS							STRATA						Install / Backfill
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology		Dia. mm
							24.30	0.18	Reinforced CONCRETE.		CONC		
0.22-0.22	ES	.	38				24.05	0.43	Orangish grey sandy fine to coarse subangular GRAVEL of brick, sandstone and limestone. Sand is fine to coarse. (MADE GROUND)		GMG		
									Hole terminated at 0.43m bgl on concrete obstruction.		END		

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing

General Remarks
Hole terminated at 0.46m bgl on concrete obstruction. No groundwater encountered. No visual or olfactory evidence of contamination encountered.

Scale 1:37.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP WINDOW SAMPLE LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

WSP UK Limited
1 Queens Drive
Birmingham, B5 4PJ
Telephone: 0121 352 4700

WINDOW SAMPLE LOG

Hole No. **WS03**

Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No	Client	Date
70020138	Paloma Capital LLP	03-06-16 03-06-16

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Premier 110	[redacted]	E 384934.661 N 217799.367	24.242

SAMPLES & TESTS							STRATA						Install / Backfill
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology		Dia. mm
							23.98	0.26	Reinforced CONCRETE.		CONC		
							23.54	(0.44) 0.70	Pinkish grey sandy fine to coarse angular to subrounded GRAVEL of brick, concrete and sandstone. Sand is fine to coarse. Occasional sub-angular cobbles of brick and sandstone. (MADE GROUND)		GMG		
0.80-0.80	ES	.					23.34	0.90	Soft brownish yellow slightly gravelly slightly sandy CLAY. Gravel is fine to coarse sub-angular of sandstone and brick. (MADE GROUND)		CMG		
1.20-1.20	ES	.						(3.10)	Firm to stiff bluish grey slightly sandy slightly gravelly silty CLAY. Gravel is fine angular of mudstone. Sand is fine to medium. (Weathered BLUE LIAS FORMATION and CHARMOUTH MUDSTONE FORMATION)		CHAM		
4.00	(S)	6,8,13 13,13,11 N=50/ 0.25.					20.24	4.00	Hole terminated at 4m bgl on effective refusal.		END		

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing

General Remarks
Hole terminated at 4.00m bgl on effective refusal. No groundwater encountered. No visual or olfactory evidence of contamination encountered.

Scale 1:37.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP WINDOW SAMPLE LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

WSP UK Limited 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700	**WINDOW SAMPLE LOG**	Hole No. **WS04**
	Project Former Interbrew Site, Gloucester	Sheet 1 of 1
Job No 70020138	Client Paloma Capital LLP	Date 06-06-16 06-06-16

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Premier 110	[redacted]	E 384884.639 N 217907.420	22.598

SAMPLES & TESTS							STRATA					Install / Backfill
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	Dia. mm
							22.38	0.22	Reinforced CONCRETE.		CONC	
0.30-0.30	ES	.	0.3				22.00	(0.38) 0.60	Pinkish brown slightly sandy slightly gravelly CLAY. Gravel is fine and medium sub-angular of brick, concrete, mudstone and sandstone. Sand is fine to coarse. (MADE GROUND)		CMG	
0.60-0.60	ES	.	7.6					(2.40)	Firm to stiff bluish grey slightly sandy slightly gravelly silty CLAY. Gravel is fine and medium angular of mudstone. Sand is fine to medium. (Weathered BLUE LIAS FORMATION and CHARMOUTH MUDSTONE FORMATION)		CHAM	
3.00	(S)	5,6,12 12,16,10 N=50/ 0.255.					19.60	3.00	Hole terminated at 3m bgl on effective refusal.		END	

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing

General Remarks
Hole terminated at 3.00m bgl on effective refusal. No groundwater encountered. No visual or olfactory evidence of contamination encountered.

Scale 1:37.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP WINDOW SAMPLE LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

WSP UK Limited 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700	**WINDOW SAMPLE LOG**	Hole No. **WS05**
	Project Former Interbrew Site, Gloucester	Sheet 1 of 1
Job No 70020138	Client Paloma Capital LLP	Date 03-06-16 03-06-16

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Premier 110	[redacted]	E 384979.379 N 217993.159	21.940

SAMPLES & TESTS							STRATA						Install / Backfill
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description		Legend	Geology	Dia. mm
							21.69	0.25	Reinforced CONCRETE.			CONC	
							21.44	0.50	Pinkish brown sandy slightly clayey fine to coarse angular GRAVEL of limestone and occasional sub-angular brick. Sand is fine to coarse. (MADE GROUND)			GMG	
0.65-0.65	ES	.						(0.50)	Yellowish brown slightly sandy gravelly CLAY. Gravel is fine to coarse angular to sub-angular rough of limestone and brick. Sand is fine to coarse. (MADE GROUND)			CMG	
							20.94	1.00					
1.20-1.20	ES (S)	2,2,2 2,3,3 N=10.							Firm bluish grey slightly gravelly slightly sandy silty CLAY. Gravel is fine and medium angular of mudstone. Sand is fine to medium. (Weathered BLUE LIAS FORMATION and CHARMOUTH MUDSTONE FORMATION)				
2.00	(S)	4,4,5 5,5,5 N=20.						(2.00)	2.00 - 2.00 m bgl			CHAM	
							18.94	3.00					
3.00	(S)	5,5,10 12,15,13 N=50/ 0.26.							Hole terminated at 3m bgl on effective refusal			END	

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing

General Remarks
Hole terminated at 3.00m bgl on effective refusal. No groundwater encountered. No visual or olfactory evidence of contamination encountered.

Scale 1:37.5	Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP WINDOW SAMPLE LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

WSP UK Limited
1 Queens Drive
Birmingham, B5 4PJ
Telephone: 0121 352 4700

WINDOW SAMPLE LOG

Hole No. **WS06**

Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No: 70020138

Client: Paloma Capital LLP

Date: 03-06-16
03-06-16

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Premier 110	[redacted]	E 384931.155 N 217835.854	23.467

SAMPLES & TESTS							STRATA						Install / Backfill
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology		Dia. mm
							23.27	0.20	Brown slightly sandy slightly gravelly CLAY. Gravel is fine and medium sub-angular of flint and sandstone. Sand is fine to coarse. (TOPSOIL) (MADE GROUND)		CMG		
0.60-0.60	ES	.						(1.00)	Orangish brown slightly clayey slightly gravelly fine to coarse SAND. Gravel is fine and medium angular of brick, concrete and sandstone. Occasional metal fragments encountered. (MADE GROUND)		GMG		
1.20	(S)	1,1,1 1,1,1 N=4.					22.27	1.20					
1.30-1.30	ES	.							Firm to stiff bluish grey slightly sandy slightly gravelly silty CLAY. Gravel is fine and medium angular of mudstone. Sand is fine to medium. (Weathered BLUE LIAS FORMATION and CHARMOUTH MUDSTONE FORMATION)				
2.00	(S)	4,4,5 5,5,5 N=20.						(1.80)			CHAM		
							20.47	3.00					
3.00	(S)	5,5,9 12,15,14 N=50/ 0.265.							Hole terminated at 3m bgl on effective refusal.		END		

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing

General Remarks
Hole terminated at 3.00m bgl on effective refusal. No groundwater encountered. No visual or olfactory evidence of contamination encountered.

Scale 1:37.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP WINDOW SAMPLE LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

WSP UK Limited
1 Queens Drive
Birmingham, B5 4PJ
Telephone: 0121 352 4700

WINDOW SAMPLE LOG

Hole No. **WS07**

Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No: 70020138

Client: Paloma Capital LLP

Date: 03-06-16
03-06-16

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Premier 110	[redacted]	E 384867.341 N 217965.180	22.460

SAMPLES & TESTS							STRATA						Install / Backfill
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology		Dia. mm
							22.25	0.21	Reinforced CONCRETE.		CONC		
								(0.44)	Pinkish grey slightly gravelly fine to medium SAND. Gravel is fine and medium angular to sub-angular of sandstone. (MADE GROUND)		GMG		
						1	21.81	0.65					
0.65-0.85	ES	.							Yellowish brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded of flint. Sand is fine to coarse. (ALLUVIUM)				
0.70-0.70	ES	.						(0.79)	0.80 - 0.80 m bgl		ALV		
1.20	(S)	1,1,2 4,4,5 N=15.					21.02	1.44					
1.60-1.60	ES	.							Stiff bluish grey slightly sandy slightly gravelly silty CLAY. Gravel is fine and medium angular of mudstone. Sand is fine to medium. (Weathered BLUE LIAS FORMATION and CHARMOUTH MUDSTONE FORMATION)				
2.00	(S)	1,3,5 5,5,8 N=23.											
3.00	(S)	3,6,6 6,6,7 N=25.						(3.16)			CHAM		
4.00	(S)	8,10,13 15,15,7 N=50/ 0.245.					17.86	4.60					
									Hole terminated at 4.6m bgl on effective refusal.		END		

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing
						03-06-16		0.65			

General Remarks
Hole terminated at 4.60m bgl on effective refusal. Groundwater encountered at 0.65m bgl. No visual or olfactory evidence of contamination encountered.

Scale 1:37.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP WINDOW SAMPLE LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

WSP UK Limited 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700	**WINDOW SAMPLE LOG**	Hole No. **WS08**
	Project Former Interbrew Site, Gloucester	Sheet 1 of 1
Job No 70020138	Client Paloma Capital LLP	Date 03-06-16 03-06-16

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Premier 110	[redacted]	E 384896.207 N 217843.800	24.006

SAMPLES & TESTS							STRATA					Install / Backfill
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	Dia. mm
							23.75	0.26	Reinforced CONCRETE.		CONC	
0.30-0.30	ES	.					23.51	0.50	Orange sandy fine and medium sub-angular to angular GRAVEL of sandstone. Sand is fine to medium. (MADE GROUND)		GMG	
0.70-0.70	ES	.							Firm to stiff bluish grey slightly sandy slightly gravelly silty CLAY. Gravel is fine angular of mudstone. Sand is fine to medium. (Weathered BLUE LIAS FORMATION and CHARMOUTH MUDSTONE FORMATION)			
1.20	(S)	1,1,2 2,3,4 N=11.						(2.50)			CHAM	
2.00	(S)	3,3,5 7,7,10 N=29.					21.01	3.00				
3.00	(S)	6,8,10 11,13,16 N=50.							Hole terminated at 3m bgl on effective refusal.		END	

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing

General Remarks
Hole terminated at 3.00m bgl on effective refusal. No groundwater encountered. No visual or olfactory evidence of contamination encountered.

Scale 1:37.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP WINDOW SAMPLE LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

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WINDOW SAMPLE LOG

Hole No. **WS09**

Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No	Client	Date
70020138	Paloma Capital LLP	06-06-16 06-06-16

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Premier 110	[redacted]	E 384996.267 N 217854.413	22.597

SAMPLES & TESTS							STRATA						
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	Install / Backfill Dia. mm
							22.48	0.12	ASPHALT.		TARMAC	
							22.37	0.23	ASPHALT.		TARMAC	
0.20-0.20	ES	.	0						Greyish pink sandy fine to medium subangular GRAVEL of sandstone. Sand is fine to coarse. (MADE GROUND)		GMG	
0.35-0.35	ES	.	1.2						Firm to stiff bluish grey slightly sandy slightly gravelly silty CLAY. Gravel is fine angular of mudstone. Sand is fine to medium. (Weathered BLUE LIAS FORMATION and CHARMOUTH MUDSTONE FORMATION)			
								(1.77)			CHAM	
1.20	(S)	1,1,2 2,3,3 N=10.										
							20.60	2.00				
2.00	(S)	6,8,11 14,16,10 N=51/ 0.26.							Hole terminated at 2m bgl on effective refusal.		END	

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing

General Remarks
Hole terminated at 2.00m bgl on effective refusal. No groundwater encountered. No visual or olfactory evidence of contamination encountered.

Scale 1:37.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP WINDOW SAMPLE LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

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WINDOW SAMPLE LOG

Hole No. **WS10**

Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No: 70020138

Client: Paloma Capital LLP

Date: 06-06-16
06-06-16

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Premier 110	[redacted]	E 384837.737 N 217840.145	24.570

SAMPLES & TESTS							STRATA						Install / Backfill
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology		Dia. mm
							24.39	0.18	Reinforced CONCRETE.		CONC		
0.30-0.30	ES	.	10			1	24.07	(0.32) 0.50	Orange sandy fine and medium sub-angular GRAVEL of sandstone. Sand is fine to coarse. (MADE GROUND)		GMG		
								(0.80)	Light grey fine to coarse sub-angular GRAVEL of limestone and sandstone. (MADE GROUND) 0.80 - 0.80 m bgl		GMG		
1.20	(S)	2,2,1 2,3,3 N=9.					23.27	1.30	Firm to stiff bluish grey slightly gravelly slightly sandy silty CLAY. Gravel is fine angular of mudstone. Sand is medium. (Weathered BLUE LIAS FORMATION and CHARMOUTH MUDSTONE FORMATION)				
1.65-1.65	ES	.	75										
2.00	(S)	1,1,4 4,6,10 N=24.						(1.70)			CHAM		
2.50-2.50	ES	.	12.2										
							21.57	3.00					
3.00	(S)	5,5,10 11,14,15 N=50/ 0.27.							Hole terminated at 3m bgl on effective refusal.		END		

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing
						06-06-16		0.50			

General Remarks
Hole terminated at 3.00m bgl on effective refusal. Groundwater encountered at 0.50m bgl. Visual and olfactory evidence of contamination encountered. Geotextile membrane encountered at 0.50m bgl.

Scale 1:37.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP WINDOW SAMPLE LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

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WINDOW SAMPLE LOG

Hole No. **WS101**

Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No	Client	Date
70020138	Paloma Capital LLP	12-02-18 12-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Premier 110	[redacted]	E 384901.460 N 217795.290	24.470

SAMPLES & TESTS							STRATA					
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	Install / Backfill Dia. mm
							24.27	0.20	CONCRETE.		CONC	
0.30-0.45	ES	.						(0.29)	Very dark greyish black sandy fine and medium angular to subrounded GRAVEL of ash. (MADE GROUND)		GMG	
0.30-0.45	ES	.	0				23.98	0.49				
0.55-0.80	ES	.	0					(0.73)	Soft light greenish brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse of limestone and mudstone. (MADE GROUND)		CMG	
							23.25	1.22				
1.30-1.30	ES	.							Dark bluish grey slightly silty slightly gravelly CLAY with frequent orangish brown coarse sand pockets. Gravel is fine and medium angular to subrounded of mudstone and shell fragments.			
1.30-1.30	ES	.	0									
1.50	(S)	1,1,1 1,1,1 N=4.										
2.00	(S)	1,1,1 2,2,2 N=7.				▼1						
3.00	(S)	3,3,4 5,5,6 N=20.						(4.23)			CHAM	
4.00	(S)	6,6,7 7,10,10 N=34.										
5.00	(S)	10,11,11 13,13,13 N=50/ 0.28.					19.02	5.45				
									Borehole completed at 5.45m bgl.		END	

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing
								2.30			

General Remarks

Hand dug trial pit to 1.50m bgl
No visual or olfactory evidence of contamination encountered
Perched goundwater encountered at 3.00m bgl
Hole complete at 5.45m bgl

Scale 1:37.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP WINDOW SAMPLE LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

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WINDOW SAMPLE LOG

Hole No. **WS102**

Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No	Client	Date
70020138	Paloma Capital LLP	12-02-18 12-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Premier 110	[redacted]	E 384947.407 N 217829.043	23.273

SAMPLES & TESTS							STRATA					
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	Install / Backfill Dia. mm
							23.04	0.23	CONCRETE.		CONC	
0.30-0.50	ES	.							Soft greyish brown sandy gravelly CLAY. Gravel is fine to coarse very angular to subrounded of limestone and mudstone. (MADE GROUND)			
0.30-0.30	ES	.	0					(1.29)			CMG	
							21.75	1.52				
1.50	(S)	1,1,2 2,2,3 N=9.		4					Firm low strength light brownish grey mottled orangish brown slightly gravelly CLAY. Gravel is fine angular to subrounded of mudstone.			
1.60-1.60	ES	.		4				(0.68)			CHAM	
2.00	(S)	2,3,3 4,4,5 N=16.		30			21.07	2.20				
				80					Firm medium strength grey slightly gravelly slightly silty CLAY. Gravel is fine and medium angular to subrounded of mudstone and shell fragments.			
				60								
				60								
3.00	(S)	3,4,5 5,5,6 N=21.		78								
				68								
								(3.21)			CHAM	
4.00	(S)	6,6,7 7,9,10 N=33.										
5.00	(S)	10,10,13 15,17,10 N=55/ 0.26.					17.86	5.41				
									Borehole completed at 5.45m bgl.		END	

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing

General Remarks
Hand dug trial pit to 1.50m bgl
No visual or olfactory evidence of contamination
No groundwater encountered
Hole complete at 5.45m bgl

Scale 1:37.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP WINDOW SAMPLE LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

WSP UK Limited 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700	**WINDOW SAMPLE LOG**	Hole No. **WS103**
	Project Former Interbrew Site, Gloucester	Sheet 1 of 1
Job No 70020138	Client Paloma Capital LLP	Date 12-02-18 12-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Premier 110	[redacted]	E 384870.668 N 217812.189	24.445

SAMPLES & TESTS							STRATA					Install / Backfill
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	Dia. mm
							24.25	0.20	Reinforced CONCRETE. Rebar at 0.11m. Geotextile membrane at base.		CONC	
0.25-0.25 0.25-0.40	ES ES	. .	0				23.95	(0.30) 0.50	Light orangish brown slightly clayey sandy fine to coarse subangular to subrounded GRAVEL of limestone. (MADE GROUND)		GMG	
0.70-0.70	ES	.							Soft light greenish grey mottled orangish brown slightly gravelly sandy CLAY. Gravel is fine and medium subangular of mudstone.			
1.50	(S)	2,2,2 2,2,2 N=8.						(1.50)			ALV	
							22.45	2.00				
2.00	(S)	2,3,3 3,4,4 N=14.							Dark bluish grey slightly sandy slightly silty CLAY.			
3.00	(S)	3,4,6 7,9,9 N=31.						(2.63)			CHAM	
4.00	(S)	8,10,12 14,14,10 N=50/ 0.265.										
							19.82	4.63				
									Borehole terminated at 4.63m bgl on effective refusal.		END	

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing

General Remarks
Hand dug pit to 1.50m bgl
No visual or olfactory evidence of contamination
No groundwater encountered
Hole terminated at 4.63mbgl on SPT refusal

Scale 1:37.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP WINDOW SAMPLE LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

WINDOW SAMPLE LOG

WSP UK Limited
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Telephone: 0121 352 4700

	Project: Former Interbrew Site, Gloucester	Hole No.: WS104
		Sheet: 1 of 1
Job No: 70020138	Client: Paloma Capital LLP	Date: 13-02-18 13-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Premier 110	[redacted]	E 385017.029 N 217883.232	22.562

SAMPLES & TESTS							STRATA						
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	Install / Backfill	Dia. mm
							22.45	0.11	ASPHALT.		TARMAC		
									Light pinkish cream slightly clayey sandy fine to coarse subangular to subrounded GRAVEL of limestone. (MADE GROUND)		GMG		
0.30-0.30	ES	.					22.18	0.38					
0.30-0.30	ES	.	0						Stiff light brownish grey slightly gravelly CLAY. Gravel is fine subangular to subrounded of mudstone.				
0.90-0.90	ES	.											
0.90-0.90	ES	.	0										
1.50	(S)	1,2,2 2,2,2 N=8.											
								(3.17)			CHAM		
2.00	(S)	5,5,6 6,6,7 N=25.											
3.00	(S)	7,8,11 12,14,13 N=50/ 0.285.											
							19.01	3.55					
									Borehole terminated at 3.55m bgl on effective refusal.		END		

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing

General Remarks
Hand dug trial pit to 1.50m bgl
No visual or olfactory evidence of contamination
No groundwater encountered
Hole terminated at 3.55mbgl on SPT refusal

Scale 1:37.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP WINDOW SAMPLE LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

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WINDOW SAMPLE LOG

Hole No. **WS105**

Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No	Client	Date
70020138	Paloma Capital LLP	13-02-18 13-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Premier 110	[redacted]	E 384965.510 N 217930.605	22.625

SAMPLES & TESTS							STRATA					
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	Install / Backfill Dia. mm
							22.42	0.21	Reinforced CONCRETE.		CONC	
							22.36	0.27	Very dark brownish black gravelly coarse SAND. Gravel is fine and medium angular to subangular of ash and tar. (MADE GROUND)		GMG	
0.25-0.25	ES	.										
0.25-0.25	ES	.	0									
0.45-0.60	ES	.	0						Light pinkish cream clayey sandy GRAVEL with frequent cobble sized fragments of sandstone.			
								(0.71)			GMG	
0.70-0.70	ES	.										
							21.65	0.98				
1.10-1.10	ES	.							Firm locally stiff light greyish brown mottled orangish brown slightly sandy CLAY.			
1.10-1.10	ES	.	0									
1.50	(S)	2,1,1 2,2,3 N=8.										
2.00	(S)	2,2,3 4,5,5 N=17.						(2.39)			CHAM	
				48								
				48								
3.00	(S)	4,4,4 5,5,6 N=20.										
							19.26	3.37				
				68					Stiff dark bluish grey slightly gravelly CLAY. Gravel is fine subangular of mudstone and rare shell fragments.			
				72								
								(1.05)			CHAM	
4.00	(S)	5,6,10 10,10,10 N=40.		90								
							18.21	4.42				
									Borehole completed at 4.45m bgl.		END	
5.00	(S)	9,9,12 14,14,10 N=50/ 0.27.										

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing

General Remarks
Hand dug trial pit to 1.50m bgl
No visual or olfactory evidence of contamination encountered
No groundwater encountered
Hole complete at 4.45m bgl

Scale 1:37.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP WINDOW SAMPLE LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

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WINDOW SAMPLE LOG

Hole No. **WS106**

Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No	Client	Date
70020138	Paloma Capital LLP	12-02-18 12-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Premier 110	[redacted]	E 384928.680 N 217941.976	22.474

SAMPLES & TESTS							STRATA						Install / Backfill
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology		Dia. mm
							22.27	0.20	CONCRETE.		CONC		
0.60-0.60 0.60-0.60	ES ES	. .	0					(1.90)	Light orangish brown clayey sandy fine to coarse very angular to rounded GRAVEL of limestone occasional cobble sized fragments of limestone. (MADE GROUND)		GMG		
1.50	(S)	2,2,2 2,2,7 N=13.				1							
2.00	(S)	25,28 22 N=50/ 0.125.					20.37	2.10	Borehole terminated at 2.10m bgl on effective refusal.		END		

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing
								1.70			

General Remarks
Hand dug pit to 1.50m bgl
No visual or olfactory evidence of contamination encountered
Groundwater encountered at 1.70m bgl
Hole terminated at 2.10m due to refusal

Scale 1:37.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP WINDOW SAMPLE LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

WSP UK Limited 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700	**WINDOW SAMPLE LOG**	Hole No. **WS107**
	Project Former Interbrew Site, Gloucester	Sheet 1 of 1
Job No 70020138	Client Paloma Capital LLP	Date 12-02-18 12-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Premier 110	[redacted]	E 384934.404 N 217958.032	22.464

SAMPLES & TESTS							STRATA						Install / Backfill
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description		Legend	Geology	Dia. mm
							22.21	0.25	Reinforced CONCRETE. Rebar at 0.08m.			CONC	
								(0.31)	Soft light orangish brown very gravelly sandy CLAY. Gravel is fine to coarse very angular to subrounded of limestone. (MADE GROUND)			CMG	
0.45-0.45	ES	.					21.90	0.56					
0.45-0.50	ES	.	0				21.83	0.63	Light grey very gravelly COBBLES. Gravel is medium and coarse subangular of limestone. (MADE GROUND)			GMG	
									Borehole terminated at 0.63m bgl on obstruction.			END	

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing

General Remarks
Hand dug trial pit to 0.63m bgl
No visual or olfactory evidence of contamination
No groundwater encountered
Hole terminated at 0.63m bgl due to obstruction

Scale 1:37.5	Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP WINDOW SAMPLE LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

WSP UK Limited 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700	**WINDOW SAMPLE LOG**	Hole No. **WS108**
	Project Former Interbrew Site, Gloucester	Sheet 1 of 1
Job No 70020138	Client Paloma Capital LLP	Date 12-02-18 12-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Premier 110	[redacted]	E 384897.551 N 217977.022	22.500

SAMPLES & TESTS							STRATA					Install / Backfill
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	Dia. mm
							22.19	(0.31) 0.31	CONCRETE. Rebar at 0.27m.		CONC	
							21.97	0.53	CONCRETE.		CONC	
0.50-0.50	ES	.							Light orangish brown clayey sandy medium and coarse angular to subangular GRAVEL of limestone.			
0.50-0.50	ES	.	0					(0.68)			GMG	
1.05-1.05	ES	.					21.29	1.21				
1.05-1.05	ES	.	0						Stiff light brownish grey slightly silty slightly gravelly CLAY. Gravel is fine subangular to subrounded of mudstone.			
1.50	(S)	1,1,2 1,2,1 N=6.										
2.00	(S)	1,2,3 3,4,5 N=15.						(3.24)			CHAM	
3.00	(S)	4,4,5 6,9,8 N=28.										
4.00	(S)	7,8,9 11,15,15 N=50/ 0.295.					18.05	4.45				
									Borehole completed at 4.45m bgl.		END	

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing

General Remarks
Hand dug pit to 1.50m bgl
No visual or olfactory evidence of contamination encountered
No ground water encountered
Hole complete at 4.45m

Scale 1:37.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP WINDOW SAMPLE LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

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WINDOW SAMPLE LOG

Hole No. **WS109**

Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No	Client	Date
70020138	Paloma Capital LLP	13-02-18 13-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Premier 110	[redacted]	E 384916.558 N 218001.621	22.494

SAMPLES & TESTS							STRATA					
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	Install / Backfill Dia. mm
							22.27	0.22	CONCRETE.		CONC	
0.50-0.50 0.60-0.60	ES ES	. .	0					(0.87)	Light greyish brown slightly clayey sandy medium and coarse angular to subangular GRAVEL of limestone with occasional cobble sized fragments of limestone. (MADE GROUND)		GMG	
							21.40	1.09				
1.20-1.20 1.20-1.20	ES ES	. .	0						Soft light brownish grey slightly gravelly sandy CLAY. Gravel is fine and medium angular to subangular of mudstone limestone and occasional sandstone. (MADE GROUND)			
1.50	(S)	1,3,2 2,2,2 N=8.						(1.02)			CMG	
2.00	(S)	2,3,4 5,5,6 N=20.					20.38	2.11				
2.50-3.00	B	.	0	66 68		▼1			Firm light brownish grey sandy slightly gravelly CLAY with pockets of coarse reddish brown sand. Gravel is fine and medium subangular to subrounded of mudstone.			
3.00	(S)	3,4,4 6,8,7 N=25.						(1.71)			CHAM	
							18.67	3.82				
4.00	(S)	5,7,9 12,14,15 N=50/ 0.285.						(0.62)	Light grey slightly silty CLAY. Strata is wet.		CHAM	
							18.05	4.44				
									Borehole completed at 4.45m bgl.		END	

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing
						13-02-18		2.60			

General Remarks
Hand dug trial pit to 1.50mbgl
No visual or olfactory evidence of contamination
Perched ground water encountered at 2.60m bgl
Hole complete at 4.45m bgl

Scale 1:37.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

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WINDOW SAMPLE LOG

Hole No. **WS11**

Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No	Client	Date
70020138	Paloma Capital LLP	06-06-16 06-06-16

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Premier 110	[redacted]	E 384851.040 N 217852.758	24.446

SAMPLES & TESTS							STRATA						Install / Backfill
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology		Dia. mm
							24.19	0.26	Reinforced CONCRETE.		CONC		
0.30-0.30	ES	.					23.99	0.46	Brownish yellow slightly clayey sandy fine to coarse sub-angular to angular GRAVEL of sandstone. Sand is fine to coarse. (MADE GROUND)		GMG		
0.50-0.50	ES	.					23.79	0.66	Bluish grey slightly sandy slightly gravelly silty CLAY. Gravel is fine to coarse angular of mudstone. Sand is fine to medium. (MADE GROUND)		CMG		
									Hole terminated at 0.66m bgl on potential utility find.		END		

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing

General Remarks
Hole terminated at 0.66m bgl due to potential buried utility presence. No groundwater encountered. No visual or olfactory evidence of contamination encountered.

Scale 1:37.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP WINDOW SAMPLE LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

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WINDOW SAMPLE LOG

Hole No. **WS110**

Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No: 70020138

Client: Paloma Capital LLP

Date: 12-02-18
12-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Premier 110	[redacted]	E 384947.847 N 218015.382	22.054

SAMPLES & TESTS							STRATA						Install / Backfill
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology		Dia. mm
							21.83	0.22	Reinforced CONCRETE. Rebar at 0.08m bgl and 0.14m bgl. Geotextile membrane at base.		CONC		
0.30-0.30 0.30-0.30	ES ES	. .	0				21.56	0.49	Light grey slightly sandy clayey fine to coarse angular to subrounded GRAVEL of limestone. (MADE GROUND)		GMG		
								(1.11)	Soft dark greyish brown slightly sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded of limestone and mudstone. (MADE GROUND)		CMG		
1.05-1.05 1.05-1.05	ES ES	. .	0										
1.50	(S)	1,2,1 2,2,2 N=7.		68			20.45	1.60					
				46					Firm light brownish grey slightly gravelly slightly silty CLAY. Gravel is fine and medium angular to subrounded of mudstone.				
2.00	(S)	2,2,2 3,4,5 N=14.		40				(0.90)			CHAM		
				40			19.55	2.50					
				68					Stiff light bluish grey mottled light greenish brown slightly gravelly slightly silty CLAY. Gravel is fine and medium subangular to subrounded of mudstone.				
				80									
3.00	(S)	4,4,5 7,7,7 N=26.		112									
				126				(1.94)			CHAM		
				116									
4.00	(S)	9,10,11 13,16,10 N=50/ 0.285.					17.61	4.44					
									Borehole completed at 4.45m bgl.		END		

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing

General Remarks
Hand dug trial pit to 1.50m bgl
No visual or olfactory evidence of contamination
No groundwater encountered
Hole complete at 4.45m bgl

Scale 1:37.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP WINDOW SAMPLE LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

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WINDOW SAMPLE LOG

Hole No. **WS12**

Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No	Client	Date
70020138	Paloma Capital LLP	03-06-16 03-06-16

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Premier 110	[redacted]	E 384816.640 N 217913.377	24.394

SAMPLES & TESTS							STRATA						
Depth	Type	Test Result	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	Install / Backfill	Dia. mm
							24.16	0.23	Reinforced CONCRETE.		CONC		
							23.89	0.50	Light pinkish grey sandy fine and medium angular GRAVEL of limestone. (MADE GROUND)		GMG		
0.50-0.70	ES	.				1	23.69	0.70	Light yellow clayey slightly gravelly medium to coarse SAND. Gravel is fine to coarse sub-angular to angular of flint. (ALLUVIUM)		ALV		
0.60-0.60	ES	.											
0.70-0.50	ES	.							Brownish yellow slightly sandy slightly gravelly CLAY. Gravel is fine to coarse sub-angular to angular of flint. Sand is medium to coarse. (ALLUVIUM)				
0.80-0.80	ES	.						(0.90)			ALV		
							22.79	1.60					
									Stiff bluish grey slightly sandy slightly gravelly silty CLAY. Gravel is fine angular of mudstone. Sand is fine to medium. (Weathered BLUE LIAS FORMATION and CHARMOUTH MUDSTONE FORMATION)				
								(2.80)			CHAM		
4.00	(S)	6,10,12 12,15,11 N=50/ 0.255.					19.99	4.40					
									Hole terminated at 4.4m bgl on effective refusal.		END		

Hole Diameter			Recovery			Water Strikes					
Depth	Diameter (mm)	Remarks	Core Top (m)	Core Base (m)	% Recovery	Date	Time	Strike	Minutes	Standing	Casing
						03-06-16		0.70			

General Remarks
Hole terminated at 4.40m bgl on effective refusal. No groundwater encountered. No visual or olfactory evidence of contamination encountered.

Scale 1:37.5

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

17 WSP WINDOW SAMPLE LOG 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE7.00.GDT 13/4/18

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TRIAL PIT LOG

Hole No. **HP101**

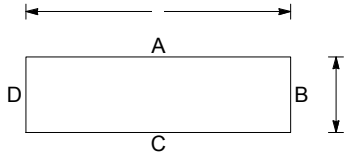
Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No	Client	Date
70020138	Paloma Capital LLP	13-02-18 13-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Hand Dug Pit	[redacted]	E 384859.903 N 217836.753	24.483

SAMPLES & TESTS						STRATA					Install / Backfill
Depth	Type	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	
						24.28	(0.20) 0.20	CONCRETE.		CONC	
0.30-0.30 0.30-0.30	ES ES	0				24.04	(0.24) 0.44	Light orangish brown sandy fine to coarse angular to subrounded GRAVEL of limestone. (MADE GROUND)		GMG	
								Hand pit terminated at 0.44m bgl.		END	



Length: m

Width: m

Orientation: degrees from north

Shoring/Support:

Stability:

Water Strikes

Date	Time	Strike	Minutes	Standing	Remarks

General Remarks
Hand dug pit to 0.44m
No visual or olfactory evidence of contamination
No groundwater encountered
Hole terminated at 0.44m due to hard digging on concrete obstruction

Scale 1:12.5

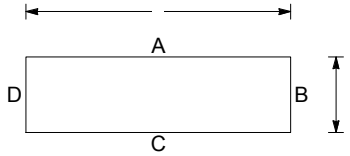
Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

08 WSP TP LOG STANDARD 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE1.03.GDT 13/4/18

WSP UK Limited 1 Queens Drive Birmingham, B5 4PJ Telephone: 0121 352 4700 Fax: 0121 352 4701	**TRIAL PIT LOG**	Hole No. **HP102**
	Project Former Interbrew Site, Gloucester	Sheet 1 of 1
Job No 70020138	Client Paloma Capital LLP	Date 13-02-18 13-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Dynamic Sampling UK Ltd	Hand Dug Pit	[redacted]	E 384834.997 N 217857.831	24.504

SAMPLES & TESTS						STRATA					Install / Backfill
Depth	Type	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	
						24.30	(0.20) 0.20	CONCRETE.		CONC	
0.30-0.30 0.30-0.30	ES ES	0				24.11	(0.17) 0.39	Light brownish grey slightly clayey slightly sandy fine to coarse very angular to subrounded GRAVEL of limestone and quartz.		GMG	
0.60-0.60 0.60-0.60	ES ES	0				23.29	(0.82) 1.21	Firm light brownish grey mottled light orangish brown slightly gravelly CLAY.		CHAM	
								Hand pit completed at 1.21m bgl.		END	



Length m	Shoring/Support:
Width m	Stability:
Orientation degrees from north	

Water Strikes					
Date	Time	Strike	Minutes	Standing	Remarks

General Remarks
Hand dug pit to 1.21m bgl
No visual or olfactory evidence of contamination
No groundwater encountered
Hole terminated at 121m bgldue to hard digging

Scale 1:12.5	Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

08 WSP TP LOG STANDARD 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE1.03.GDT 13/4/18

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TRIAL PIT LOG

Hole No. **TP101**

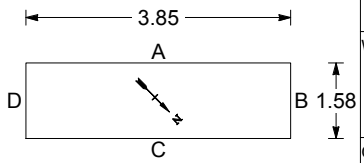
Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No	Client	Date
70020138	Paloma Capital LLP	08-02-18 08-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Lynch Plant Hire	360 Excavator	[redacted]	E 384856.957 N 217814.402	24.572

SAMPLES & TESTS						STRATA					Install / Backfill
Depth	Type	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	
						24.07	(0.50) 0.50	Reinforced CONCRETE.		CONC	
0.50-0.50	ES	0.3				23.87	(0.20) 0.70	Light orangish brown gravelly SAND. Gravel is fine and medium subangular to angular of quartz, mudstone and plastic. (MADE GROUND)		GMG	
0.65-0.65	B	0.1						Dark greyish blue slightly sandy CLAY. 0.70 - 1.50 Pockets of orange sand from 0.7m bgl			
1.00-1.00	ES						(0.80)			CHAM	
1.20-1.20 1.20-1.20	B D					23.07	1.50				
								Trial pit completed at 1.50m bgl.		END	



Length	Shoring/Support:
3.85m	
Width	
1.58m	Stability:
Orientation	
45 degrees from north	

Water Strikes

Date	Time	Strike	Minutes	Standing	Remarks

General Remarks
Hole completed at 1.50m bgl. No visual or olfactory evidence of contamination was encountered. Groundwater was not encountered.

Scale 1:18.75

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

08 WSP TP LOG STANDARD 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE1.03.GDT 13/4/18

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TRIAL PIT LOG

Hole No. **TP102**

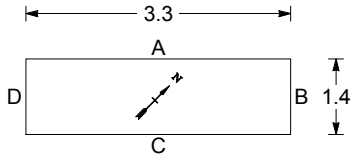
Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No	Client	Date
70020138	Paloma Capital LLP	08-02-18 08-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Lynch Plant Hire	360 Excavator	[redacted]	E 384914.750 N 217837.037	23.490

SAMPLES & TESTS						STRATA					Install / Backfill
Depth	Type	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	
							(0.30)	Reinforced CONCRETE.		CONC	
						23.19	0.30				
0.40-0.40	ES	0.1					(0.30)	Light orangish brown gravelly SAND. Gravel is fine and medium subangular to angular of quartz and mudstone. (MADE GROUND)		GMG	
0.50-0.50	B										
0.50-0.50	D					22.89	0.60				
0.70-0.70	ES	0					(0.90)	Dark greyish blue sandy CLAY. 0.60 - 1.50 Pockets of orange sand		CHAM	
1.20-1.20	B										
1.20-1.20	D					21.99	1.50				
								Trial pit completed at 1.50m bgl.		END	



Length: 3.30m

Width: 1.40m

Orientation: 135 degrees from north

Shoring/Support:

Stability:

Water Strikes

Date	Time	Strike	Minutes	Standing	Remarks

General Remarks
Hole completed at 1.50m bgl. No visual or olfactory evidence of contamination encountered. Groundwater was not encountered.

Scale 1:18.75

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

08 WSP TP LOG STANDARD 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE1.03.GDT 13/4/18

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TRIAL PIT LOG

Hole No. **TP103**

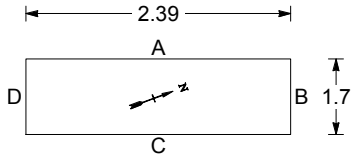
Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No	Client	Date
70020138	Paloma Capital LLP	08-02-18 08-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Lynch Plant Hire	360 Excavator	[redacted]	E 384848.203 N 217845.183	24.632

SAMPLES & TESTS						STRATA					Install / Backfill
Depth	Type	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	
						24.03	(0.60) 0.60	Reinforced CONCRETE.		CONC	
0.70-0.70 0.70-0.70 0.80-0.80	B D ES	27				23.73	(0.30) 0.90	Dark greyish brown gravelly SAND. (MADE GROUND)		GMG	
1.00-1.00 1.50-1.50 1.60-1.60 1.60-1.60	ES ES B D	1.9 0.1				22.93	(0.80) 1.70	Dark greyish blue sandy CLAY. 1.00 - 1.00 Pockets of orange sand from 1.00m bgl.		CHAM	
								Trial pit completed at 1.70m bgl.		END	



Length: 2.39m

Width: 1.70m

Orientation: 110 degrees from north

Shoring/Support:

Stability:

Water Strikes

Date	Time	Strike	Minutes	Standing	Remarks

General Remarks
Hole completed at 1.70m bgl. Visual and olfactory evidence of contamination was encountered. Groundwater was encountered at 1.10m bgl.

Scale 1:18.75

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

08 WSP TP LOG STANDARD 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE1.03.GDT 13/4/18

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TRIAL PIT LOG

Hole No. **TP104**

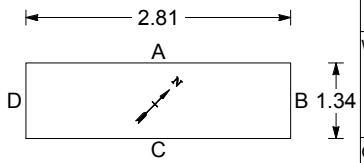
Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No	Client	Date
70020138	Paloma Capital LLP	08-02-18 08-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Lynch Plant Hire	360 Excavator	[redacted]	E 384860.456 N 217881.850	24.300

SAMPLES & TESTS						STRATA					Install / Backfill
Depth	Type	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	
						24.00	(0.30) 0.30	Reinforced CONCRETE.		CONC	
0.50-0.50	B	0				23.70	(0.30) 0.60	Light orangish brown gravelly SAND. Gravel is fine and medium subangular to subrounded of quartz, mudstone and plastic. (MADE GROUND)		GMG	
0.50-0.50	D	0									
0.50-0.50	ES	0						Dark greyish blue sandy CLAY.			
0.80-0.80	ES	0.1						0.60 - 1.50 Pockets of orange sand from 0.6m bgl			
							(0.90)			CHAM	
1.30-1.30	B										
1.30-1.30	D					22.80	1.50				
								Trial pit completed at 1.50m bgl.		END	



Length: 2.81m

Width: 1.34m

Orientation: 135 degrees from north

Shoring/Support:

Stability:

Water Strikes

Date	Time	Strike	Minutes	Standing	Remarks

General Remarks
Hole completed at 1.50m bgl. No visual or olfactory evidence of contamination encountered. Groundwater was not encountered.

Scale 1:18.75

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

08 WSP TP LOG STANDARD 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE1.03.GDT 13/4/18

WSP UK Limited
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TRIAL PIT LOG

Hole No. **TP105**

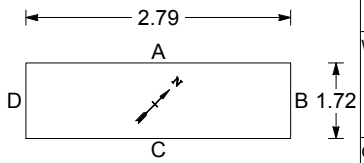
Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No	Client	Date
70020138	Paloma Capital LLP	08-02-18 08-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Lynch Plant Hire	360 Excavator	[redacted]	E 384885.536 N 217909.755	22.568

SAMPLES & TESTS						STRATA					Install / Backfill
Depth	Type	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	
							(0.40)	Reinforced CONCRETE.		CONC	
						22.17	0.40				
							(0.30)	Dark orangish brown gravelly SAND. Gravel is fine and medium subangular to angular of quartz, mudstone and brick. (MADE GROUND)		GMG	
0.60-0.60	B										
0.60-0.60	D					21.87	0.70				
0.65-0.65	ES	0.2					(0.80)	Dark greyish blue sandy CLAY. 0.70 - 1.50 Pockets of orange sand from 0.7m bgl		CHAM	
0.80-0.80	ES	0.1									
1.40-1.40	B										
1.40-1.40	D					21.07	1.50				
								Trial pit terminated at 1.50m bgl.		END	



Length: 2.79m

Width: 1.72m

Orientation: 135 degrees from north

Shoring/Support:

Stability:

Water Strikes

Date	Time	Strike	Minutes	Standing	Remarks

General Remarks
Hole completed at 1.50m bgl. No visual or olfactory evidence of contamination was encountered. Groundwater was not encountered.

Scale 1:18.75

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

08 WSP TP LOG STANDARD 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE1.03.GDT 13/4/18

WSP UK Limited
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TRIAL PIT LOG

Hole No. **TP106**

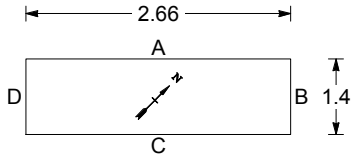
Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No	Client	Date
70020138	Paloma Capital LLP	08-02-18 08-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Lynch Plant Hire	360 Excavator	[redacted]	E 384976.217 N 217995.653	21.963

SAMPLES & TESTS						STRATA					Install / Backfill
Depth	Type	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	
						21.66	(0.30) 0.30	Reinforced CONCRETE.		CONC	
0.40-0.40 0.40-0.40	B D					21.36	(0.30) 0.60	Light orangish brown gravelly SAND. Gravel is fine and medium subangular to angular of quartz, mudstone, plastic and brick. (MADE GROUND)		GMG	
0.60-0.60	ES	0.1						Dark greyish brown slightly sandy slightly gravelly CLAY. Gravel is fine and medium subangular to angular of quartz, mudstone and brick. 0.60 - 1.30 Sulphurous odour and whole brick			
1.00-1.00	ES	0.4					(0.70)			CMG	
1.20-1.20 1.20-1.20	B D					20.66	1.30				
1.40-1.40	ES	0.2						Dark greyish blue sandy CLAY.			
2.00-2.00 2.00-2.00	B D					19.76	(0.90) 2.20			CHAM	
								Trial pit completed at 2.20m bgl.		END	



Length: 2.66m

Width: 1.40m

Orientation: 135 degrees from north

Shoring/Support:

Stability:

Water Strikes

Date	Time	Strike	Minutes	Standing	Remarks

General Remarks
Hole completed at 2.20m bgl. Visual and olfactory evidence of contamination was encountered. Groundwater was not encountered.

Scale 1:18.75

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

08 WSP TP LOG STANDARD 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE1.03.GDT 13/4/18

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TRIAL PIT LOG

Hole No. **TP201**

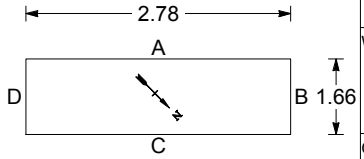
Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No	Client	Date
70020138	Paloma Capital LLP	09-02-18 09-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Lynch Plant Hire	360 Excavator	[redacted]	E 384834.259 N 217881.201	24.630

SAMPLES & TESTS						STRATA					Install / Backfill
Depth	Type	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	
							(0.30)	Reinforced CONCRETE.		CONC	
						24.33	0.30				
0.40-0.40	B						(0.15)	Light orangish brown gravelly SAND. Gravel is fine and medium subangular to angular of quartz and mudstone. (MADE GROUND)		GMG	
0.40-0.40	D					24.18	0.45				
							(0.55)	Light bluish grey mottled light grey sandy CLAY.		CHAM	
0.90-0.90	B										
0.90-0.90	D					23.63	1.00				
								Trial pit completed at 1.00m bgl.		END	



Length: 2.78m

Width: 1.66m

Orientation: 45 degrees from north

Shoring/Support:

Stability:

Water Strikes

Date	Time	Strike	Minutes	Standing	Remarks

General Remarks
Hole completed at 1.00m bgl. No visual or olfactory evidence of contamination was encountered. Groundwater was not encountered.

Scale 1:18.75

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

08 WSP TP LOG STANDARD 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE1.03.GDT 13/4/18

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TRIAL PIT LOG

Hole No. **TP202**

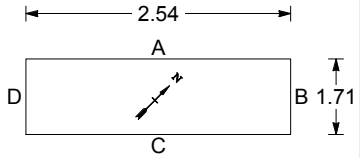
Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No	Client	Date
70020138	Paloma Capital LLP	09-02-18 09-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Lynch Plant Hire	360 Excavator	[redacted]	E 384905.071 N 217948.711	22.375

SAMPLES & TESTS						STRATA					Install / Backfill
Depth	Type	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	
						22.18	(0.20) 0.20	Reinforced CONCRETE.		CONC	
0.40-0.40 0.40-0.40	B D					21.78	(0.40) 0.60	Light orangish brown gravelly SAND. Gravel is fine and medium subangular to angular of quartz, mudstone and brick. (MADE GROUND)		GMG	
						21.28	(0.50) 1.10	Light bluish grey CLAY. 0.60 - 0.60 Groundwater encountered at 0.6m bgl 0.60 - 1.10 Large pockes of orange sand		CHAM	
1.10-1.10 1.10-1.10	B D							Trial pit completed at 1.10m bgl.		END	



Length: 2.54m

Width: 1.71m

Orientation: 135 degrees from north

Shoring/Support:

Stability:

Water Strikes

Date	Time	Strike	Minutes	Standing	Remarks

General Remarks
Hole completed at 1.10m bgl. No visual or olfactory evidence of contamination was not encountered. Groundwater was encountered at 0.6m bgl.

Scale 1:18.75

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

08 WSP TP LOG STANDARD 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE1.03.GDT 13/4/18

WSP UK Limited
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TRIAL PIT LOG

Hole No. **TP203**

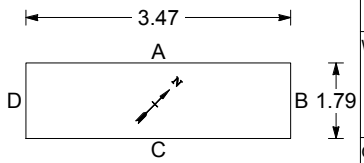
Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No	Client	Date
70020138	Paloma Capital LLP	09-02-18 09-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Lynch Plant Hire	360 Excavator	[redacted]	E 384985.345 N 217880.794	22.634

SAMPLES & TESTS						STRATA					
Depth	Type	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	Install / Backfill
						22.58	0.05	ASPHALT.		TARMAC	
						22.43	(0.15) 0.20	Reinforced CONCRETE.		CONC	
0.50-0.50 0.50-0.50	B D						(0.70)	Dark brown gravelly SAND. Gravel is fine to coarse subangular to angular of quartz, concrete, asphalt and brick. (MADE GROUND)		GMG	
						21.73	0.90				
1.00-1.00 1.00-1.00	B D					21.53	(0.20) 1.10	Dark greyish black slightly sandy slightly gravelly CLAY. Gravel is fine and medium subangular to angular of quartz, mudstone and brick. (MADE GROUND)		CMG	
								Trial pit completed at 1.10m bgl.		END	



Length: 3.47m

Width: 1.79m

Orientation: 135 degrees from north

Shoring/Support:

Stability:

Water Strikes

Date	Time	Strike	Minutes	Standing	Remarks

General Remarks
Hole completed at 1.10m bgl. No visual or olfactory evidence of contamination was encountered. Groundwater was not encountered.

Scale 1:18.75

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

08 WSP TP LOG STANDARD 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE1.03.GDT 13/4/18

WSP UK Limited
1 Queens Drive
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TRIAL PIT LOG

Hole No. **TP204**

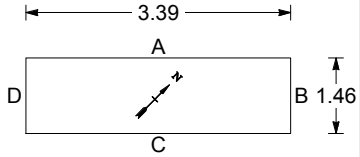
Project: Former Interbrew Site, Gloucester

Sheet: 1 of 1

Job No	Client	Date
70020138	Paloma Capital LLP	09-02-18 09-02-18

Contractor / Driller	Method/Plant Used	Logged By	Co-Ordinates (NGR)	Ground Level (m OD)
Lynch Plant Hire	360 Excavator	[redacted]	E 384899.575 N 217826.285	24.030

SAMPLES & TESTS						STRATA					
Depth	Type	PID (ppmV)	HSV (kN/m2)	P.Pen (kN/m2)	Water	Elev. (mOD)	Depth (Thick-ness)	Description	Legend	Geology	Install / Backfill
						23.83	(0.20) 0.20	Reinforced CONCRETE.		CONC	
0.60-0.60 0.60-0.60	B D					23.33	(0.50) 0.70	Light orangish brown gravelly SAND. Gravel is fine and medium subangular to angular of quartz, mudstone and plastic.		GMG	
						23.03	(0.30) 1.00	Dark grey sandy CLAY. 0.70 - 1.00 Large pockets of orange sand		ALV	
1.00-1.00 1.00-1.00	B D							Trial pit completed at 1.00m bgl.		END	



Length: 3.39m

Width: 1.46m

Orientation: 135 degrees from north

Shoring/Support:

Stability:

Water Strikes

Date	Time	Strike	Minutes	Standing	Remarks

General Remarks
Hole completed at 1.00m bgl. No visual or olfactory evidence of contamination was encountered. Groundwater was not encountered.

Scale 1:18.75

Notes: All dimensions in metres. Logs should be read in accordance with the provided Key. Descriptions are based on visual and manual identification.

08 WSP TP LOG STANDARD 70020138 - FORMER INTERBREW SITE, GLOUCESTER - MASTER DATABASE2.GPJ WSPETEMPLATE1.03.GDT 13/4/18

Appendix E

DATA TABLES

Table E.1: Summary of Monitoring Installations

Exploratory Hole	Ground Level (m AOD)	Screen Top and Base Depth (m bgl)	Screen Top and Base Elevation (m AOD)	Strata Targeted
BH01	24.643	2.00 to 7.00	22.64 to 17.64	Charmouth Mudstone Formation
BH01	24.643	2.00 to 7.00	22.64 to 17.64	Charmouth Mudstone Formation
BH02	22.532	2.00 to 7.00	20.53 to 15.53	Charmouth Mudstone Formation
BH03	24.396	1.50 to 7.00	22.90 to 17.40	Charmouth Mudstone Formation
BH04	22.036	1.50 to 7.00	20.54 to 15.04	Charmouth Mudstone Formation
BH05	24.223	1.00 to 3.00	23.22 to 21.22	Alluvium
BH101	24.390	2.00 to 8.00	22.39 to 16.39	Charmouth Mudstone Formation
BH102	22.360	2.00 to 8.00	20.36 to 14.36	Charmouth Mudstone Formation
BH103	22.586	2.00 to 8.00	20.59 to 14.59	Charmouth Mudstone Formation
BH104	22.611	2.00 to 8.00	20.61 to 14.61	Charmouth Mudstone Formation
WS01	24.504	1.00 to 3.00	23.50 to 21.50	Charmouth Mudstone Formation
WS03	24.242	1.00 to 4.00	23.24 to 20.24	Charmouth Mudstone Formation
WS04	22.598	1.00 to 3.00	21.60 to 19.60	Charmouth Mudstone Formation
WS06	23.467	0.50 to 1.20	22.97 to 22.27	Made Ground Granular
WS07	22.460	1.50 to 4.60	20.96 to 17.86	Charmouth Mudstone Formation
WS10	24.570	0.50 to 1.50	24.07 to 23.07	Made Ground Granular
WS101	24.470	1.50 to 5.00	22.97 to 19.47	Charmouth Mudstone Formation
WS103	24.445	1.00 to 4.00	23.45 to 20.45	Charmouth Mudstone Formation
WS106	22.474	1.00 to 2.00	21.47 to 20.47	Made Ground Granular
WS109	22.494	1.00 to 2.00	21.49 to 20.49	Made Ground Granular / Cohesive

Table E.2: Summary of Groundwater Strikes

Exploratory Hole	Depth Groundwater Encountered (Strike) (m bgl)	Elevation Groundwater Encountered (Strike) (m AOD)	Remarks
WS101	2.30	22.17	Blue Lias and Charmouth Mudstone Formation
WS106	1.70	20.77	Granular Made Ground
WS109	2.60	19.89	Blue Lias and Charmouth Mudstone Formation
BH01	1.30	23.34	Alluvium
BH03	2.30	22.10	Blue Lias and Charmouth Mudstone Formation
WS12	0.70	23.69	Alluvium
WS07	0.65	21.81	Granular Made Ground
WS10	0.50	24.07	Granular Made Ground

Table E.3: Summary of Groundwater Levels During Monitoring

Exploratory Hole	Elevation of Screen Top (m AOD)	Elevation of Screen Base (m AOD)	Geology of Response Zone	Groundwater Levels recorded (m AOD)		
				Min	Mean	Max
BH01	22.64	17.64	CHAM	17.79	22.77	24.08
BH02	20.53	15.53	CHAM	20.00	20.87	21.72
BH03	22.90	17.40	CHAM	23.22	23.35	23.70
BH04	20.54	15.04	CHAM	16.26	19.95	21.08
BH05	23.22	21.22	ALV	21.91	22.1	22.29
BH101	22.39	16.39	CHAM	17.61	17.85	18.14
BH102	20.36	14.36	CHAM	19.75	19.99	20.23
BH103	20.59	14.59	CHAM	15.51	15.51	15.51
BH104	20.61	14.61	CHAM	15.25	15.25	15.25
WS01	23.50	21.50	CHAM	23.81	24.06	24.25
WS03	23.24	20.24	CHAM	23.54	23.64	24.18
WS04	21.60	19.60	CHAM	21.61	22.21	22.59

Exploratory Hole	Elevation of Screen Top (m AOD)	Elevation of Screen Base (m AOD)	Geology of Response Zone	Groundwater Levels recorded (m AOD) Min Mean Max		
WS06	22.97	22.27	MG	22.03	22.84	23.04
WS07	20.96	17.86	CHAM	21.82	22.07	22.39
WS10	24.07	23.07	MG	23.92	23.98	24.01
WS101	22.97	19.47	CHAM	23.22	23.25	23.27
WS103	23.45	20.45	ALV / CHAM	20.45	22.12	23.80
WS106	21.47	20.47	MG	20.94	20.95	20.96
WS109	21.49	20.49	MG	20.94	21.03	21.10

Table E.4: Summary of Ground Gas Monitoring Results

Monitoring Point	Methane (% v/v) Min	Methane (% v/v) Max	Carbon Dioxide (% v/v) Min	Carbon Dioxide (% v/v) Max	Oxygen (% v/v) Min	Oxygen (% v/v) Max	Flow (l/hr) Min	Flow (l/hr) Max
BH01	0.00	0.00	0.00	1.30	18.30	20.50	-0.70	0.10
BH02	0.00	0.00	0.00	3.80	8.60	21.70	-7.00	0.00
BH03	0.00	0.00	0.00	1.90	13.40	22.00	0.00	0.00
BH04	0.00	0.00	0.00	8.50	11.70	21.90	-6.80	0.00
BH05	0.00	0.00	0.00	0.70	19.10	22.00	-1.00	0.20
BH101	0.00	0.00	0.00	1.70	15.50	21.00	0.00	0.00
BH102	0.00	0.00	0.00	1.80	17.30	22.00	-0.30	0.00
BH103	0.00	0.00	0.00	1.30	15.40	22.00	0.00	0.00
BH104	0.00	0.00	0.00	1.40	19.70	22.00	0.03	0.05
WS01	0.00	0.00	0.00	4.60	4.10	20.60	0.00	21.00
WS03	0.00	0.00	0.00	0.40	0.00	21.50	0.00	0.00
WS04	0.00	0.00	0.00	1.70	18.90	20.90	-1.50	6.00
WS06	0.00	0.00	0.10	1.90	17.70	22.00	-7.00	0.10
WS07	0.00	0.00	0.00	1.80	18.40	22.00	-6.80	0.00
WS10	0.00	0.00	0.00	0.30	20.10	21.50	-0.30	0.10

Monitoring Point	Methane (% v/v)		Carbon Dioxide (% v/v)		Oxygen (% v/v)		Flow (l/hr)	
	Min	Max	Min	Max	Min	Max	Min	Max
WS101	0.00	0.10	0.00	0.80	21.20	21.60	0.00	0.10
WS103	0.00	0.10	0.00	0.10	19.20	22.30	0.00	0.00
WS106	0.00	0.00	0.00	0.20	20.60	22.00	0.00	0.00
WS109	0.00	0.00	0.00	0.10	20.40	21.90	0.00	0.00

Table E.5: Summary of Flooded Borehole Locations

Monitoring Point	Top of Response Zone (m bgl)	Bottom of Response Zone (m bgl)	Standing Water Depth		Frequency of Flooding
			Min	Max	
BH01	2.00	7.00	0.56	6.85	5 of 6
BH02	2.00	7.00	0.81	2.53	3 of 7
BH03	1.50	7.00	0.70	1.18	7 of 7
BH04	1.50	7.00	0.96	5.78	5 of 7
BH05	1.00	3.00	1.93	2.31	0 of 7
BH101	2.00	8.00	6.25	6.78	0 of 3
BH102	2.00	8.00	2.13	2.61	0 of 3
BH103	2.00	8.00	7.08	7.08	0 of 3
BH104	2.00	8.00	7.36	7.36	0 of 3
WS01	1.00	3.00	0.25	0.70	6 of 7
WS03	1.00	4.00	0.06	0.70	7 of 7
WS04	1.00	3.00	0.01	0.99	5 of 5
WS06	0.50	1.20	0.43	1.44	4 of 7
WS07	1.50	4.60	0.07	0.65	7 of 7
WS10	0.50	1.50	0.56	0.66	0 of 7
WS101	1.50	5.00	1.20	1.25	2 of 2
WS103	1.00	4.00	0.65	4.00	1 of 3
WS106	1.00	2.00	1.51	1.53	0 of 3
WS109	1.00	2.00	1.39	1.55	0 of 3

Analyte	Units	No. samples	No. > LOD	Min	Max	WQS	No. > WQS	Monitoring Wells
Metals and Inorganics								
Arsenic	µg/L	8	5	0.665	10.3	10[1] 50[2]	1 0	BH02
Chromium	µg/L	8	8	0.013	15.9	50[1] 4.7[2]	0 4	BH01, BH02, BH04 and WS03
Copper	µg/L	8	8	1.35	7.78	2,000[1] 1[2]	0 8	BH01, BH02, BH04, BH05, BH101, BH102, WS01 and WS03
Lead	µg/L	8	8	0.07	1.52	10[1] 1[2]	0 1	BH04
Nickel	µg/L	8	8	5.16	59.1	20[1] 4[2]	2 8	BH01, BH02, BH04, BH05, BH101, BH102, WS01 and WS03
Mercury	µg/L	8	1	0.01	0.164	1[1] 0.07[2]	0 1	BH101
Selenium	µg/L	8	5	2.59	134	10[1]	5	BH02, BH05, BH102, WS01 and WS03
Zinc	µg/L	8	7	1.0	22.7	10.9[2]	4	BH04, BH102, WS01 and WS03
Sulphate	mg/L	8	5	165	1,600	250[1]	4	BH02, BH04, WS01 and WS03
PAH								
PAH4*	µg/L	8	3	0.027	0.24	0.1[1]	3	BH02, WS03 and WS10
Benzo(a)pyrene	µg/L	8	4	<0.009	0.04	0.01[1] 0.0002[2]	2 2	BH02 and WS03
Benzo(b)fluoranthene	µg/L	8	4	<0.023	0.113	0.017[2]	2	BH02 and WS03

Analyte	Units	No. samples	No. > LOD	Min	Max	WQS	No. > WQS	Monitoring Wells
Benzo(ghi)perylene	µg/L	8	3	<0.016	0.0883	0.008[2]	3	BH02, WS03 and WS10
Benzo(k)fluoranthene	µg/L	8	5	<0.027	0.0287	0.017[2]	1	BH02
Fluoranthene	µg/L	8	3	<0.014	0.041	0.006[2]	3	BH02, BH04 and WS03
Naphthalene	µg/L	8	1	0.01	2.61	2[2]	1	WS10
TPH								
Aliphatic C10-C12	µg/L	8	1	<10	516	300[4]	1	WS10
Aliphatic C12-C16	µg/L	8	1	<10	11,600	300[4]	1	WS10
Aliphatic C16-C21	µg/L	8	1	<10	13,700	300[4]	1	WS10
Aliphatic C21-C35	µg/L	8	2	<10	6,630	300[4]	1	WS10
Aromatic >EC10-EC12	µg/L	8	1	<10	344	90[4]	1	WS10
Aromatic >EC12-EC16	µg/L	8	1	<10	3,100	90[4]	1	WS10
Aromatic >EC16-EC21	µg/L	8	1	<10	6,700	90[4]	1	WS10
Aromatic >EC21-EC35	µg/L	8	2	10	2,970	90[4]	1	WS10
Total Aliphatic and Aromatic (C5-C35)	µg/L	8	3	<10	45,800	10[5]	3	WS10, WS03 and BH02

1 - UK Drinking Water Standards (2016)
2 - The River Basin District Typology, Standards and Groundwater Threshold Values (Water Framework Directive) (England and Wales), Directions, 2014 (RBDT).
3 - European Commission Drinking Water Directive 98/83/EC
4 - World Health Organisation Drinking Water Quality Standards (2008)
5 - Environment Agency - Supplementary Guidance on Hydrocarbons (2009)

*- PAH4 relates to the combined effects of benzo(b)fluoranthene, benzo(k)flouranthene, benzo(g,h,i)perylene and indeno(1,2,3-cd)pyrene

Appendix F

MONITORING RESULTS

Former Interbrew Site, Gloucester

Key:

Depth to water

- Response zone *fully* flooded during sampling
- Response zone *significantly* flooded during sampling
- Datum or reponse zone information missing. Response zone flooding cannot be calculated

Methane	Carbon Dioxide	Gas Flow
> 1% v/v	> 5% v/v	> 70 l/hr

Visit 1, Event: Visit 2, Date: 14/06/2016

Engineer	Matt
Start/End Time	08:13 - 12:05
Pressure Start/End (mB)	991 - 990
Temperature (Deg C)	19.00
Weather Conditions	Dry

Equipment	SerialNo	Calibrated
GFM Gas Kit	12019	Yes
PhoCheck Tiger PID	T-109211	Yes
Solinst Interface Meter	122 253006	Yes

Comments and Ground Conditions: Location BH03 had damaged gas tap. Location WS04, high groundwater level inhibited ground gas monitoring.

Borehole	Response Zone (m)		Gas Flow (l/hr)		Borehole Differential Pressure	Methane (% v/v)		Carbon Dioxide (% v/v)		Oxygen (% v/v)		Other Gases (ppmV)			Depth to Water	Depth to Base	Thickness of product	Sampled ?
	Top	Base	Initial	Steady	Pa	Initial	Steady	Initial	Steady	Initial	Steady	PID	H2S	CO	m	m	mm	Y/N
BH01	2.00	7.00	0.00	0.00		0.00	0.00	1.10	1.10	18.60	18.70		0.00	0.00	0.91	6.83	N/A	No
BH02	2.00	7.00	0.00	0.00		0.00	0.00	0.50	0.80	19.00	18.40		0.00	0.00		6.69	N/A	No
BH03	1.50	7.00	0.00	0.00		0.00	0.00	0.80	0.80	19.20	18.90		0.00	0.00	1.12	6.95	N/A	No
BH04	1.50	7.00	0.00	0.00		0.00	0.00	4.70	5.00	14.00	12.70		0.00	0.00	3.50	6.96	N/A	No
BH05	1.00	3.00	0.00	0.00		0.00	0.00	0.60	0.70	19.40	19.10		0.00	0.00		2.99	N/A	No
WS01	1.00	3.00	19.90	5.30	77	0.00	0.00	0.70	0.80	18.80	17.80		0.00	0.00	0.70	2.97	N/A	No
WS03	1.00	4.00	0.00	0.00		0.00	0.00	0.00	0.00	20.50	20.50		0.00	0.00	0.68	3.95	N/A	No
WS04	1.00	3.00	0.00	0.00											0.01	3.02	N/A	No
WS06	0.50	1.20	0.00	0.00		0.00	0.00	0.20	0.20	19.50	18.50		0.00	0.00	1.44	1.70	N/A	No
WS07	1.50	4.60	0.00	0.00		0.00	0.00	0.10	0.10	20.30	20.40		0.00	0.00	0.34	3.90	N/A	No
WS10	0.50	1.50	0.00	0.00		0.00	0.00	0.00	0.00	20.10	20.30		0.00	0.00	0.60	1.65	N/A	No

Former Interbrew Site, Gloucester

Key:

Depth to water

- Response zone *fully* flooded during sampling
- Response zone *significantly* flooded during sampling
- Datum or reponse zone information missing. Response zone flooding cannot be calculated

Methane	Carbon Dioxide	Gas Flow
> 1% v/v	> 5% v/v	> 70 l/hr

Visit 2, Event: Visit 3, Date: 21/06/2016

Engineer	VK
Start/End Time	08:05 - 10:00
Pressure Start/End (mB)	1012 - 1012
Temperature (Deg C)	18.00
Weather Conditions	Dry and sunny

Equipment	SerialNo	Calibrated
GFM Gas Kit	12019	Yes
PhoCheck Tiger PID	T-109211	Yes
Solinst Interface Meter	122 253006	Yes

Comments and Ground Conditions: None.

Borehole	Response Zone (m)		Gas Flow (l/hr)		Borehole Differential Pressure	Methane (% v/v)		Carbon Dioxide (% v/v)		Oxygen (% v/v)		Other Gases (ppmV)			Depth to Water	Depth to Base	Thickness of product	Sampled ?
	Top	Base	Initial	Steady	Pa	Initial	Steady	Initial	Steady	Initial	Steady	PID	H2S	CO	m	m	mm	Y/N
BH01	2.00	7.00	-0.70	-0.70	-3	0.00	0.00	0.60	0.60	19.50	19.50	0.90	0.00	-10.00	0.96	6.88	N/A	No
BH02	2.00	7.00	-7.00	-0.90	-3	0.00	0.00	0.20	0.10	17.70	19.90	0.00	0.00	0.00	0.81	6.76	N/A	No
BH03	1.50	7.00	0.00	0.00	0	0.00	0.00	0.40	0.40	18.80	18.60	0.30	0.00	-10.00	1.10	7.02	N/A	No
BH04	1.50	7.00	-6.80	-6.70	-57	0.00	0.00	7.60	8.50	12.60	11.70	0.70	0.00	0.00	1.09	6.98	N/A	No
BH05	1.00	3.00	-0.70	-0.70	-3	0.00	0.00	0.60	0.70	19.80	19.40	0.40	0.00	-10.00		2.93	N/A	No
WS01	1.00	3.00	4.10	0.00	0	0.00	0.00	0.40	0.30	19.70	19.80	0.90	0.00	0.00	0.47	3.00	N/A	No
WS03	1.00	4.00	0.00	0.00	0	0.00	0.00	0.10	0.10	19.70	20.00	0.50	0.00	-10.00	0.69	3.99	N/A	No
WS04	1.00	3.00	-1.50	-0.70	-2	0.00	0.00	0.00	0.00	20.80	20.90	0.00	0.00	-10.00	0.15	3.08	N/A	No
WS06	0.50	1.20	-7.00	-6.60	-55	0.00	0.00	0.70	0.30	17.90	18.40	0.00	0.00	0.00	0.49	1.76	N/A	No
WS07	1.50	4.60	-6.80	-6.70	-57	0.00	0.00	0.10	0.00	20.60	20.80	0.20	0.00	0.00	0.34	3.88	N/A	No
WS10	0.50	1.50	0.00	0.00	0	0.00	0.00	0.00	0.00	20.70	20.50	0.10	0.00	-10.00	0.56	1.68	N/A	No

Former Interbrew Site, Gloucester

Key:

Depth to water

- Response zone *fully* flooded during sampling
- Response zone *significantly* flooded during sampling
- Datum or reponse zone information missing. Response zone flooding cannot be calculated

Methane	Carbon Dioxide	Gas Flow
> 1% v/v	> 5% v/v	> 70 l/hr

Visit 3, Event: Visit 4, Date: 29/06/2016

Engineer	Matt
Start/End Time	09:20 - 11:30
Pressure Start/End (mB)	1001 - 1001
Temperature (Deg C)	18.00
Weather Conditions	Dry

Equipment	SerialNo	Calibrated
GFM Gas Kit	12019	Yes
PhoCheck Tiger PID	T-109211	Yes
Solinst Interface Meter	122 253006	Yes

Comments and Ground Conditions: None

Borehole	Response Zone (m)		Gas Flow (l/hr)		Borehole Differential Pressure	Methane (% v/v)		Carbon Dioxide (% v/v)		Oxygen (% v/v)		Other Gases (ppmV)			Depth to Water	Depth to Base	Thickness of product	Sampled ?
	Top	Base	Initial	Steady	Pa	Initial	Steady	Initial	Steady	Initial	Steady	PID	H2S	CO	m	m	mm	Y/N
BH01	2.00	7.00	0.00	0.00	1,000	0.00	0.00	1.20	1.30	18.40	18.30	0.80	0.00	0.00	0.92	6.80	N/A	No
BH02	2.00	7.00	0.00	0.00	1,001	0.00	0.00	1.10	0.70	19.30	19.00	0.20	0.00	0.00	2.53	6.70	N/A	No
BH03	1.50	7.00	0.00	0.00	1,000	0.00	0.00	1.20	1.50	19.00	18.40	0.70	0.00	0.00	1.10	6.96	N/A	No
BH04	1.50	7.00	0.00	0.00	1,001	0.00	0.00	2.20	1.70	19.20	19.30	0.70	0.00	0.00	1.06	6.95	N/A	No
BH05	1.00	3.00	0.00	0.00	1,001	0.00	0.00	0.50	0.70	20.00	19.50	0.50	0.00	0.00		2.89	N/A	No
WS01	1.00	3.00	21.00	3.00	1,001	0.00	0.00	0.40	0.30	18.90	18.90	2.10	0.00	0.00	0.47	2.98	N/A	No
WS03	1.00	4.00	0.00	0.00	1,001	0.00	0.00	0.20	0.20	20.30	20.30	0.40	0.00	0.00	0.69	3.95	N/A	No
WS04	1.00	3.00	6.00	0.00	1,001	0.00	0.00	1.70	1.40	18.90	19.20	1.00	0.00	0.00	0.66	3.03	N/A	No
WS06	0.50	1.20	0.00	0.00	1,001	0.00	0.00	0.30	0.30	19.00	17.70	0.90	0.00	0.00	0.43	1.72	N/A	No
WS07	1.50	4.60	0.00	0.00	1,001	0.00	0.00	0.90	0.70	19.50	19.20	1.00	0.00	0.00	0.07	3.94	N/A	No
WS10	0.50	1.50	0.00	0.00	1,000	0.00	0.00	0.20	0.10	20.40	20.50	0.80	0.00	0.00	0.56	1.65	N/A	No

Former Interbrew Site, Gloucester

Key:

Depth to water

- Response zone *fully* flooded during sampling
- Response zone *significantly* flooded during sampling
- Datum or reponse zone information missing. Response zone flooding cannot be calculated

Methane	Carbon Dioxide	Gas Flow
> 1% v/v	> 5% v/v	> 70 l/hr

Visit 4, Event: Visit 5, Date: 13/07/2016

Engineer	LM
Start/End Time	09:10 - 11:30
Pressure Start/End (mB)	1014 - 1013
Temperature (Deg C)	14.00
Weather Conditions	Dry

Equipment	SerialNo	Calibrated
GFM Gas Kit	12019	Yes
PhoCheck Tiger PID	T-109211	Yes
Solinst Interface Meter	122 253006	Yes

Comments and Ground Conditions: None

Borehole	Response Zone (m)		Gas Flow (l/hr)		Borehole Differential Pressure	Methane (% v/v)		Carbon Dioxide (% v/v)		Oxygen (% v/v)		Other Gases (ppmV)			Depth to Water	Depth to Base	Thickness of product	Sampled ?
	Top	Base	Initial	Steady	Pa	Initial	Steady	Initial	Steady	Initial	Steady	PID	H2S	CO	m	m	mm	Y/N
BH02	2.00	7.00	0.00	0.00		0.00	0.00	0.00	0.10	20.90	20.80	0.00	0.00	0.00	2.30	6.52	N/A	No
BH03	1.50	7.00	0.00	0.00		0.00	0.00	0.40	0.40	20.10	20.25	0.00	0.00	0.00	1.10	6.95	N/A	No
BH04	1.50	7.00	-1.50	-1.20		0.00	0.00	0.80	3.00	19.70	18.10	0.00	0.00	0.00	1.25	6.98	N/A	No
BH05	1.00	3.00	-1.00	-0.90		0.00	0.00	0.40	0.30	20.60	20.60	0.20	0.00	0.00		2.95	N/A	No
WS01	1.00	3.00	0.00	0.00		0.00	0.00	0.80	0.20	18.10	20.10	0.20	0.00	0.00	0.25	3.02	N/A	No
WS03	1.00	4.00	0.00	0.00		0.00	0.00	0.10	0.10	20.50	20.50	0.20	0.00	0.00	0.69	4.05	N/A	No
WS04	1.00	3.00	-1.00	-1.00											0.15	3.10	N/A	No
WS06	0.50	1.20	0.00	0.00		0.00	0.00	0.40	0.20	19.20	19.70	0.00	0.00	0.00	0.45	1.75	N/A	No
WS07	1.50	4.60	-1.00	-0.70		0.00	0.00	0.50	0.10	20.50	20.60	0.00	0.00	0.00	0.28	3.98	N/A	No
WS10	0.50	1.50	-0.30	-0.30		0.00	0.00	0.10	0.00	20.70	20.70	0.00	0.00	0.00	0.58	1.69	N/A	No

Former Interbrew Site, Gloucester

Key:

Depth to water

- Response zone *fully* flooded during sampling
- Response zone *significantly* flooded during sampling
- Datum or reponse zone information missing. Response zone flooding cannot be calculated

Methane	Carbon Dioxide	Gas Flow
> 1% v/v	> 5% v/v	> 70 l/hr

Visit 5, Event: Round 1 Feb 2018, Date: 21/02/2018

Engineer	Charlie Orme
Start/End Time	08:45 - 15:52
Pressure Start/End (mB)	1026 - 1026
Temperature (Deg C)	5.00
Weather Conditions	Overcast

Equipment	SerialNo	Calibrated
Gas Analyser	G501281	Yes

Comments and Ground Conditions:

Borehole	Response Zone (m)		Gas Flow (l/hr)		Borehole Differential Pressure	Methane (% v/v)		Carbon Dioxide (% v/v)		Oxygen (% v/v)		Other Gases (ppmV)			Depth to Water	Depth to Base	Thickness of product	Sampled ?
	Top	Base	Initial	Steady	Pa	Initial	Steady	Initial	Steady	Initial	Steady	PID	H2S	CO	m	m	mm	Y/N
BH01	2.00	7.00	0.10	0.10	-3	0.00	0.00	0.90	0.90	19.50	19.20	0.00	0.00		6.85	0.92	N/A	No
BH02	2.00	7.00	0.00	0.00	1	0.00	0.00	0.10	3.80	21.70	8.60	0.00	0.00		1.35	6.50	N/A	No
BH03	1.50	7.00	0.00	0.00	1	0.00	0.00	0.10	1.20	22.00	20.10	0.00	0.00		1.04	7.00	N/A	No
BH04	1.50	7.00	0.00	0.00	0	0.00	0.00	0.10	6.60	21.90	17.70	0.10	0.00		0.98	6.97	N/A	No
BH05	1.00	3.00	0.20	0.20	0	0.00	0.00	0.10	0.20	22.00	21.90	0.00	0.00		1.93	2.93	N/A	No
BH101	2.00	8.00	0.00	0.00	0	0.00	0.00	1.00	1.70	21.00	18.00	0.00	0.00		6.58	7.97	N/A	No
BH102	2.00	8.00	-0.30	-0.30	0	0.00	0.00	0.10	0.90	22.00	20.40	0.00	0.00		2.38	7.90	N/A	No
BH103	2.00	8.00	0.00	0.00	0	0.00	0.00	0.00	1.30	22.00	15.40	2.40	0.00			7.73	N/A	No
BH104	2.00	8.00	0.03	0.05	0	0.00	0.00	0.00	1.40	22.00	19.70	1.80	0.00			7.92	N/A	No
WS01	1.00	3.00	0.00	0.00	0	0.00	0.00	0.10	4.60	20.60	4.10	0.00	0.00		0.39	3.00	N/A	No
WS03	1.00	4.00	0.00	0.00	0	0.00	0.00	0.00	0.40	0.00	21.50	0.10	0.00		0.70	3.97	N/A	No
WS06	0.50	1.20	0.00	0.10	0	0.00	0.00	0.10	1.90	22.00	19.60	0.00	0.00		0.52	1.77	N/A	No
WS07	1.50	4.60	0.00	0.00	0	0.00	0.00	0.10	1.80	22.00	18.40	0.00	0.00		0.55	4.94	N/A	No
WS10	0.50	1.50	0.10	0.10	0	0.00	0.00	0.30	0.30	21.50	21.50	0.00	0.00		0.59	1.68	N/A	No

Former Interbrew Site, Gloucester

Key:

Depth to water

- Response zone *fully* flooded during sampling
- Response zone *significantly* flooded during sampling
- Datum or reponse zone information missing. Response zone flooding cannot be calculated

Methane	Carbon Dioxide	Gas Flow
> 1% v/v	> 5% v/v	> 70 l/hr

Visit 5, Event: Round 1 Feb 2018, Date: 21/02/2018

Engineer	Charlie Orme
Start/End Time	08:45 - 15:52
Pressure Start/End (mB)	1026 - 1026
Temperature (Deg C)	5.00
Weather Conditions	Overcast

Equipment	SerialNo	Calibrated
Gas Analyser	G501281	Yes

Comments and Ground Conditions:

Borehole	Response Zone (m)		Gas Flow (l/hr)		Borehole Differential Pressure	Methane (% v/v)		Carbon Dioxide (% v/v)		Oxygen (% v/v)		Other Gases (ppmV)			Depth to Water	Depth to Base	Thickness of product	Sampled ?
	Top	Base	Initial	Steady	Pa	Initial	Steady	Initial	Steady	Initial	Steady	PID	H2S	CO	m	m	mm	Y/N
WS101	1.50	5.00	0.00	0.10	0	0.00	0.10	0.00	0.80	21.60	21.20	0.00	0.00		1.20	5.02	N/A	No
WS103	1.00	4.00	0.00	0.00	0	0.10	0.10	0.10	0.10	22.30	22.30	7.20	0.00			4.03	N/A	No
WS106	1.00	2.00	0.00	0.00	0	0.00	0.00	0.20	0.10	21.90	22.00	0.40	0.00		1.51	1.83	N/A	No
WS109	1.00	2.00	0.00	0.00	0	0.00	0.00	0.00	0.10	21.90	21.80	2.50	0.00		1.39	2.06	N/A	No

Former Interbrew Site, Gloucester

Key:

Depth to water

- Response zone *fully* flooded during sampling
- Response zone *significantly* flooded during sampling
- Datum or reponse zone information missing. Response zone flooding cannot be calculated

Methane	Carbon Dioxide	Gas Flow
> 1% v/v	> 5% v/v	> 70 l/hr

Visit 6, Event: 13 March 2018, Date: 13/03/2018

Engineer	Charlie Orme
Start/End Time	12:49 - 15:06
Pressure Start/End (mB)	1005 - 1005
Temperature (Deg C)	11.00
Weather Conditions	Fine

Equipment	SerialNo	Calibrated
PID		Yes
Gas Analyser		Yes

Comments and Ground Conditions:

Borehole	Response Zone (m)		Gas Flow (l/hr)		Borehole Differential Pressure	Methane (% v/v)		Carbon Dioxide (% v/v)		Oxygen (% v/v)		Other Gases (ppmV)			Depth to Water	Depth to Base	Thickness of product	Sampled ?
	Top	Base	Initial	Steady	Pa	Initial	Steady	Initial	Steady	Initial	Steady	PID	H2S	CO	m	m	mm	Y/N
BH01	2.00	7.00	0.00	0.00	0	0.00	0.00	0.00	0.00	20.50	20.30	0.20			0.56	6.89	N/A	No
BH02	2.00	7.00	0.00		0	0.00	0.00	0.20	1.30	20.30	19.50	0.10			1.32	6.58	N/A	No
BH03	1.50	7.00			0	0.00	0.00	0.00	1.90	20.50	13.40	0.00			0.70	7.02	N/A	No
BH04	1.50	7.00				0.00	0.00	0.00	3.30	20.60	18.70	0.50			0.96	6.96	N/A	No
BH05	1.00	3.00				0.00	0.00	0.00	0.10	20.60	20.30	0.10			2.31	2.94	N/A	No
BH101	2.00	8.00	0.00	0.00	0	0.00	0.00	0.00	1.70	20.50	15.50	0.80			6.78	7.95	N/A	No
BH102	2.00	8.00	0.00	0.00	0	0.00	0.00	0.00	1.80	20.40	17.30	0.80			2.61	7.91	N/A	No
BH103	2.00	8.00	0.00	0.00	0	0.00	0.00	0.00	0.00	20.90	20.70	0.90	0.00	0.00	7.08	7.78	N/A	No
BH104	2.00	8.00				0.00	0.00	0.00	0.00	20.80	20.60	0.80			7.36	7.90	N/A	No
WS01	1.00	3.00	0.00	0.00	0	0.00	0.00	0.00	3.00	20.50	17.00	0.00			0.37	2.99	N/A	No
WS03	1.00	4.00	0.00	0.00	0	0.00	0.00	0.00	0.00	20.40	20.40	0.00			0.69	1.01	N/A	No
WS06	0.50	1.20		0.00	0	0.00	0.00	0.10	0.20	20.50	19.80	0.00			0.43	1.78	N/A	No
WS07	1.50	4.60	0.00	0.00	0	0.00	0.00	0.00	0.80	20.90	20.00	0.00			0.48	3.95	N/A	No
WS10	0.50	1.50	0.00	0.00	0	0.00	0.00	0.00	0.10	20.40	20.20	0.10			0.57	1.69	N/A	No

Former Interbrew Site, Gloucester

Key:

Depth to water

- Response zone *fully* flooded during sampling
- Response zone *significantly* flooded during sampling
- Datum or reponse zone information missing. Response zone flooding cannot be calculated

Methane	Carbon Dioxide	Gas Flow
> 1% v/v	> 5% v/v	> 70 l/hr

Visit 6, Event: 13 March 2018, Date: 13/03/2018

Engineer	Charlie Orme
Start/End Time	12:49 - 15:06
Pressure Start/End (mB)	1005 - 1005
Temperature (Deg C)	11.00
Weather Conditions	Fine

Equipment	SerialNo	Calibrated
PID		Yes
Gas Analyser		Yes

Comments and Ground Conditions:

Borehole	Response Zone (m)		Gas Flow (l/hr)		Borehole Differential Pressure	Methane (% v/v)		Carbon Dioxide (% v/v)		Oxygen (% v/v)		Other Gases (ppmV)			Depth to Water	Depth to Base	Thickness of product	Sampled ?
	Top	Base	Initial	Steady	Pa	Initial	Steady	Initial	Steady	Initial	Steady	PID	H2S	CO	m	m	mm	Y/N
WS103	1.00	4.00				0.00	0.00	0.00	0.10	20.50	19.20	0.00			0.65	4.03	N/A	No
WS106	1.00	2.00				0.00	0.00	0.00	0.00	20.80	20.60	0.30			1.53	1.85	N/A	No
WS109	1.00	2.00	0.00	0.00	0	0.00	0.00	0.00	0.10	20.70	20.40	1.00			1.45	2.09	N/A	No

Appendix G

LABORATORY DATA AND SCREENING

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
[redacted]
Website: www.alsenvironmental.co.uk

WSP Environmental
One Queens Drive
Birmingham
B5 4PJ

Attention: Charlie Orme

CERTIFICATE OF ANALYSIS

Date:	01 March 2018
Customer:	H_WSP_BIR
Sample Delivery Group (SDG):	180216-85
Your Reference:	70020138
Location:	Former Interbrew Site, Gloucester
Report No:	446420

This report has been revised and directly supersedes 446021 in its entirety.

We received 46 samples on Friday February 16, 2018 and 19 of these samples were scheduled for analysis which was completed on Thursday March 01, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

[redacted]

Operations Manager

ALS Environmental is part of ALS Life Sciences Limited. ALS Life Sciences Limited registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291.

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17062989	BH101	ES	0.30 - 0.30	08/02/2018
17063005	BH101	ES	0.60 - 0.60	08/02/2018
17063029	BH102	ES	0.30 - 0.50	08/02/2018
17063039	BH102	ES	1.60 - 1.60	08/02/2018
17063049	BH103	ES	0.30 - 0.40	08/02/2018
17063063	BH103	ES	0.75 - 0.75	08/02/2018
17063071	BH103	ES	1.45 - 1.45	08/02/2018
17063084	BH104	ES	0.50 - 0.50	08/02/2018
17063093	BH104	ES	0.80 - 0.80	08/02/2018
17063113	BH104	ES	1.30 - 1.30	08/02/2018
17063461	HP101	ES	0.30 - 0.30	13/02/2018
17063477	HP102	ES	0.30 - 0.30	13/02/2018
17063487	HP102	ES	0.60 - 0.60	13/02/2018
17062970	TP101	ES	0.50 - 0.50	08/02/2018
17063019	TP101	ES	1.00 - 1.00	08/02/2018
17063145	TP102	ES	0.40 - 0.40	08/02/2018
17063271	TP102	ES	0.70 - 0.70	08/02/2018
17063384	TP103	ES	0.80 - 0.80	08/02/2018
17063395	TP103	ES	1.00 - 1.00	08/02/2018
17063404	TP103	ES	1.50 - 1.50	08/02/2018
17063414	TP104	ES	0.50 - 0.50	08/02/2018
17063424	TP104	ES	0.80 - 0.80	08/02/2018
17063104	TP105	ES	0.65 - 0.65	08/02/2018
17063219	TP105	ES	0.80 - 0.80	08/02/2018
17063353	TP106	ES	0.60 - 0.60	08/02/2018
17063437	TP106	ES	1.00 - 1.00	08/02/2018
17063449	TP106	ES	1.40 - 1.40	08/02/2018
17063122	WS101	ES	0.30 - 0.45	12/02/2018
17063134	WS101	ES	1.30 - 1.30	12/02/2018
17063156	WS102	ES	0.30 - 0.50	12/02/2018
17063169	WS102	ES	1.60 - 1.60	12/02/2018
17063178	WS103	ES	0.25 - 0.25	12/02/2018
17063190	WS103	ES	0.70 - 0.70	12/02/2018
17063198	WS104	ES	0.30 - 0.30	12/02/2018
17063208	WS104	ES	0.90 - 0.90	12/02/2018
17063228	WS105	ES	0.25 - 0.25	12/02/2018
17063238	WS105	ES	0.70 - 0.70	12/02/2018
17063285	WS105	ES	1.10 - 1.10	12/02/2018
17063250	WS106	ES	0.60 - 0.60	12/02/2018
17063260	WS107	ES	0.45 - 0.45	12/02/2018
17063297	WS108	ES	0.50 - 0.50	12/02/2018
17063312	WS108	ES	1.05 - 1.05	12/02/2018
17063325	WS109	ES	0.50 - 0.50	12/02/2018
17063343	WS109	ES	1.20 - 1.20	12/02/2018
17063365	WS110	ES	0.30 - 0.30	12/02/2018
17063375	WS110	ES	1.05 - 1.05	12/02/2018

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Maximum Sample/Coolbox Temperature (°C) : **4.6**

ISO5667-3 Water quality - Sampling - Part3 -
During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

| | | | | |

17063178	WS103	ES	0.25 - 0.25	1kg TUB	S			X																
17063156	WS102	ES	0.30 - 0.50	60g VOC (ALE215)	S													X						
				250g Amber Jar (ALE210)	S					X			X		X					X				X		X
				1kg TUB	S			X																	
17063122	WS101	ES	0.30 - 0.45	60g VOC (ALE215)	S													X						
				250g Amber Jar (ALE210)	S					X			X		X					X				X		X
				1kg TUB	S			X																	
17063437	TP106	ES	1.00 - 1.00	60g VOC (ALE215)	S													X						
				250g Amber Jar (ALE210)	S					X			X		X					X				X		X
				1kg TUB	S			X	X	X	X										X				
17063414	TP104	ES	0.50 - 0.50	60g VOC (ALE215)	S													X						
				250g Amber Jar (ALE210)	S					X			X		X					X				X		X
				1kg TUB	S			X																	
17063395	TP103	ES	1.00 - 1.00	60g VOC (ALE215)	S													X						
				250g Amber Jar (ALE210)	S								X		X										
17063384	TP103	ES	0.80 - 0.80	60g VOC (ALE215)	S													X						
				250g Amber Jar (ALE210)	S								X		X										
				1kg TUB	S			X																	
17063145	TP102	ES	0.40 - 0.40	60g VOC (ALE215)	S													X						
				250g Amber Jar (ALE210)	S	X				X			X		X					X				X		X

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
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UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

| | | | | |

17063178	WS103	ES	0.25 - 0.25	1kg TUB	S						
17063156	WS102	ES	0.30 - 0.50	60g VOC (ALE215)	S			X			
				250g Amber Jar (ALE210)	S	X					
				1kg TUB	S						
17063122	WS101	ES	0.30 - 0.45	60g VOC (ALE215)	S			X			
				250g Amber Jar (ALE210)	S	X					
				1kg TUB	S						
17063437	TP106	ES	1.00 - 1.00	60g VOC (ALE215)	S			X			
				250g Amber Jar (ALE210)	S	X					
				1kg TUB	S						
17063414	TP104	ES	0.50 - 0.50	60g VOC (ALE215)	S			X			
				250g Amber Jar (ALE210)	S	X					
				1kg TUB	S						
17063395	TP103	ES	1.00 - 1.00	60g VOC (ALE215)	S			X			
				250g Amber Jar (ALE210)	S	X					
				60g VOC (ALE215)	S			X			
17063384	TP103	ES	0.80 - 0.80	250g Amber Jar (ALE210)	S	X					
				1kg TUB	S						
				250g Amber Jar (ALE210)	S	X					
17063145	TP102	ES	0.40 - 0.40	60g VOC (ALE215)	S		X				
				250g Amber Jar (ALE210)	S	X					

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
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RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)											
			17063178			17063250		17063312		17063343			17063375	
			Customer Sample Reference											
			WS103			WS106		WS108		WS109			WS110	
			AGS Reference											
			ES			ES		ES		ES			ES	
			Depth (m)											
			0.25 - 0.25			0.60 - 0.60		1.05 - 1.05		1.20 - 1.20			1.05 - 1.05	
			Container											
			250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)
			Sample Type											
			S	S	S	S	S	S	S	S	S	S	S	S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 4				X					X				
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 15			X					X			X		
CEN Readings	All	NDPs: 0 Tests: 6			X					X			X		
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 18	X			X		X		X	X		X	X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 4								X			X		
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 19	X			X		X			X			X	
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 19	X			X		X			X			X	
Ferric Iron	All	NDPs: 0 Tests: 4			X					X					
Ferrous Iron	All	NDPs: 0 Tests: 4			X					X					
GRO by GC-FID (S)	All	NDPs: 0 Tests: 19		X			X		X			X			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 14	X			X		X			X			X	
Mercury Dissolved	All	NDPs: 0 Tests: 4								X			X		
Metals by iCap-OES Dissolved (W)	All	NDPs: 0 Tests: 4			X					X					
Metals in solid samples by OES	All	NDPs: 0 Tests: 14	X			X		X			X			X	
PAH by GCMS	All	NDPs: 0 Tests: 16	X			X		X			X			X	

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

			Lab Sample No(s)											
			17063178		17063250		17063312		17063343		17063375			
			Customer Sample Reference											
			WS103		WS106		WS108		WS109		WS110			
			AGS Reference											
			ES		ES		ES		ES		ES			
			Depth (m)											
			0.25 - 0.25		0.60 - 0.60		1.05 - 1.05		1.20 - 1.20		1.05 - 1.05			
			Container											
			250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB	250g Amber Jar (ALE210)	60g VOC (ALE215)
			Sample Type											
			S	S	S	S	S	S	S	S	S	S	S	S	S
pH	All	NDPs: 0 Tests: 14	X			X		X			X			X	
Sample description	All	NDPs: 0 Tests: 19	X			X		X			X			X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 19	X			X		X			X			X	
VOC MS (S)	All	NDPs: 0 Tests: 19		X			X		X			X			X

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
17063005	BH101	0.60 - 0.60	Dark Brown	Sandy Clay	Fibres	Stones
17063049	BH103	0.30 - 0.40	Light Brown	Sandy Loam	Stones	None
17063063	BH103	0.75 - 0.75	Dark Brown	Silt Loam	Stones	Vegetation
17063084	BH104	0.50 - 0.50	Dark Brown	Sandy Clay	Stones	N/A
17063461	HP101	0.30 - 0.30	Light Brown	Sandy Loam	Stones	None
17063477	HP102	0.30 - 0.30	Light Brown	Sand	Stones	None
17063487	HP102	0.60 - 0.60	Grey	Clay	Stones	None
17063145	TP102	0.40 - 0.40	Light Brown	Sand	Stones	None
17063384	TP103	0.80 - 0.80	Grey	Stone/Soil	Stones	None
17063395	TP103	1.00 - 1.00	Grey	Clay	Stones	None
17063414	TP104	0.50 - 0.50	Light Brown	Sand	Stones	None
17063437	TP106	1.00 - 1.00	Dark Brown	Loamy Sand	Stones	None
17063122	WS101	0.30 - 0.45	Dark Brown	Sandy Clay Loam	Stones	Brick
17063156	WS102	0.30 - 0.50	Dark Brown	Silt Loam	Stones	Brick
17063178	WS103	0.25 - 0.25	Light Brown	Stone/Soil	Stones	None
17063250	WS106	0.60 - 0.60	Dark Brown	Sand	Stones	None
17063312	WS108	1.05 - 1.05	Dark Brown	Sandy Clay	Crushed Brick	Stones
17063343	WS109	1.20 - 1.20	Dark Brown	Silty Clay Loam	Stones	None
17063375	WS110	1.05 - 1.05	Dark Brown	Silty Clay Loam	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH101	BH103	BH103	BH104	HP101	HP102
			Depth (m)	0.60 - 0.60	0.30 - 0.40	0.75 - 0.75	0.50 - 0.50	0.30 - 0.30	0.30 - 0.30
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/02/2018	08/02/2018	08/02/2018	08/02/2018	13/02/2018	13/02/2018
			Sampled Time	.	.	.	.	.	.
			Date Received	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018
			SDG Ref	180216-85	180216-85	180216-85	180216-85	180216-85	180216-85
			Lab Sample No.(s)	17063005	17063049	17063063	17063084	17063461	17063477
			AGS Reference	ES	ES	ES	ES	ES	ES
Moisture Content Ratio (% of as received sample)	1 %	PM024		17	13	16	14	6.3	7.7
pH	1 pH Units	TM133		8.25 M	10 M		8.17 M		
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 #	<0.6 #	<0.6 #	<0.6 #		
Cyanide, Total	<1 mg/kg	TM153		<1 M	<1 M	<1 M	<1 M		
Arsenic	<0.6 mg/kg	TM181		15 M	6.34 M	19 M	51.9 M		
Cadmium	<0.02 mg/kg	TM181		<0.02 M	0.0331 M	<0.02 M	<0.02 M		
Chromium	<0.9 mg/kg	TM181		17.4 M	3.53 M	18.5 M	33.8 M		
Copper	<1.4 mg/kg	TM181		19.9 M	12.8 M	28.5 M	81.9 M		
Lead	<0.7 mg/kg	TM181		26.1 M	11 M	48.8 M	109 M		
Mercury	<0.14 mg/kg	TM181		<0.14 M	<0.14 M	<0.14 M	<0.14 M		
Nickel	<0.2 mg/kg	TM181		29.9 M	7.21 M	27 M	53.1 M		
Selenium	<1 mg/kg	TM181		<1 #	<1 #	<1 #	<1 #		
Zinc	<1.9 mg/kg	TM181		69.7 M	20.9 M	112 M	148 M		
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.0984 M					
Chloride (soluble)	<5 mg/kg	TM243		26.6 M					

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	HP102	TP102	TP103	TP103	TP104	TP106
			Depth (m)	0.60 - 0.60	0.40 - 0.40	0.80 - 0.80	1.00 - 1.00	0.50 - 0.50	1.00 - 1.00
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	13/02/2018	08/02/2018	08/02/2018	08/02/2018	08/02/2018	08/02/2018
			Sampled Time	.	.	.	.	.	.
			Date Received	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018
			SDG Ref	180216-85	180216-85	180216-85	180216-85	180216-85	180216-85
			Lab Sample No.(s)	17063487	17063145	17063384	17063395	17063414	17063437
			AGS Reference	ES	ES	ES	ES	ES	ES
Moisture Content Ratio (% of as received sample)	1 %	PM024		19	4.5	8.6	20	3.6	14
pH	1 pH Units	TM133			11.8 M	8.09 #		11.9 M	7.54 M
Chromium, Hexavalent	<0.6 mg/kg	TM151			<0.6 #			<0.6 #	<0.6 #
Cyanide, Total	<1 mg/kg	TM153			<1 M			<1 M	<1 M
Arsenic	<0.6 mg/kg	TM181			1.15 M			10.2 M	23.2 M
Cadmium	<0.02 mg/kg	TM181			<0.02 M			0.614 M	2.75 M
Chromium	<0.9 mg/kg	TM181			3.88 M			4.56 M	21.4 M
Copper	<1.4 mg/kg	TM181			<1.4 M			1.65 M	50.7 M
Lead	<0.7 mg/kg	TM181			0.786 M			24.5 M	73.5 M
Mercury	<0.14 mg/kg	TM181			<0.14 M			0.301 M	0.338 M
Nickel	<0.2 mg/kg	TM181			1.9 M			3.22 M	29 M
Selenium	<1 mg/kg	TM181			<1 #			<1 #	<1 #
Zinc	<1.9 mg/kg	TM181			7.2 M			80.1 M	374 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243			0.0134 M				
Chloride (soluble)	<5 mg/kg	TM243			20.3 M				

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	WS101	WS102	WS103	WS106	WS108	WS109
Customer Sample Ref.			WS101	WS102	WS103	WS106	WS108	WS109
Depth (m)			0.30 - 0.45	0.30 - 0.50	0.25 - 0.25	0.60 - 0.60	1.05 - 1.05	1.20 - 1.20
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			12/02/2018	12/02/2018	12/02/2018	12/02/2018	12/02/2018	12/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018
SDG Ref			180216-85	180216-85	180216-85	180216-85	180216-85	180216-85
Lab Sample No.(s)			17063122	17063156	17063178	17063250	17063312	17063343
AGS Reference			ES	ES	ES	ES	ES	ES
Moisture Content Ratio (% of as received sample)	1 %	PM024	17	17	7.8	4.4	18	9.6
pH	1 pH Units	TM133	8.6 M	9.15 M	10.3 #	9 M	8.29 M	8.5 M
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #
Cyanide, Total	<1 mg/kg	TM153	<1 M	<1 M	<1 #	<1 M	<1 M	<1 M
Arsenic	<0.6 mg/kg	TM181	14.8 M	9.19 M	1.83 #	2.8 M	8.26 M	6.8 M
Cadmium	<0.02 mg/kg	TM181	<0.02 M	0.0652 M	<0.02 #	0.279 M	<0.02 M	0.359 M
Chromium	<0.9 mg/kg	TM181	21.1 M	14.6 M	3.68 #	4.63 M	25.1 M	10.2 M
Copper	<1.4 mg/kg	TM181	21.6 M	18.5 M	7.2 #	2.94 M	23 M	21.5 M
Lead	<0.7 mg/kg	TM181	39.4 M	30.5 M	2.05 #	22.1 M	12.5 M	21.8 M
Mercury	<0.14 mg/kg	TM181	<0.14 M	<0.14 M	<0.14 #	<0.14 M	<0.14 M	0.314 M
Nickel	<0.2 mg/kg	TM181	27.5 M	20.6 M	2.4 #	5.01 M	42.7 M	12.2 M
Selenium	<1 mg/kg	TM181	<1 #	<1 #	<1 #	<1 #	<1 #	1.47 #
Zinc	<1.9 mg/kg	TM181	87.7 M	78.5 M	9.45 #	30.3 M	70.5 M	48.7 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243				0.0859 M		0.0454 M
Chloride (soluble)	<5 mg/kg	TM243				8.6 M		15.3 M

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sampled Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			WS110	1.05 - 1.05	Soil/Solid (S)	12/02/2018	.	16/02/2018	180216-85	17063375	ES
Moisture Content Ratio (% of as received sample)	%	PM024	16								
pH	1 pH Units	TM133	7.73 M								
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6 #								
Cyanide, Total	<1 mg/kg	TM153	<1 M								
Arsenic	<0.6 mg/kg	TM181	12.9 M								
Cadmium	<0.02 mg/kg	TM181	0.593 M								
Chromium	<0.9 mg/kg	TM181	17.2 M								
Copper	<1.4 mg/kg	TM181	43.6 M								
Lead	<0.7 mg/kg	TM181	76.1 M								
Mercury	<0.14 mg/kg	TM181	<0.14 M								
Nickel	<0.2 mg/kg	TM181	23.3 M								
Selenium	<1 mg/kg	TM181	<1 #								
Zinc	<1.9 mg/kg	TM181	182 M								

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	BH101	BH103	BH103	BH104	HP101	HP102
Customer Sample Ref.			BH101	BH103	BH103	BH104	HP101	HP102
Depth (m)			0.60 - 0.60	0.30 - 0.40	0.75 - 0.75	0.50 - 0.50	0.30 - 0.30	0.60 - 0.60
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			08/02/2018	08/02/2018	08/02/2018	08/02/2018	13/02/2018	13/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018
SDG Ref			180216-85	180216-85	180216-85	180216-85	180216-85	180216-85
Lab Sample No.(s)			17063005	17063049	17063063	17063084	17063461	17063487
AGS Reference			ES	ES	ES	ES	ES	ES
Naphthalene-d8 % recovery**	%	TM218	110	96.1	90.9	109	91.3	93.3
Acenaphthene-d10 % recovery**	%	TM218	116	91.2	96.6	114	95	88.6
Phenanthrene-d10 % recovery**	%	TM218	116	88.9	91.2	108	90.5	86.7
Chrysene-d12 % recovery**	%	TM218	115	80.1	84	92.7	85.8	81.4
Perylene-d12 % recovery**	%	TM218	124	79.1	86	91.9	91.9	82.4
Naphthalene	<0.009 mg/kg	TM218	<0.009 M	0.0196 M	<0.009 M	0.0588 M	<0.018 M	<0.009 M
Acenaphthylene	<0.012 mg/kg	TM218	<0.012 M	<0.012 M	<0.012 M	0.0192 M	<0.024 M	0.0187 M
Acenaphthene	<0.008 mg/kg	TM218	<0.008 M	<0.008 M	<0.008 M	<0.008 M	0.0325 M	<0.008 M
Fluorene	<0.01 mg/kg	TM218	<0.01 M	<0.01 M	<0.01 M	<0.01 M	0.0341 M	<0.01 M
Phenanthrene	<0.015 mg/kg	TM218	0.0222 M	0.258 M	0.0798 M	0.27 M	0.124 M	0.0194 M
Anthracene	<0.016 mg/kg	TM218	<0.016 M	0.271 M	<0.016 M	0.0335 M	0.0357 M	<0.016 M
Fluoranthene	<0.017 mg/kg	TM218	0.0353 M	0.0747 M	0.0469 M	0.242 M	0.121 M	0.0213 M
Pyrene	<0.015 mg/kg	TM218	0.0295 M	0.0459 M	0.0311 M	0.186 M	0.117 M	0.0192 M
Benz(a)anthracene	<0.014 mg/kg	TM218	0.0236 M	<0.014 M	0.0333 M	0.0965 M	0.0419 M	<0.014 M
Chrysene	<0.01 mg/kg	TM218	0.0165 M	0.0125 M	0.024 M	0.125 M	0.0307 M	<0.01 M
Benzo(b)fluoranthene	<0.015 mg/kg	TM218	0.0331 M	<0.015 M	0.0356 M	0.196 M	0.0608 M	<0.015 M
Benzo(k)fluoranthene	<0.014 mg/kg	TM218	<0.014 M	<0.014 M	<0.014 M	0.0738 M	<0.028 M	<0.014 M
Benzo(a)pyrene	<0.015 mg/kg	TM218	0.0239 M	<0.015 M	<0.015 M	0.102 M	0.055 M	<0.015 M
Indeno(1,2,3-cd)pyrene	<0.018 mg/kg	TM218	<0.018 M	<0.018 M	<0.018 M	0.0674 M	<0.036 M	<0.018 M
Dibenzo(a,h)anthracene	<0.023 mg/kg	TM218	<0.023 M	<0.023 M	<0.023 M	0.0282 M	<0.046 M	<0.023 M
Benzo(g,h,i)perylene	<0.024 mg/kg	TM218	<0.024 M	<0.024 M	<0.024 M	0.106 M	0.072 M	<0.024 M
PAH, Total Detected USEPA 16	<0.118 mg/kg	TM218	0.184	0.681	0.251	1.6	0.725	<0.118

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	TP102	TP104	TP106	WS101	WS102	WS103
Customer Sample Ref.			TP102	TP104	TP106	WS101	WS102	WS103
Depth (m)			0.40 - 0.40	0.50 - 0.50	1.00 - 1.00	0.30 - 0.45	0.30 - 0.50	0.25 - 0.25
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			08/02/2018	08/02/2018	08/02/2018	12/02/2018	12/02/2018	12/02/2018
Sampled Time			.	.	.	.	.	.
Date Received			16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018
SDG Ref			180216-85	180216-85	180216-85	180216-85	180216-85	180216-85
Lab Sample No.(s)			17063145	17063414	17063437	17063122	17063156	17063178
AGS Reference			ES	ES	ES	ES	ES	ES
Naphthalene-d8 % recovery**	%	TM218	91.4	92.1	92.5	115	92.8	90.5
Acenaphthene-d10 % recovery**	%	TM218	92.4	95.8	97	124	99.2	94.9
Phenanthrene-d10 % recovery**	%	TM218	87.2	91.2	94.5	124	94.1	90.3
Chrysene-d12 % recovery**	%	TM218	85.7	85.5	91.7	124	91	86
Perylene-d12 % recovery**	%	TM218	89.4	87.5	95.1	136	93.4	89.2
Naphthalene	<0.009 mg/kg	TM218	<0.009 M	0.0223 M	0.0138 M	0.0111 M	0.0589 M	<0.009 #
Acenaphthylene	<0.012 mg/kg	TM218	<0.012 M	<0.012 M	0.0166 M	<0.012 M	0.0281 M	<0.012 #
Acenaphthene	<0.008 mg/kg	TM218	<0.008 M	<0.008 M	<0.008 M	<0.008 M	0.03 M	<0.008 #
Fluorene	<0.01 mg/kg	TM218	<0.01 M	<0.01 M	<0.01 M	<0.01 M	0.0174 M	<0.01 #
Phenanthrene	<0.015 mg/kg	TM218	<0.015 M	0.0203 M	0.234 M	<0.015 M	0.174 M	<0.015 #
Anthracene	<0.016 mg/kg	TM218	<0.016 M	<0.016 M	0.108 M	<0.016 M	0.0407 M	<0.016 #
Fluoranthene	<0.017 mg/kg	TM218	<0.017 M	0.0183 M	0.456 M	<0.017 M	0.273 M	<0.017 #
Pyrene	<0.015 mg/kg	TM218	<0.015 M	0.0182 M	0.434 M	<0.015 M	0.242 M	<0.015 #
Benz(a)anthracene	<0.014 mg/kg	TM218	<0.014 M	<0.014 M	0.253 M	0.0283 M	0.157 M	<0.014 #
Chrysene	<0.01 mg/kg	TM218	<0.01 M	<0.01 M	0.213 M	<0.01 M	0.138 M	<0.01 #
Benzo(b)fluoranthene	<0.015 mg/kg	TM218	<0.015 M	<0.015 M	0.271 M	0.0183 M	0.274 M	<0.015 #
Benzo(k)fluoranthene	<0.014 mg/kg	TM218	<0.014 M	<0.014 M	0.0761 M	<0.014 M	0.085 M	<0.014 #
Benzo(a)pyrene	<0.015 mg/kg	TM218	<0.015 M	<0.015 M	0.169 M	<0.015 M	0.165 M	<0.015 #
Indeno(1,2,3-cd)pyrene	<0.018 mg/kg	TM218	<0.018 M	<0.018 M	0.0883 M	<0.018 M	0.116 M	<0.018 #
Dibenzo(a,h)anthracene	<0.023 mg/kg	TM218	<0.023 M	<0.023 M	0.0285 M	<0.023 M	0.0336 M	<0.023 #
Benzo(g,h,i)perylene	<0.024 mg/kg	TM218	<0.024 M	<0.024 M	0.143 M	<0.024 M	0.177 M	<0.024 #
PAH, Total Detected USEPA 16	<0.118 mg/kg	TM218	<0.118	<0.118	2.5	<0.118	2.01	<0.118

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS106	WS108	WS109	WS110		
			Depth (m)	0.60 - 0.60	1.05 - 1.05	1.20 - 1.20	1.05 - 1.05		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	12/02/2018	12/02/2018	12/02/2018	12/02/2018		
			Sampled Time	.	.	.	.		
			Date Received	16/02/2018	16/02/2018	16/02/2018	16/02/2018		
			SDG Ref	180216-85	180216-85	180216-85	180216-85		
			Lab Sample No.(s)	17063250	17063312	17063343	17063375		
			AGS Reference	ES	ES	ES	ES		
Naphthalene-d8 % recovery**	%	TM218		90.2	110	97.7	94		
Acenaphthene-d10 % recovery**	%	TM218		95.4	117	104	98.9		
Phenanthrene-d10 % recovery**	%	TM218		90.7	114	99.8	93.4		
Chrysene-d12 % recovery**	%	TM218		86.6	112	92.1	87.6		
Perylene-d12 % recovery**	%	TM218		89	119	101	89.3		
Naphthalene	<0.009 mg/kg	TM218		<0.009 M	<0.009 M	<0.009 M	0.0115 M		
Acenaphthylene	<0.012 mg/kg	TM218		<0.012 M	<0.012 M	<0.012 M	<0.012 M		
Acenaphthene	<0.008 mg/kg	TM218		<0.008 M	<0.008 M	<0.008 M	<0.008 M		
Fluorene	<0.01 mg/kg	TM218		<0.01 M	<0.01 M	<0.01 M	<0.01 M		
Phenanthrene	<0.015 mg/kg	TM218		0.0223 M	<0.015 M	0.0256 M	0.0563 M		
Anthracene	<0.016 mg/kg	TM218		<0.016 M	<0.016 M	<0.016 M	<0.016 M		
Fluoranthene	<0.017 mg/kg	TM218		<0.017 M	<0.017 M	0.0259 M	0.136 M		
Pyrene	<0.015 mg/kg	TM218		<0.015 M	<0.015 M	0.0266 M	0.122 M		
Benz(a)anthracene	<0.014 mg/kg	TM218		<0.014 M	<0.014 M	0.0258 M	0.0859 M		
Chrysene	<0.01 mg/kg	TM218		<0.01 M	<0.01 M	0.0185 M	0.0843 M		
Benzo(b)fluoranthene	<0.015 mg/kg	TM218		<0.015 M	<0.015 M	0.0429 M	0.125 M		
Benzo(k)fluoranthene	<0.014 mg/kg	TM218		<0.014 M	<0.014 M	0.0204 M	0.0395 M		
Benzo(a)pyrene	<0.015 mg/kg	TM218		<0.015 M	<0.015 M	0.0292 M	0.0711 M		
Indeno(1,2,3-cd)pyrene	<0.018 mg/kg	TM218		<0.018 M	<0.018 M	0.0226 M	0.0493 M		
Dibenzo(a,h)anthracene	<0.023 mg/kg	TM218		<0.023 M	<0.023 M	<0.023 M	<0.023 M		
Benzo(g,h,i)perylene	<0.024 mg/kg	TM218		0.0252 M	<0.024 M	0.0408 M	0.0799 M		
PAH, Total Detected USEPA 16	<0.118 mg/kg	TM218		<0.118	<0.118	0.278	0.86		

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	HP102	TP103				
			Depth (m)	0.30 - 0.30	0.80 - 0.80				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	13/02/2018	08/02/2018				
			Sampled Time	.	.				
			Date Received	16/02/2018	16/02/2018				
			SDG Ref	180216-85	180216-85				
			Lab Sample No.(s)	17063477	17063384				
			AGS Reference	ES	ES				
Phenol	<0.1 mg/kg	TM157		<0.1	<0.1				
Pentachlorophenol	<0.1 mg/kg	TM157		<0.1	<0.1				
n-Nitroso-n-dipropylamine	<0.1 mg/kg	TM157		<0.1	<0.1				
Nitrobenzene	<0.1 mg/kg	TM157		<0.1	<0.1				
Isophorone	<0.1 mg/kg	TM157		<0.1	<0.1				
Hexachloroethane	<0.1 mg/kg	TM157		<0.1	<0.1				
Hexachlorocyclopentadiene	<0.1 mg/kg	TM157		<0.1	<0.1				
Hexachlorobutadiene	<0.1 mg/kg	TM157		<0.1	<0.1				
Hexachlorobenzene	<0.1 mg/kg	TM157		<0.1	<0.1				
n-Dioctyl phthalate	<0.1 mg/kg	TM157		<0.1	<0.1				
Dimethyl phthalate	<0.1 mg/kg	TM157		<0.1	<0.1				
Diethyl phthalate	<0.1 mg/kg	TM157		<0.1	<0.1				
n-Dibutyl phthalate	<0.1 mg/kg	TM157		<0.1	<0.1				
Dibenzofuran	<0.1 mg/kg	TM157		<0.1	<0.1				
Carbazole	<0.1 mg/kg	TM157		<0.1	<0.1				
Butylbenzyl phthalate	<0.1 mg/kg	TM157		<0.1	<0.1				
bis(2-Ethylhexyl) phthalate	<0.1 mg/kg	TM157		<0.1	<0.1				
bis(2-Chloroethoxy)methane	<0.1 mg/kg	TM157		<0.1	<0.1				
bis(2-Chloroethyl)ether	<0.1 mg/kg	TM157		<0.1	<0.1				
Azobenzene	<0.1 mg/kg	TM157		<0.1	<0.1				
4-Nitrophenol	<0.1 mg/kg	TM157		<0.1	<0.1				
4-Nitroaniline	<0.1 mg/kg	TM157		<0.1	<0.1				
4-Methylphenol	<0.1 mg/kg	TM157		<0.1	<0.1				
4-Chlorophenylphenylether	<0.1 mg/kg	TM157		<0.1	<0.1				
4-Chloroaniline	<0.1 mg/kg	TM157		<0.1	<0.1				
4-Chloro-3-methylphenol	<0.1 mg/kg	TM157		<0.1	<0.1				
4-Bromophenylphenylether	<0.1 mg/kg	TM157		<0.1	<0.1				
3-Nitroaniline	<0.1 mg/kg	TM157		<0.1	<0.1				
2-Nitrophenol	<0.1 mg/kg	TM157		<0.1	<0.1				
2-Nitroaniline	<0.1 mg/kg	TM157		<0.1	<0.1				
2-Methylphenol	<0.1 mg/kg	TM157		<0.1	<0.1				
1,2,4-Trichlorobenzene	<0.1 mg/kg	TM157		<0.1	<0.1				

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	HP102	TP103				
			Depth (m)	0.30 - 0.30	0.80 - 0.80				
			Sample Type	Soil/Solid (S)	Soil/Solid (S)				
			Date Sampled	13/02/2018	08/02/2018				
			Sampled Time	-	-				
			Date Received	16/02/2018	16/02/2018				
			SDG Ref	180216-85	180216-85				
			Lab Sample No.(s)	17063477	17063384				
			AGS Reference	ES	ES				
2-Chlorophenol	<0.1 mg/kg	TM157		<0.1	<0.1				
2,6-Dinitrotoluene	<0.1 mg/kg	TM157		<0.1	<0.1				
2,4-Dinitrotoluene	<0.1 mg/kg	TM157		<0.1	<0.1				
2,4-Dimethylphenol	<0.1 mg/kg	TM157		<0.1	<0.1				
2,4-Dichlorophenol	<0.1 mg/kg	TM157		<0.1	<0.1				
2,4,6-Trichlorophenol	<0.1 mg/kg	TM157		<0.1	<0.1				
2,4,5-Trichlorophenol	<0.1 mg/kg	TM157		<0.1	<0.1				
1,4-Dichlorobenzene	<0.1 mg/kg	TM157		<0.1	<0.1				
1,3-Dichlorobenzene	<0.1 mg/kg	TM157		<0.1	<0.1				
1,2-Dichlorobenzene	<0.1 mg/kg	TM157		<0.1	<0.1				
2-Chloronaphthalene	<0.1 mg/kg	TM157		<0.1	<0.1				
2-Methylnaphthalene	<0.1 mg/kg	TM157		<0.1	<0.1				
Acenaphthylene	<0.1 mg/kg	TM157		<0.1	<0.1				
Acenaphthene	<0.1 mg/kg	TM157		<0.1	<0.1				
Anthracene	<0.1 mg/kg	TM157		<0.1	<0.1				
Benzo(a)anthracene	<0.1 mg/kg	TM157		<0.1	<0.1				
Benzo(b)fluoranthene	<0.1 mg/kg	TM157		<0.1	<0.1				
Benzo(k)fluoranthene	<0.1 mg/kg	TM157		<0.1	<0.1				
Benzo(a)pyrene	<0.1 mg/kg	TM157		<0.1	<0.1				
Benzo(g,h,i)perylene	<0.1 mg/kg	TM157		<0.1	<0.1				
Chrysene	<0.1 mg/kg	TM157		<0.1	<0.1				
Fluoranthene	<0.1 mg/kg	TM157		<0.1	<0.1				
Fluorene	<0.1 mg/kg	TM157		<0.1	<0.1				
Indeno(1,2,3-cd)pyrene	<0.1 mg/kg	TM157		<0.1	<0.1				
Phenanthrene	<0.1 mg/kg	TM157		<0.1	<0.1				
Pyrene	<0.1 mg/kg	TM157		<0.1	<0.1				
Naphthalene	<0.1 mg/kg	TM157		<0.1	<0.1				
Dibenzo(a,h)anthracene	<0.1 mg/kg	TM157		<0.1	<0.1				
Bis(2-chloroisopropyl) ether	<0.1 mg/kg	TM157		<0.1	<0.1				

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH101	BH103	BH103	BH104	HP101	HP102
			Depth (m)	0.60 - 0.60	0.30 - 0.40	0.75 - 0.75	0.50 - 0.50	0.30 - 0.30	0.30 - 0.30
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/02/2018	08/02/2018	08/02/2018	08/02/2018	13/02/2018	13/02/2018
			Sampled Time	.	.	.	.	.	.
			Date Received	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018
			SDG Ref	180216-85	180216-85	180216-85	180216-85	180216-85	180216-85
			Lab Sample No.(s)	17063005	17063049	17063063	17063084	17063461	17063477
			AGS Reference	ES	ES	ES	ES	ES	ES
GRO Surrogate % recovery**	%	TM089		95	85	90	36	79	120
GRO TOT (Moisture Corrected)	<0.044 mg/kg	TM089		<0.044 M	0.336 M	<0.044 M	<0.044 M	<0.044 M	<0.044 M
Aliphatics >C5-C6	<0.01 mg/kg	TM089		<0.01	0.0276	<0.01	<0.01	<0.01	<0.01
Aliphatics >C6-C8	<0.01 mg/kg	TM089		<0.01	0.102	<0.01	<0.01	<0.01	<0.01
Aliphatics >C8-C10	<0.01 mg/kg	TM089		<0.01	0.0736	<0.01	<0.01	<0.01	<0.01
Aliphatics >C10-C12	<0.01 mg/kg	TM089		<0.01	0.0437	<0.01	<0.01	<0.01	<0.01
Aliphatics >C12-C16	<0.1 mg/kg	TM173		<0.1	<0.1	<0.1	2.64	1.28	<0.1
Aliphatics >C16-C21	<0.1 mg/kg	TM173		<0.1	1.88	<0.1	4.14	2.23	1.91
Aliphatics >C21-C35	<0.1 mg/kg	TM173		<0.1	19.4	<0.1	14.4	15	11.4
Aliphatics >C35-C44	<0.1 mg/kg	TM173		<0.1	13.4	<0.1	3.65	13.5	1.69
Total Aliphatics >C12-C44	<0.1 mg/kg	TM173		<0.1	34.6	<0.1	24.8	32	15
Aromatics >EC5-EC7	<0.01 mg/kg	TM089		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aromatics >EC7-EC8	<0.01 mg/kg	TM089		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aromatics >EC8-EC10	<0.01 mg/kg	TM089		<0.01	0.0575	<0.01	<0.01	<0.01	<0.01
Aromatics >EC10-EC12	<0.01 mg/kg	TM089		<0.01	0.0288	<0.01	<0.01	<0.01	<0.01
Aromatics >EC12-EC16	<0.1 mg/kg	TM173		<0.1	1.63	<0.1	1.23	0.972	<0.1
Aromatics >EC16-EC21	<0.1 mg/kg	TM173		<0.1	8.89	<0.1	4.34	2.29	<0.1
Aromatics >EC21-EC35	<0.1 mg/kg	TM173		1.69	11.2	3.63	14.8	33.8	2.61
Aromatics >EC35-EC44	<0.1 mg/kg	TM173		<0.1	15.7	7.14	4.23	39.8	<0.1
Aromatics >EC40-EC44	<0.1 mg/kg	TM173		<0.1	7.85	4.6	1.51	16	<0.1
Total Aromatics >EC12-EC44	<0.1 mg/kg	TM173		1.69	37.4	10.8	24.6	76.8	2.61
Total Aliphatics & Aromatics >C5-C44	<0.1 mg/kg	TM173		1.69	72.4	10.8	49.4	109	17.6
Aromatics >EC16-EC35	<0.1 mg/kg	TM173		1.69	20.1	3.63	19.1	36.1	2.61

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	HP102	TP102	TP103	TP103	TP104	TP106
			Depth (m)	0.60 - 0.60	0.40 - 0.40	0.80 - 0.80	1.00 - 1.00	0.50 - 0.50	1.00 - 1.00
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	13/02/2018	08/02/2018	08/02/2018	08/02/2018	08/02/2018	08/02/2018
			Sampled Time	.	.	.	.	.	.
			Date Received	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018
			SDG Ref	180216-85	180216-85	180216-85	180216-85	180216-85	180216-85
			Lab Sample No.(s)	17063487	17063145	17063384	17063395	17063414	17063437
			AGS Reference	ES	ES	ES	ES	ES	ES
GRO Surrogate % recovery**	%	TM089		82	119	63	83	129	61
GRO TOT (Moisture Corrected)	<0.044 mg/kg	TM089		<0.044 M	<0.044 M	23.7 #	<0.044 M	<0.044 M	<0.044 M
Aliphatics >C5-C6	<0.01 mg/kg	TM089		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatics >C6-C8	<0.01 mg/kg	TM089		<0.01	<0.01	0.0372	<0.01	<0.01	<0.01
Aliphatics >C8-C10	<0.01 mg/kg	TM089		<0.01	<0.01	3.3	<0.01	<0.01	<0.01
Aliphatics >C10-C12	<0.01 mg/kg	TM089		<0.01	<0.01	10.9	<0.01	<0.01	<0.01
Aliphatics >C12-C16	<0.1 mg/kg	TM173		<0.1	<0.1	170	19.4	<0.1	<0.1
Aliphatics >C16-C21	<0.1 mg/kg	TM173		<0.1	<0.1	201	42.7	1.4	<0.1
Aliphatics >C21-C35	<0.1 mg/kg	TM173		<0.1	<0.1	57.9	10.4	5.66	7.57
Aliphatics >C35-C44	<0.1 mg/kg	TM173		<0.1	<0.1	<0.1	<0.1	0.723	<0.1
Total Aliphatics >C12-C44	<0.1 mg/kg	TM173		<0.1	<0.1	428	72.5	7.78	7.57
Aromatics >EC5-EC7	<0.01 mg/kg	TM089		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aromatics >EC7-EC8	<0.01 mg/kg	TM089		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aromatics >EC8-EC10	<0.01 mg/kg	TM089		<0.01	<0.01	2.27	<0.01	<0.01	<0.01
Aromatics >EC10-EC12	<0.01 mg/kg	TM089		<0.01	<0.01	7.25	<0.01	<0.01	<0.01
Aromatics >EC12-EC16	<0.1 mg/kg	TM173		<0.1	<0.1	29.4	2.77	<0.1	<0.1
Aromatics >EC16-EC21	<0.1 mg/kg	TM173		<0.1	<0.1	60.3	11.2	<0.1	1.38
Aromatics >EC21-EC35	<0.1 mg/kg	TM173		<0.1	<0.1	21.7	4.21	<0.1	12.9
Aromatics >EC35-EC44	<0.1 mg/kg	TM173		<0.1	<0.1	0.753	0.195	<0.1	2.14
Aromatics >EC40-EC44	<0.1 mg/kg	TM173		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Total Aromatics >EC12-EC44	<0.1 mg/kg	TM173		<0.1	<0.1	112	18.4	<0.1	16.4
Total Aliphatics & Aromatics >C5-C44	<0.1 mg/kg	TM173		<0.1	<0.1	564	90.9	7.78	24
Aromatics >EC16-EC35	<0.1 mg/kg	TM173		<0.1	<0.1	82	15.4	<0.1	14.2

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS101	WS102	WS103	WS106	WS108	WS109
			Depth (m)	0.30 - 0.45	0.30 - 0.50	0.25 - 0.25	0.60 - 0.60	1.05 - 1.05	1.20 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/02/2018	12/02/2018	12/02/2018	12/02/2018	12/02/2018	12/02/2018
			Sampled Time	.	.	.	.	.	.
			Date Received	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018
			SDG Ref	180216-85	180216-85	180216-85	180216-85	180216-85	180216-85
			Lab Sample No.(s)	17063122	17063156	17063178	17063250	17063312	17063343
			AGS Reference	ES	ES	ES	ES	ES	ES
GRO Surrogate % recovery**	%	TM089		107	38	91	108	91	105
GRO TOT (Moisture Corrected)	<0.044 mg/kg	TM089		<0.044 M	<0.044 M	<0.044 #	<0.044 M	<0.044 M	2.15 M
Aliphatics >C5-C6	<0.01 mg/kg	TM089		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatics >C6-C8	<0.01 mg/kg	TM089		<0.01	<0.01	<0.01	<0.01	<0.01	0.0211
Aliphatics >C8-C10	<0.01 mg/kg	TM089		<0.01	<0.01	<0.01	<0.01	<0.01	0.589
Aliphatics >C10-C12	<0.01 mg/kg	TM089		<0.01	<0.01	<0.01	<0.01	<0.01	0.686
Aliphatics >C12-C16	<0.1 mg/kg	TM173		<0.1	0.557	<0.1	0.911	<0.1	<0.1
Aliphatics >C16-C21	<0.1 mg/kg	TM173		<0.1	1.9	<0.1	2.6	<0.1	2.68
Aliphatics >C21-C35	<0.1 mg/kg	TM173		3.73	6.67	1.69	14.7	<0.1	10.7
Aliphatics >C35-C44	<0.1 mg/kg	TM173		<0.1	3.89	<0.1	1.56	<0.1	1.28
Total Aliphatics >C12-C44	<0.1 mg/kg	TM173		3.73	13	1.69	19.8	<0.1	14.6
Aromatics >EC5-EC7	<0.01 mg/kg	TM089		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aromatics >EC7-EC8	<0.01 mg/kg	TM089		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aromatics >EC8-EC10	<0.01 mg/kg	TM089		<0.01	<0.01	<0.01	0.0146	<0.01	0.393
Aromatics >EC10-EC12	<0.01 mg/kg	TM089		<0.01	<0.01	<0.01	<0.01	<0.01	0.457
Aromatics >EC12-EC16	<0.1 mg/kg	TM173		<0.1	0.624	0.545	0.497	<0.1	<0.1
Aromatics >EC16-EC21	<0.1 mg/kg	TM173		<0.1	1.85	<0.1	<0.1	<0.1	0.404
Aromatics >EC21-EC35	<0.1 mg/kg	TM173		1.98	10.4	0.807	4.89	<0.1	4.18
Aromatics >EC35-EC44	<0.1 mg/kg	TM173		0.416	7.26	<0.1	0.797	<0.1	2.67
Aromatics >EC40-EC44	<0.1 mg/kg	TM173		<0.1	3.13	<0.1	<0.1	<0.1	0.951
Total Aromatics >EC12-EC44	<0.1 mg/kg	TM173		2.39	20.1	1.35	6.18	<0.1	7.25
Total Aliphatics & Aromatics >C5-C44	<0.1 mg/kg	TM173		6.12	33.1	3.04	26	<0.1	24
Aromatics >EC16-EC35	<0.1 mg/kg	TM173		1.98	12.2	0.807	4.89	<0.1	4.58

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.	WS110
Depth (m)	1.05 - 1.05
Sample Type	Soil/Solid (S)
Date Sampled	12/02/2018
Sampled Time	.
Date Received	16/02/2018
SDG Ref	180216-85
Lab Sample No.(s)	17063375
AGS Reference	ES

Component	LOD/Units	Method	
GRO Surrogate % recovery**	%	TM089	72
GRO TOT (Moisture Corrected)	<0.044 mg/kg	TM089	<0.044 M
Aliphatics >C5-C6	<0.01 mg/kg	TM089	<0.01
Aliphatics >C6-C8	<0.01 mg/kg	TM089	<0.01
Aliphatics >C8-C10	<0.01 mg/kg	TM089	<0.01
Aliphatics >C10-C12	<0.01 mg/kg	TM089	<0.01
Aliphatics >C12-C16	<0.1 mg/kg	TM173	0.901
Aliphatics >C16-C21	<0.1 mg/kg	TM173	1.52
Aliphatics >C21-C35	<0.1 mg/kg	TM173	15.5
Aliphatics >C35-C44	<0.1 mg/kg	TM173	4.69
Total Aliphatics >C12-C44	<0.1 mg/kg	TM173	22.6
Aromatics >EC5-EC7	<0.01 mg/kg	TM089	<0.01
Aromatics >EC7-EC8	<0.01 mg/kg	TM089	<0.01
Aromatics >EC8-EC10	<0.01 mg/kg	TM089	<0.01
Aromatics >EC10-EC12	<0.01 mg/kg	TM089	<0.01
Aromatics >EC12-EC16	<0.1 mg/kg	TM173	<0.1
Aromatics >EC16-EC21	<0.1 mg/kg	TM173	1.84
Aromatics >EC21-EC35	<0.1 mg/kg	TM173	17.3
Aromatics >EC35-EC44	<0.1 mg/kg	TM173	5.74
Aromatics >EC40-EC44	<0.1 mg/kg	TM173	1.76
Total Aromatics >EC12-EC44	<0.1 mg/kg	TM173	24.8
Total Aliphatics & Aromatics >C5-C44	<0.1 mg/kg	TM173	47.5
Aromatics >EC16-EC35	<0.1 mg/kg	TM173	19.1

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH101	BH103	BH103	BH104	HP101	HP102
			Depth (m)	0.60 - 0.60	0.30 - 0.40	0.75 - 0.75	0.50 - 0.50	0.30 - 0.30	0.30 - 0.30
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/02/2018	08/02/2018	08/02/2018	08/02/2018	13/02/2018	13/02/2018
			Sampled Time	.	.	.	.	.	.
			Date Received	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018
			SDG Ref	180216-85	180216-85	180216-85	180216-85	180216-85	180216-85
			Lab Sample No.(s)	17063005	17063049	17063063	17063084	17063461	17063477
			AGS Reference	ES	ES	ES	ES	ES	ES
Dibromofluoromethane**	%	TM116							106
Toluene-d8**	%	TM116							100
4-Bromofluorobenzene**	%	TM116							95.8
Dichlorodifluoromethane	<0.006 mg/kg	TM116							<0.06 M
Chloromethane	<0.007 mg/kg	TM116							<0.07 #
Vinyl Chloride	<0.006 mg/kg	TM116							<0.06 M
Bromomethane	<0.01 mg/kg	TM116							<0.1 M
Chloroethane	<0.01 mg/kg	TM116							<0.1 M
Trichlorofluoromethane	<0.006 mg/kg	TM116							<0.06 M
1,1-Dichloroethene	<0.01 mg/kg	TM116							<0.1 #
Carbon Disulphide	<0.007 mg/kg	TM116							<0.07 M
Dichloromethane	<0.01 mg/kg	TM116							<0.1 #
Methyl Tertiary Butyl Ether	<0.01 mg/kg	TM116	<0.1 M	<0.1 M	<0.1 M	<0.1 M	<0.1 M	<0.1 M	<0.1 M
trans-1,2-Dichloroethene	<0.01 mg/kg	TM116							<0.1 M
1,1-Dichloroethane	<0.008 mg/kg	TM116							<0.08 M
cis-1,2-Dichloroethene	<0.006 mg/kg	TM116							<0.06 M
2,2-Dichloropropane	<0.01 mg/kg	TM116							<0.1
Bromochloromethane	<0.01 mg/kg	TM116							<0.1 M
Chloroform	<0.008 mg/kg	TM116							<0.08 M
1,1,1-Trichloroethane	<0.007 mg/kg	TM116							<0.07 M
1,1-Dichloropropene	<0.01 mg/kg	TM116							<0.1 M
Carbontetrachloride	<0.01 mg/kg	TM116							<0.1 M
1,2-Dichloroethane	<0.005 mg/kg	TM116							<0.05 M
Benzene	<0.009 mg/kg	TM116	<0.09 M	<0.09 M	<0.09 M	<0.09 M	<0.09 M	<0.09 M	<0.09 M
Trichloroethene	<0.009 mg/kg	TM116							<0.09 #
1,2-Dichloropropane	<0.01 mg/kg	TM116							<0.1 M
Dibromomethane	<0.009 mg/kg	TM116							<0.09 M
Bromodichloromethane	<0.007 mg/kg	TM116							<0.07 M
cis-1,3-Dichloropropene	<0.01 mg/kg	TM116							<0.1 M
Toluene	<0.007 mg/kg	TM116	<0.07 M	<0.07 M	<0.07 M	<0.07 M	<0.07 M	<0.07 M	<0.07 M
trans-1,3-Dichloropropene	<0.01 mg/kg	TM116							<0.1
1,1,2-Trichloroethane	<0.01 mg/kg	TM116							<0.1 M

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	BH101	BH103	BH103	BH104	HP101	HP102
Customer Sample Ref.			BH101	BH103	BH103	BH104	HP101	HP102
Depth (m)			0.60 - 0.60	0.30 - 0.40	0.75 - 0.75	0.50 - 0.50	0.30 - 0.30	0.30 - 0.30
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			08/02/2018	08/02/2018	08/02/2018	08/02/2018	13/02/2018	13/02/2018
Sampled Time			-	-	-	-	-	-
Date Received			16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018
SDG Ref			180216-85	180216-85	180216-85	180216-85	180216-85	180216-85
Lab Sample No.(s)			17063005	17063049	17063063	17063084	17063461	17063477
AGS Reference			ES	ES	ES	ES	ES	ES
1,3-Dichloropropane	<0.007 mg/kg	TM116						<0.07 M
Tetrachloroethene	<0.005 mg/kg	TM116						<0.05 M
Dibromochloromethane	<0.01 mg/kg	TM116						<0.1 M
1,2-Dibromoethane	<0.01 mg/kg	TM116						<0.1 M
Chlorobenzene	<0.005 mg/kg	TM116						<0.05 M
1,1,1,2-Tetrachloroethane	<0.01 mg/kg	TM116						<0.1 M
Ethylbenzene	<0.004 mg/kg	TM116	<0.04 M	<0.04 M	<0.04 M	<0.04 M	<0.04 M	<0.04 M
p/m-Xylene	<0.01 mg/kg	TM116	<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #
o-Xylene	<0.01 mg/kg	TM116	<0.1 M	<0.1 M	<0.1 M	<0.1 M	<0.1 M	<0.1 M
Styrene	<0.01 mg/kg	TM116						<0.1 #
Bromoform	<0.01 mg/kg	TM116						<0.1 M
Isopropylbenzene	<0.005 mg/kg	TM116						<0.05 #
1,1,2,2-Tetrachloroethane	<0.01 mg/kg	TM116						<0.1 #
1,2,3-Trichloropropane	<0.016 mg/kg	TM116						<0.16 M
Bromobenzene	<0.01 mg/kg	TM116						<0.1 M
Propylbenzene	<0.01 mg/kg	TM116						<0.1 M
2-Chlorotoluene	<0.009 mg/kg	TM116						<0.09 M
1,3,5-Trimethylbenzene	<0.008 mg/kg	TM116						<0.08 M
4-Chlorotoluene	<0.01 mg/kg	TM116						<0.1 M
tert-Butylbenzene	<0.014 mg/kg	TM116						<0.14 M
1,2,4-Trimethylbenzene	<0.009 mg/kg	TM116						<0.09 #
sec-Butylbenzene	<0.01 mg/kg	TM116						<0.1
4-Isopropyltoluene	<0.01 mg/kg	TM116						<0.1 M
1,3-Dichlorobenzene	<0.008 mg/kg	TM116						<0.08 M
1,4-Dichlorobenzene	<0.005 mg/kg	TM116						<0.05 M
n-Butylbenzene	<0.011 mg/kg	TM116						<0.11
1,2-Dichlorobenzene	<0.01 mg/kg	TM116						<0.1 M
1,2-Dibromo-3-chloropropane	<0.014 mg/kg	TM116						<0.14 M
Tert-amyl methyl ether	<0.01 mg/kg	TM116	<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #
1,2,4-Trichlorobenzene	<0.02 mg/kg	TM116						<0.2
Hexachlorobutadiene	<0.02 mg/kg	TM116						<0.2
Naphthalene	<0.013 mg/kg	TM116						<0.13 M

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH101	BH103	BH103	BH104	HP101	HP102
			Depth (m)	0.60 - 0.60	0.30 - 0.40	0.75 - 0.75	0.50 - 0.50	0.30 - 0.30	0.30 - 0.30
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/02/2018	08/02/2018	08/02/2018	08/02/2018	13/02/2018	13/02/2018
			Sampled Time	-	-	-	-	-	-
			Date Received	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018
			SDG Ref	180216-85	180216-85	180216-85	180216-85	180216-85	180216-85
			Lab Sample No.(s)	17063005	17063049	17063063	17063084	17063461	17063477
			AGS Reference	ES	ES	ES	ES	ES	ES
1,2,3-Trichlorobenzene	<0.02 mg/kg	TM116							<0.2 #

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	HP102	TP102	TP103	TP103	TP104	TP106
			Depth (m)	0.60 - 0.60	0.40 - 0.40	0.80 - 0.80	1.00 - 1.00	0.50 - 0.50	1.00 - 1.00
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	13/02/2018	08/02/2018	08/02/2018	08/02/2018	08/02/2018	08/02/2018
			Sampled Time	.	.	.	.	.	.
			Date Received	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018
			SDG Ref	180216-85	180216-85	180216-85	180216-85	180216-85	180216-85
			Lab Sample No.(s)	17063487	17063145	17063384	17063395	17063414	17063437
			AGS Reference	ES	ES	ES	ES	ES	ES
Dibromofluoromethane**	%	TM116				133			
Toluene-d8**	%	TM116				99.1			
4-Bromofluorobenzene**	%	TM116				99.3			
Dichlorodifluoromethane	<0.006 mg/kg	TM116				<0.06 #			
Chloromethane	<0.007 mg/kg	TM116				<0.07 #			
Vinyl Chloride	<0.006 mg/kg	TM116				<0.06 #			
Bromomethane	<0.01 mg/kg	TM116				<0.1 #			
Chloroethane	<0.01 mg/kg	TM116				<0.1 #			
Trichlorofluorormethane	<0.006 mg/kg	TM116				<0.06 #			
1,1-Dichloroethene	<0.01 mg/kg	TM116				<0.1 #			
Carbon Disulphide	<0.007 mg/kg	TM116				<0.07 #			
Dichloromethane	<0.01 mg/kg	TM116				<0.1 #			
Methyl Tertiary Butyl Ether	<0.01 mg/kg	TM116	<0.1 M	<0.1 M	<0.1 #	<0.1 M	<0.1 M	<0.1 M	
trans-1,2-Dichloroethene	<0.01 mg/kg	TM116				<0.1 #			
1,1-Dichloroethane	<0.008 mg/kg	TM116				<0.08 #			
cis-1,2-Dichloroethene	<0.006 mg/kg	TM116				<0.06 #			
2,2-Dichloropropane	<0.01 mg/kg	TM116				<0.1 #			
Bromochloromethane	<0.01 mg/kg	TM116				<0.1 #			
Chloroform	<0.008 mg/kg	TM116				<0.08 #			
1,1,1-Trichloroethane	<0.007 mg/kg	TM116				<0.07 #			
1,1-Dichloropropene	<0.01 mg/kg	TM116				<0.1 #			
Carbontetrachloride	<0.01 mg/kg	TM116				<0.1 #			
1,2-Dichloroethane	<0.005 mg/kg	TM116				<0.05 #			
Benzene	<0.009 mg/kg	TM116	<0.09 M	<0.09 M	<0.09 #	<0.09 M	<0.09 M	<0.09 M	
Trichloroethene	<0.009 mg/kg	TM116				<0.09 #			
1,2-Dichloropropane	<0.01 mg/kg	TM116				<0.1 #			
Dibromomethane	<0.009 mg/kg	TM116				<0.09 #			
Bromodichloromethane	<0.007 mg/kg	TM116				<0.07 #			
cis-1,3-Dichloropropene	<0.01 mg/kg	TM116				<0.1 #			
Toluene	<0.007 mg/kg	TM116	<0.07 M	<0.07 M	<0.07 #	<0.07 M	<0.07 M	<0.07 M	
trans-1,3-Dichloropropene	<0.01 mg/kg	TM116				<0.1			
1,1,2-Trichloroethane	<0.01 mg/kg	TM116				<0.1 #			

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	HP102	TP102	TP103	TP103	TP104	TP106
			Depth (m)	0.60 - 0.60	0.40 - 0.40	0.80 - 0.80	1.00 - 1.00	0.50 - 0.50	1.00 - 1.00
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	13/02/2018	08/02/2018	08/02/2018	08/02/2018	08/02/2018	08/02/2018
			Sampled Time	-	-	-	-	-	-
			Date Received	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018
			SDG Ref	180216-85	180216-85	180216-85	180216-85	180216-85	180216-85
			Lab Sample No.(s)	17063487	17063145	17063384	17063395	17063414	17063437
			AGS Reference	ES	ES	ES	ES	ES	ES
1,3-Dichloropropane	<0.007 mg/kg	TM116				<0.07 #			
Tetrachloroethene	<0.005 mg/kg	TM116				<0.05 #			
Dibromochloromethane	<0.01 mg/kg	TM116				<0.1 #			
1,2-Dibromoethane	<0.01 mg/kg	TM116				<0.1 #			
Chlorobenzene	<0.005 mg/kg	TM116				<0.05 #			
1,1,1,2-Tetrachloroethane	<0.01 mg/kg	TM116				<0.1 #			
Ethylbenzene	<0.004 mg/kg	TM116	<0.04 M	<0.04 M	<0.04 #	<0.04 M	<0.04 M	<0.04 M	
p/m-Xylene	<0.01 mg/kg	TM116	<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #	
o-Xylene	<0.01 mg/kg	TM116	<0.1 M	<0.1 M	<0.1 #	<0.1 M	<0.1 M	<0.1 M	
Styrene	<0.01 mg/kg	TM116			<0.1 #				
Bromoform	<0.01 mg/kg	TM116			<0.1 #				
Isopropylbenzene	<0.005 mg/kg	TM116			<0.05 #				
1,1,2,2-Tetrachloroethane	<0.01 mg/kg	TM116			<0.1 #				
1,2,3-Trichloropropane	<0.016 mg/kg	TM116			<0.16 #				
Bromobenzene	<0.01 mg/kg	TM116			<0.1 #				
Propylbenzene	<0.01 mg/kg	TM116			<0.1 #				
2-Chlorotoluene	<0.009 mg/kg	TM116			<0.09 #				
1,3,5-Trimethylbenzene	<0.008 mg/kg	TM116			<0.08 #				
4-Chlorotoluene	<0.01 mg/kg	TM116			<0.1 #				
tert-Butylbenzene	<0.014 mg/kg	TM116			<0.14 #				
1,2,4-Trimethylbenzene	<0.009 mg/kg	TM116			<0.09 #				
sec-Butylbenzene	<0.01 mg/kg	TM116			<0.1				
4-Isopropyltoluene	<0.01 mg/kg	TM116			<0.1 #				
1,3-Dichlorobenzene	<0.008 mg/kg	TM116			<0.08 #				
1,4-Dichlorobenzene	<0.005 mg/kg	TM116			<0.05 #				
n-Butylbenzene	<0.011 mg/kg	TM116			<0.11				
1,2-Dichlorobenzene	<0.01 mg/kg	TM116			<0.1 #				
1,2-Dibromo-3-chloropropane	<0.014 mg/kg	TM116			<0.14 #				
Tert-amyl methyl ether	<0.01 mg/kg	TM116	<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #	
1,2,4-Trichlorobenzene	<0.02 mg/kg	TM116			<0.2				
Hexachlorobutadiene	<0.02 mg/kg	TM116			<0.2				
Naphthalene	<0.013 mg/kg	TM116			<0.13 #				

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sampled Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			HP102	0.60 - 0.60	Soil/Solid (S)	13/02/2018	.	16/02/2018	180216-85	17063487	ES
			TP102	0.40 - 0.40	Soil/Solid (S)	08/02/2018	.	16/02/2018	180216-85	17063145	ES
			TP103	0.80 - 0.80	Soil/Solid (S)	08/02/2018	.	16/02/2018	180216-85	17063384	ES
			TP103	1.00 - 1.00	Soil/Solid (S)	08/02/2018	.	16/02/2018	180216-85	17063395	ES
			TP104	0.50 - 0.50	Soil/Solid (S)	08/02/2018	.	16/02/2018	180216-85	17063414	ES
			TP106	1.00 - 1.00	Soil/Solid (S)	08/02/2018	.	16/02/2018	180216-85	17063437	ES
1,2,3-Trichlorobenzene	<0.02 mg/kg	TM116			<0.2 #						

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	WS101	WS102	WS103	WS106	WS108	WS109
			Depth (m)	0.30 - 0.45	0.30 - 0.50	0.25 - 0.25	0.60 - 0.60	1.05 - 1.05	1.20 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/02/2018	12/02/2018	12/02/2018	12/02/2018	12/02/2018	12/02/2018
			Sampled Time	.	.	.	.	.	.
			Date Received	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018	16/02/2018
			SDG Ref	180216-85	180216-85	180216-85	180216-85	180216-85	180216-85
			Lab Sample No.(s)	17063122	17063156	17063178	17063250	17063312	17063343
			AGS Reference	ES	ES	ES	ES	ES	ES
Methyl Tertiary Butyl Ether	<0.01 mg/kg	TM116		<0.1 M	<0.1 M	<0.1 #	<0.1 M	<0.1 M	<0.1 M
Benzene	<0.009 mg/kg	TM116		<0.09 M	<0.09 M	<0.09 #	<0.09 M	<0.09 M	<0.09 M
Toluene	<0.007 mg/kg	TM116		<0.07 M	<0.07 M	<0.07 #	0.0761 M	<0.07 M	<0.07 M
Ethylbenzene	<0.004 mg/kg	TM116		<0.04 M	<0.04 M	<0.04 #	<0.04 M	<0.04 M	<0.04 M
p/m-Xylene	<0.01 mg/kg	TM116		<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #
o-Xylene	<0.01 mg/kg	TM116		<0.1 M	<0.1 M	<0.1 #	<0.1 M	<0.1 M	<0.1 M
Tert-amyl methyl ether	<0.01 mg/kg	TM116		<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample Ref.	WS110							
Depth (m)	1.05 - 1.05							
Sample Type	Soil/Solid (S)							
Date Sampled	12/02/2018							
Sampled Time	.							
Date Received	16/02/2018							
SDG Ref	180216-85							
Lab Sample No.(s)	17063375							
AGS Reference	ES							
Component	**LOD/Units**	**Method**						
Methyl Tertiary Butyl Ether	<0.01 mg/kg	TM116	<0.1 M					
Benzene	<0.009 mg/kg	TM116	<0.09 M					
Toluene	<0.007 mg/kg	TM116	<0.07 M					
Ethylbenzene	<0.004 mg/kg	TM116	<0.04 M					
p/m-Xylene	<0.01 mg/kg	TM116	<0.1 #					
o-Xylene	<0.01 mg/kg	TM116	<0.1 M					
Tert-amyl methyl ether	<0.01 mg/kg	TM116	<0.1 #					

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Asbestos Identification - Soil

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH101 ES 0.60 - 0.60 SOLID 08/02/2018 00:00:00 18/02/2018 13:27:45 180216-85 17063005 TM048	22/02/2018	Renata Bozhkov	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH103 ES 0.30 - 0.40 SOLID 08/02/2018 00:00:00 17/02/2018 12:12:03 180216-85 17063049 TM048	22/02/2018	Renata Bozhkov	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH104 ES 0.50 - 0.50 SOLID 08/02/2018 00:00:00 18/02/2018 13:20:16 180216-85 17063084 TM048	22/02/2018	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	HP101 ES 0.30 - 0.30 SOLID 13/02/2018 00:00:00 19/02/2018 18:35:42 180216-85 17063461 TM048	22/02/2018	Neville Mann	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	HP102 ES 0.30 - 0.30 SOLID 13/02/2018 00:00:00 19/02/2018 18:43:54 180216-85 17063477 TM048	22/02/2018	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP102 ES 0.40 - 0.40 SOLID 08/02/2018 00:00:00 19/02/2018 14:41:11 180216-85 17063145 TM048	22/02/2018	Neville Mann	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP103 ES 0.80 - 0.80 SOLID 08/02/2018 00:00:00 19/02/2018 17:43:56 180216-85 17063384 TM048	22/02/2018	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP104 ES 0.50 - 0.50 SOLID 08/02/2018 00:00:00 19/02/2018 14:42:35 180216-85 17063414 TM048	22/02/2018	Neville Mann	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP106 ES 1.00 - 1.00 SOLID 08/02/2018 00:00:00 19/02/2018 14:50:53 180216-85 17063437 TM048	23/02/2018	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS101 ES 0.30 - 0.45 SOLID 12/02/2018 00:00:00 17/02/2018 10:24:04 180216-85 17063122 TM048	22/02/2018	Neville Mann	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS102 ES 0.30 - 0.50 SOLID 12/02/2018 00:00:00 17/02/2018 14:17:52 180216-85 17063156 TM048	22/02/2018	Renata Bozhkov	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS103 ES 0.25 - 0.25 SOLID 12/02/2018 00:00:00 17/02/2018 14:15:37 180216-85 17063178 TM048	22/02/2018	Renata Bozhkov	Loose fibres in soil	Not Detected (#)	Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS106 ES 0.60 - 0.60 SOLID 12/02/2018 00:00:00 18/02/2018 09:06:37 180216-85 17063250 TM048	22/02/2018	Neville Mann	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS109 ES 1.20 - 1.20 SOLID 12/02/2018 00:00:00 18/02/2018 09:08:44 180216-85 17063343 TM048	22/02/2018	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	WS110 ES 1.05 - 1.05 SOLID 12/02/2018 00:00:00 19/02/2018 18:36:03 180216-85 17063375 TM048	23/02/2018	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Former Interbrew Site, Gloucester
Mass Sample taken (kg)	0.108	**Natural Moisture Content (%)**	20.5
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	83
Particle Size <4mm	>95%		

Case	
SDG	180216-85
Lab Sample Number(s)	17063005
Sampled Date	08-Feb-2018
Customer Sample Ref.	BH101 ESZ
Depth (m)	0.60 - 0.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ferric Iron	<0.05	<0.05	<0.5	<0.5	-	-	-
Iron	<0.019	<0.019	<0.19	<0.19	-	-	-
Ferrous Iron	<0.1	<0.1	<1	<1	-	-	-

Leach Test Information

Date Prepared	24-Feb-2018
pH (pH Units)	7.98
Conductivity (µS/cm)	633.00
Temperature (ºC)	18.40
Volume Leachant (Litres)	0.882

Mcerts Certification does not apply to leachates

01/03/2018 10:57:00

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Former Interbrew Site, Gloucester
Mass Sample taken (kg)	0.094	**Natural Moisture Content (%)**	4.71
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	95.5
Particle Size <4mm	>95%		

Case	
SDG	180216-85
Lab Sample Number(s)	17063145
Sampled Date	08-Feb-2018
Customer Sample Ref.	TP102 ESZ
Depth (m)	0.40 - 0.40

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ferric Iron	<0.05	<0.05	<0.5	<0.5	-	-	-
Mercury Dissolved (CVAF)	0.0000131	<0.00001	0.000131	<0.0001	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Iron	<0.019	<0.019	<0.19	<0.19	-	-	-
Ferrous Iron	<0.1	<0.1	<1	<1	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.00125	<0.001	0.0125	<0.01	-	-	-
Copper	<0.0003	<0.0003	<0.003	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Zinc	0.00784	<0.001	0.0784	<0.01	-	-	-

Leach Test Information

Date Prepared	21-Feb-2018
pH (pH Units)	11.06
Conductivity (µS/cm)	474.00
Temperature (ºC)	18.70
Volume Leachant (Litres)	0.896

Mcerts Certification does not apply to leachates

01/03/2018 10:57:00

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Former Interbrew Site, Gloucester
Mass Sample taken (kg)	0.094	**Natural Moisture Content (%)**	4.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	95.6
Particle Size <4mm	>95%		

Case	
SDG	180216-85
Lab Sample Number(s)	17063250
Sampled Date	12-Feb-2018
Customer Sample Ref.	WS106 ESZ
Depth (m)	0.60 - 0.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ferric Iron	<0.05	<0.05	<0.5	<0.5	-	-	-
Iron	0.0218	<0.019	0.218	<0.19	-	-	-
Ferrous Iron	<0.1	<0.1	<1	<1	-	-	-

Leach Test Information

Date Prepared	24-Feb-2018
pH (pH Units)	5.47
Conductivity (µS/cm)	123.00
Temperature (ºC)	18.80
Volume Leachant (Litres)	0.896

Mcerts Certification does not apply to leachates

01/03/2018 10:57:00

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Former Interbrew Site, Gloucester
Mass Sample taken (kg)	0.100	**Natural Moisture Content (%)**	10.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	90.4
Particle Size <4mm	>95%		

Case	
SDG	180216-85
Lab Sample Number(s)	17063343
Sampled Date	12-Feb-2018
Customer Sample Ref.	WS109 ESZ
Depth (m)	1.20 - 1.20

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Ferric Iron	0.145	<0.05	1.45	<0.5	-	-	-
Mercury Dissolved (CVAF)	0.0000133	<0.00001	0.000133	<0.0001	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Arsenic	0.00232	<0.0005	0.0232	<0.005	-	-	-
Iron	0.145	<0.019	1.45	<0.19	-	-	-
Ferrous Iron	<0.1	<0.1	<1	<1	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.00399	<0.001	0.0399	<0.01	-	-	-
Copper	0.0173	<0.0003	0.173	<0.003	-	-	-
Lead	0.00704	<0.0002	0.0704	<0.002	-	-	-
Nickel	0.00405	<0.0004	0.0405	<0.004	-	-	-
Selenium	0.00262	<0.0005	0.0262	<0.005	-	-	-
Zinc	0.027	<0.001	0.27	<0.01	-	-	-

Leach Test Information

Date Prepared	19-Feb-2018
pH (pH Units)	8.57
Conductivity (µS/cm)	139.00
Temperature (°C)	19.40
Volume Leachant (Litres)	0.890

Mcerts Certification does not apply to leachates

01/03/2018 10:57:00

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Former Interbrew Site, Gloucester
Mass Sample taken (kg)	0.107	**Natural Moisture Content (%)**	19
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	84
Particle Size <4mm	>95%		

Case	
SDG	180216-85
Lab Sample Number(s)	17063375
Sampled Date	12-Feb-2018
Customer Sample Ref.	WS110 ESZ
Depth (m)	1.05 - 1.05

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Arsenic	0.00304	<0.0005	0.0304	<0.005	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	<0.0003	<0.0003	<0.003	<0.003	-	-	-
Lead	0.000269	<0.0002	0.00269	<0.002	-	-	-
Nickel	0.00268	<0.0004	0.0268	<0.004	-	-	-
Selenium	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Zinc	0.00175	<0.001	0.0175	<0.01	-	-	-

Leach Test Information

Date Prepared	21-Feb-2018
pH (pH Units)	8.00
Conductivity (µS/cm)	276.00
Temperature (ºC)	18.50
Volume Leachant (Litres)	0.883

Mcerts Certification does not apply to leachates

01/03/2018 10:57:00

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Former Interbrew Site, Gloucester
Mass Sample taken (kg)	0.105	**Natural Moisture Content (%)**	16.3
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	86
Particle Size <4mm	>95%		

Case	
SDG	180216-85
Lab Sample Number(s)	17063437
Sampled Date	08-Feb-2018
Customer Sample Ref.	TP106 ESZ
Depth (m)	1.00 - 1.00

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Total Cyanide (W)	<0.05	<0.05	<0.5	<0.5	-	-	-
Arsenic	0.00276	<0.0005	0.0276	<0.005	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.00128	<0.001	0.0128	<0.01	-	-	-
Copper	0.00165	<0.0003	0.0165	<0.003	-	-	-
Lead	0.00241	<0.0002	0.0241	<0.002	-	-	-
Nickel	0.00244	<0.0004	0.0244	<0.004	-	-	-
Selenium	0.000561	<0.0005	0.00561	<0.005	-	-	-
Zinc	0.00994	<0.001	0.0994	<0.01	-	-	-

Leach Test Information

Date Prepared	21-Feb-2018
pH (pH Units)	9.32
Conductivity (µS/cm)	220.00
Temperature (°C)	19.70
Volume Leachant (Litres)	0.885

Mcerts Certification does not apply to leachates

01/03/2018 10:57:00

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Table of Results - Appendix

Method No	Reference	Description
ASB_PREP		
PM001		Preparation of Samples for Metals Analysis
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
TM125	DIN 38405 D17	Determination of Total/Ferrous Iron
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM157	HP 6890 Gas Chromatograph (GC) system and HP 5973 Mass Selective Detector (MSD).	Determination of SVOC in Soils by GC-MS extracted by sonication in DCM/Acetone
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM218	Determination of PAH by GCMS Microwave extraction	The determination of PAH in soil samples by microwave extraction and GC-MS
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM228	US EPA Method 6010B	Determination of Major Cations in Water by iCap 6500 Duo ICP-OES
TM243		Mixed Anions In Soils By Kone

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Test Completion Dates

Lab Sample No(s)	17063005	17063049	17063063	17063084	17063461	17063477	17063487	17063145	17063384	17063395
Customer Sample Ref.	BH101	BH103	BH103	BH104	HP101	HP102	HP102	TP102	TP103	TP103
AGS Ref.	ES	ES	ES	ES	ES	ES	ES	ES	ES	ES
Depth	0.60 - 0.60	0.30 - 0.40	0.75 - 0.75	0.50 - 0.50	0.30 - 0.30	0.30 - 0.30	0.60 - 0.60	0.40 - 0.40	0.80 - 0.80	1.00 - 1.00
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	23-Feb-2018							21-Feb-2018		
Asbestos ID in Solid Samples	22-Feb-2018	22-Feb-2018		22-Feb-2018	22-Feb-2018	22-Feb-2018		22-Feb-2018	22-Feb-2018	
CEN 10:1 Leachate (1 Stage)	24-Feb-2018							24-Feb-2018		
CEN Readings	26-Feb-2018							27-Feb-2018		
Cyanide Comp/Free/Total/Thiocyanate	22-Feb-2018	22-Feb-2018	22-Feb-2018	22-Feb-2018				23-Feb-2018		
Dissolved Metals by ICP-MS								23-Feb-2018		
EPH CWG (Aliphatic) GC (S)	22-Feb-2018	23-Feb-2018	23-Feb-2018	22-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018
EPH CWG (Aromatic) GC (S)	22-Feb-2018	23-Feb-2018	23-Feb-2018	22-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018
Ferric Iron	01-Mar-2018							01-Mar-2018		
Ferrous Iron	28-Feb-2018							28-Feb-2018		
GRO by GC-FID (S)	23-Feb-2018	22-Feb-2018	22-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018
Hexavalent Chromium (s)	23-Feb-2018	23-Feb-2018	22-Feb-2018	23-Feb-2018				23-Feb-2018		
Mercury Dissolved								23-Feb-2018		
Metals by iCap-OES Dissolved (W)	01-Mar-2018							01-Mar-2018		
Metals in solid samples by OES	21-Feb-2018	21-Feb-2018	21-Feb-2018	21-Feb-2018				21-Feb-2018		
PAH by GCMS	23-Feb-2018	22-Feb-2018	26-Feb-2018	23-Feb-2018	23-Feb-2018		20-Feb-2018	23-Feb-2018		
pH	19-Feb-2018	21-Feb-2018		19-Feb-2018				22-Feb-2018	22-Feb-2018	
Sample description	18-Feb-2018	17-Feb-2018	17-Feb-2018	18-Feb-2018	19-Feb-2018	19-Feb-2018	19-Feb-2018	19-Feb-2018	19-Feb-2018	19-Feb-2018
Semi Volatile Organic Compounds						21-Feb-2018			21-Feb-2018	
TPH CWG GC (S)	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018
VOC MS (S)	21-Feb-2018	21-Feb-2018	21-Feb-2018	21-Feb-2018	21-Feb-2018	21-Feb-2018	21-Feb-2018	21-Feb-2018	21-Feb-2018	21-Feb-2018

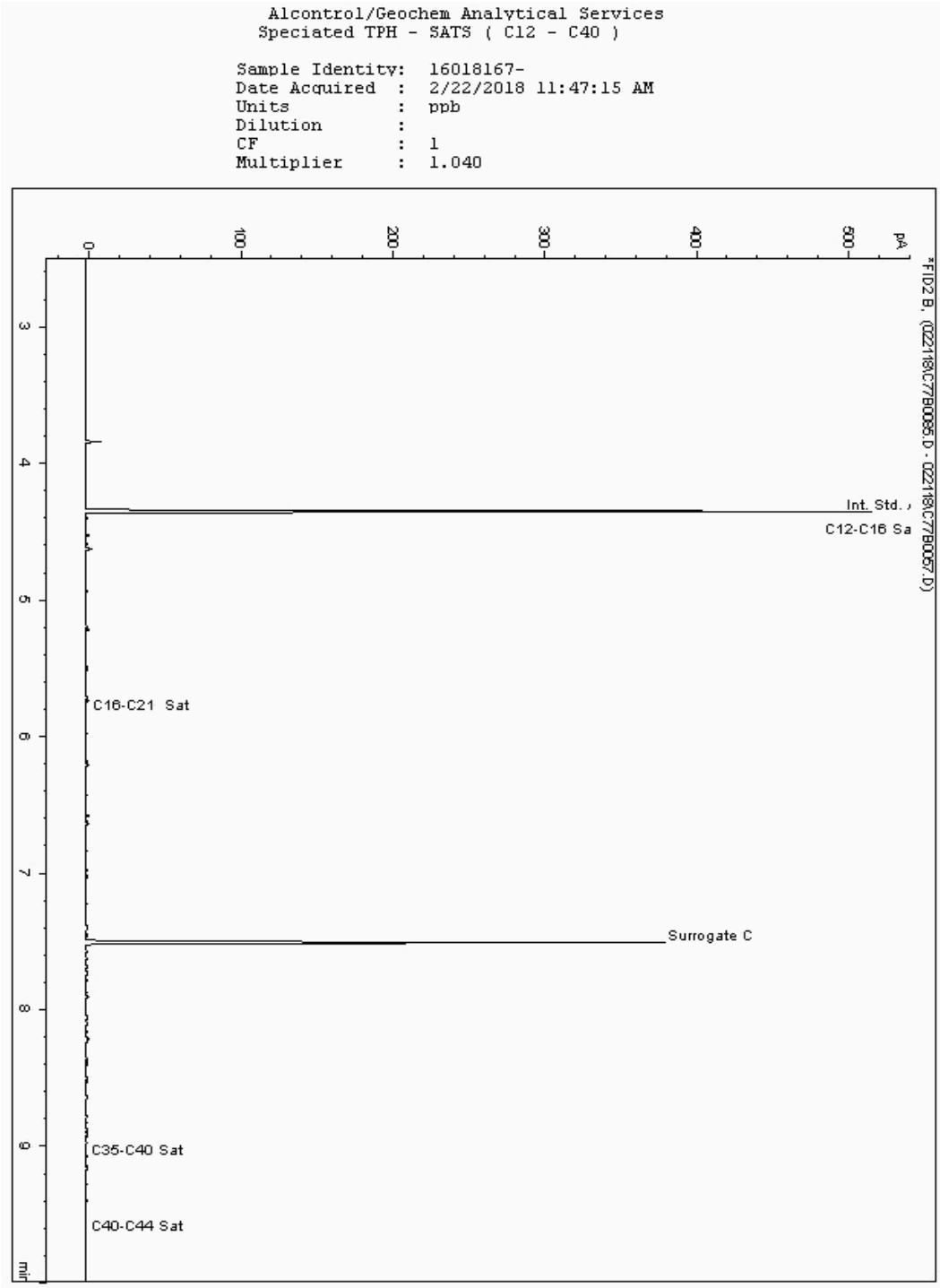
Lab Sample No(s)	17063414	17063437	17063122	17063156	17063178	17063250	17063312	17063343	17063375
Customer Sample Ref.	TP104	TP106	WS101	WS102	WS103	WS106	WS108	WS109	WS110
AGS Ref.	ES	ES	ES	ES	ES	ES	ES	ES	ES
Depth	0.50 - 0.50	1.00 - 1.00	0.30 - 0.45	0.30 - 0.50	0.25 - 0.25	0.60 - 0.60	1.05 - 1.05	1.20 - 1.20	1.05 - 1.05
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)						21-Feb-2018		21-Feb-2018	
Asbestos ID in Solid Samples	22-Feb-2018	23-Feb-2018	22-Feb-2018	22-Feb-2018	22-Feb-2018	22-Feb-2018		22-Feb-2018	23-Feb-2018
CEN 10:1 Leachate (1 Stage)		21-Feb-2018				24-Feb-2018		24-Feb-2018	21-Feb-2018
CEN Readings		22-Feb-2018				27-Feb-2018		27-Feb-2018	23-Feb-2018
Cyanide Comp/Free/Total/Thiocyanate	22-Feb-2018	23-Feb-2018	22-Feb-2018	22-Feb-2018	22-Feb-2018	22-Feb-2018	22-Feb-2018	23-Feb-2018	23-Feb-2018
Dissolved Metals by ICP-MS		23-Feb-2018						23-Feb-2018	23-Feb-2018
EPH CWG (Aliphatic) GC (S)	23-Feb-2018	23-Feb-2018	22-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	22-Feb-2018	22-Feb-2018	23-Feb-2018
EPH CWG (Aromatic) GC (S)	23-Feb-2018	23-Feb-2018	22-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	22-Feb-2018	22-Feb-2018	23-Feb-2018
Ferric Iron						01-Mar-2018		01-Mar-2018	
Ferrous Iron						28-Feb-2018		28-Feb-2018	
GRO by GC-FID (S)	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	22-Feb-2018	22-Feb-2018	22-Feb-2018	23-Feb-2018
Hexavalent Chromium (s)	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018
Mercury Dissolved		23-Feb-2018						23-Feb-2018	23-Feb-2018
Metals by iCap-OES Dissolved (W)						01-Mar-2018		01-Mar-2018	
Metals in solid samples by OES	21-Feb-2018	21-Feb-2018	21-Feb-2018	21-Feb-2018	21-Feb-2018	21-Feb-2018	21-Feb-2018	21-Feb-2018	21-Feb-2018
PAH by GCMS	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	26-Feb-2018	26-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018
pH	22-Feb-2018	22-Feb-2018	19-Feb-2018	19-Feb-2018	19-Feb-2018	19-Feb-2018	19-Feb-2018	19-Feb-2018	22-Feb-2018
Sample description	19-Feb-2018	19-Feb-2018	17-Feb-2018	17-Feb-2018	17-Feb-2018	17-Feb-2018	18-Feb-2018	17-Feb-2018	19-Feb-2018
TPH CWG GC (S)	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	23-Feb-2018	22-Feb-2018	22-Feb-2018	23-Feb-2018
VOC MS (S)	21-Feb-2018	21-Feb-2018	21-Feb-2018	21-Feb-2018	21-Feb-2018	21-Feb-2018	21-Feb-2018	21-Feb-2018	21-Feb-2018

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17067806 **Depth :** 0.30 - 0.50
Sample ID : WS102



CERTIFICATE OF ANALYSIS

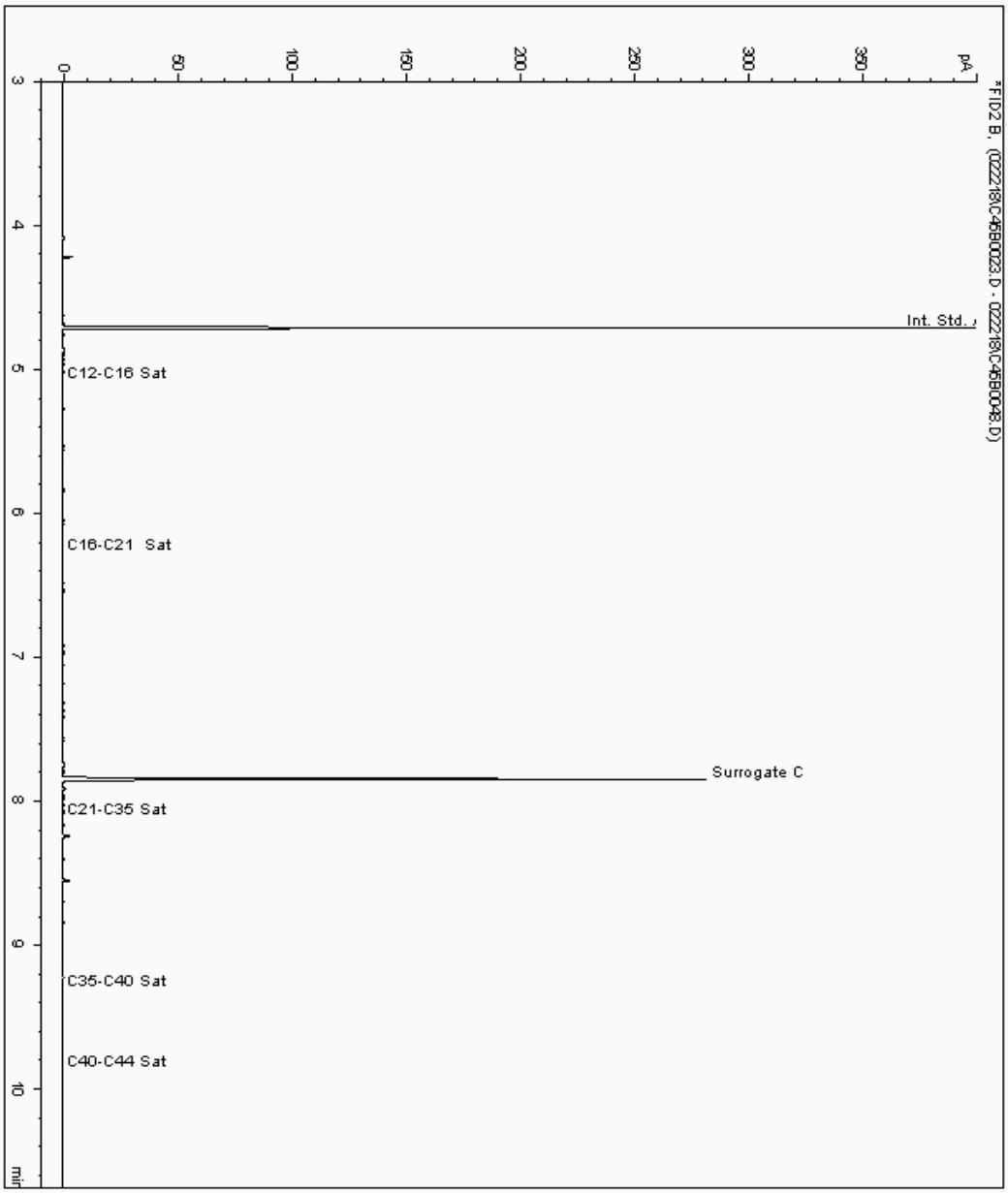
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17068981 **Depth :** 0.75 - 0.75
Sample ID : BH103

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16018032-
Date Acquired : 22/02/2018 15:14:00 PM
Units : ppb
Dilution: BH103[0.75 - 0.75] ->



CERTIFICATE OF ANALYSIS

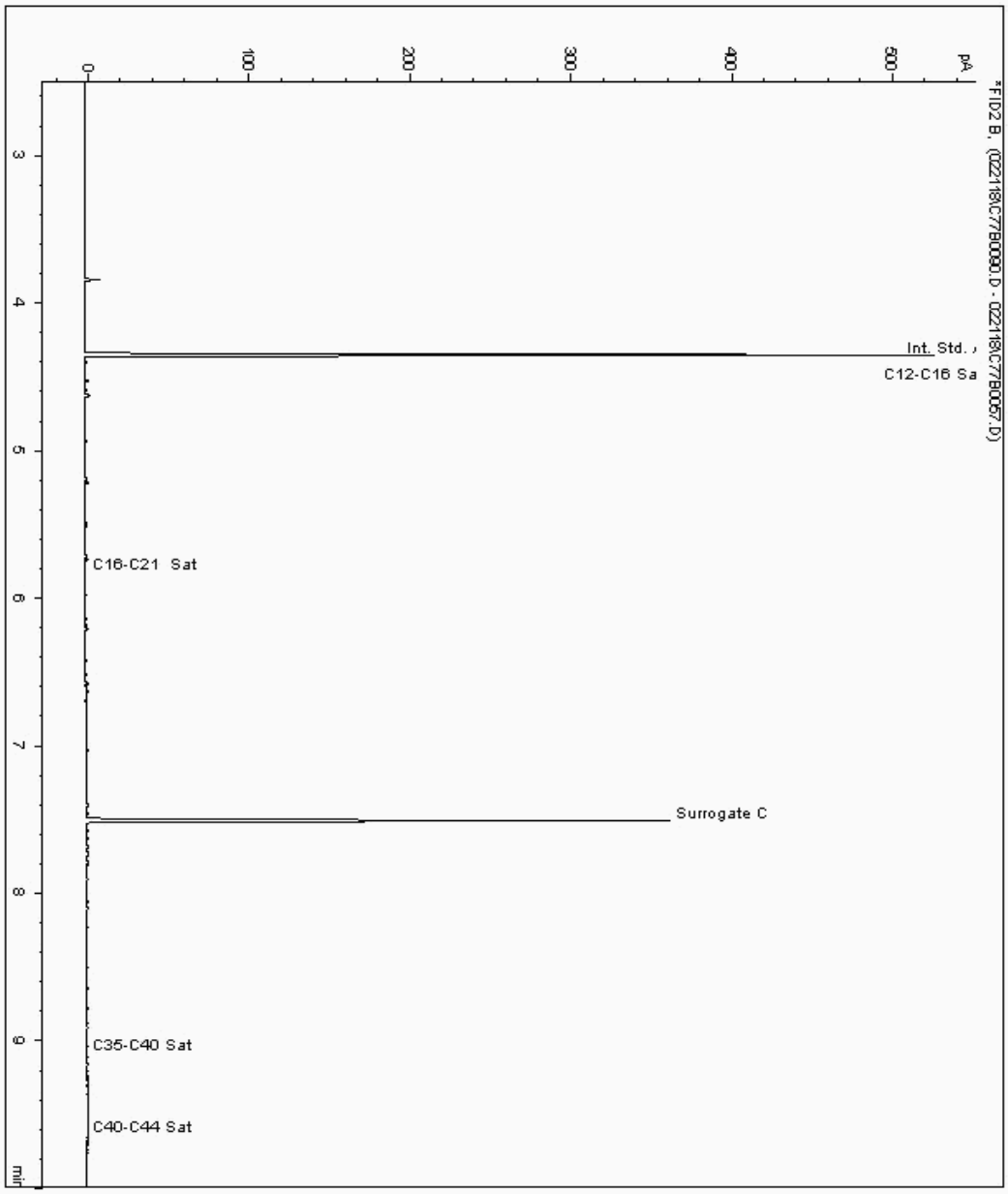
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17069006 **Depth :** 0.30 - 0.40
Sample ID : BH103

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16017978-
Date Acquired : 2/22/2018 1:11:09 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 1.020

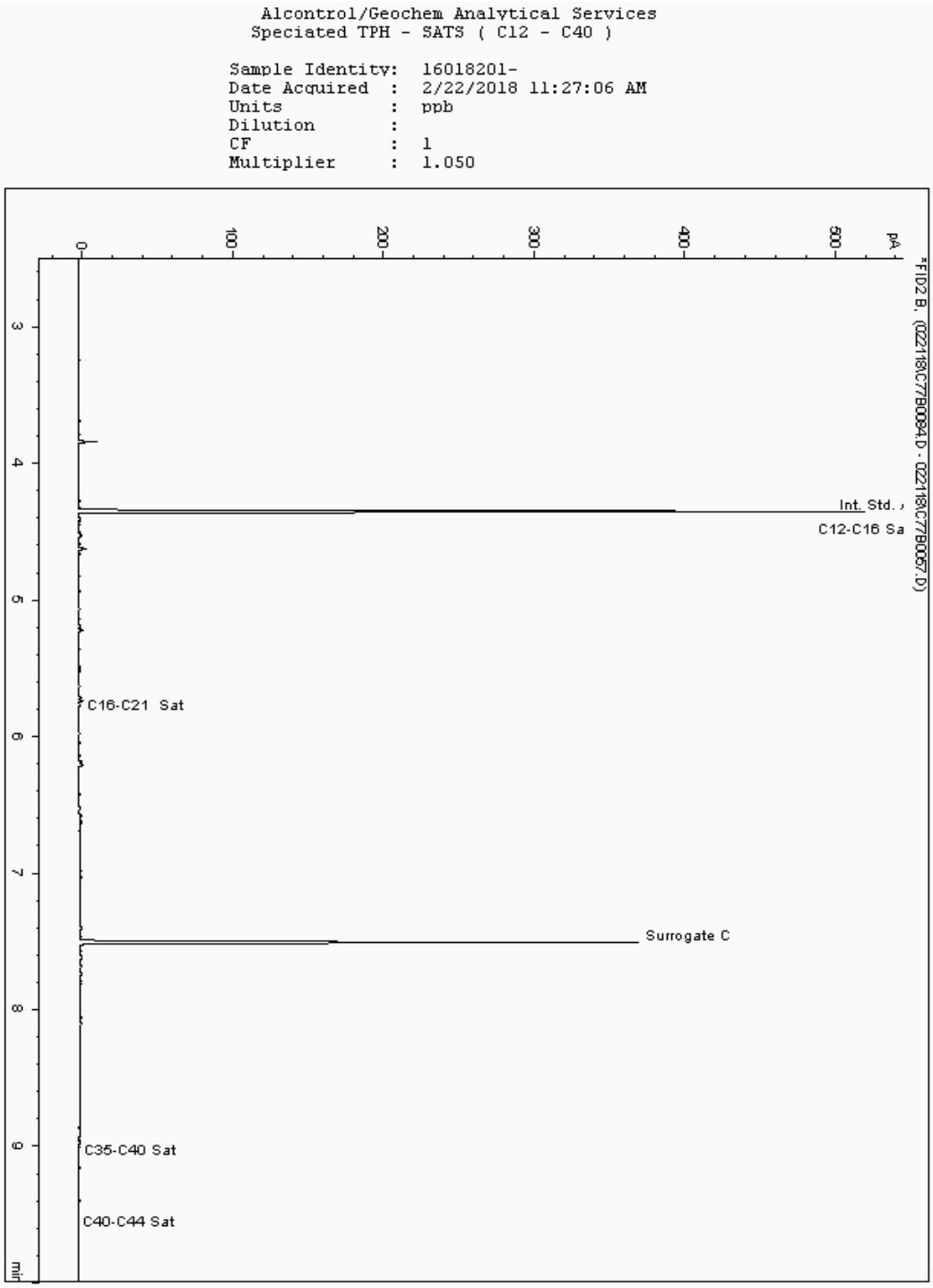


CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17069961 **Depth :** 0.60 - 0.60
Sample ID : WS106



CERTIFICATE OF ANALYSIS

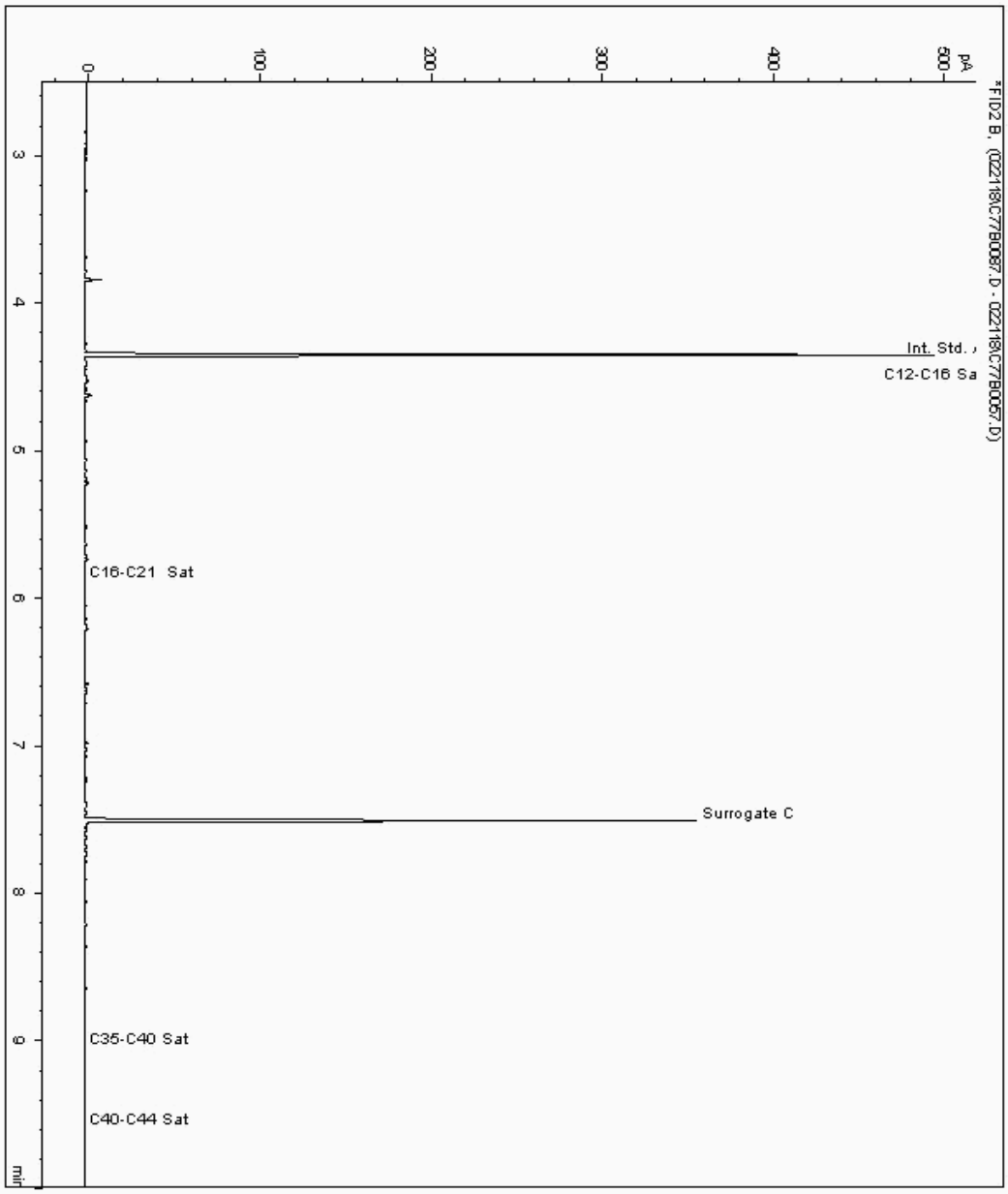
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17070030 **Depth :** 0.25 - 0.25
Sample ID : WS103

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16018185-
Date Acquired : 2/22/2018 12:19:03 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 1.030



CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 17070401
Sample ID : WS101

Depth : 0.30 - 0.45

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 17070738
Sample ID : WS109

Depth : 1.20 - 1.20

CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 17071806
Sample ID : WS108

Depth : 1.05 - 1.05

CERTIFICATE OF ANALYSIS

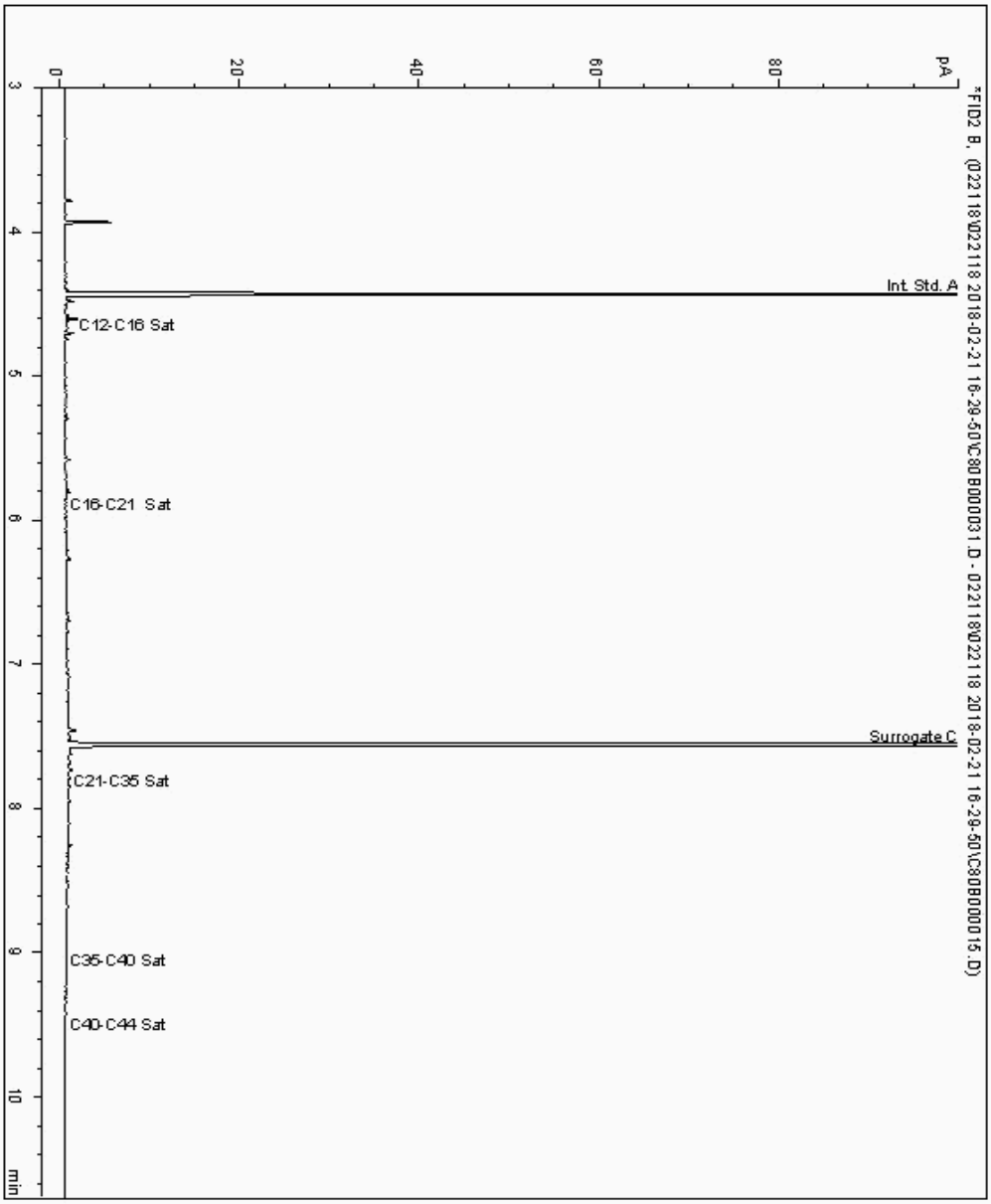
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17072202 **Depth :** 0.60 - 0.60
Sample ID : BH101

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16017929-
Date Acquired : 22/02/18 00:15:48
Units : ppb
Dilution :
CF : 1
Multiplier : 0.970



CERTIFICATE OF ANALYSIS

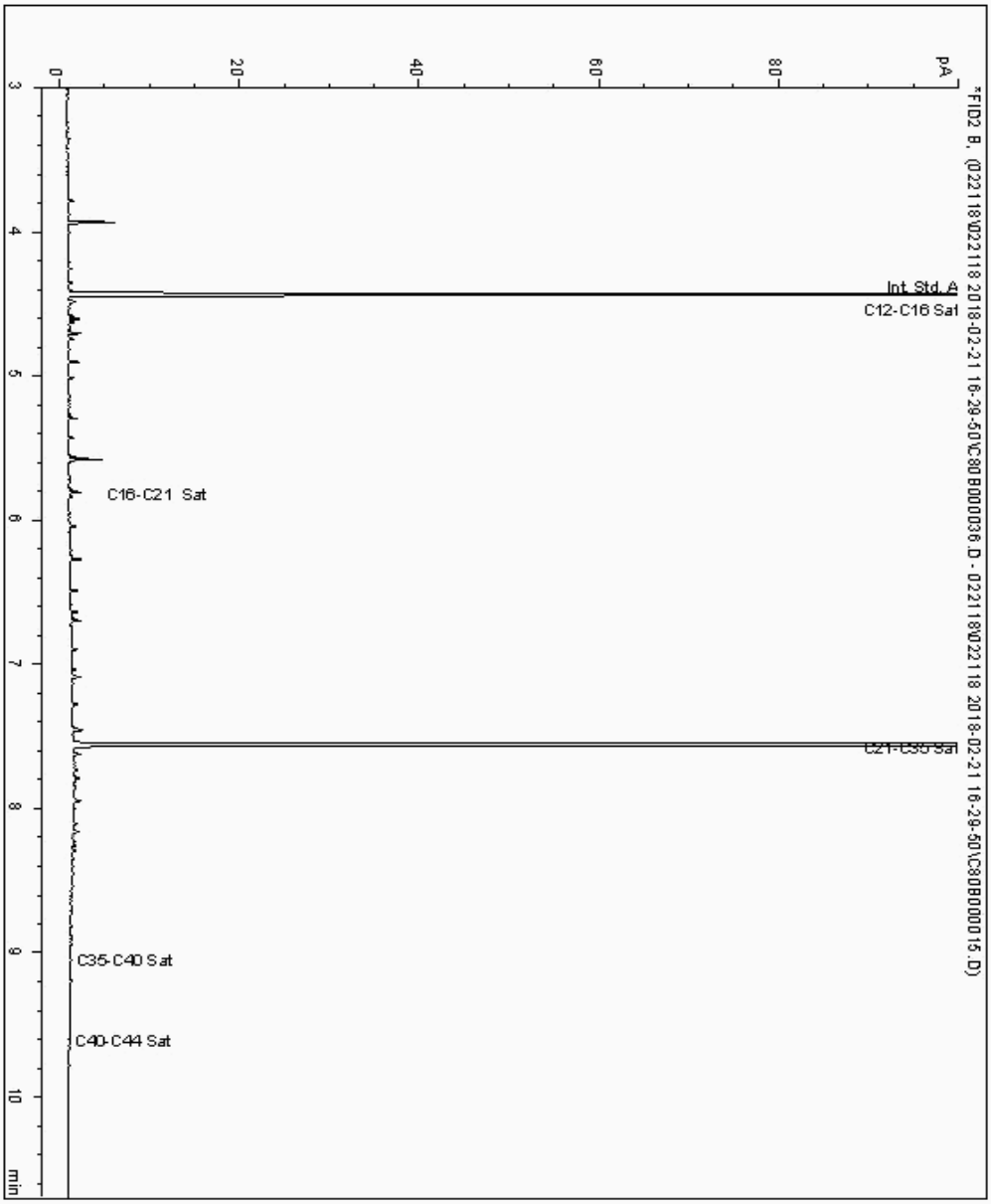
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17072217 **Depth :** 0.50 - 0.50
Sample ID : BH104

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16018070-
Date Acquired : 22/02/18 01:48:02
Units : ppb
Dilution :
CF : 1
Multiplier : 0.990



CERTIFICATE OF ANALYSIS

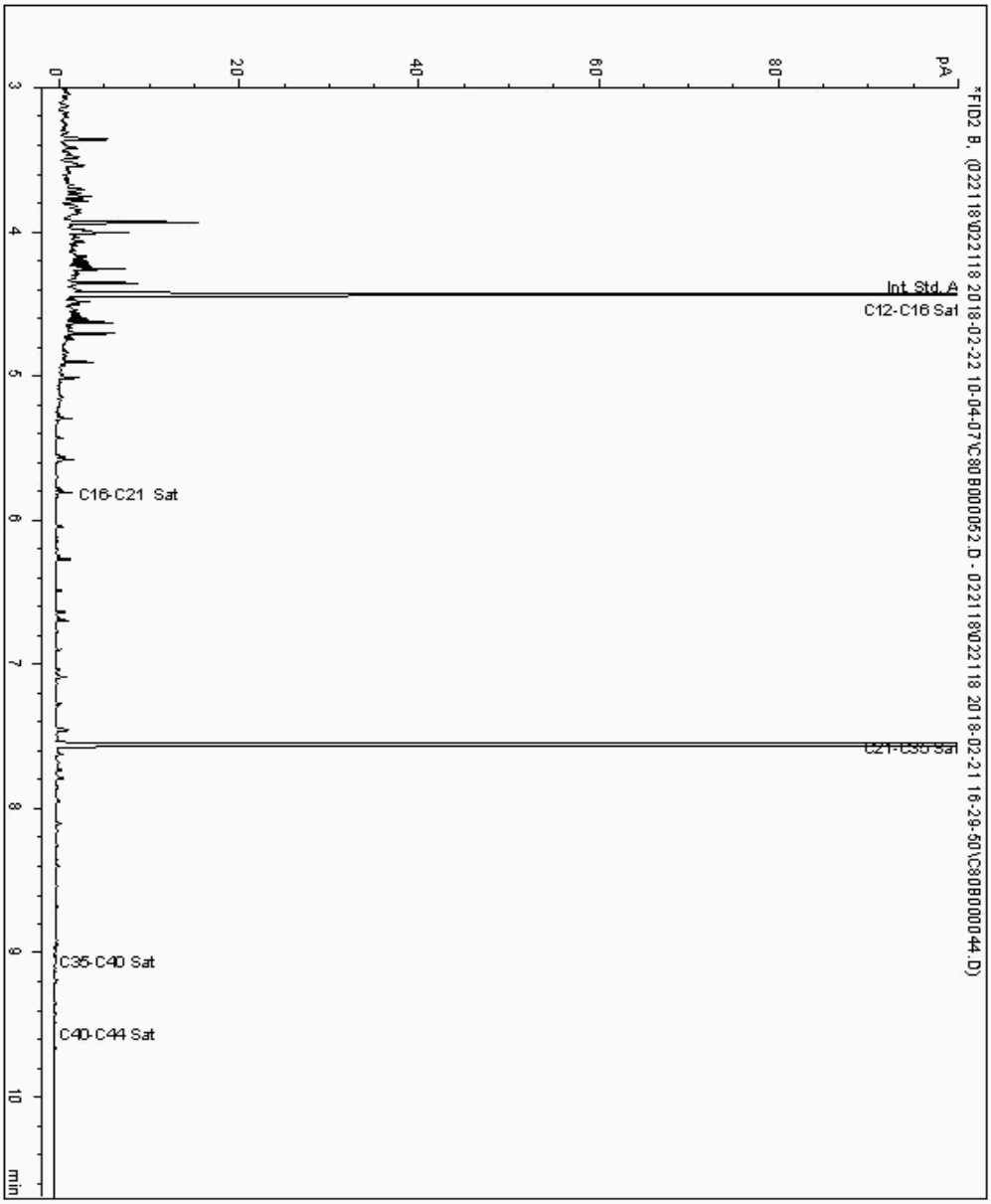
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17075490 **Depth :** 0.50 - 0.50
Sample ID : TP104

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16018258-
Date Acquired : 22/02/18 06:29:40
Units : ppb
Dilution :
CF : 1
Multiplier : 0.960



CERTIFICATE OF ANALYSIS

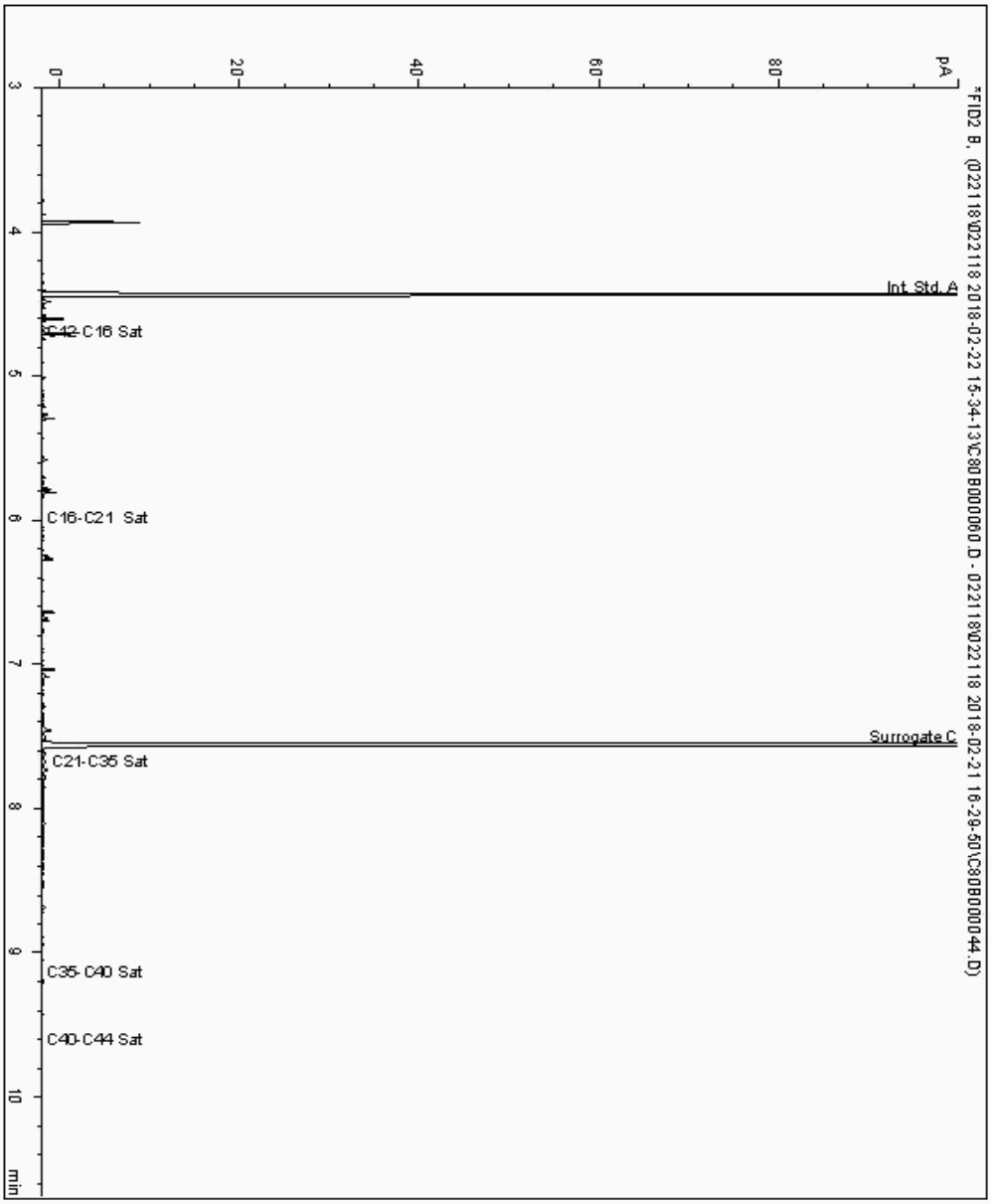
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17075572 **Depth :** 0.40 - 0.40
Sample ID : TP102

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16018368-
Date Acquired : 22/02/18 19:39:49
Units : ppb
Dilution :
CF : 1
Multiplier : 0.980



CERTIFICATE OF ANALYSIS

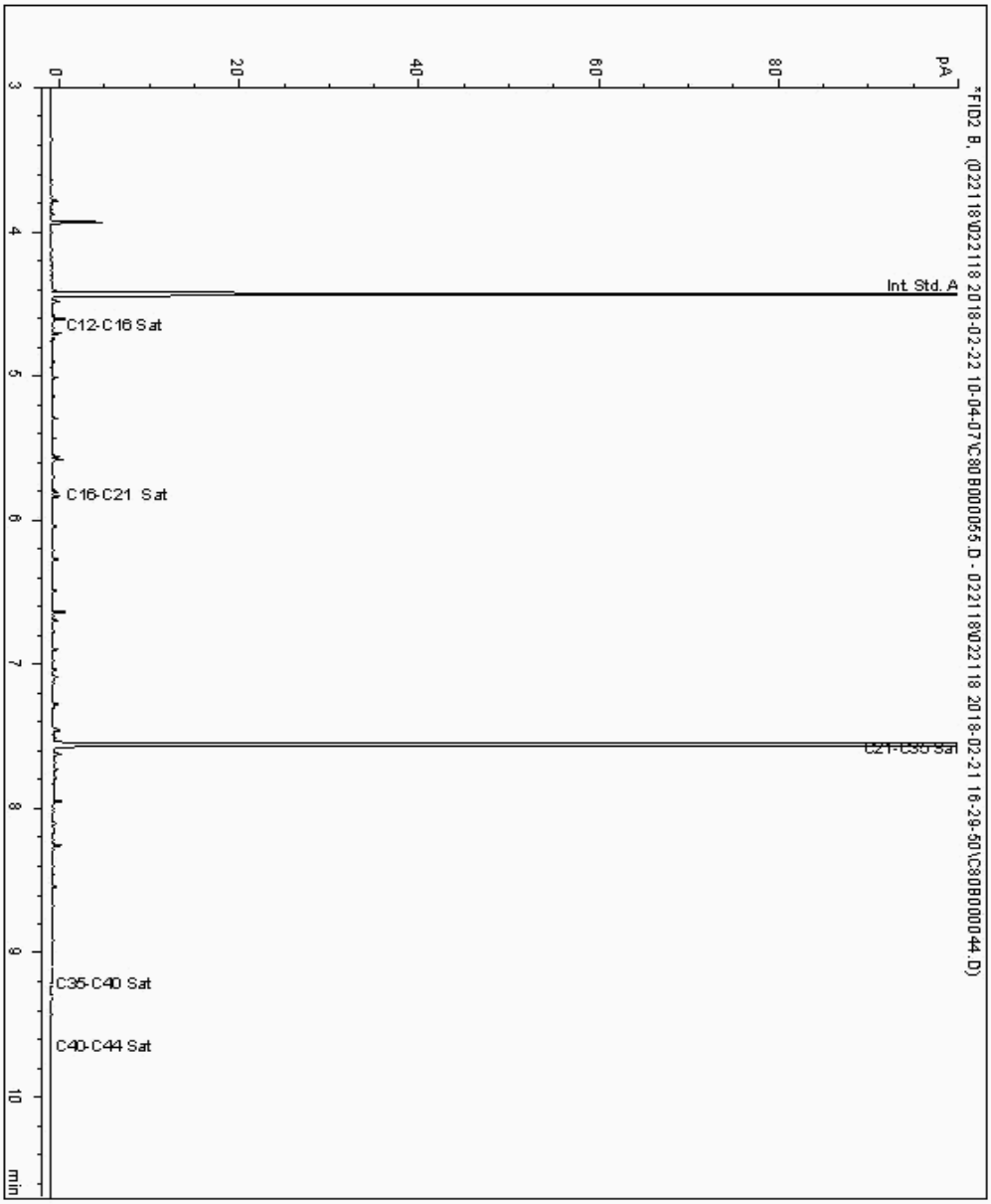
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17075725 **Depth :** 1.00 - 1.00
Sample ID : TP106

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16018432-
Date Acquired : 22/02/18 07:29:55
Units : ppb
Dilution :
CF : 1
Multiplier : 1.020



CERTIFICATE OF ANALYSIS

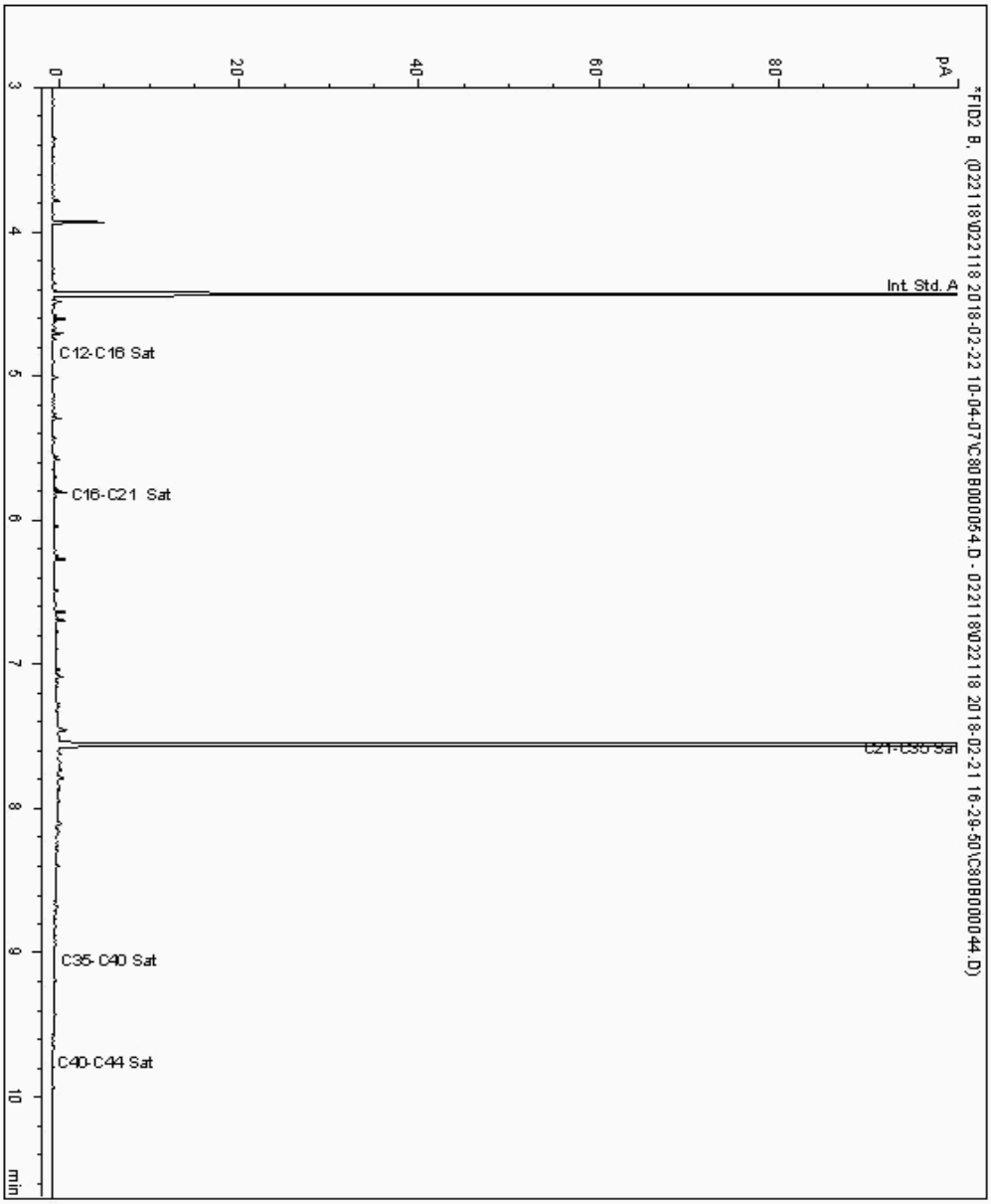
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17075806 **Depth :** 1.05 - 1.05
Sample ID : WS110

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16018403-
Date Acquired : 22/02/18 07:09:57
Units : ppb
Dilution :
CF : 1
Multiplier : 1.030



CERTIFICATE OF ANALYSIS

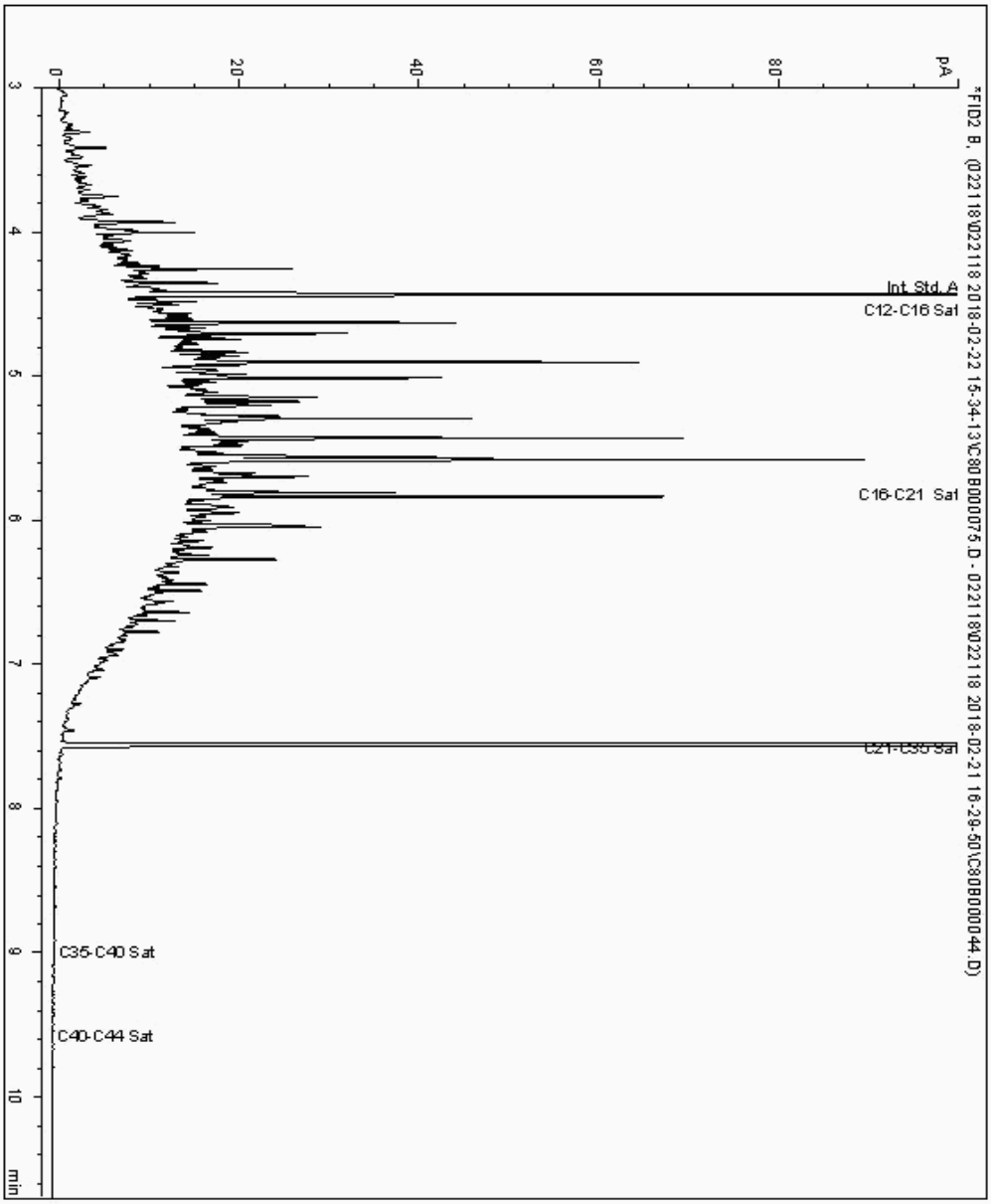
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17076832 **Depth :** 0.80 - 0.80
Sample ID : TP103

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16018234-
Date Acquired : 22/02/18 23:51:40
Units : ppb
Dilution :
CF : 1
Multiplier : 1.050



CERTIFICATE OF ANALYSIS

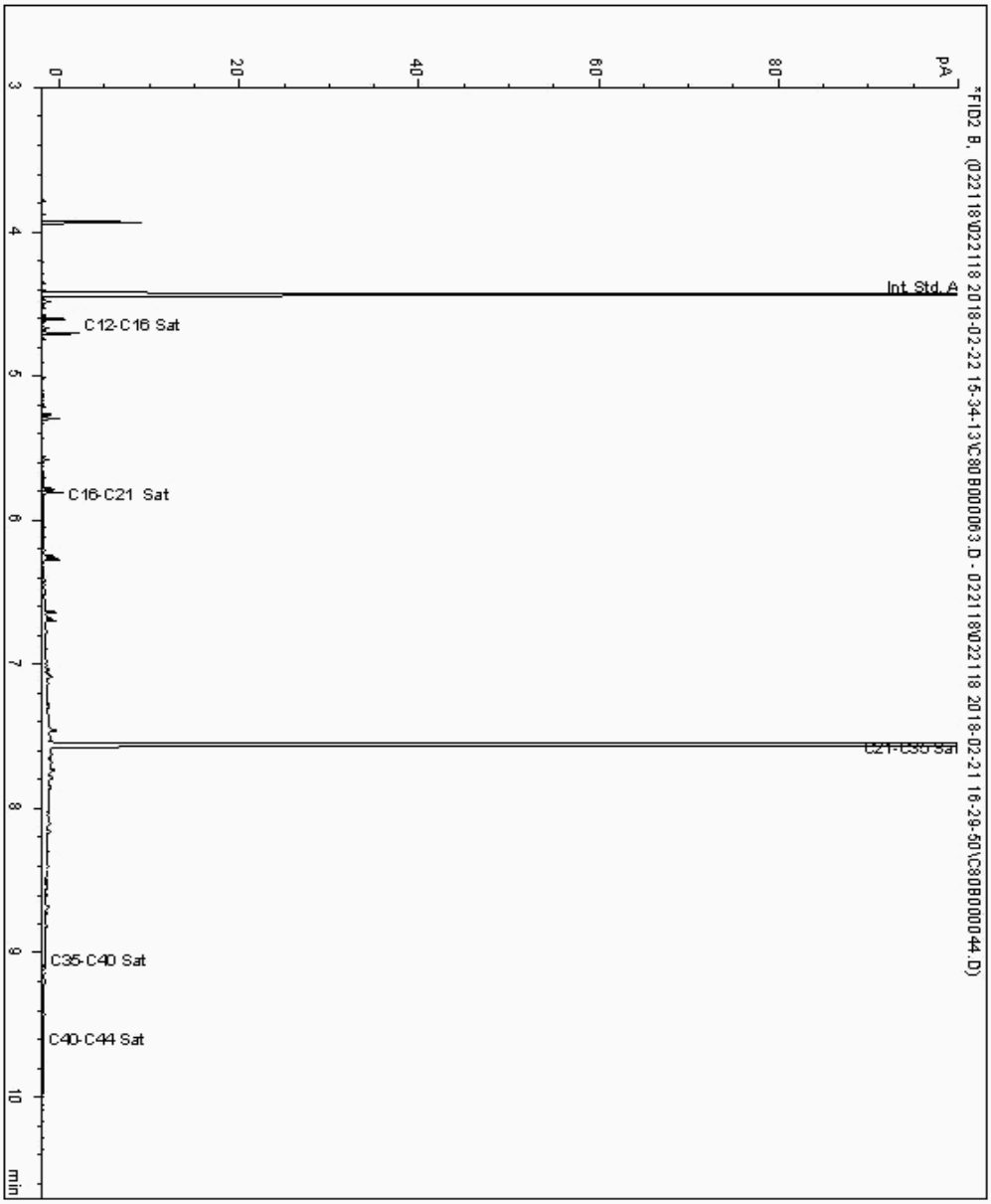
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17076955 **Depth :** 0.30 - 0.30
Sample ID : HP102

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16018296-
Date Acquired : 22/02/18 20:30:27
Units : ppb
Dilution :
CF : 1
Multiplier : 1.030



CERTIFICATE OF ANALYSIS

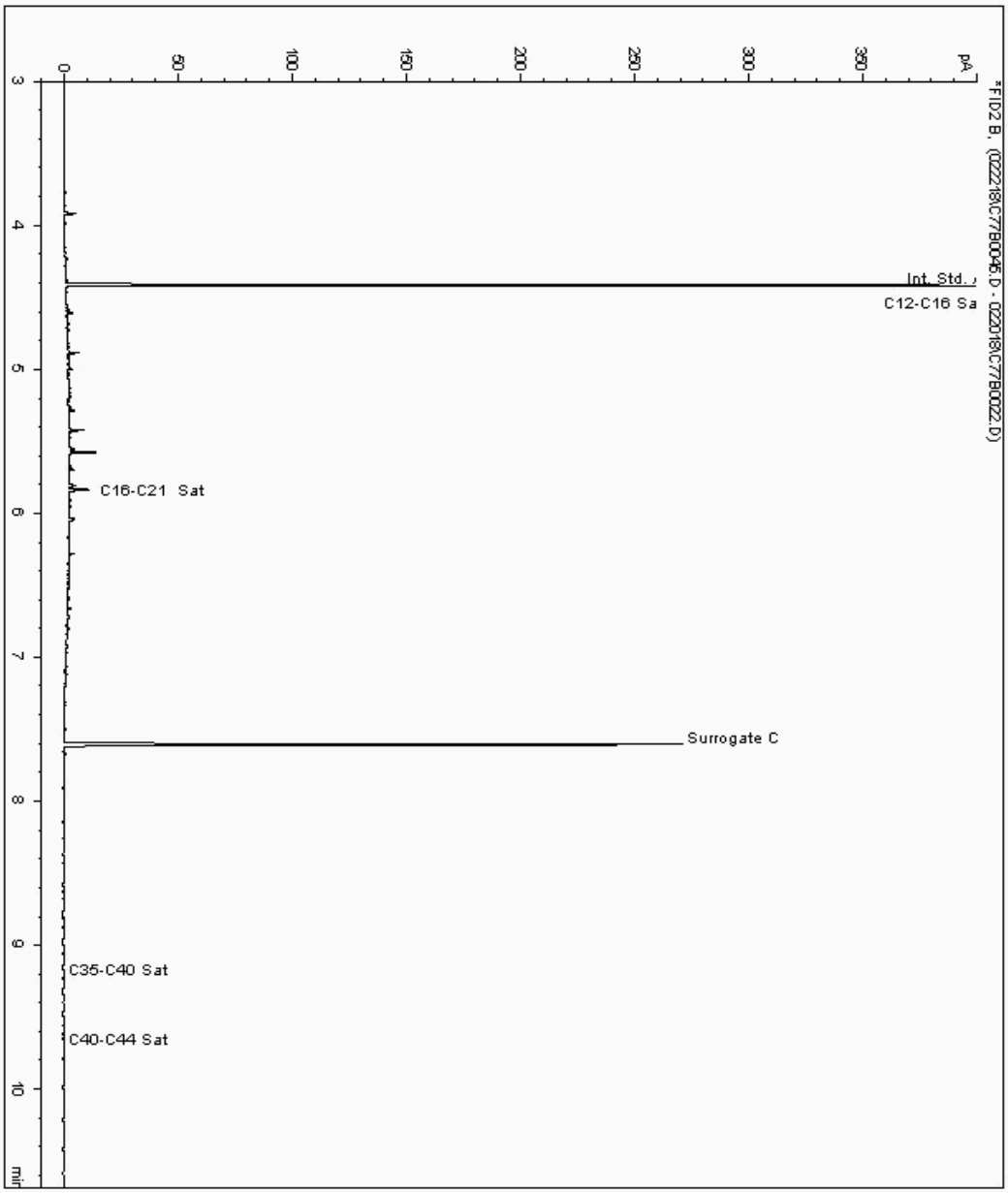
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17076959 **Depth :** 1.00 - 1.00
Sample ID : TP103

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16018245-
Date Acquired : 22/02/2018 19:24:05 PM
Units : ppb
Dilution:



CERTIFICATE OF ANALYSIS

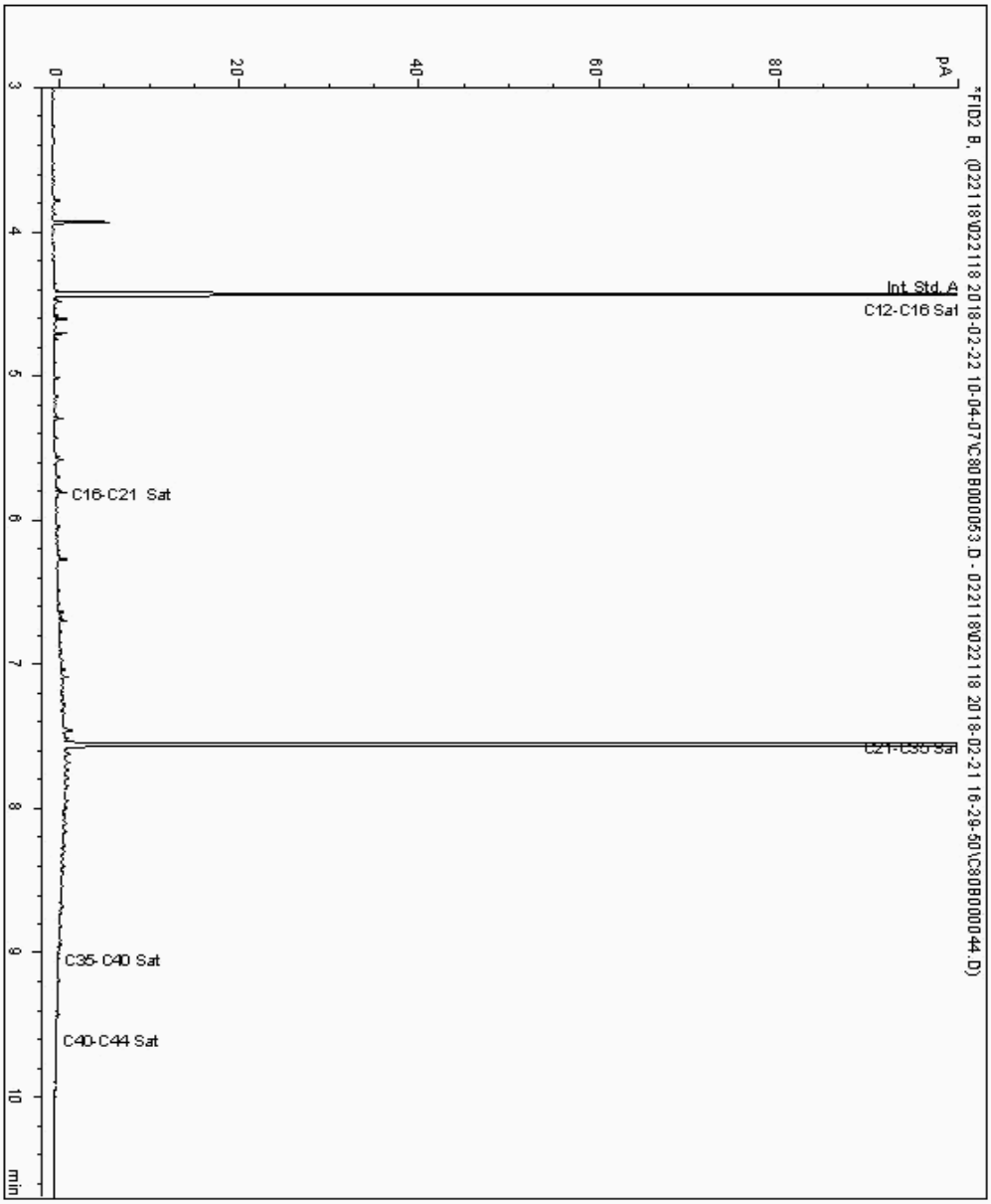
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17076964 **Depth :** 0.60 - 0.60
Sample ID : HP102

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16018343-
Date Acquired : 22/02/18 06:49:57
Units : ppb
Dilution :
CF : 1
Multiplier : 0.970



CERTIFICATE OF ANALYSIS

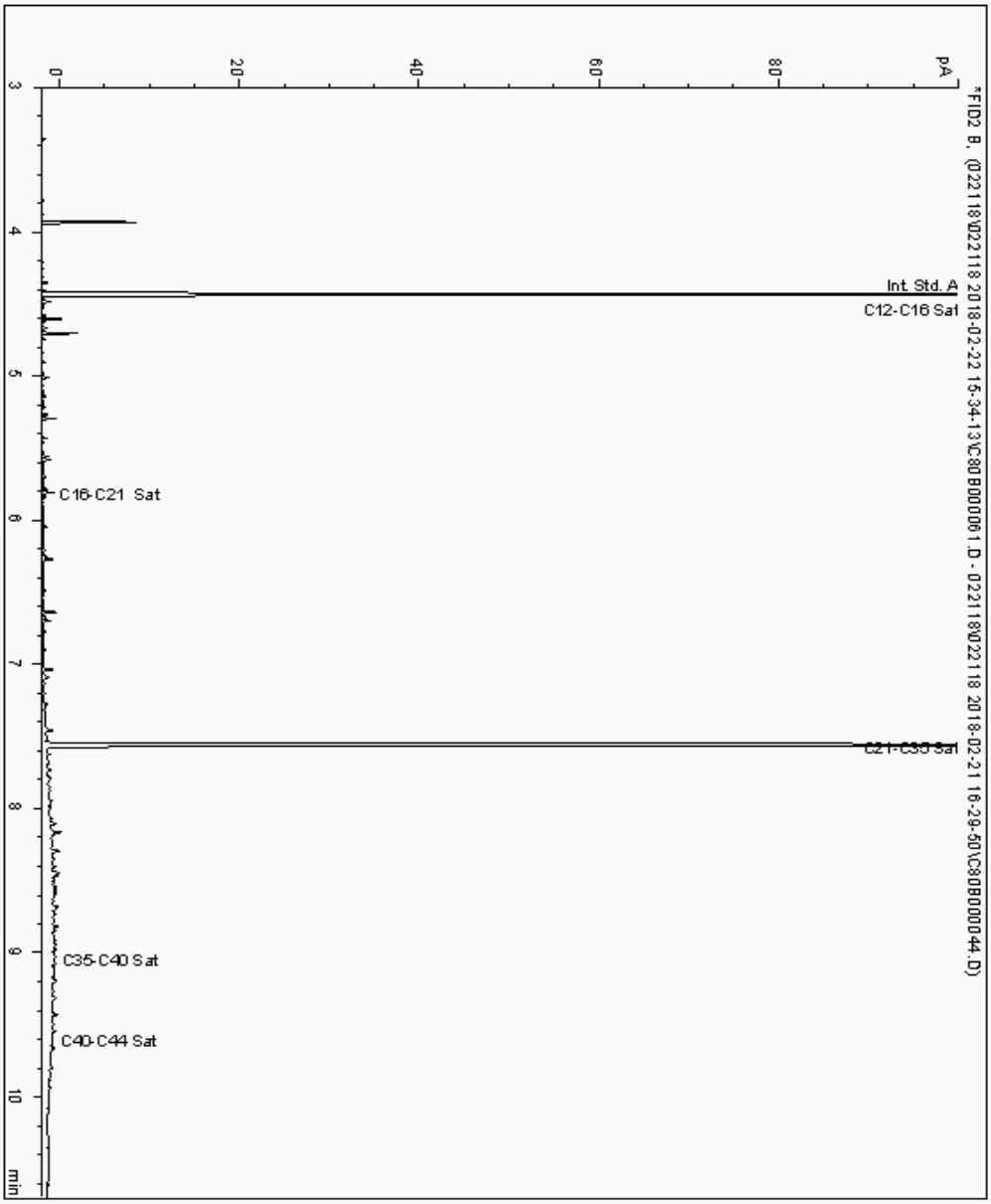
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S) **Sample No :** 17076971 **Depth :** 0.30 - 0.30
Sample ID : HP101

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 16018272-
Date Acquired : 22/02/18 19:59:28
Units : ppb
Dilution :
CF : 1
Multiplier : 0.990



CERTIFICATE OF ANALYSIS

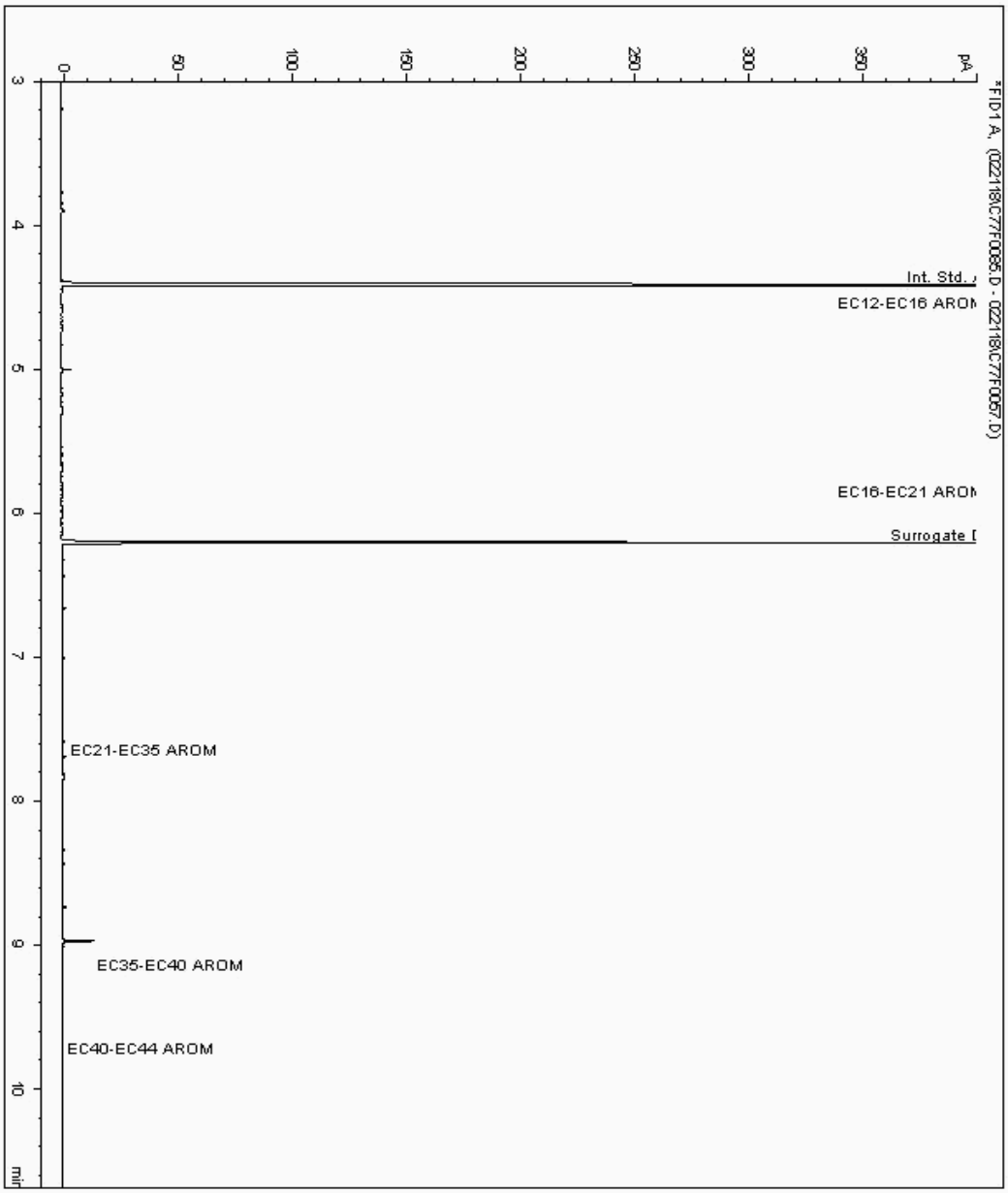
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17067806 **Depth :** 0.30 - 0.50
Sample ID : WS102

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16018168-
Date Acquired : 2/22/2018 11:47:15 AM
Units : ppb
Dilution:



CERTIFICATE OF ANALYSIS

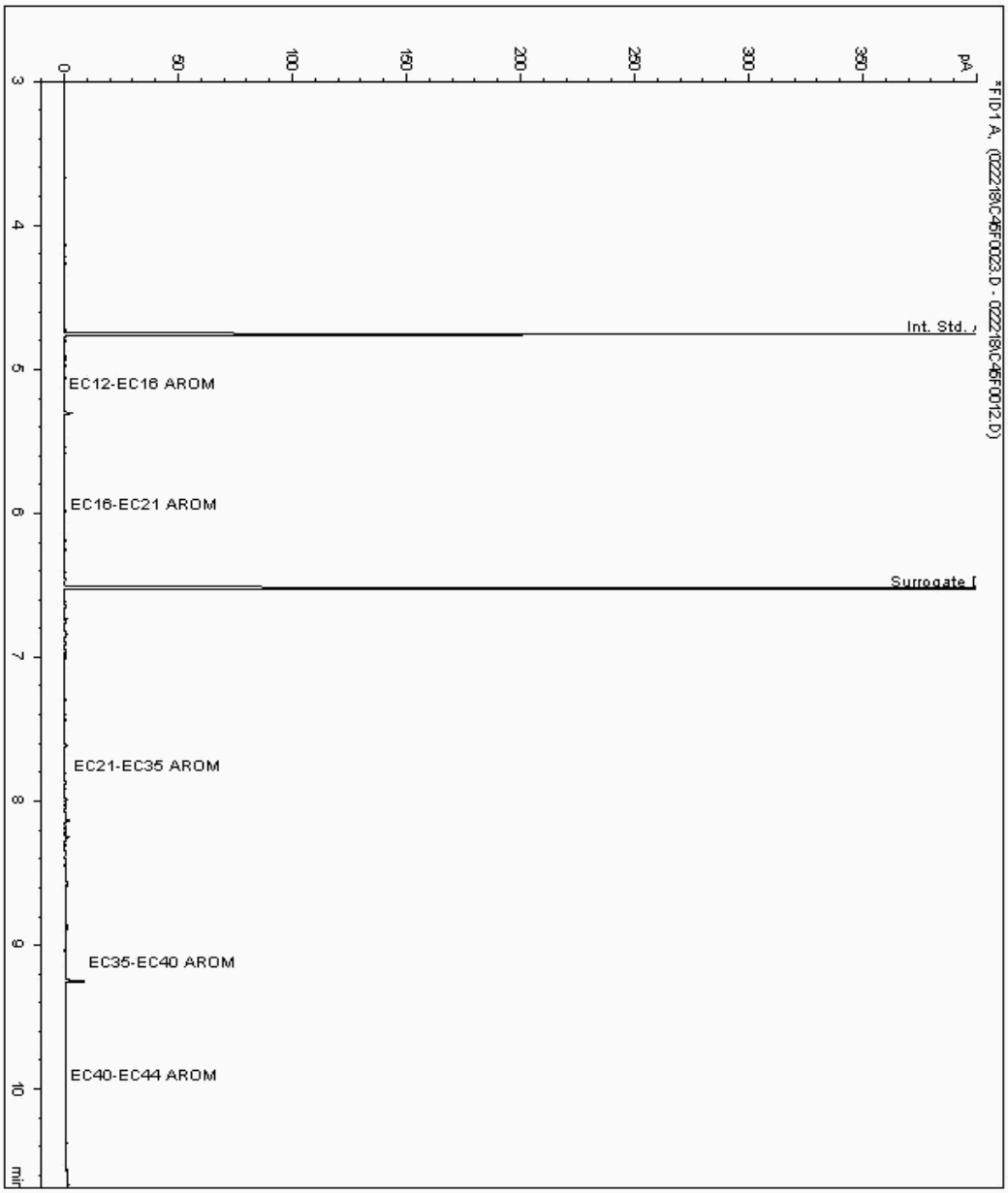
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17068981 **Depth :** 0.75 - 0.75
Sample ID : BH103

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16018033-
Date Acquired : 22/02/2018 15:14:00 PM
Units : ppb
Dilution: BH103[0.75 - 0.75] ->



CERTIFICATE OF ANALYSIS

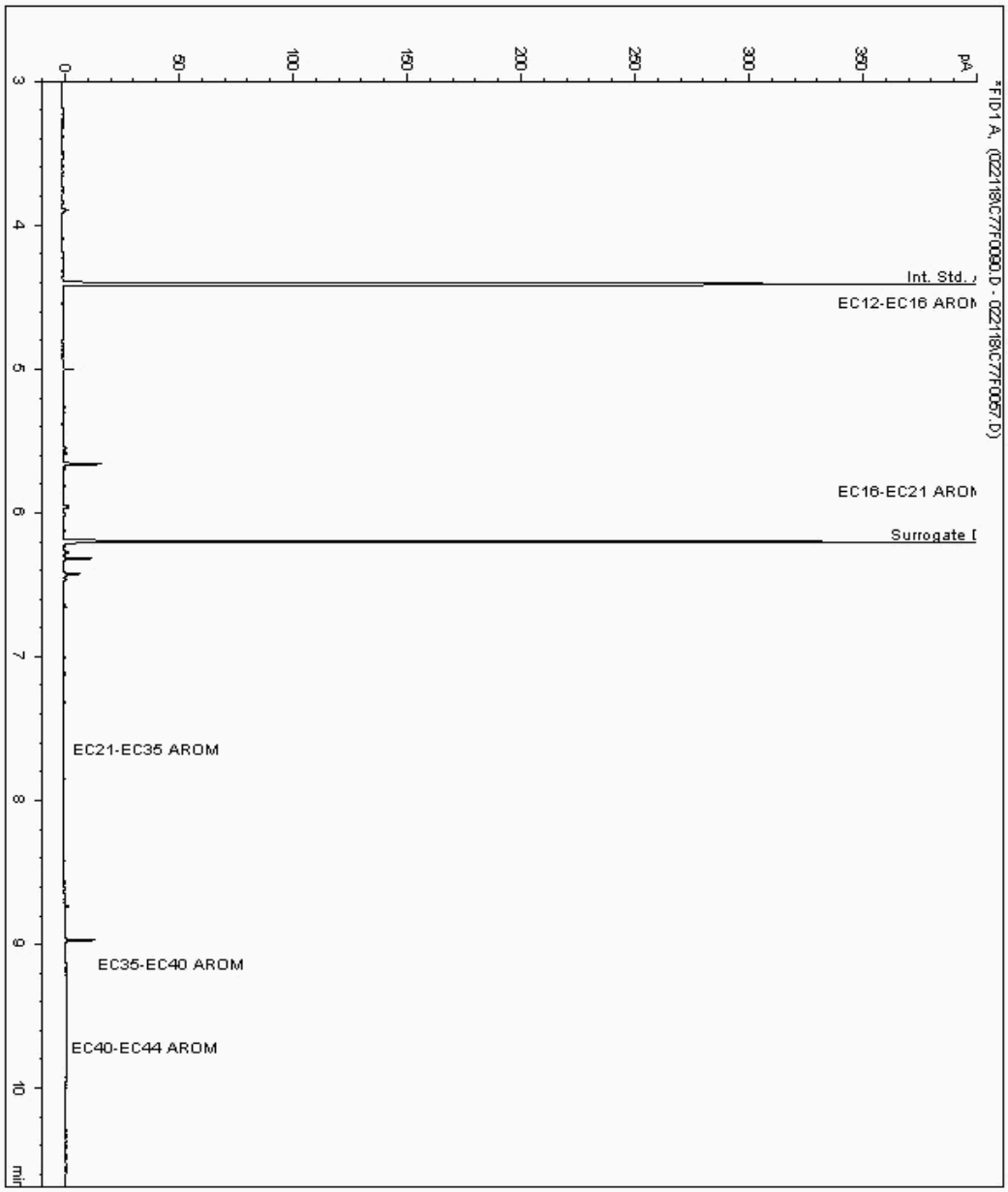
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17069006 **Depth :** 0.30 - 0.40
Sample ID : BH103

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16017979-
Date Acquired : 2/22/2018 1:11:09 PM
Units : ppb
Dilution:



CERTIFICATE OF ANALYSIS

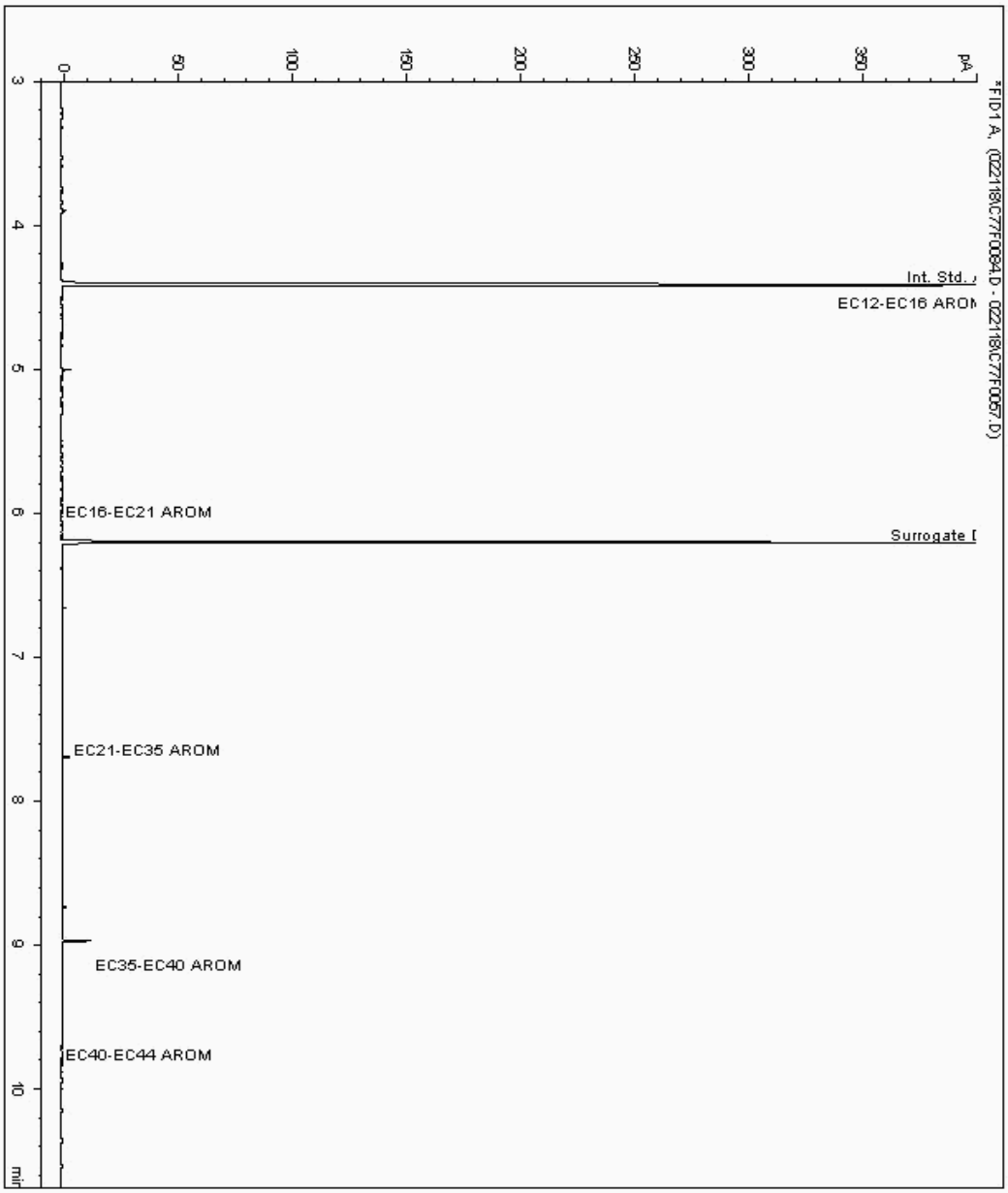
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17069961 **Depth :** 0.60 - 0.60
Sample ID : WS106

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16018202-
Date Acquired : 2/22/2018 11:27:06 AM
Units : ppb
Dilution:



CERTIFICATE OF ANALYSIS

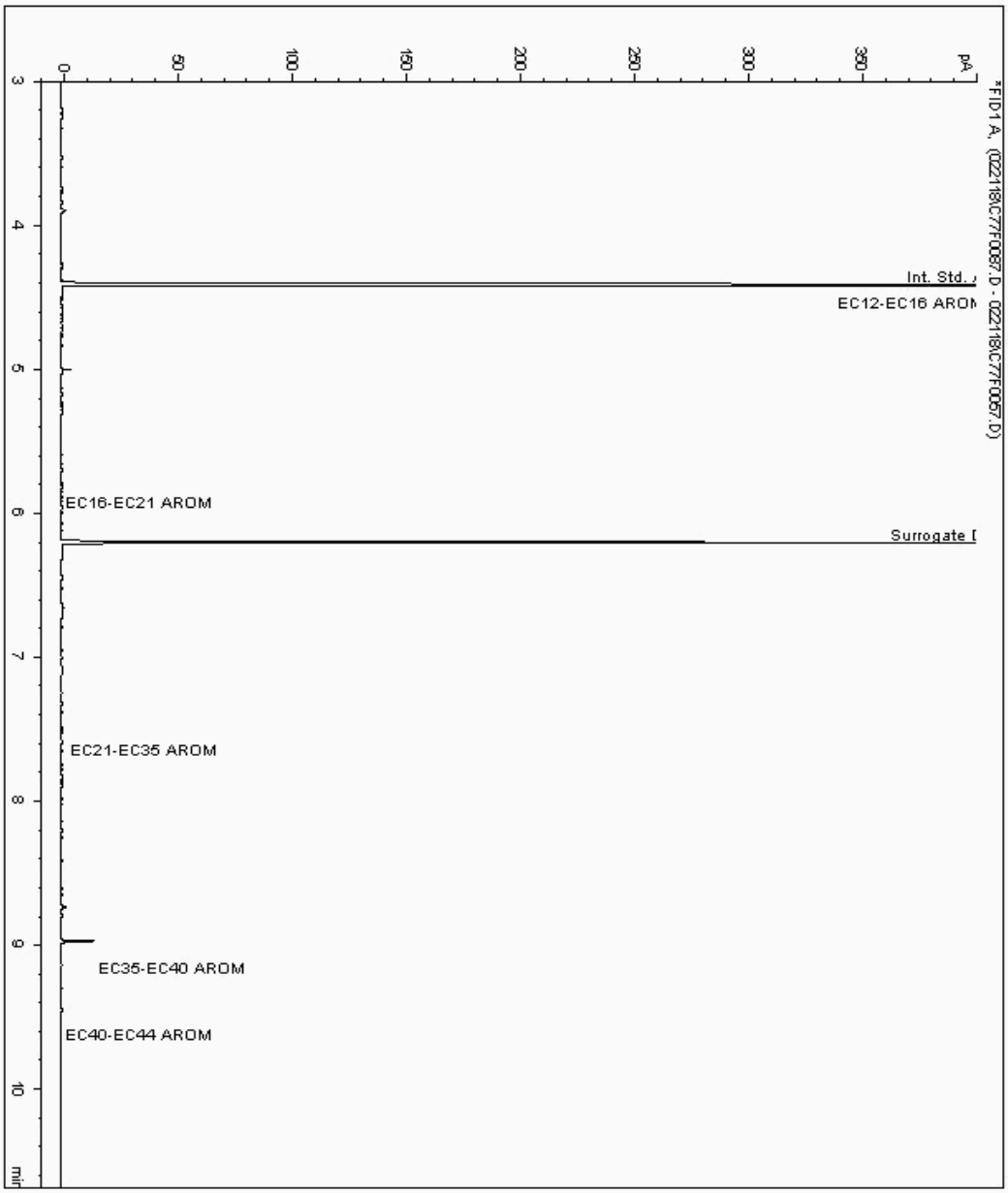
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17070030 **Depth :** 0.25 - 0.25
Sample ID : WS103

Speciated TPH - AROM (C12 - C40)

Sample Identity: 16018186-
Date Acquired : 2/22/2018 12:19:03 PM
Units : ppb
Dilution:



CERTIFICATE OF ANALYSIS

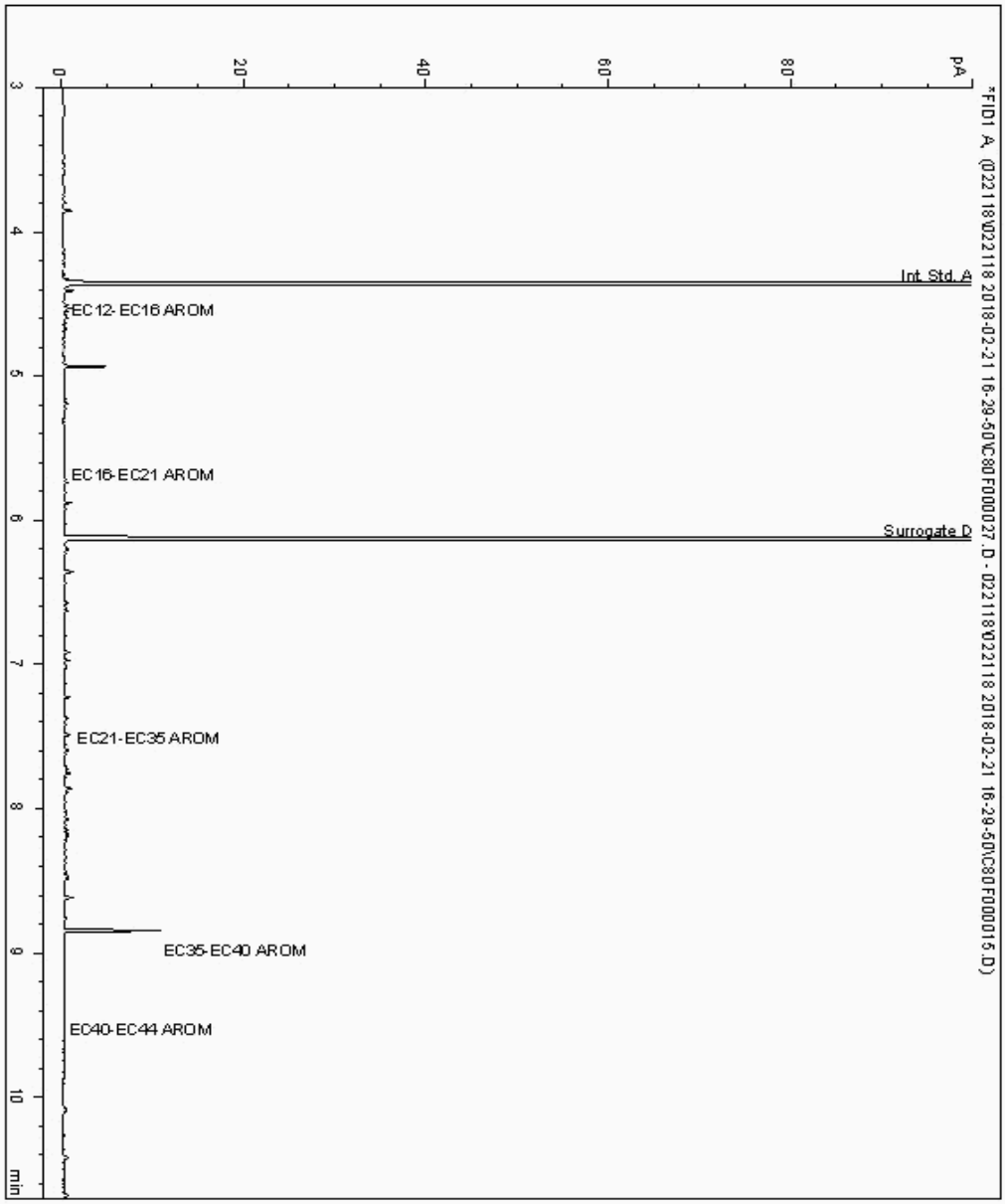
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17070401 **Depth :** 0.30 - 0.45
Sample ID : WS101

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16018125-
Date Acquired : 21/02/18 22:55:29
Units : ppb
Dilution :
CF : 1
Multiplier : 1.040



CERTIFICATE OF ANALYSIS

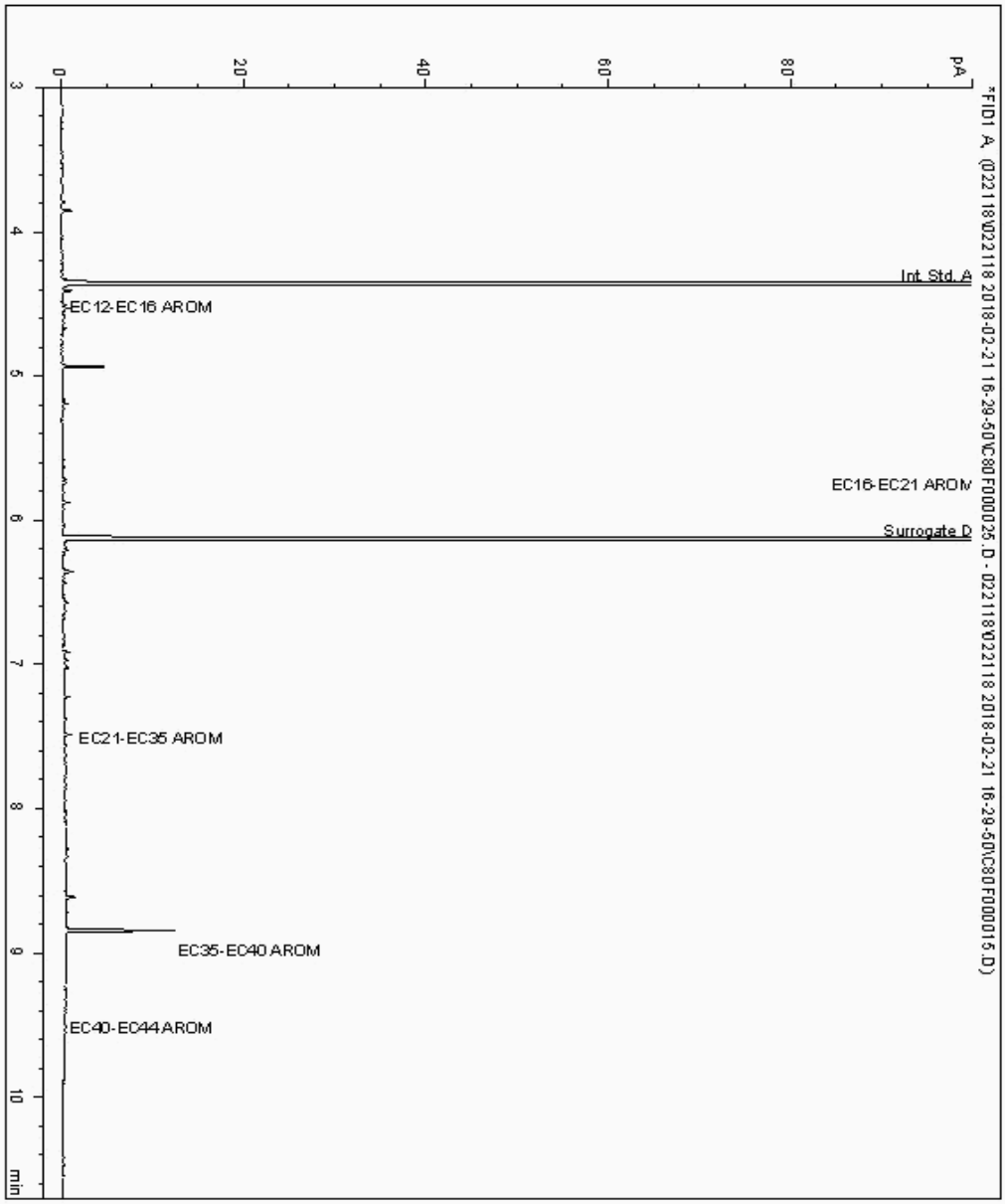
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17070738 **Sample ID :** WS109 **Depth :** 1.20 - 1.20

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16018386-
Date Acquired : 21/02/18 22:15:01
Units : ppb
Dilution :
CF : 1
Multiplier : 1.020



CERTIFICATE OF ANALYSIS

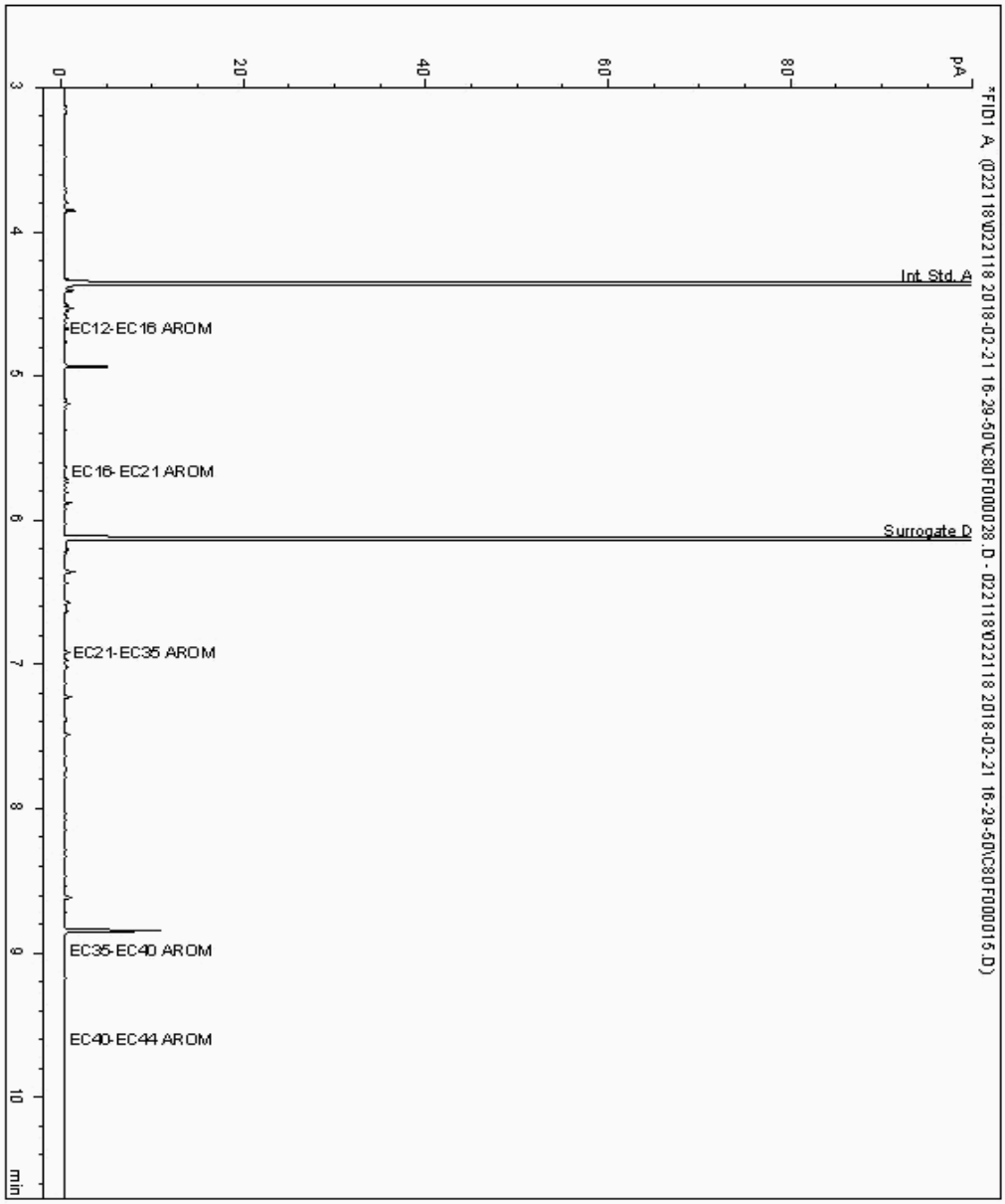
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17071806 **Depth :** 1.05 - 1.05
Sample ID : WS108

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16018221-
Date Acquired : 21/02/18 23:15:40
Units : ppb
Dilution :
CF : 1
Multiplier : 1.030



CERTIFICATE OF ANALYSIS

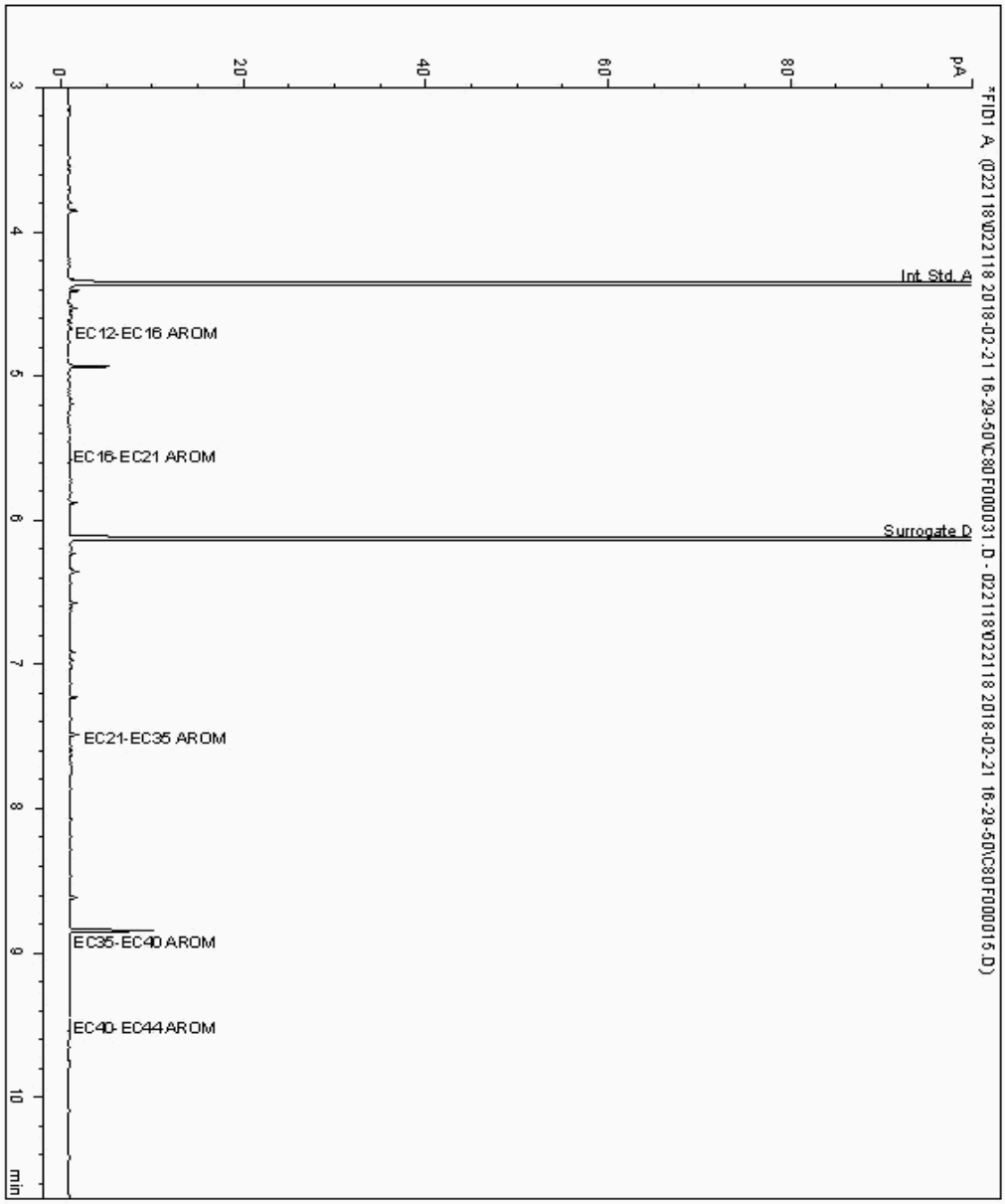
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17072202 **Depth :** 0.60 - 0.60
Sample ID : BH101

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16017930-
Date Acquired : 22/02/18 00:15:48
Units : ppb
Dilution :
CF : 1
Multiplier : 0.970



CERTIFICATE OF ANALYSIS

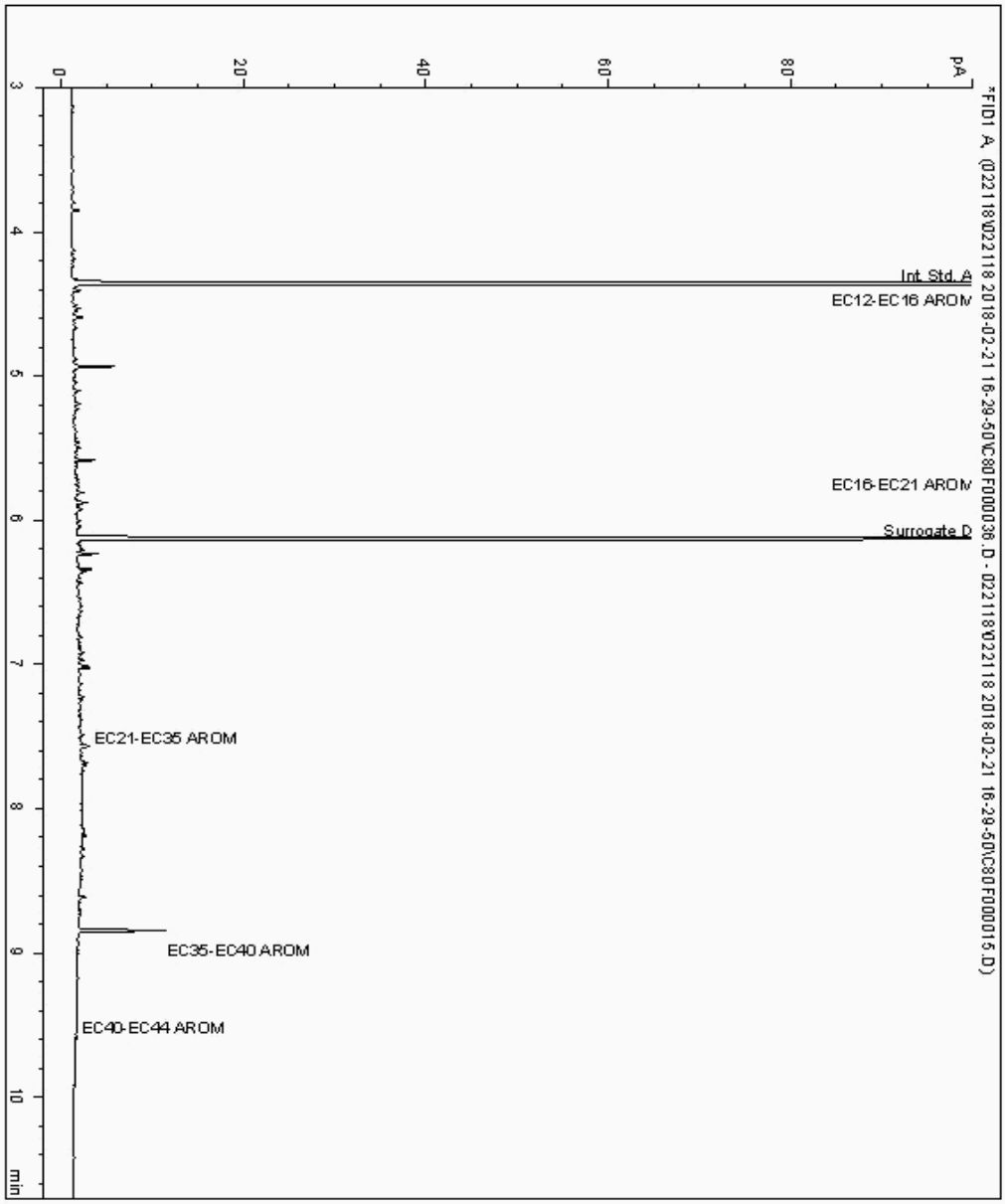
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17072217 **Depth :** 0.50 - 0.50
Sample ID : BH104

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16018071-
Date Acquired : 22/02/18 01:48:02
Units : ppb
Dilution :
CF : 1
Multiplier : 0.990



CERTIFICATE OF ANALYSIS

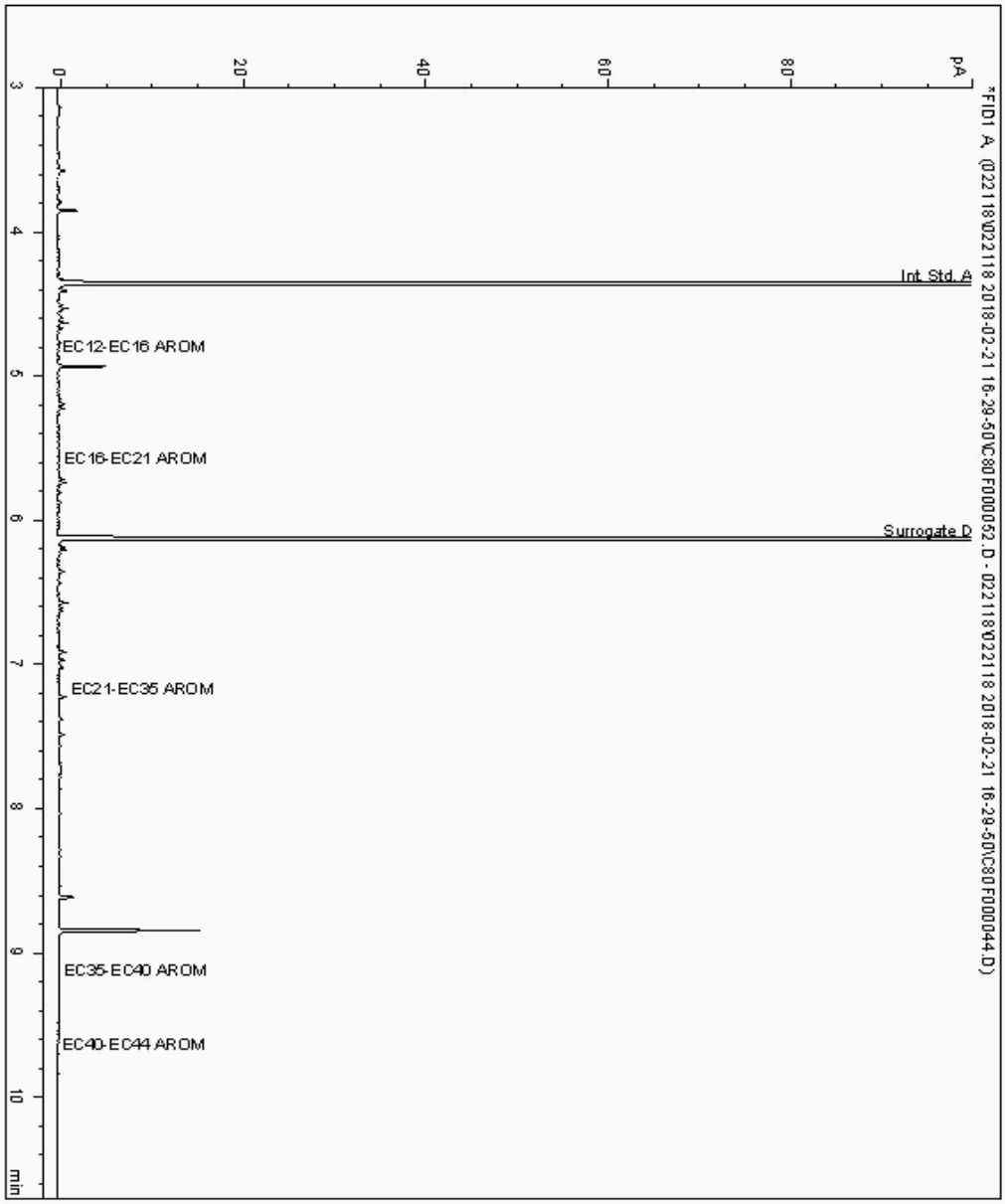
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17075490 **Depth :** 0.50 - 0.50
Sample ID : TP104

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16018259-
Date Acquired : 22/02/18 06:29:40
Units : ppb
Dilution :
CF : 1
Multiplier : 0.960



CERTIFICATE OF ANALYSIS

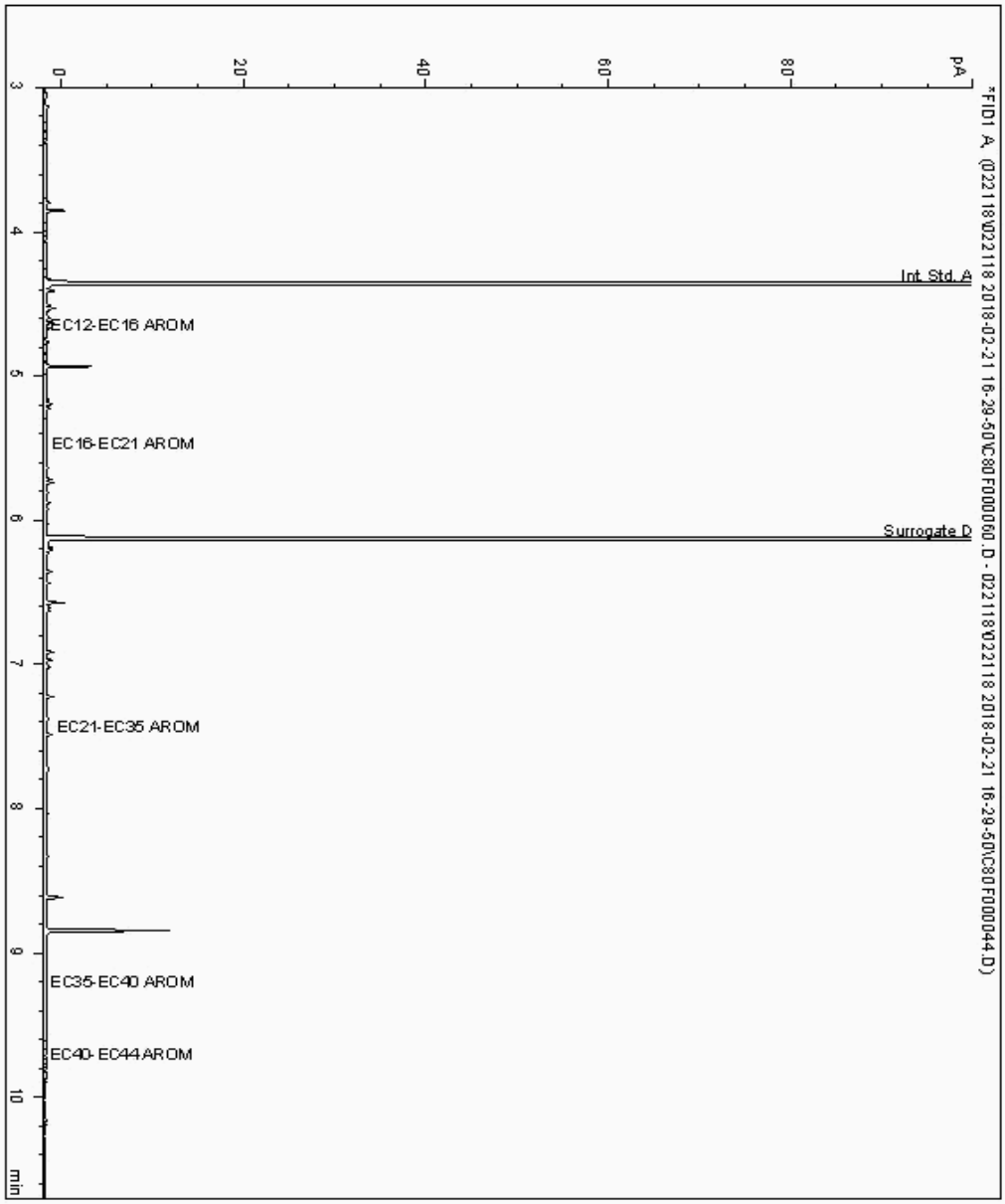
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17075572 **Depth :** 0.40 - 0.40
Sample ID : TP102

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16018369-
Date Acquired : 22/02/18 08:53:56
Units : ppb
Dilution :
CF : 1
Multiplier : 0.980



CERTIFICATE OF ANALYSIS

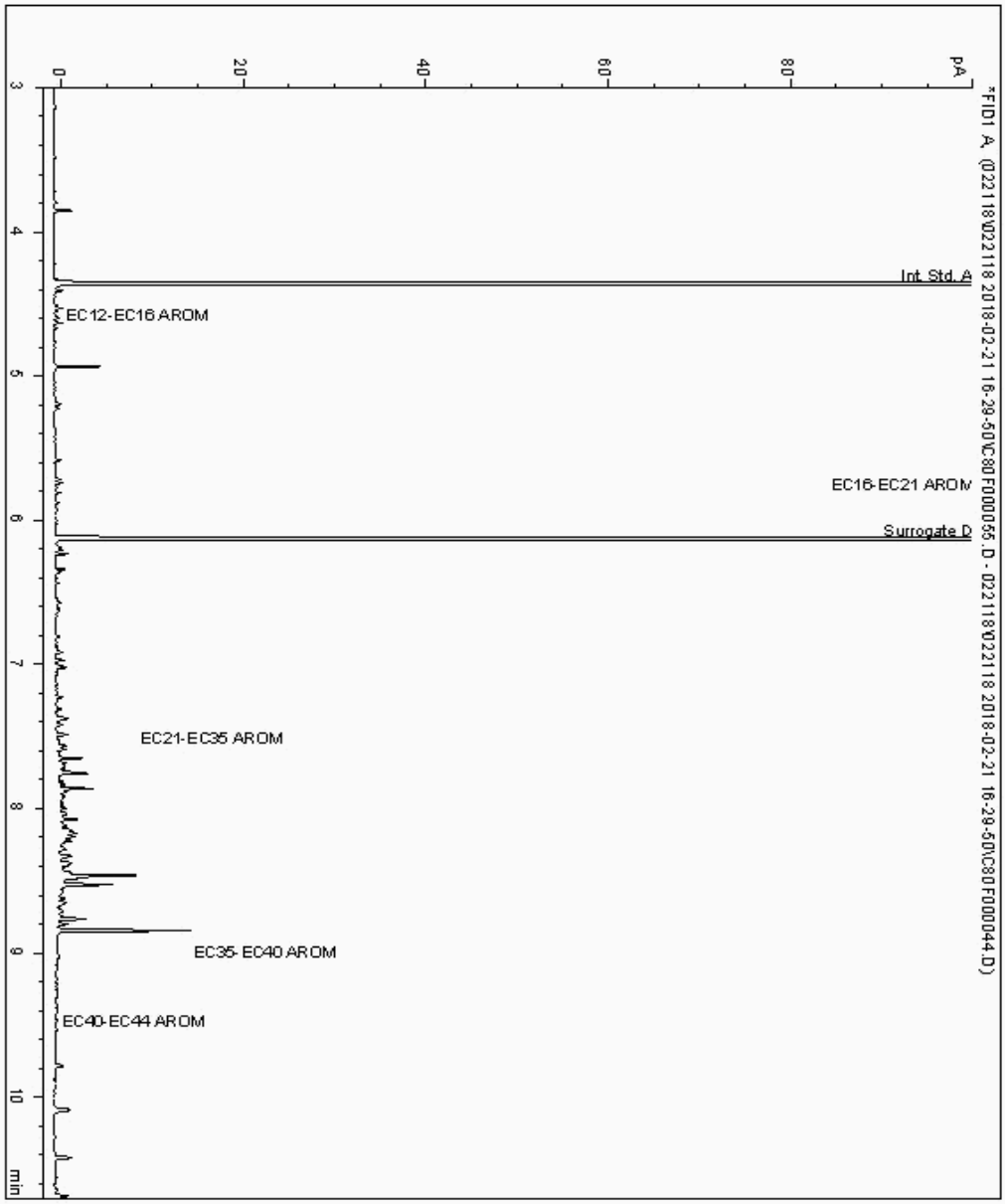
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17075725 **Sample ID :** TP106 **Depth :** 1.00 - 1.00

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16018433-
Date Acquired : 22/02/18 07:29:55
Units : ppb
Dilution :
CF : 1
Multiplier : 1.020



CERTIFICATE OF ANALYSIS

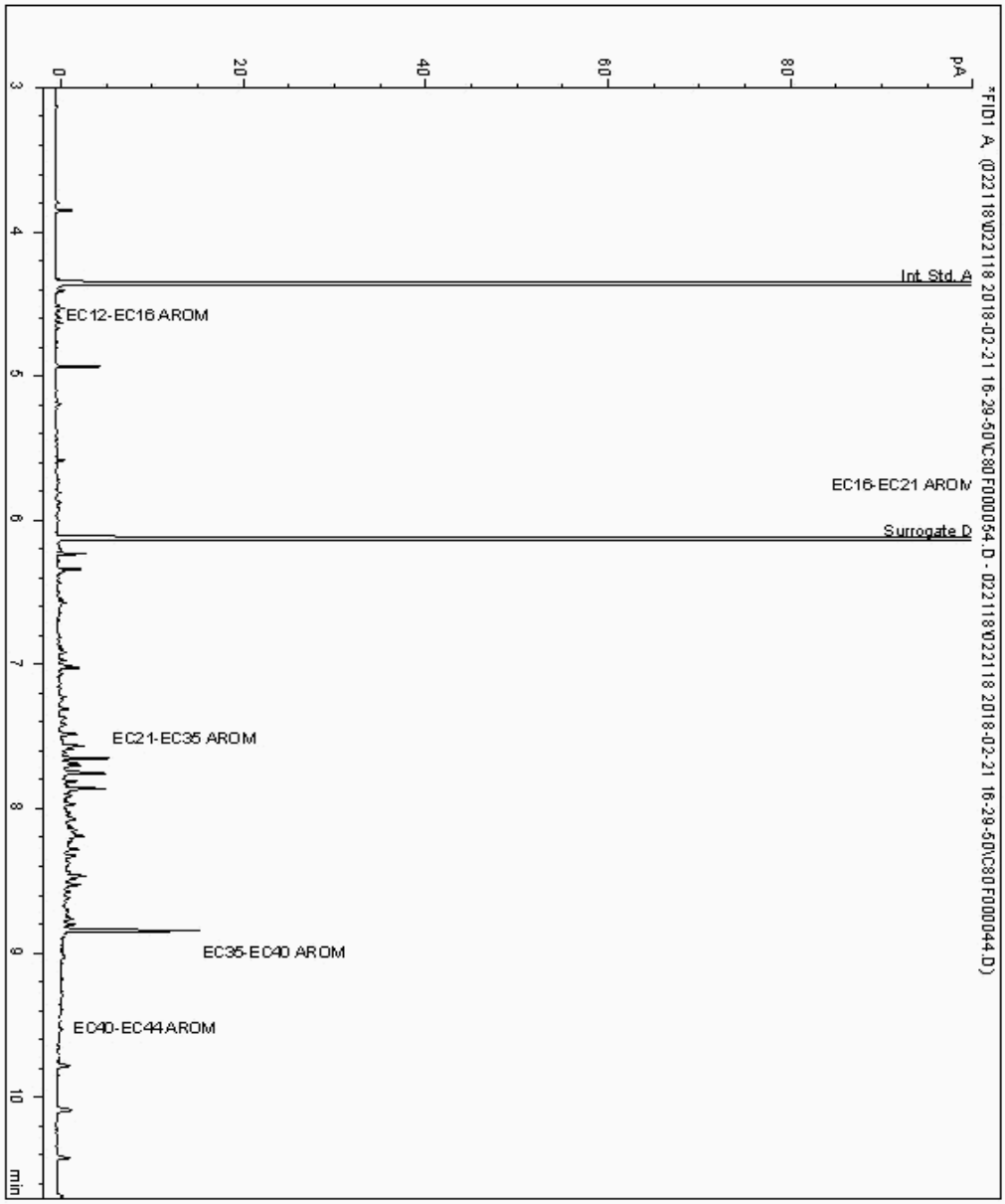
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17075806 **Depth :** 1.05 - 1.05
Sample ID : WS110

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16018404-
Date Acquired : 22/02/18 07:09:57
Units : ppb
Dilution :
CF : 1
Multiplier : 1.030



CERTIFICATE OF ANALYSIS

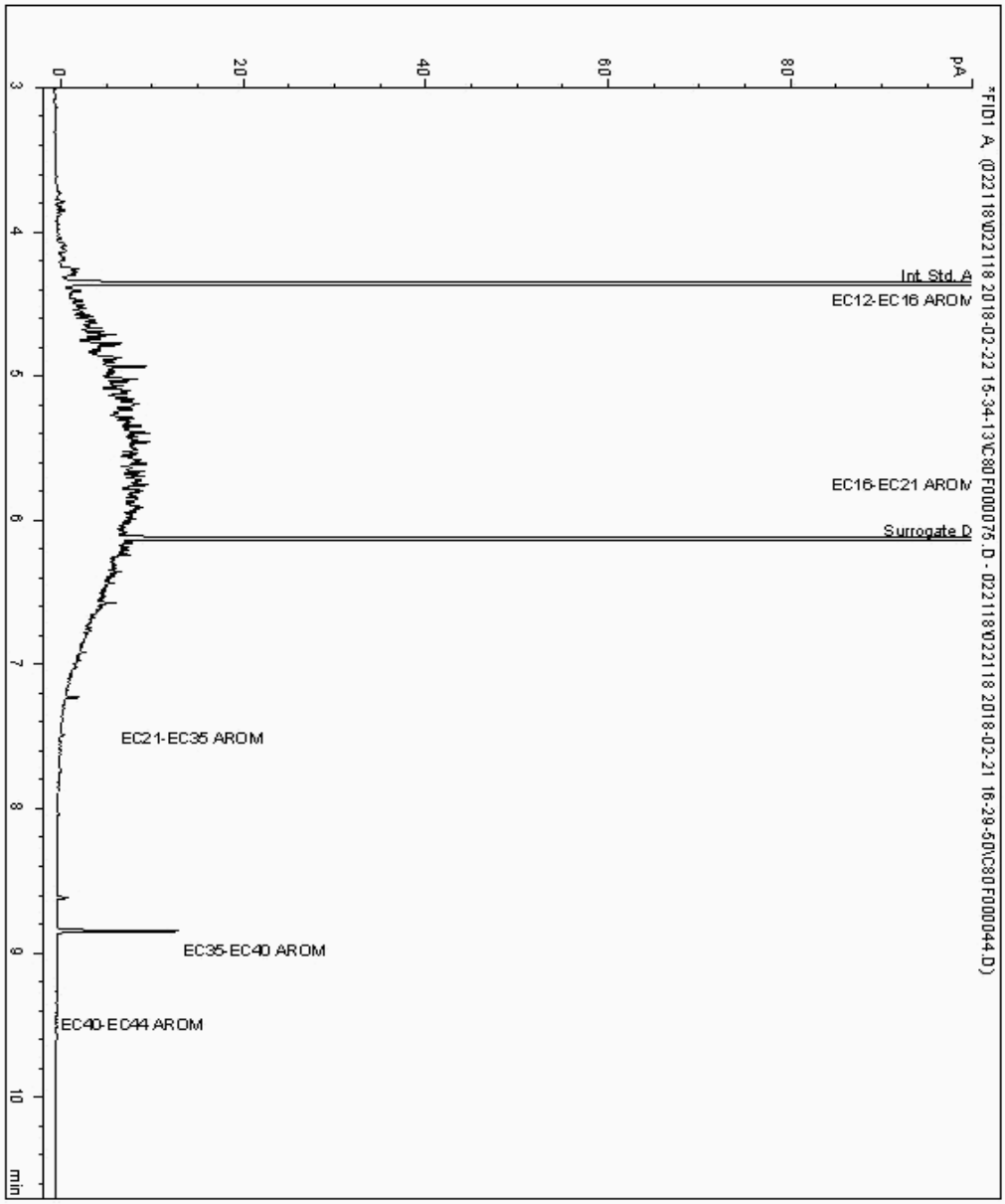
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17076832 **Depth :** 0.80 - 0.80
Sample ID : TP103

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16018235-
Date Acquired : 22/02/18 23:51:41
Units : ppb
Dilution :
CF : 1
Multiplier : 1.050



CERTIFICATE OF ANALYSIS

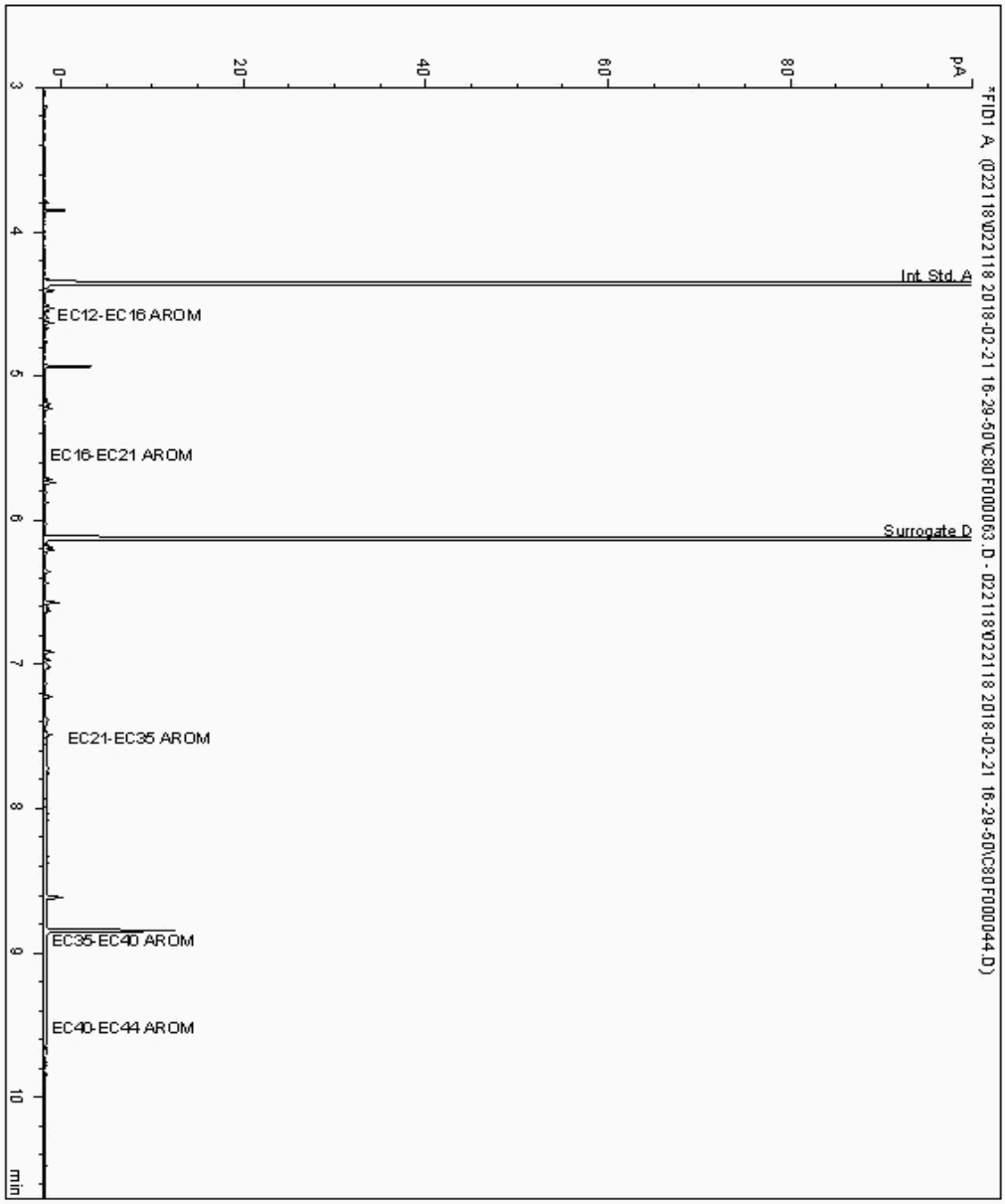
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17076955 **Depth :** 0.30 - 0.30
Sample ID : HP102

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16018297-
Date Acquired : 22/02/18 09:45:16
Units : ppb
Dilution :
CF : 1
Multiplier : 1.030



CERTIFICATE OF ANALYSIS

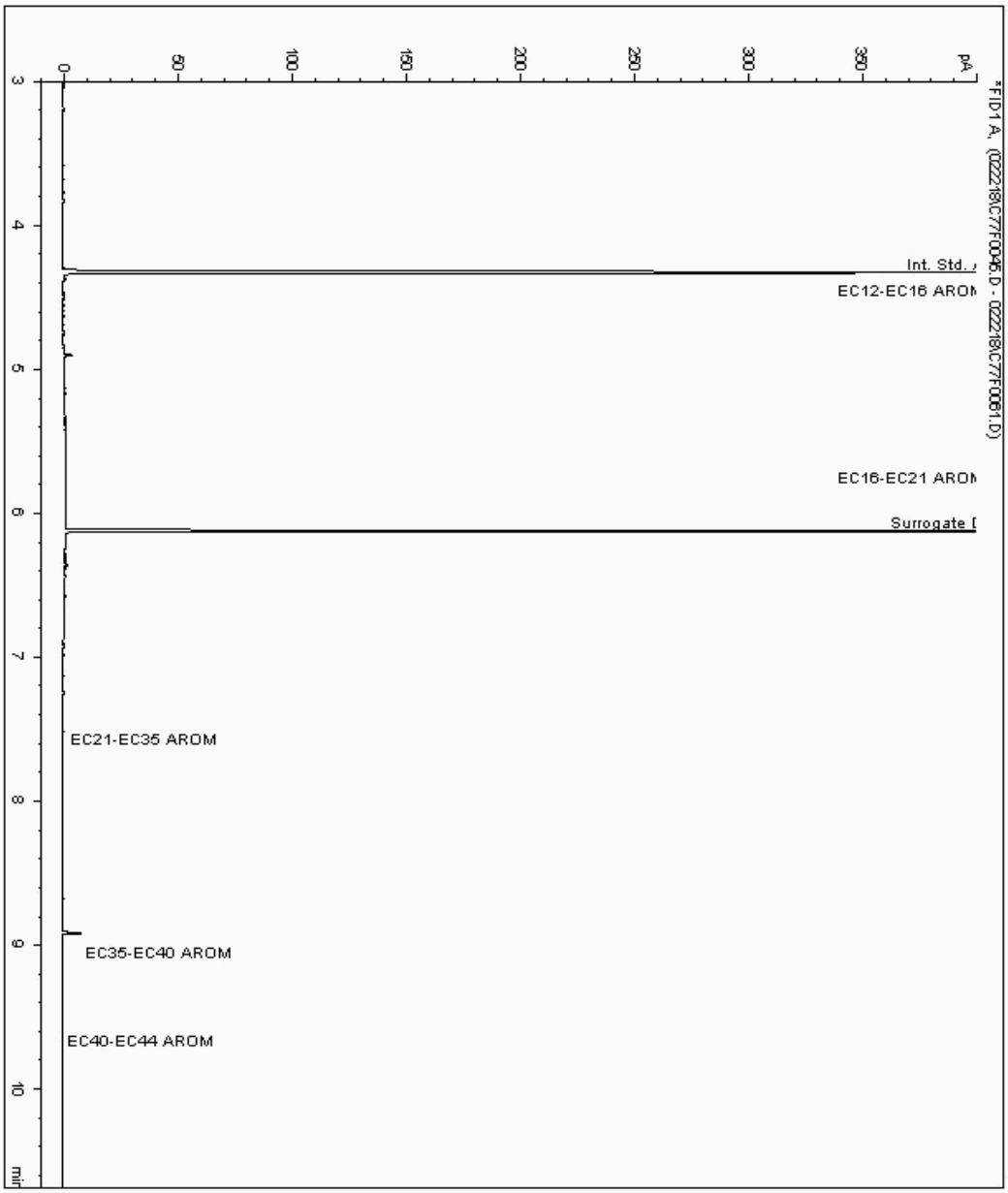
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17076959 **Depth :** 1.00 - 1.00
Sample ID : TP103

Speciated TPH - SATS (C12 - C40)

Sample Identity: 16018246-
Date Acquired : 22/02/2018 19:24:06 PM
Units : ppb
Dilution:



CERTIFICATE OF ANALYSIS

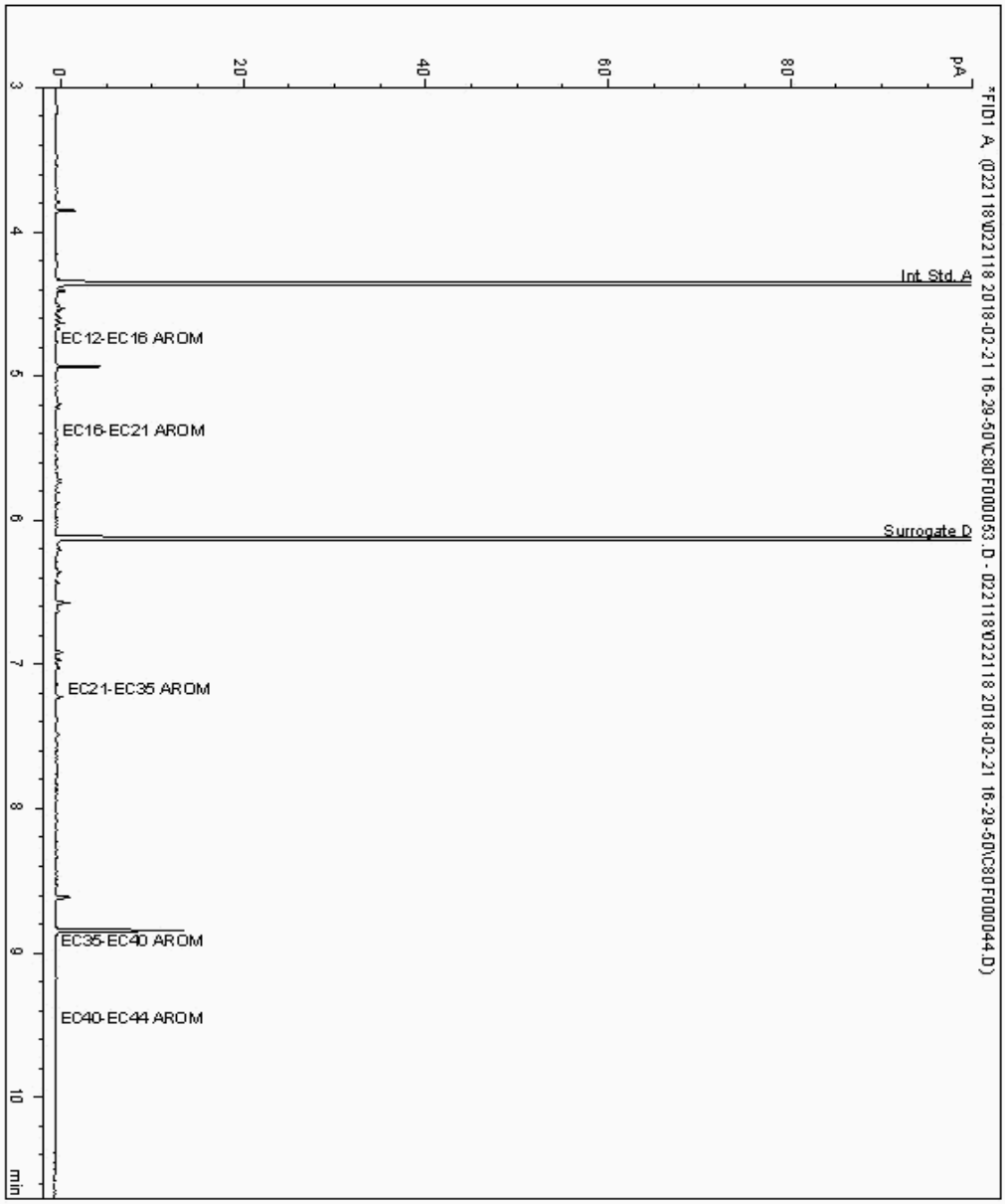
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17076964 **Depth :** 0.60 - 0.60
Sample ID : HP102

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16018344-
Date Acquired : 22/02/18 06:49:57
Units : ppb
Dilution :
CF : 1
Multiplier : 0.970



CERTIFICATE OF ANALYSIS

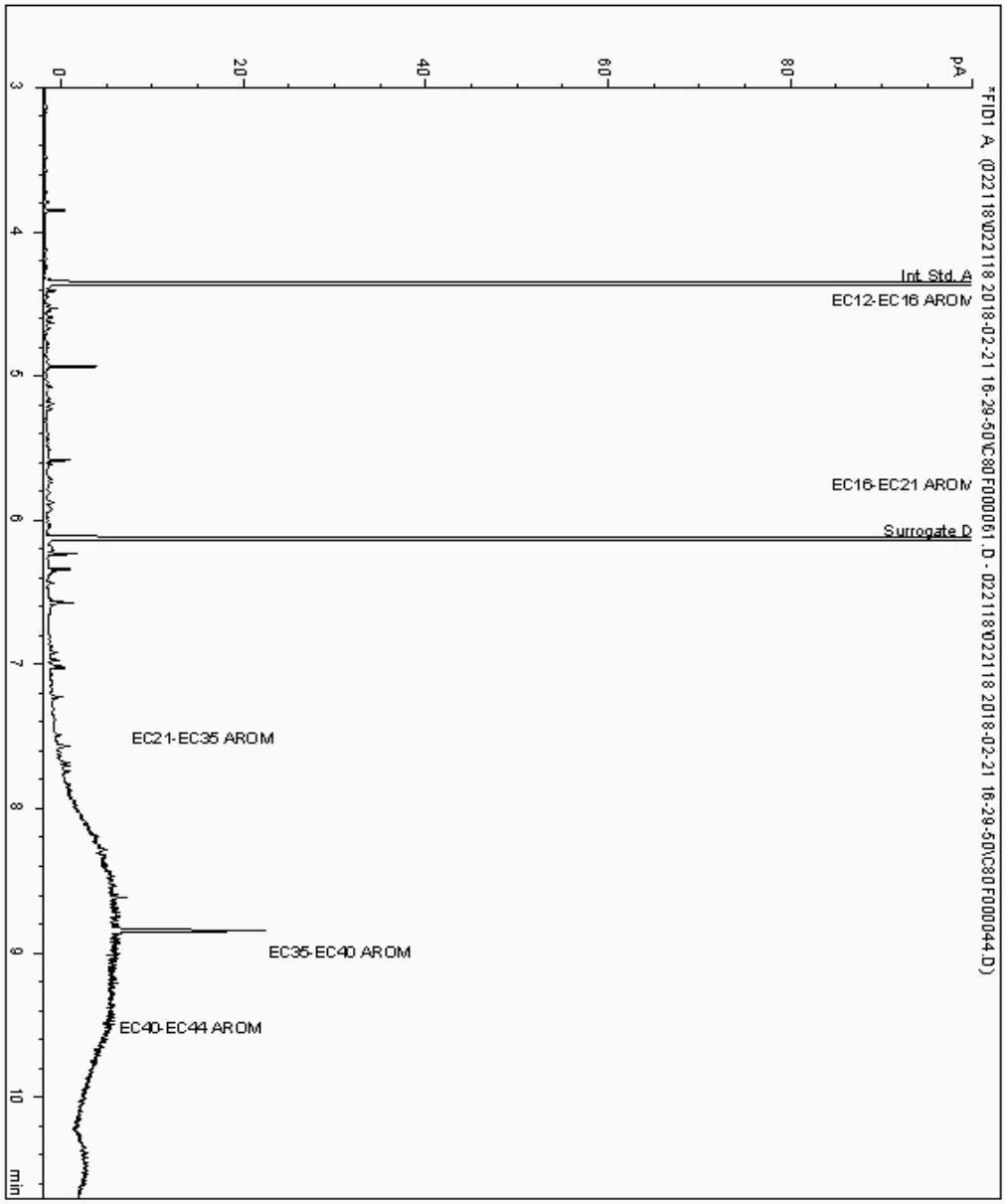
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S) **Sample No :** 17076971 **Depth :** 0.30 - 0.30
Sample ID : HP101

Speciated TPH - AROMS (C12 - C44)

Sample Identity: 16018273-
Date Acquired : 22/02/18 09:14:06
Units : ppb
Dilution :
CF : 1
Multiplier : 0.990



CERTIFICATE OF ANALYSIS

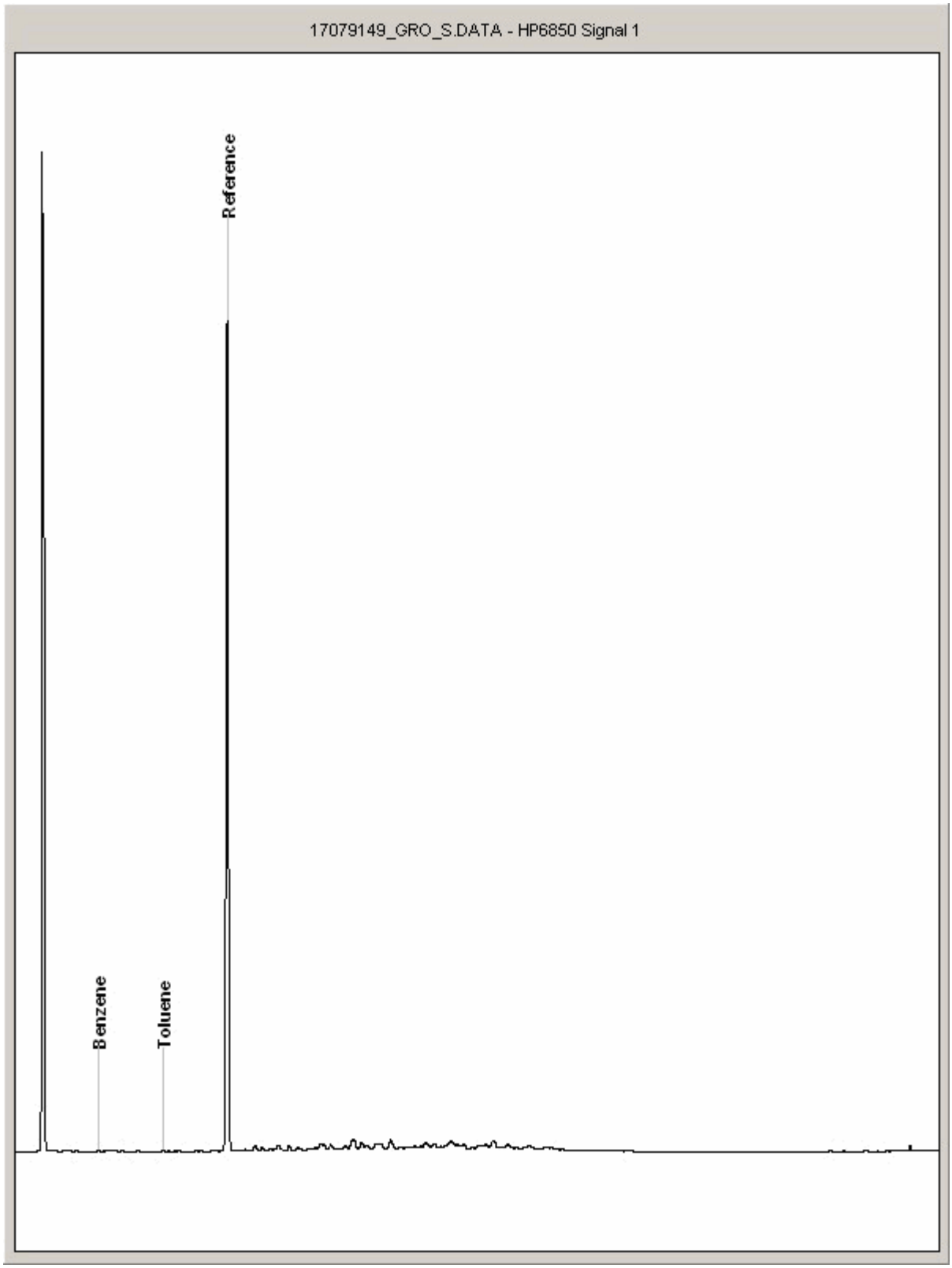
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17079149
Sample ID : WS109

Depth : 1.20 - 1.20



CERTIFICATE OF ANALYSIS

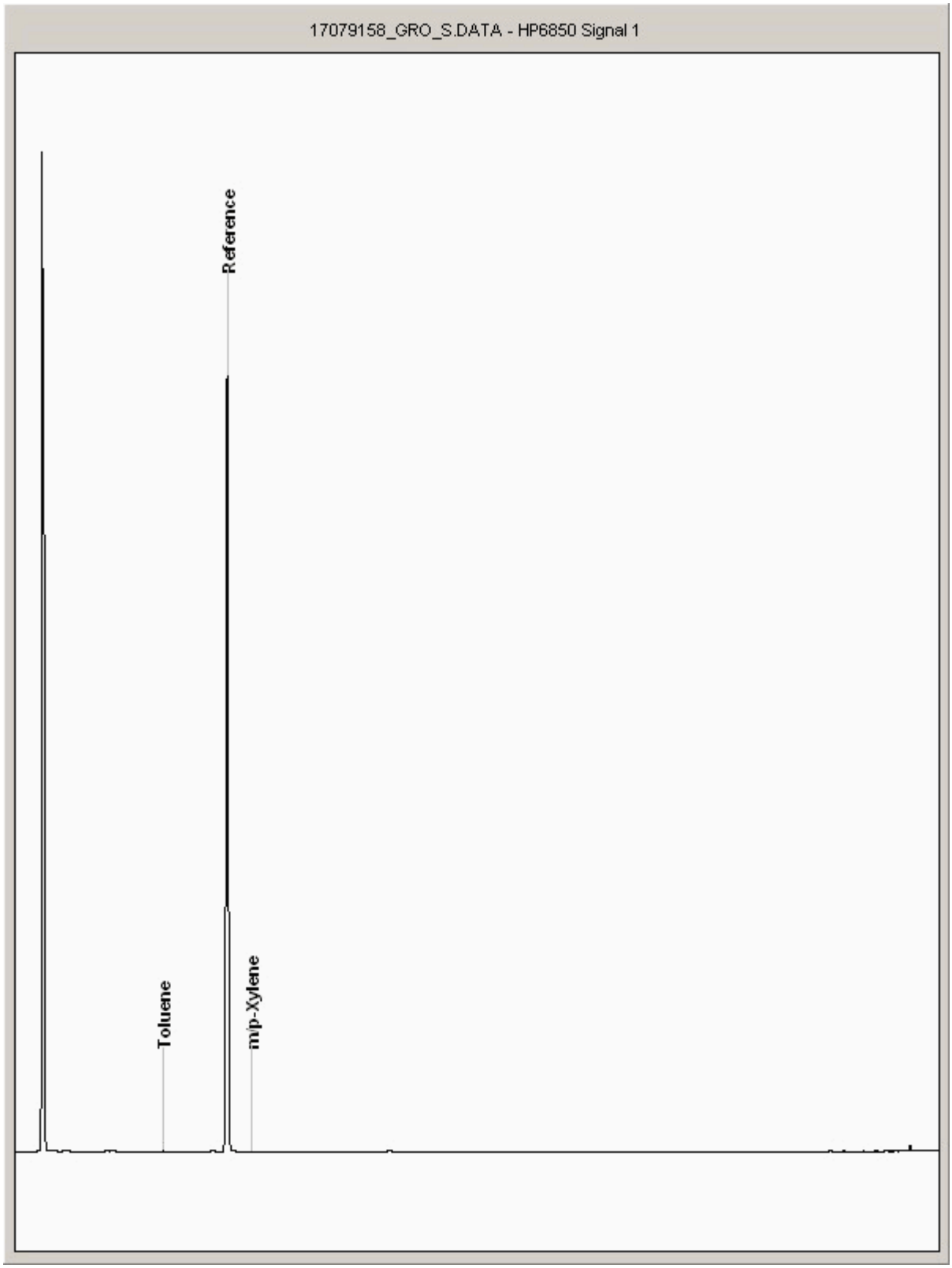
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17079158
Sample ID : WS108

Depth : 1.05 - 1.05



CERTIFICATE OF ANALYSIS

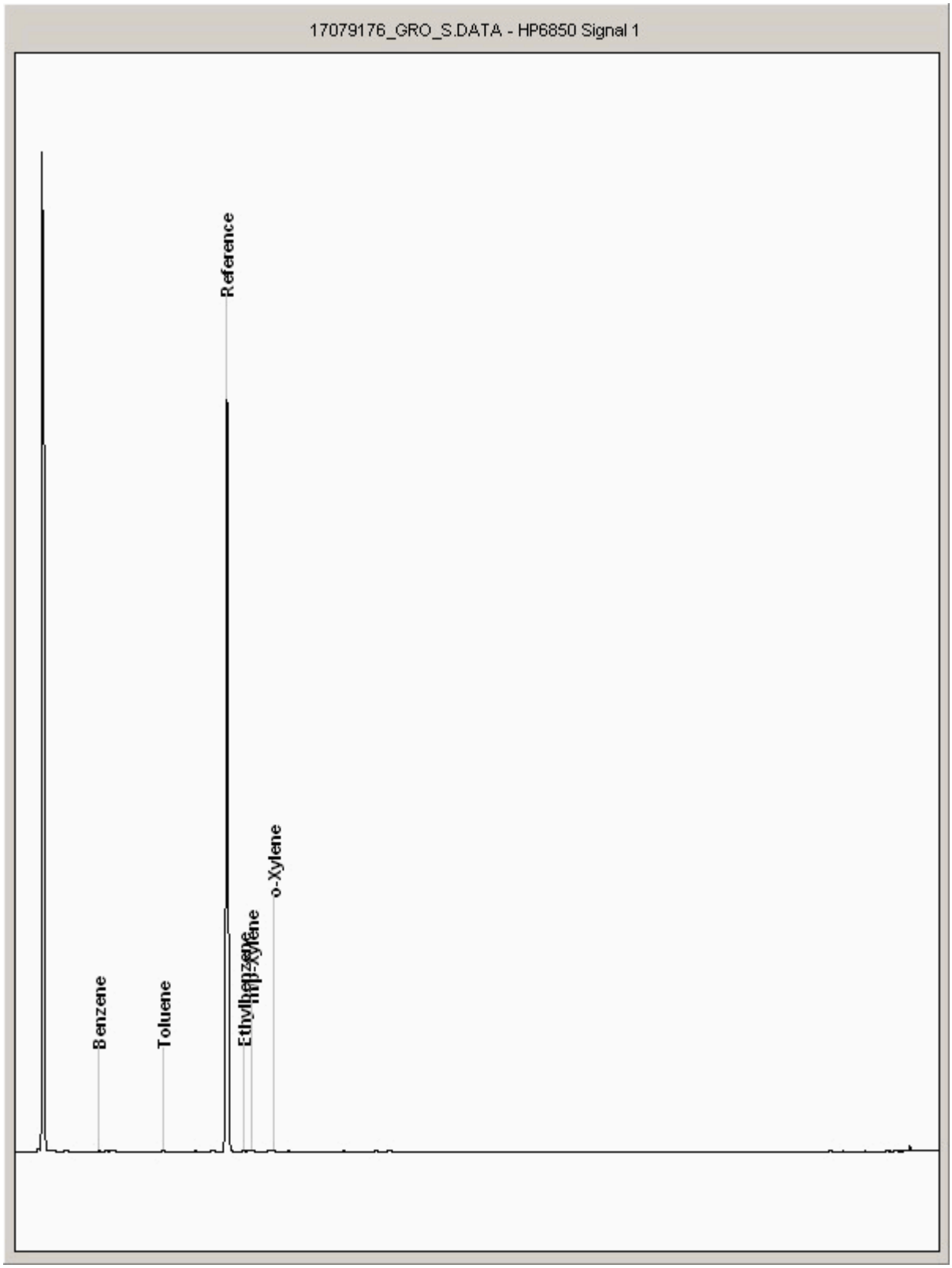
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17079176
Sample ID : WS106

Depth : 0.60 - 0.60



CERTIFICATE OF ANALYSIS

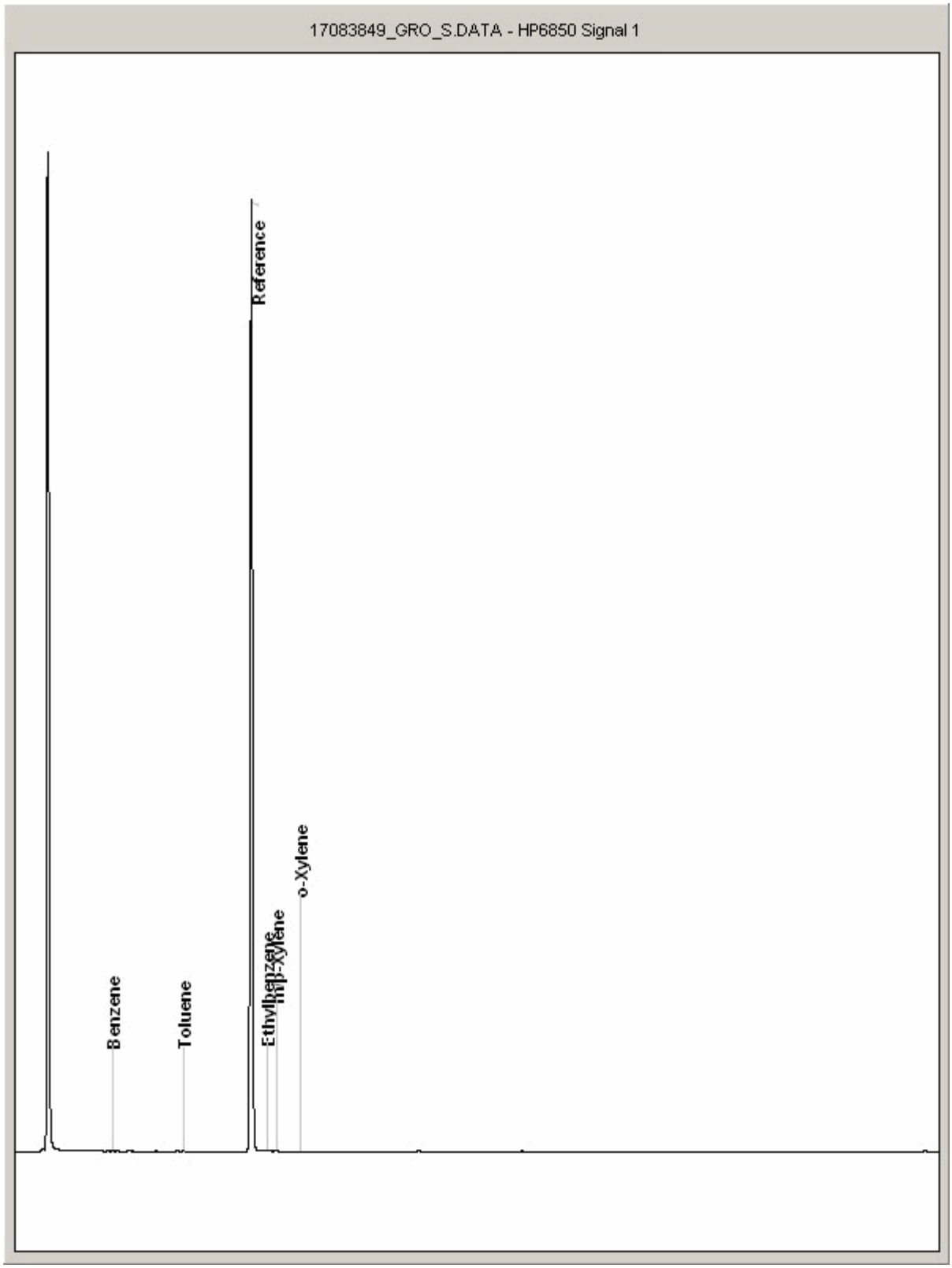
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17083849
Sample ID : TP104

Depth : 0.50 - 0.50



CERTIFICATE OF ANALYSIS

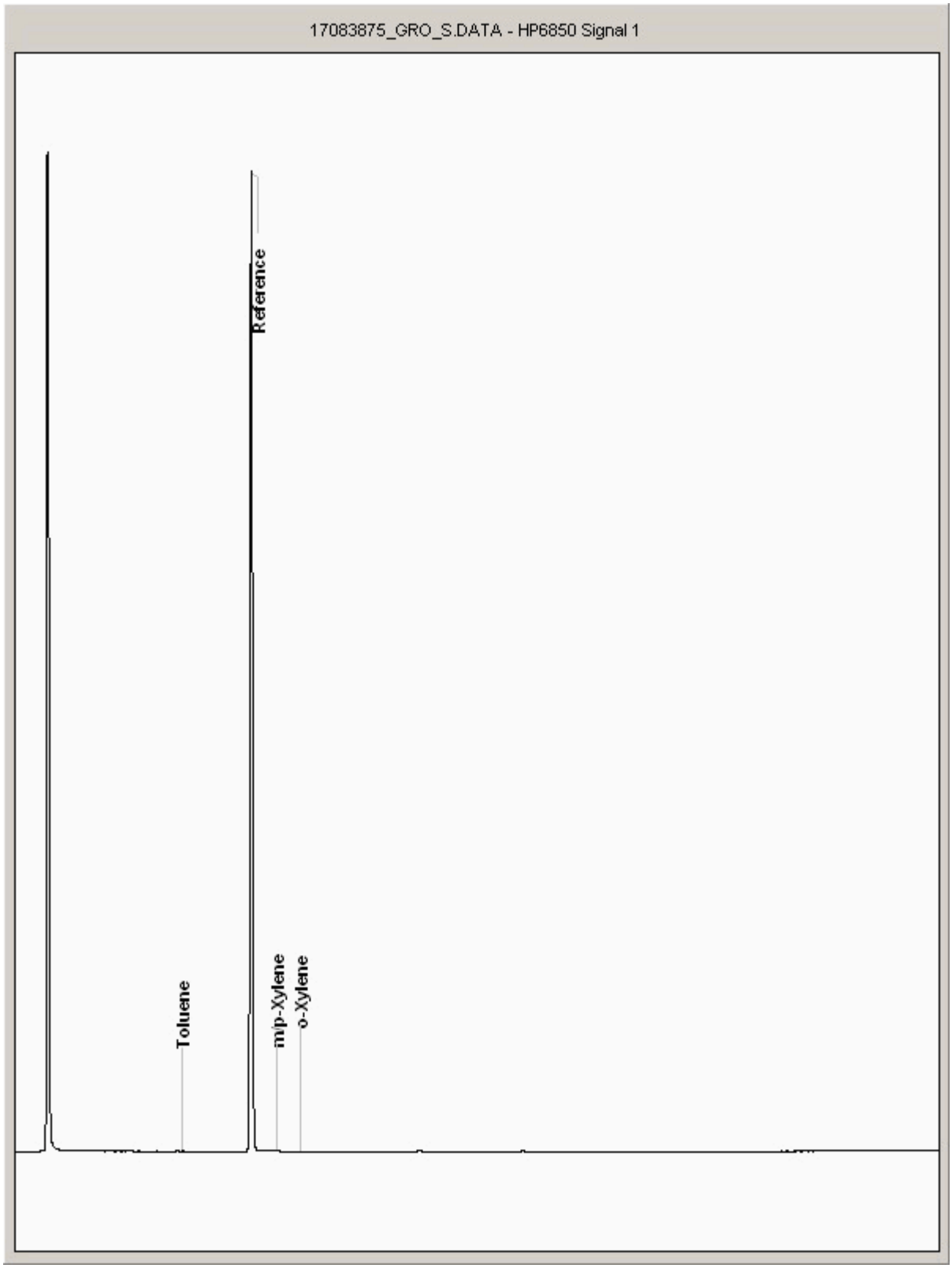
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17083875
Sample ID : TP102

Depth : 0.40 - 0.40



CERTIFICATE OF ANALYSIS

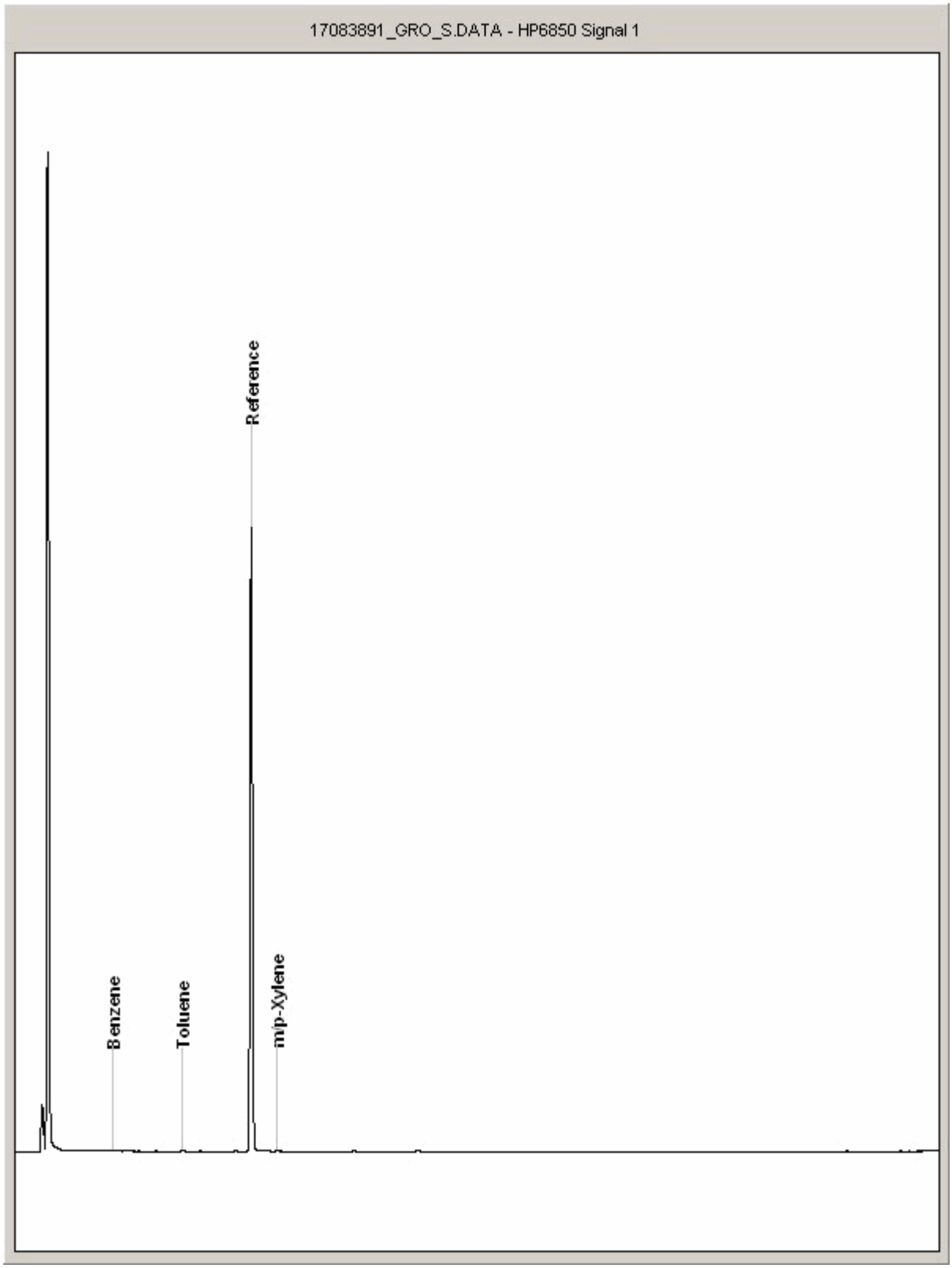
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17083891
Sample ID : TP106

Depth : 1.00 - 1.00



CERTIFICATE OF ANALYSIS

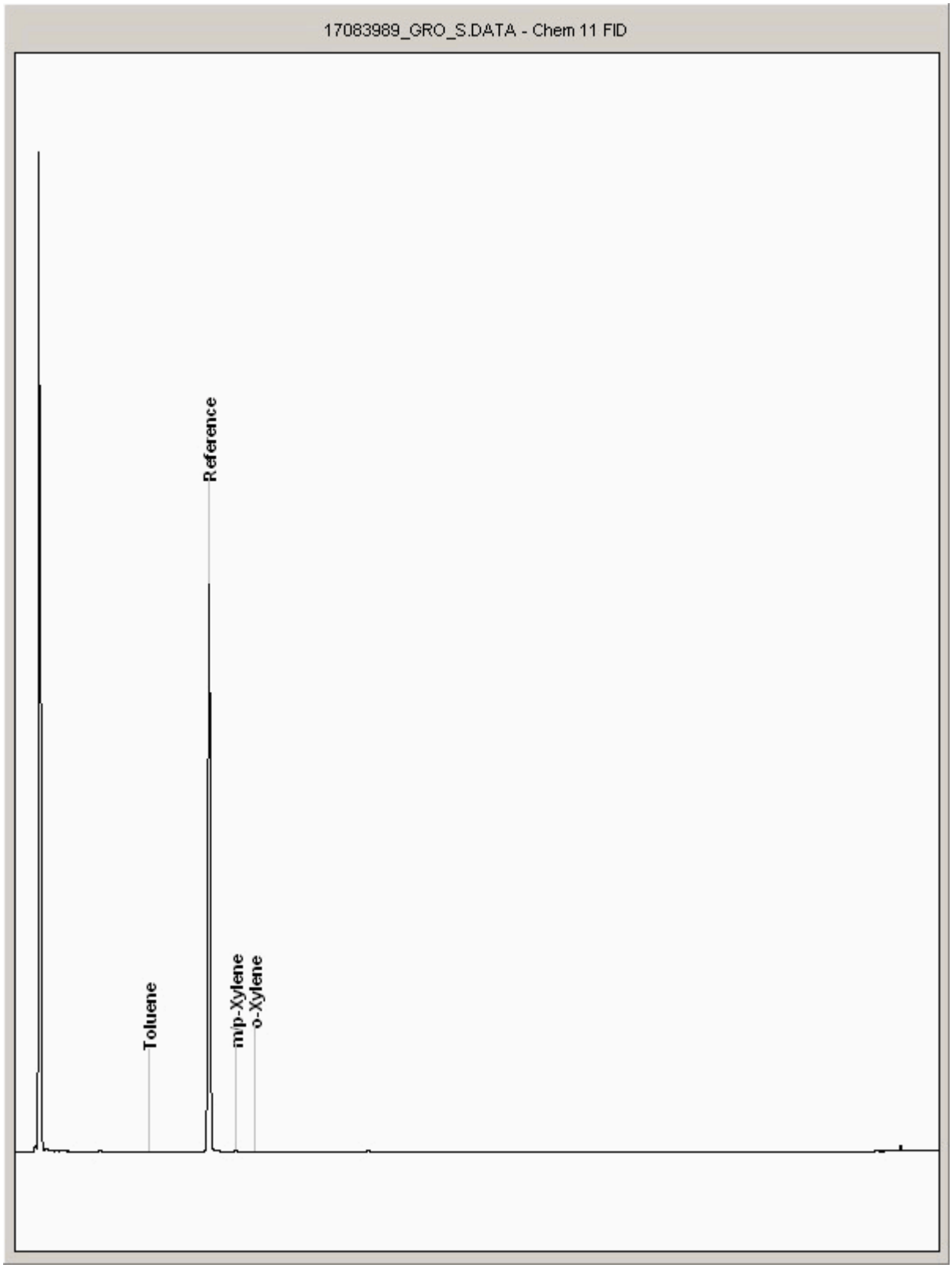
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17083989
Sample ID : BH103

Depth : 0.75 - 0.75



CERTIFICATE OF ANALYSIS

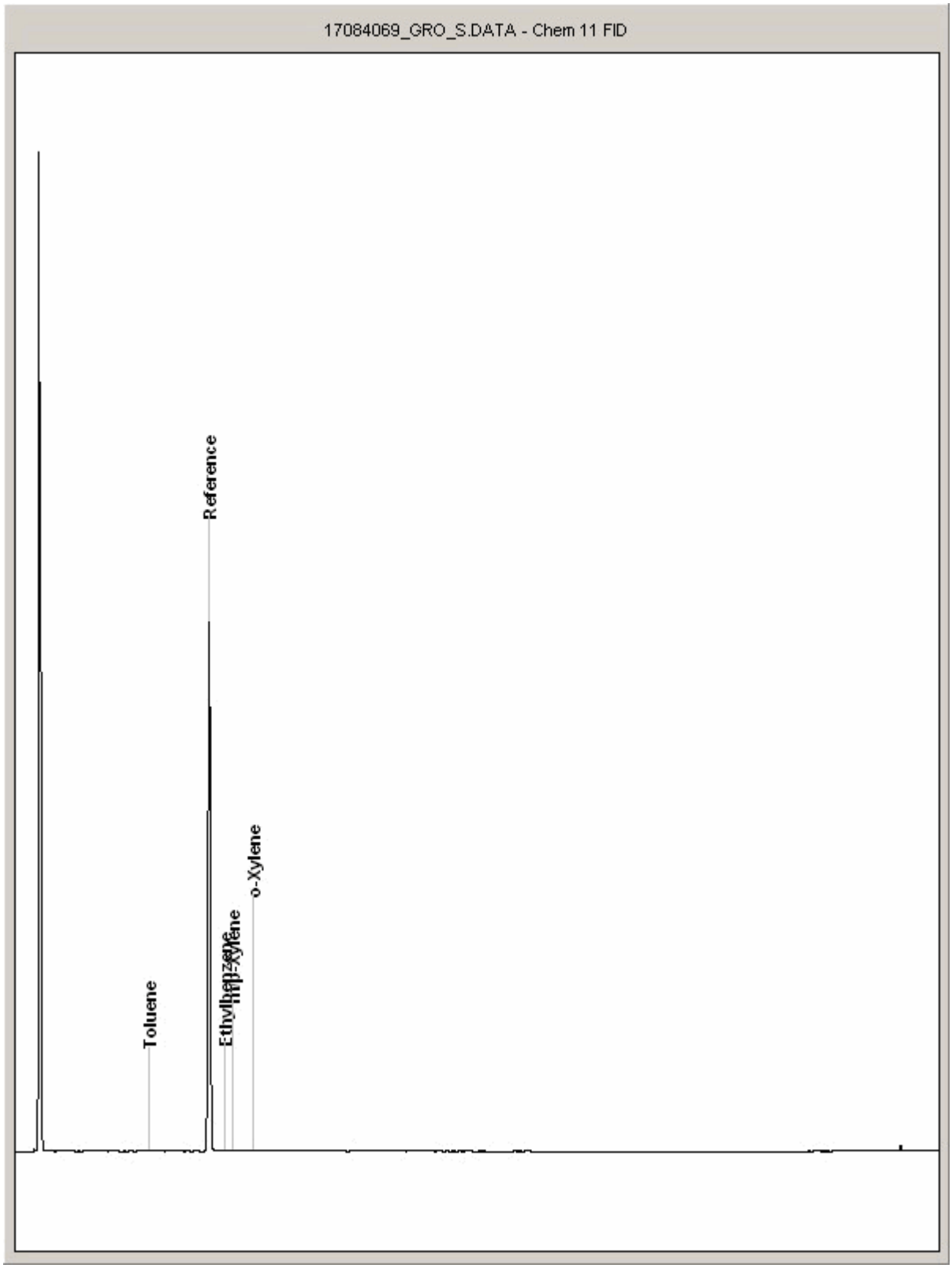
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17084069
Sample ID : BH103

Depth : 0.30 - 0.40



CERTIFICATE OF ANALYSIS

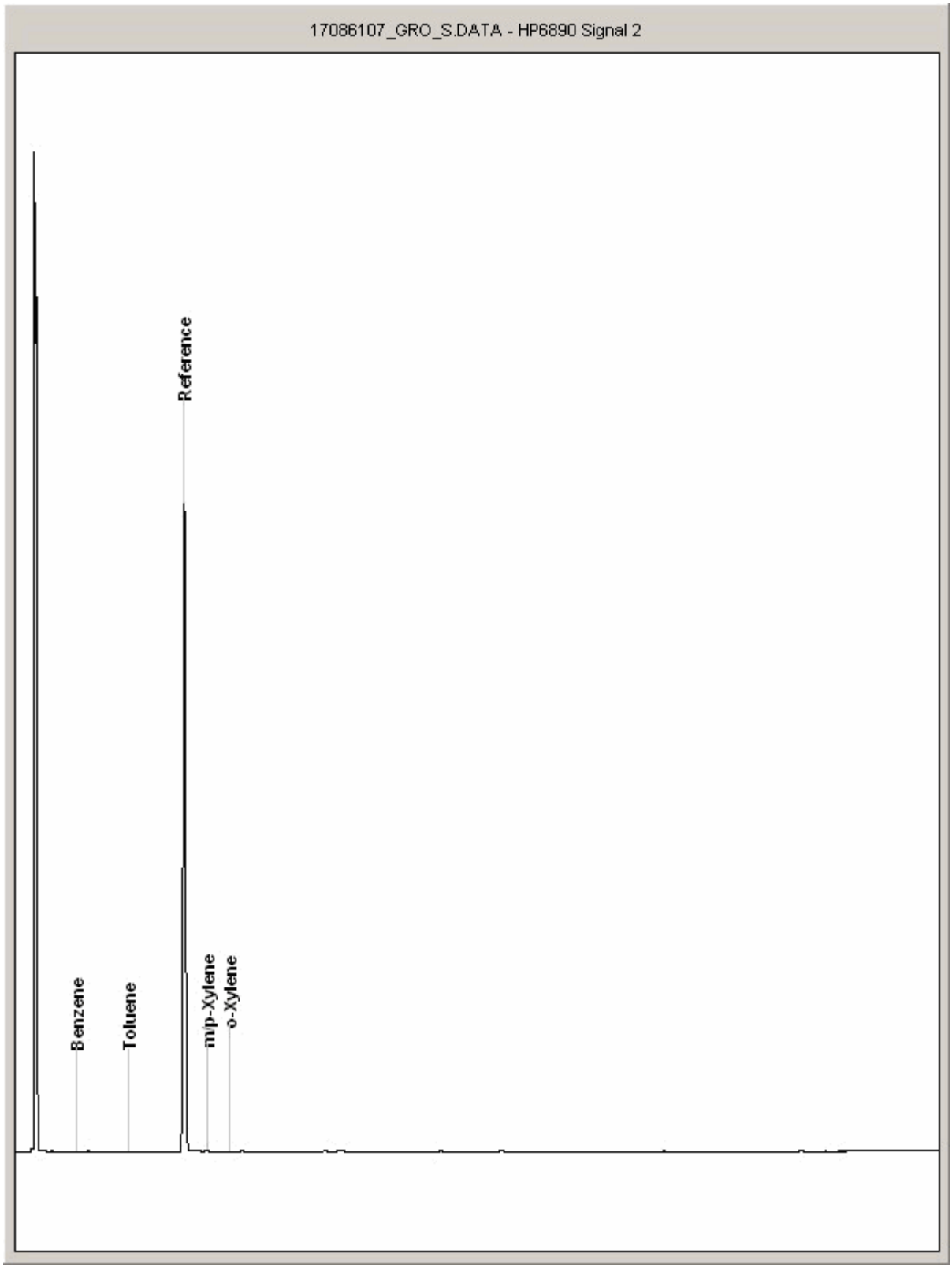
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17086107
Sample ID : HP102

Depth : 0.30 - 0.30



CERTIFICATE OF ANALYSIS

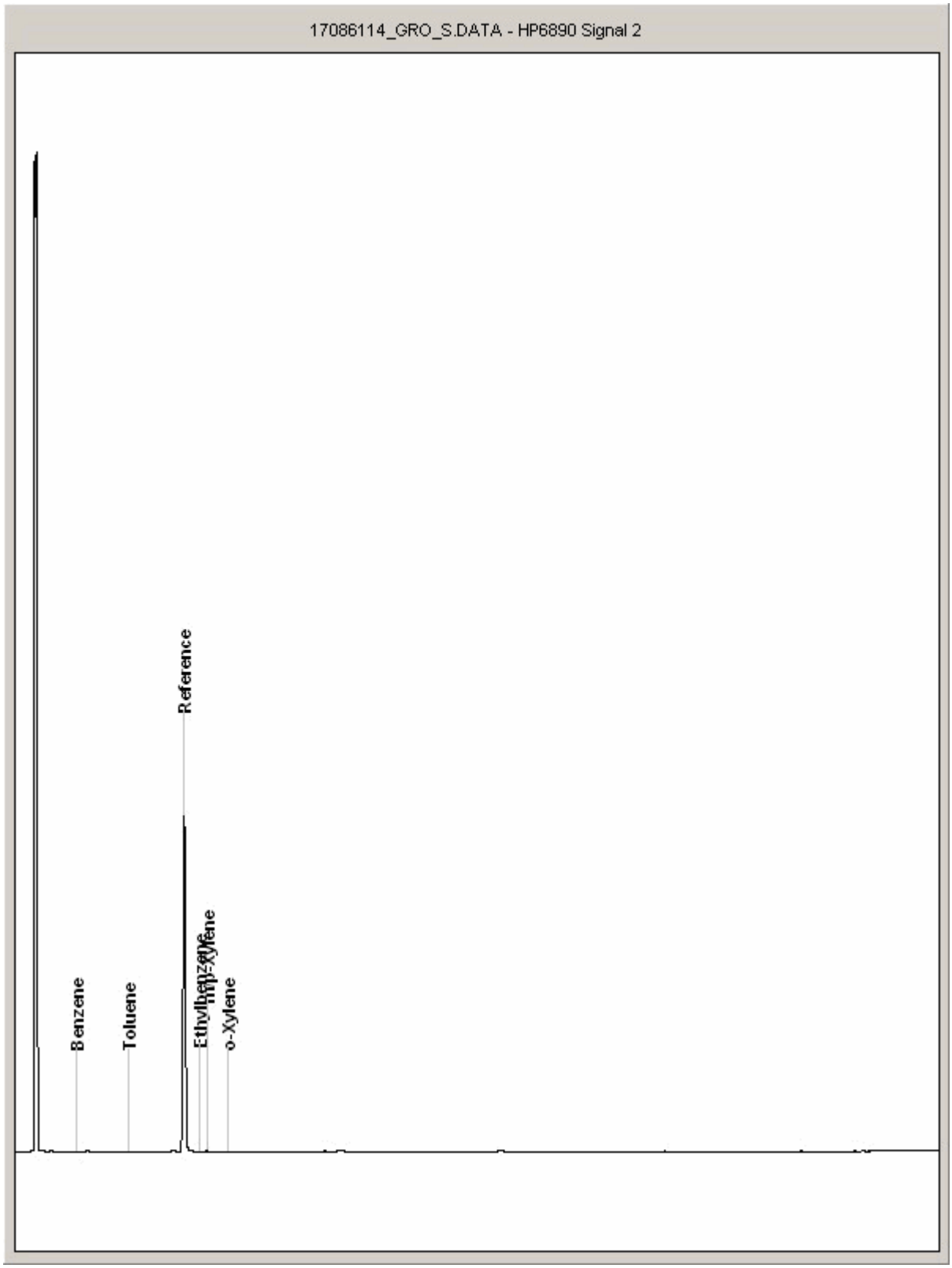
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17086114
Sample ID : HP101

Depth : 0.30 - 0.30



CERTIFICATE OF ANALYSIS

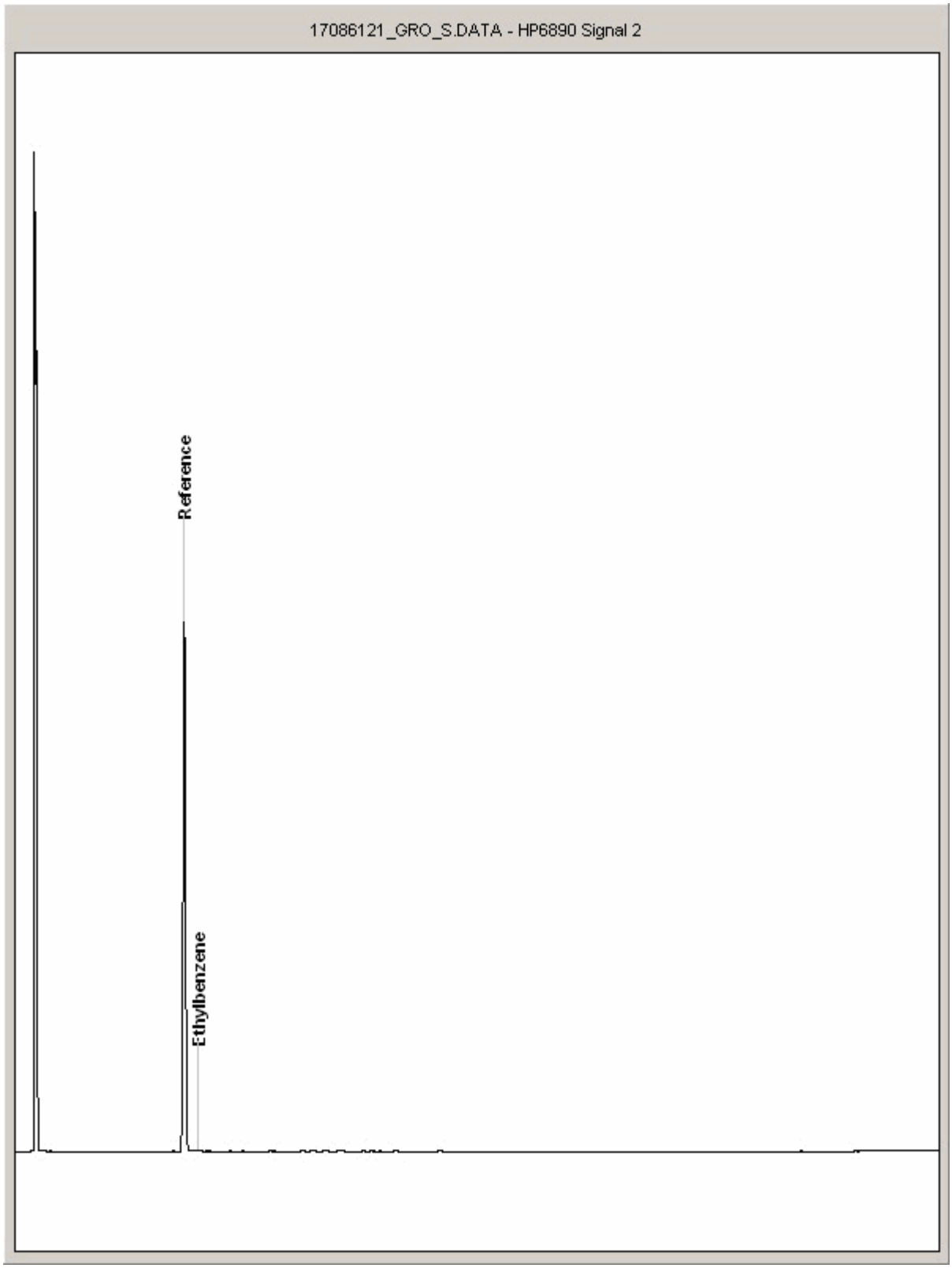
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17086121
Sample ID : HP102

Depth : 0.60 - 0.60

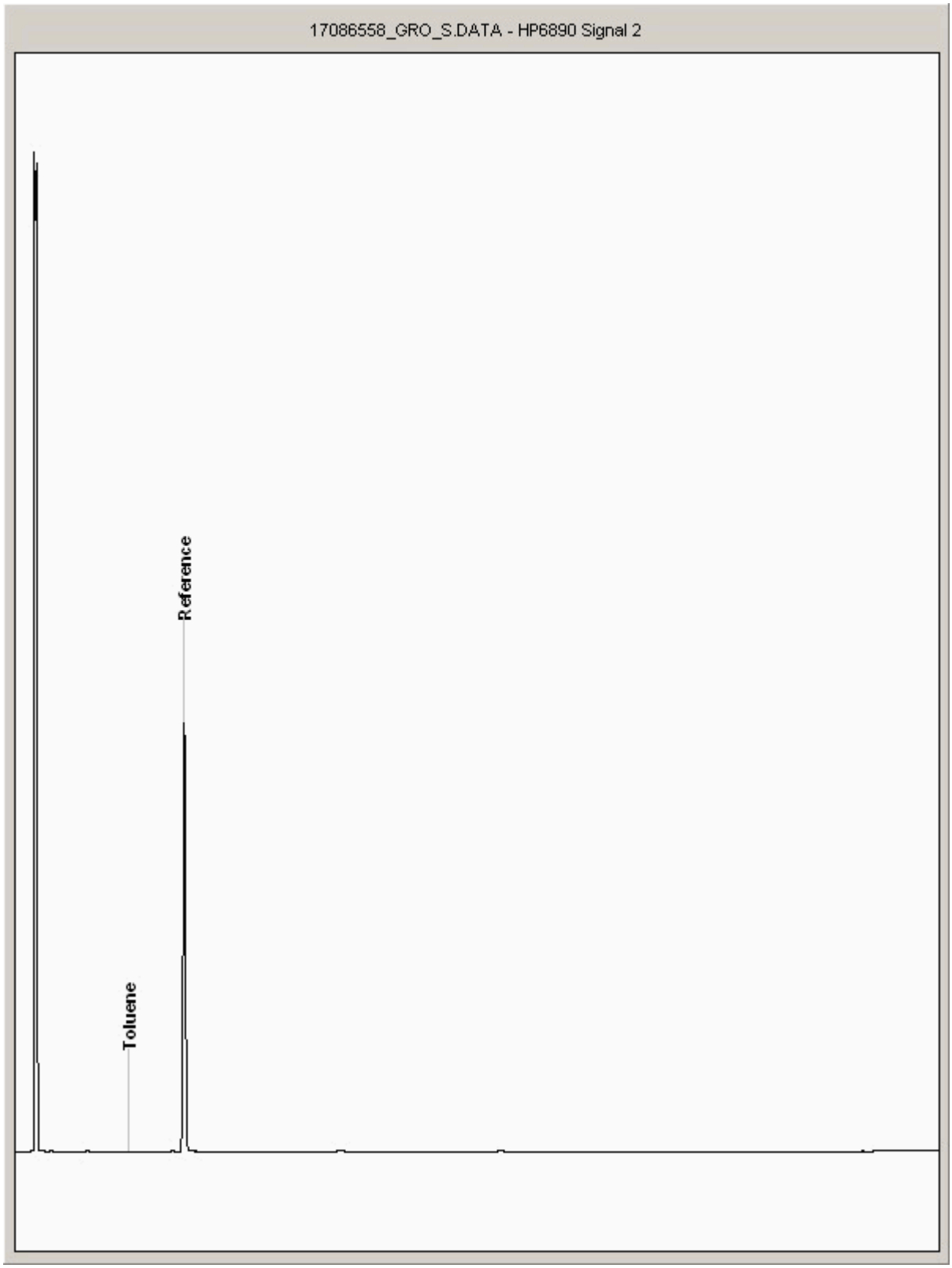


CERTIFICATE OF ANALYSIS

SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 17086558 **Sample ID :** WS103 **Depth :** 0.25 - 0.25



CERTIFICATE OF ANALYSIS

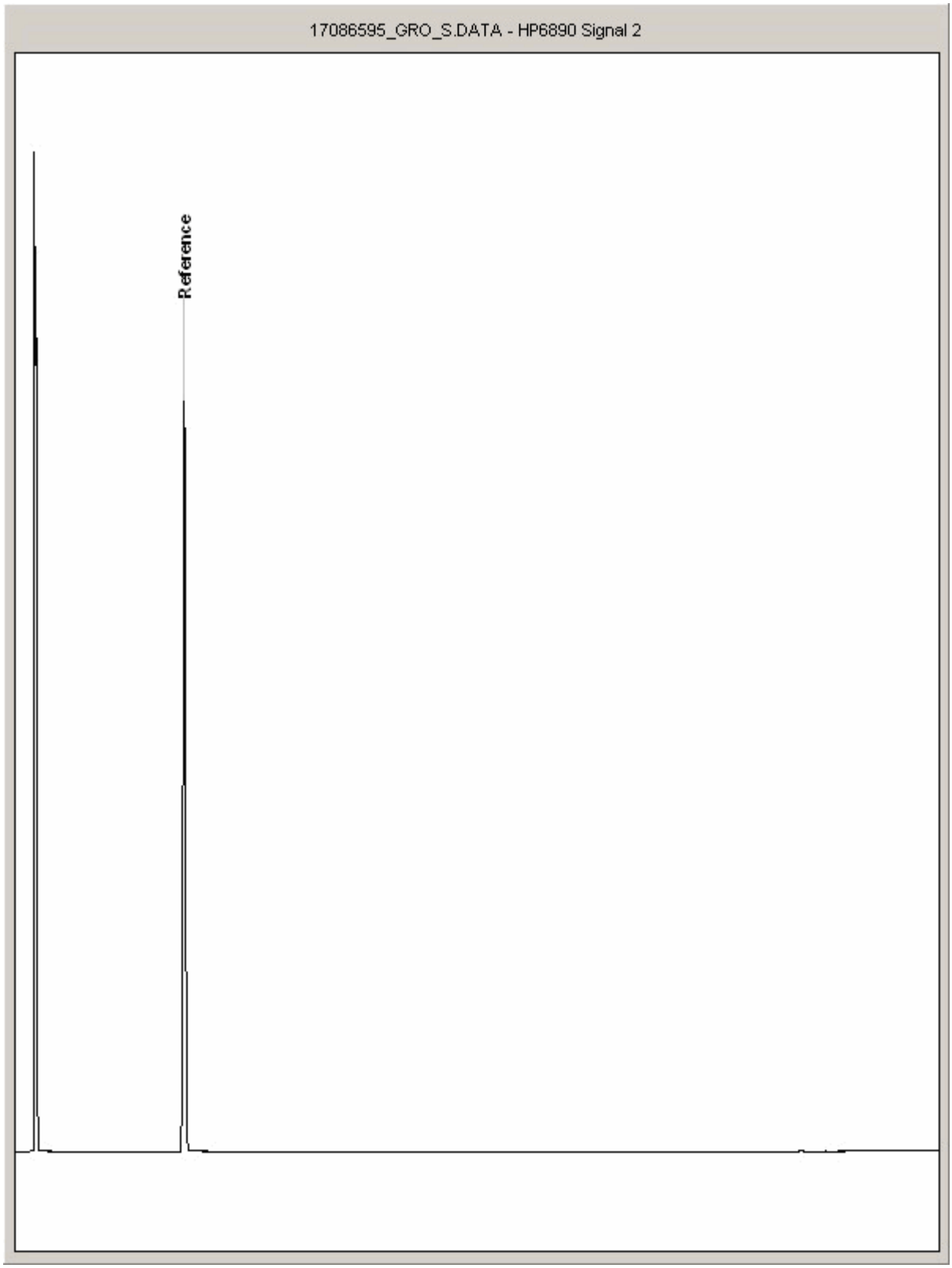
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17086595
Sample ID : WS101

Depth : 0.30 - 0.45



CERTIFICATE OF ANALYSIS

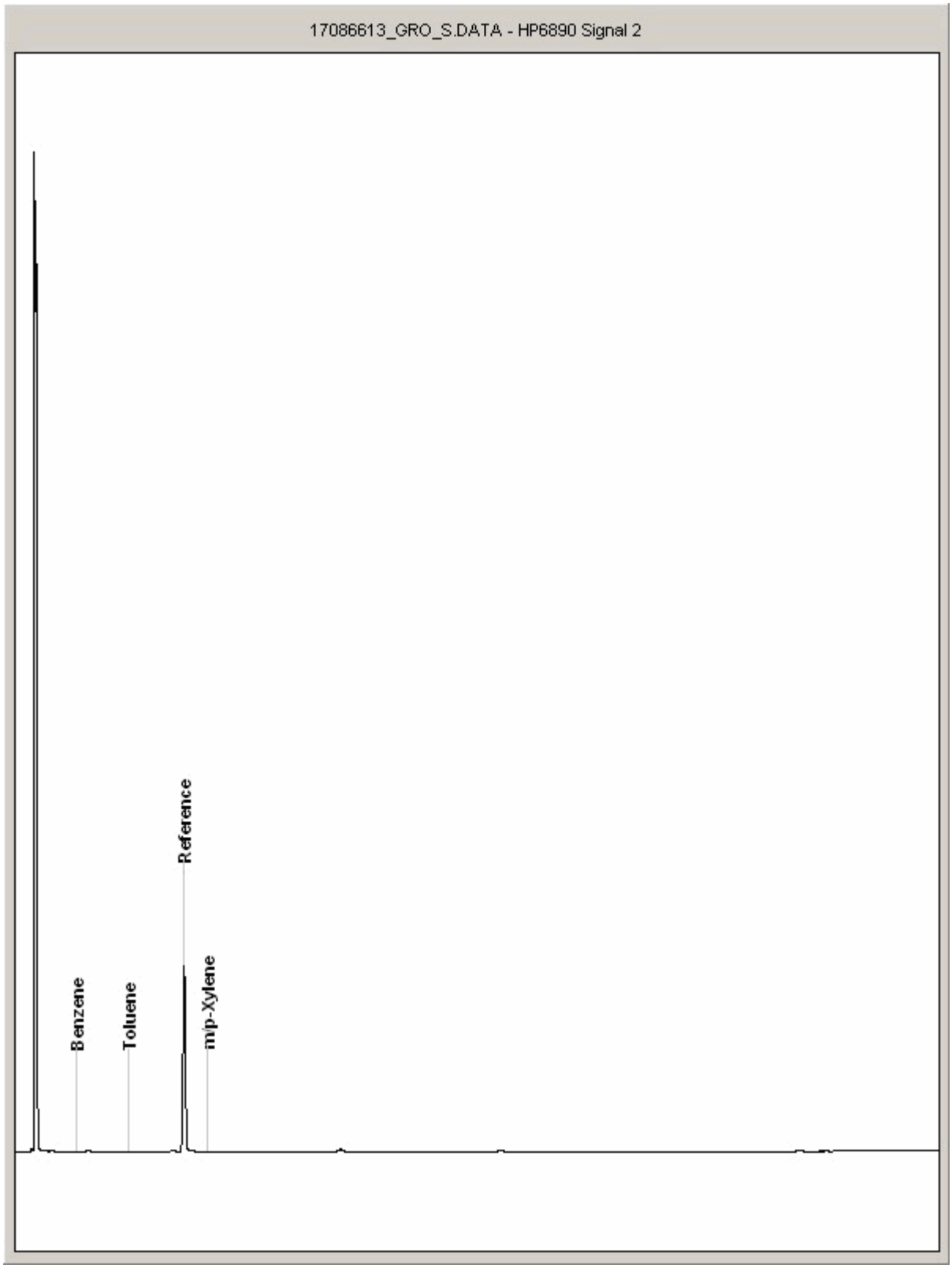
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17086613
Sample ID : WS102

Depth : 0.30 - 0.50



CERTIFICATE OF ANALYSIS

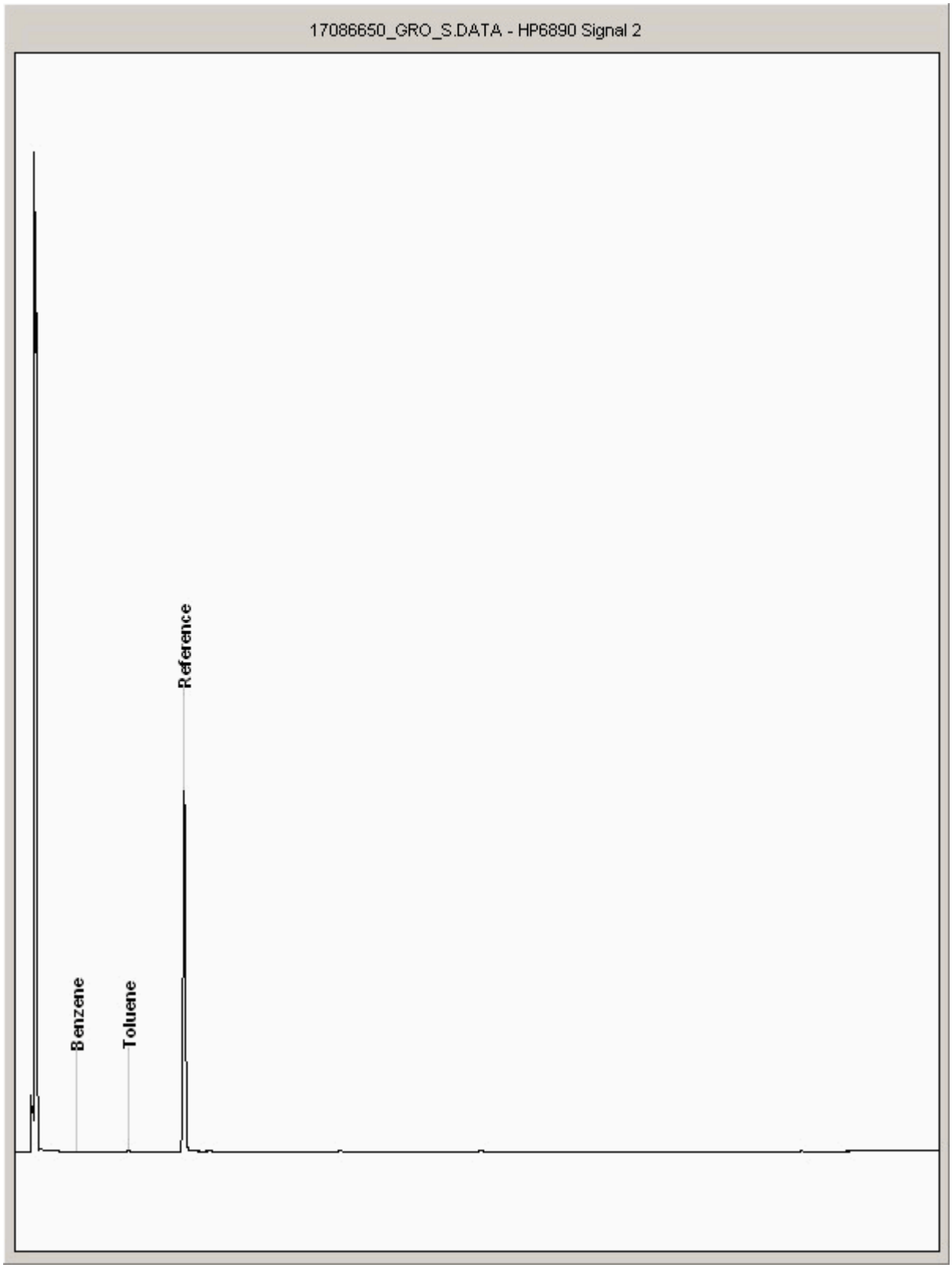
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17086650
Sample ID : WS110

Depth : 1.05 - 1.05



CERTIFICATE OF ANALYSIS

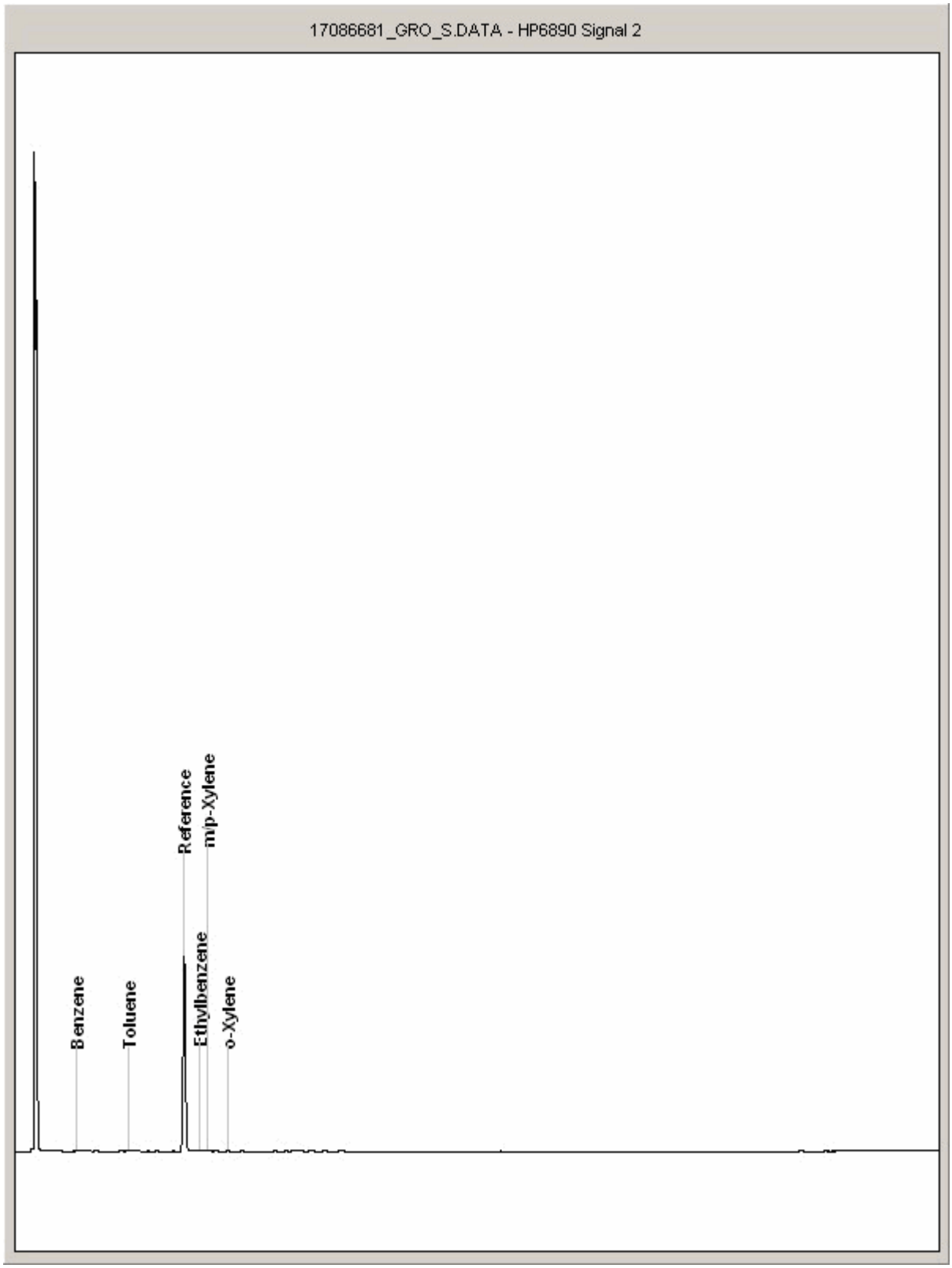
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17086681
Sample ID : BH104

Depth : 0.50 - 0.50



CERTIFICATE OF ANALYSIS

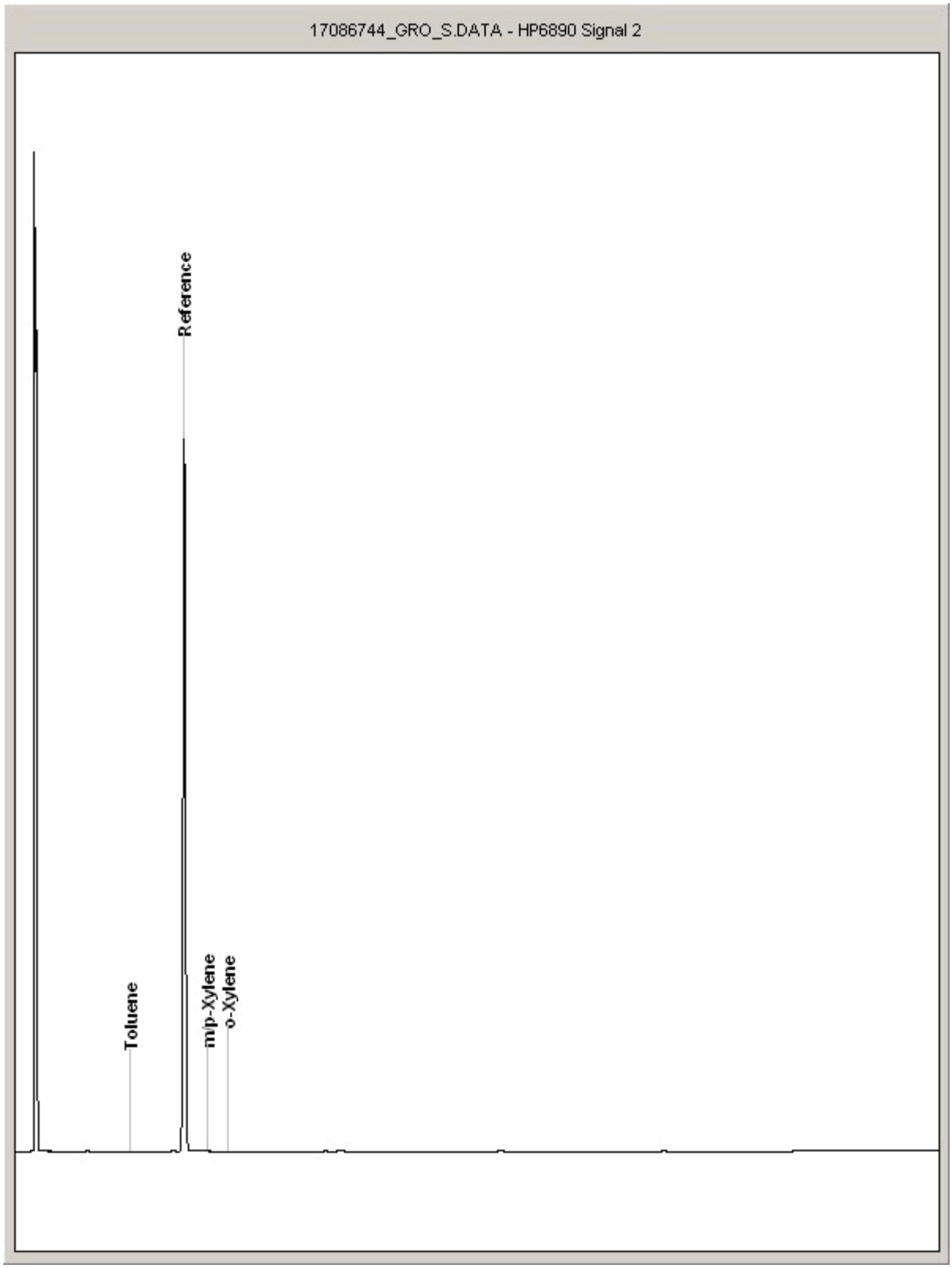
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17086744
Sample ID : BH101

Depth : 0.60 - 0.60



CERTIFICATE OF ANALYSIS

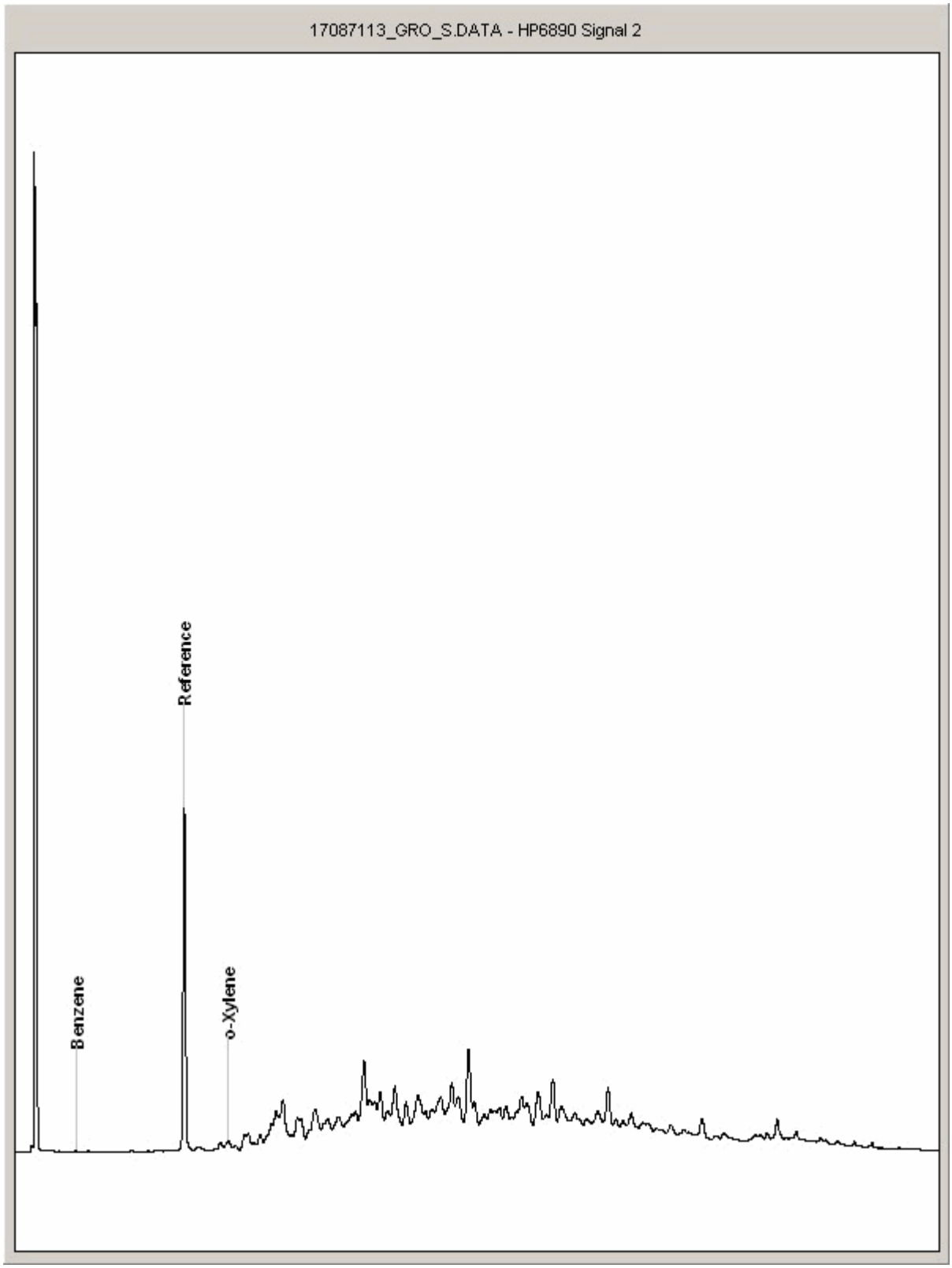
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17087113
Sample ID : TP103

Depth : 0.80 - 0.80



CERTIFICATE OF ANALYSIS

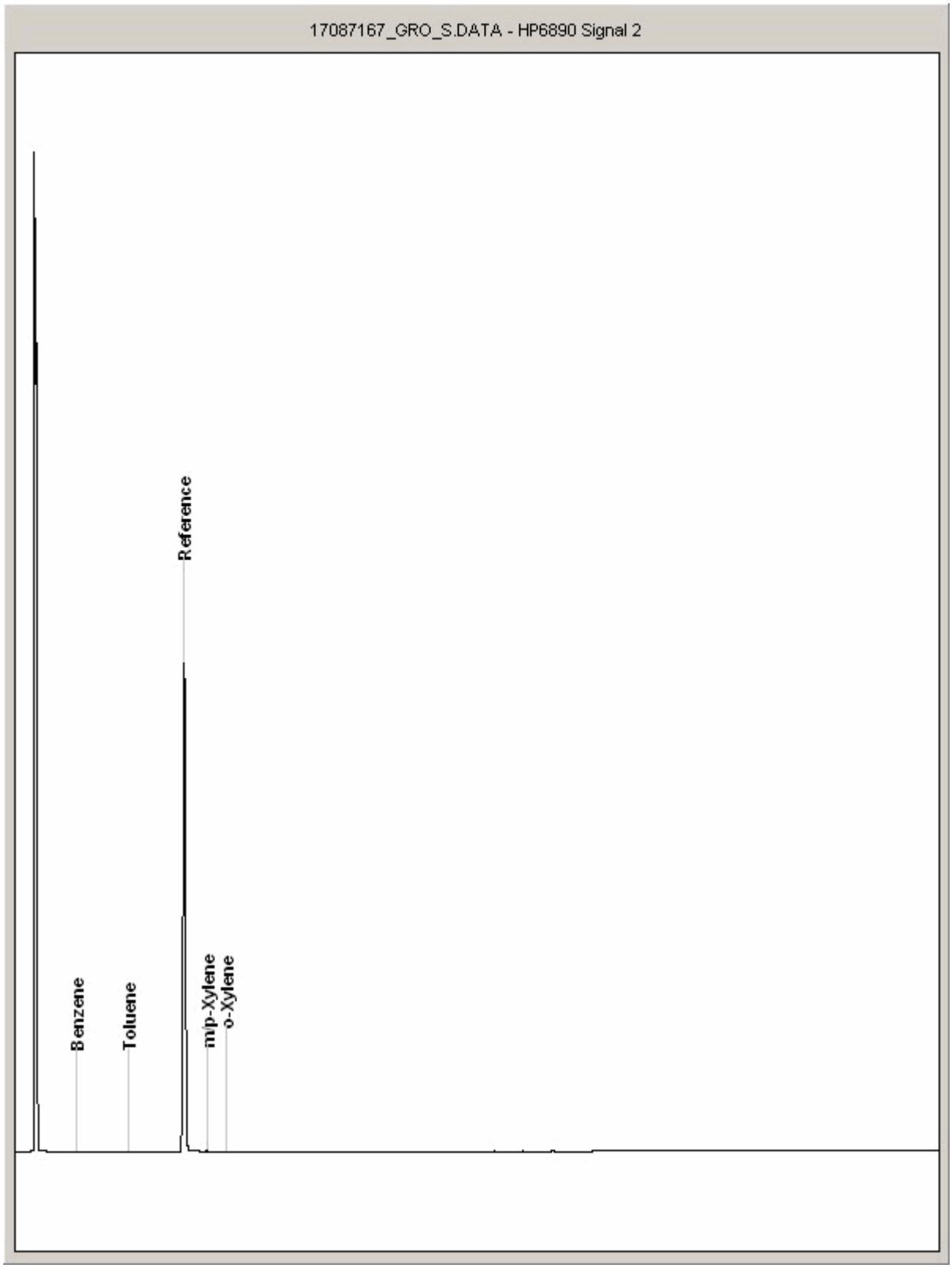
SDG:	180216-85	**Client Reference:**	70020138	**Report Number:**	446420
Location:	Former Interbrew Site, Glo	**Order Number:**	70020138-006	**Superseded Report:**	446021

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 17087167
Sample ID : TP103

Depth : 1.00 - 1.00



Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
[redacted]
Website: www.alsenvironmental.co.uk

WSP PB LBH
WSP PB
4th Floor
6 Devonshire Square
London
EC2M 4YE

Attention: Charlie Orme

CERTIFICATE OF ANALYSIS

Date:	09 March 2018
Customer:	H_WSP_LON
Sample Delivery Group (SDG):	180302-65
Your Reference:	70020138
Location:	Interbrew
Report No:	447700

We received 5 samples on Friday March 02, 2018 and 4 of these samples were scheduled for analysis which was completed on Friday March 09, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

[redacted]

Operations Manager

ALS Life Sciences Limited. Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180302-65	**Client Reference:**	70020138	**Report Number:**	447700
Location:	Interbrew	**Order Number:**	70020136-006	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17149835	BH05	EW	0.00 - 0.00	28/02/2018
17149809	BH101	EW	0.00 - 0.00	28/02/2018
17149824	BH102	EW	0.00 - 0.00	28/02/2018
17149856	NO ID			
17149846	WS10	EW	0.00 - 0.00	28/02/2018

Maximum Sample/Coolbox Temperature (°C) : **0**

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

CERTIFICATE OF ANALYSIS

SDG:	180302-65	**Client Reference:**	70020138	**Report Number:**	447700
Location:	Interbrew	**Order Number:**	70020136-006	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17149835						17149809						17149824						17149846	
Customer Sample Reference			BH05						BH101						BH102						WS10	
AGS Reference			EW						EW						EW						EW	
Depth (m)			0.00 - 0.00						0.00 - 0.00						0.00 - 0.00						0.00 - 0.00	
Container			250ml Amber Gl. PTFE/PE (ALE219)	500ml Plastic (ALE208)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	250ml Amber Gl. PTFE/PE (ALE219)	500ml Plastic (ALE208)	NaOH (ALE245)	Vial (ALE297)	250ml Amber Gl. PTFE/PE (ALE219)	500ml Plastic (ALE208)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	250ml Amber Gl. PTFE/PE (ALE219)	Vial (ALE297)	
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	
Anions by Kone (w)	All	NDPs: 0 Tests: 3		X					X				X							
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 3				X				X					X					
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 3			X				X					X						
EPH CWG (Aliphatic) Filtered GC (W)	All	NDPs: 0 Tests: 4	X					X				X						X		
EPH CWG (Aromatic) Filtered GC (W)	All	NDPs: 0 Tests: 4	X					X				X						X		
GRO by GC-FID (W)	All	NDPs: 0 Tests: 4					X				X					X			X	
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 3		X					X				X							
Mercury Dissolved	All	NDPs: 0 Tests: 3			X				X					X						
PAH in waters by GC-MS (diss.filt)	All	NDPs: 0 Tests: 4	X					X				X						X		
pH Value	All	NDPs: 0 Tests: 3		X					X				X							
TPH CWG Filtered (W)	All	NDPs: 0 Tests: 4	X					X				X						X		

Validated

CERTIFICATE OF ANALYSIS

SDG:	180302-65	**Client Reference:**	70020138	**Report Number:**	447700
Location:	Interbrew	**Order Number:**	70020136-006	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH05	BH101	BH102	WS10		
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00		
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
			Date Sampled	28/02/2018	28/02/2018	28/02/2018	28/02/2018		
			Sample Time	.	.	.	.		
			Date Received	02/03/2018	02/03/2018	02/03/2018	02/03/2018		
			SDG Ref	180302-65	180302-65	180302-65	180302-65		
			Lab Sample No.(s)	17149835	17149809	17149824	17149846		
			AGS Reference	EW	EW	EW	EW		
Arsenic (diss.filt)	<0.5 µg/l	TM152		<0.5 #	0.646 #	1.08 #			
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 #	<0.08 #	<0.08 #			
Chromium (diss.filt)	<1 µg/l	TM152		<1 #	<1 #	2.11 #			
Copper (diss.filt)	<0.3 µg/l	TM152		1.01 #	1.35 #	4.13 #			
Lead (diss.filt)	<0.2 µg/l	TM152		0.31 #	<0.2 #	1.1 #			
Nickel (diss.filt)	<0.4 µg/l	TM152		59.1 #	4.12 #	4.1 #			
Selenium (diss.filt)	<0.5 µg/l	TM152		23.7 #	1.65 #	43.8 #			
Zinc (diss.filt)	<1 µg/l	TM152		7.61 #	<1 #	22.7 #			
Naphthalene (diss.filt)	<0.01 µg/l	TM178		<0.01	<0.01	<0.01	<0.01		
Acenaphthene (diss.filt)	<0.005 µg/l	TM178		<0.005	<0.005	<0.005	<0.005		
Acenaphthylene (diss.filt)	<0.005 µg/l	TM178		<0.005	<0.005	<0.005	<0.005		
Fluoranthene (diss.filt)	<0.005 µg/l	TM178		<0.005	<0.005	<0.005	<0.005		
Anthracene (diss.filt)	<0.005 µg/l	TM178		<0.005	<0.005	<0.005	<0.005		
Phenanthrene (diss.filt)	<0.005 µg/l	TM178		<0.005	0.00572	0.0053	0.00966		
Fluorene (diss.filt)	<0.005 µg/l	TM178		<0.005	<0.005	<0.005	<0.005		
Chrysene (diss.filt)	<0.005 µg/l	TM178		<0.005	<0.005	<0.005	0.0102		
Pyrene (diss.filt)	<0.005 µg/l	TM178		<0.005	<0.005	<0.005	0.032		
Benzo(a)anthracene (diss.filt)	<0.005 µg/l	TM178		<0.005	<0.005	<0.005	<0.005		
Benzo(b)fluoranthene (diss.filt)	<0.005 µg/l	TM178		<0.005	<0.005	<0.005	<0.005		
Benzo(k)fluoranthene (diss.filt)	<0.005 µg/l	TM178		<0.005	<0.005	<0.005	<0.005		
Benzo(a)pyrene (diss.filt)	<0.002 µg/l	TM178		<0.002	<0.002	<0.002	<0.002		
Dibenzo(a,h)anthracene (diss.filt)	<0.005 µg/l	TM178		<0.005	<0.005	<0.005	<0.005		
Benzo(g,h,i)perylene (diss.filt)	<0.005 µg/l	TM178		<0.005	<0.005	<0.005	<0.005		
Indeno(1,2,3-cd)pyrene (diss.filt)	<0.005 µg/l	TM178		<0.005	<0.005	<0.005	<0.005		
PAH Sum of EPA 16 detected (Diss filt)	<0.082 µg/l	TM178		<0.082	<0.082	<0.082	<0.082		
Mercury (diss.filt)	<0.01 µg/l	TM183		<0.01 #	0.164 #	<0.01 #			
Sulphate as %SO4	<0.0002 %	TM184		0.101 #	0.154 #	0.138 #			
Cyanide, Total	<50 µg/l	TM227		<50 #	<50 #	<50 #			
Chromium, Hexavalent	<30 µg/l	TM241		<30 #	<30 #	<30 #			
pH	<1 pH Units	TM256		7.34 #	7.7 #	7.51 #			

Validated

CERTIFICATE OF ANALYSIS

SDG:	180302-65	**Client Reference:**	70020138	**Report Number:**	447700
Location:	Interbrew	**Order Number:**	70020136-006	**Superseded Report:**	

TPH CWG (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH05	BH101	BH102	WS10		
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00		
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
			Date Sampled	28/02/2018	28/02/2018	28/02/2018	28/02/2018		
			Sample Time	.	.	.	.		
			Date Received	02/03/2018	02/03/2018	02/03/2018	02/03/2018		
			SDG Ref	180302-65	180302-65	180302-65	180302-65		
			Lab Sample No.(s)	17149835	17149809	17149824	17149846		
			AGS Reference	EW	EW	EW	EW		
GRO Surrogate % recovery**	%	TM245		90	95	103	93		
GRO >C5-C12	<50 µg/l	TM245		<50 #	<50 #	<50 #	<50 #		
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245		<3	<3	<3	<3		
Benzene	<7 µg/l	TM245		<7	<7	<7	<7		
Toluene	<4 µg/l	TM245		<4	<4	<4	<4		
Ethylbenzene	<5 µg/l	TM245		<5	<5	<5	<5		
m,p-Xylene	<8 µg/l	TM245		<8	<8	<8	<8		
o-Xylene	<3 µg/l	TM245		<3	<3	<3	<3		
Sum of detected Xylenes	<11 µg/l	TM245		<11	<11	<11	<11		
Sum of detected BTEX	<28 µg/l	TM245		<28	<28	<28	<28		
Aliphatics >C5-C6	<10 µg/l	TM245		<10	<10	<10	<10		
Aliphatics >C6-C8	<10 µg/l	TM245		<10	<10	<10	<10		
Aliphatics >C8-C10	<10 µg/l	TM245		<10	<10	<10	<10		
Aliphatics >C10-C12	<10 µg/l	TM245		<10	<10	<10	<10		
Aliphatics >C12-C16 (diss.filt)	<10 µg/l	TM174		<10	<10	<10	<10		
Aliphatics >C16-C21 (diss.filt)	<10 µg/l	TM174		<10	<10	<10	<10		
Aliphatics >C21-C35 (diss.filt)	<10 µg/l	TM174		<10	<10	<10	<10		
Total Aliphatics >C12-C35 (diss.filt)	<10 µg/l	TM174		<10	<10	<10	<10		
Aromatics >EC5-EC7	<10 µg/l	TM245		<10	<10	<10	<10		
Aromatics >EC7-EC8	<10 µg/l	TM245		<10	<10	<10	<10		
Aromatics >EC8-EC10	<10 µg/l	TM245		<10	<10	<10	<10		
Aromatics >EC10-EC12	<10 µg/l	TM245		<10	<10	<10	<10		
Aromatics >EC12-EC16 (diss.filt)	<10 µg/l	TM174		<10	<10	<10	<10		
Aromatics >EC16-EC21 (diss.filt)	<10 µg/l	TM174		<10	<10	<10	15		
Aromatics >EC21-EC35 (diss.filt)	<10 µg/l	TM174		<10	<10	<10	10		
Aromatics >EC16-EC35 (diss.filt)	<10 µg/l	TM174		<10	<10	<10	25		
Total Aromatics >EC12-EC35 (diss.filt)	<10 µg/l	TM174		<10	<10	<10	25		
Total Aliphatics & Aromatics >C5-35 (diss.filt)	<10 µg/l	TM174		<10	<10	<10	49		

CERTIFICATE OF ANALYSIS

SDG:	180302-65	**Client Reference:**	70020138	**Report Number:**	447700
Location:	Interbrew	**Order Number:**	70020136-006	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM245	By GC-FID	Determination of GRO by Headspace in waters
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Validated

CERTIFICATE OF ANALYSIS

SDG:	180302-65	**Client Reference:**	70020138	**Report Number:**	447700
Location:	Interbrew	**Order Number:**	70020136-006	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	17149835	17149809	17149824	17149846
Customer Sample Ref.	BH05	BH101	BH102	WS10
AGS Ref.	EW	EW	EW	EW
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Type	Ground Water	Ground Water	Ground Water	Ground Water
Anions by Kone (w)	09-Mar-2018	09-Mar-2018	09-Mar-2018	
Cyanide Comp/Free/Total/Thiocyanate	08-Mar-2018	08-Mar-2018	08-Mar-2018	
Dissolved Metals by ICP-MS	09-Mar-2018	08-Mar-2018	09-Mar-2018	
EPH CWG (Aliphatic) Filtered GC (W)	06-Mar-2018	06-Mar-2018	09-Mar-2018	09-Mar-2018
EPH CWG (Aromatic) Filtered GC (W)	06-Mar-2018	06-Mar-2018	09-Mar-2018	09-Mar-2018
GRO by GC-FID (W)	06-Mar-2018	06-Mar-2018	06-Mar-2018	06-Mar-2018
Hexavalent Chromium (w)	07-Mar-2018	07-Mar-2018	07-Mar-2018	
Mercury Dissolved	06-Mar-2018	06-Mar-2018	06-Mar-2018	
PAH in waters by GC-MS (diss.filt)	06-Mar-2018	06-Mar-2018	09-Mar-2018	09-Mar-2018
pH Value	07-Mar-2018	07-Mar-2018	07-Mar-2018	
TPH CWG Filtered (W)	06-Mar-2018	06-Mar-2018	09-Mar-2018	09-Mar-2018

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

ALcontrol Laboratories

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Website: www.alcontrol.com

WSP PB LBH
WSP PB
4th Floor
6 Devonshire Square
London
EC2M 4YE
Attention : George Baggot

CERTIFICATE OF ANALYSIS

Date:	13/06/2016 16:55		
Customer:	H_WSP_LON		
Sample Delivery Group (SDG):	160604-60	**Report No.:**	364748
Your Reference:	70020138		
Location:	Tradeteam Site (DHL) Gloucester		

We received 20 samples on Saturday June 04, 2016 and 13 of these samples were scheduled for analysis which was then completed on Monday June 13, 2016. Accredited laboratory tests are defined in the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with data sections alone.

All chemical testing (unless subcontracting) is performed at ALcontrol Hawarden Laboratories.

Approved By:

[redacted]

Operations Manager

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SOLID

Component	LOD	Units	Customer Sample Ref.	BH01	BH01	BH04	BH05	BH05	WS03	WS03	WS05	WS06
			Depth (m)	0.60 - 0.60	1.20 - 1.20	0.70 - 0.70	0.85 - 0.85	1.20 - 1.20	0.80 - 0.80	1.20 - 1.20	0.65 - 0.65	0.60 - 0.60
			Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
			Date Sampled	03/06/2016	03/06/2016	03/06/2016	03/06/2016	03/06/2016	03/06/2016	03/06/2016	03/06/2016	03/06/2016
			Date Received	04/06/2016 15:37	04/06/2016 15:37	04/06/2016 15:37	04/06/2016 15:37	04/06/2016 15:37	04/06/2016 15:37	04/06/2016 15:37	04/06/2016 15:37	04/06/2016 15:37
			SDG Ref	160604-60	160604-60	160604-60	160604-60	160604-60	160604-60	160604-60	160604-60	160604-60
			Lab Sample No.(s)	13540987	13541088	13541121	13541150	13541166	13541036	13541045	13541020	13541058
			AGS Reference	ES	ES	ES	ES	ES	ES	ES	ES	ES
			Method									
MISC												
Moisture Content Ratio (% of as received sample)		%	PM024	18	14	17	16	17	15	23	13	8.5
Date of Analysis		-	TM048	06/09/2016		06/09/2016	06/09/2016		06/09/2016		06/09/2016	06/09/2016
Analysed By		-	TM048	Lauren Sargeant		Kevin Bowron	Lauren Sargeant		Lauren Sargeant		Rebecca Rawlings	Lauren Sargeant
Comments		-	TM048	0		0	0		0		0	0
Chrysotile (White) Asbestos		- *	TM048	Not Detected		Not Detected	Not Detected		Not Detected		Not Detected	Not Detected
Amosite (Brown) Asbestos		- *	TM048	Not Detected		Not Detected	Not Detected		Not Detected		Not Detected	Not Detected
Crocidolite (Blue) Asbestos		- *	TM048	Not Detected		Not Detected	Not Detected		Not Detected		Not Detected	Not Detected
Fibrous Anthophyllite		- *	TM048	Not Detected		Not Detected	Not Detected		Not Detected		Not Detected	Not Detected
Fibrous Tremolite		- *	TM048	Not Detected		Not Detected	Not Detected		Not Detected		Not Detected	Not Detected
Fibrous Actinolite		- *	TM048	Not Detected		Not Detected	Not Detected		Not Detected		Not Detected	Not Detected
Non-Asbestos Fibre		-	TM048	Not Detected		Detected	Not Detected		Not Detected		Not Detected	Not Detected
pH	1	pH Units M	TM133	7.83	7.9	8.1	8.82	8.26	8.18	8.21	9.2	9.84
Chromium, Hexavalent	<0.6	mg/kg *	TM151	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6		<0.6	<0.6
Cyanide, Total	<1	mg/kg M	TM153	<1	<1	<1	<1	<1	<1		<1	<1
Arsenic	<0.6	mg/kg M	TM181	16	20.4	16.1	10.5	11.9	14.6		17.3 {&}	6.44
Cadmium	<0.02	mg/kg M	TM181	0.873	1	0.882	0.892	0.403	0.463		0.853	0.404
Chromium	<0.9	mg/kg M	TM181	21.1	25	28.2	19.8	20.8	17.8		13.6	9.01
Copper	<1.4	mg/kg M	TM181	46.4	61.3	60.2	14.8	17.5	31		18.3 {&}	4.76
Lead	<0.7	mg/kg M	TM181	79.4	36.9	73.3	27.2	11.2	17.9		13300 {&}	13.4
Mercury	<0.14	mg/kg M	TM181	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14		<0.14	<0.14
Nickel	<0.2	mg/kg M	TM181	22.7	44.4	27.7	24.2	27.1	27.4		14.4	5.18
Selenium	<1	mg/kg *	TM181	<1	<1	<1	<1	<1	<1		<1	<1
Zinc	<1.9	mg/kg M	TM181	165	209	144	88.7	64.4	73.5		132 {&}	63.4
Water Soluble Sulphate as SO4 2:1 Extract	<0.004	g/l M	TM243	<0.004		0.0117	0.113	0.432		1.9	0.0397	0.107
Soil Organic Matter (SOM)	<0.35	% *	TM132		1.51		0.59	1.03			2.16	0.833
PAH by GCMS												
Naphthalene-d8 % recovery**		%	TM218	107	91.4	109	108	111	111		106	113
Acenaphthene-d10 % recovery**		%	TM218	100	92.3	102	101	102	105		99	107
Phenanthrene-d10 % recovery**		%	TM218	100	93.8	102	102	97.7	103		99.7	108
Chrysene-d12 % recovery**		%	TM218	99.3	79.5	98.3	101	91.5	99.5		96	105
Perylene-d12 % recovery**		%	TM218	98	78.4	96.7	99.8	80.7	98.8		89.8	102
Naphthalene	<0.009	mg/kg M	TM218	0.0429	<0.009	0.0225	<0.009	<0.009	0.0245		0.0124	0.0554
Acenaphthylene	<0.012	mg/kg M	TM218	0.0496	<0.012	<0.012	<0.012	<0.012	<0.012		<0.012	<0.012
Acenaphthene	<0.008	mg/kg M	TM218	0.0118	<0.008	<0.008	<0.008	<0.008	<0.008		<0.008	0.026
Fluorene	<0.01	mg/kg M	TM218	0.0226	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01
Phenanthrene	<0.015	mg/kg M	TM218	0.332	0.13	0.111	<0.015	<0.015	0.0671		0.0373	0.142
Anthracene	<0.016	mg/kg M	TM218	0.0846	0.0233	<0.016	<0.016	<0.016	0.0284		<0.016	0.0312
Fluoranthene	<0.017	mg/kg M	TM218	0.714	0.234	0.227	0.0263	<0.017	0.22		0.0835	0.267
Pyrene	<0.015	mg/kg M	TM218	0.597	0.19	0.185	0.0243	<0.015	0.224		0.0741	0.234
Benz(a)anthracene	<0.014	mg/kg M	TM218	0.319	0.116	0.0983	<0.014	<0.014	0.126		0.0482	0.103
Chrysene	<0.01	mg/kg M	TM218	0.402	0.0887	0.119	<0.01	<0.01	0.115		0.0427	0.102
Benzo(b)fluoranthene	<0.015	mg/kg M	TM218	0.63	0.109	0.198	<0.015	<0.015	0.212		0.0672	0.123
Benzo(k)fluoranthene	<0.014	mg/kg M	TM218	0.232	0.0435	0.0648	<0.014	<0.014	0.0752		0.0252	0.0519
Benzo(a)pyrene	<0.015	mg/kg M	TM218	0.41	0.0794	0.114	<0.015	<0.015	0.164		0.0411	0.122
Indeno(1,2,3-cd)pyrene	<0.018	mg/kg M	TM218	0.289	0.044	0.086	<0.018	<0.018	0.112		0.0308	0.0828
Dibenzo(a,h)anthracene	<0.023	mg/kg M	TM218	0.0882	<0.023	<0.023	<0.023	<0.023	0.0283		<0.023	<0.023
Benzo(g,h,i)perylene	<0.024	mg/kg M	TM218	0.389	0.0548	0.12	<0.024	<0.024	0.156		0.0446	0.121
PAH, Total Detected USEPA 16	<0.118	mg/kg	TM218	4.61	1.11	1.34	<0.118	<0.118	1.55		0.507	1.46
TPH CWG (S)												
GRO Surrogate % recovery**		%	TM089	53	119	66	63	73	82		81	83
GRO TOT (Moisture Corrected)	<0.044	mg/kg M	TM089	<0.044	<0.044	<0.044	<0.044	<0.044	1.2		<0.044	<0.044
Aliphatics >C5-C6	<0.01	mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01
Aliphatics >C6-C8	<0.01	mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01
Aliphatics >C8-C10	<0.01	mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	0.405		<0.01	<0.01
Aliphatics >C10-C12	<0.01	mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	0.308		<0.01	<0.01
Aliphatics >C12-C16	<0.1	mg/kg	TM173	<0.1	<0.1	<0.1	0.25	0.284	0.198		<0.1	1.24
Aliphatics >C16-C21	<0.1	mg/kg	TM173	0.632	0.443	<0.1	<0.1	<0.1	<0.1		0.892	2.61

SOLID

			Customer Sample Ref.	BH01	BH01	BH04	BH05	BH05	WS03	WS03	WS05	WS06
			Depth (m)	0.60 - 0.60	1.20 - 1.20	0.70 - 0.70	0.85 - 0.85	1.20 - 1.20	0.80 - 0.80	1.20 - 1.20	0.65 - 0.65	0.60 - 0.60
			Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
			Date Sampled	03/06/2016	03/06/2016	03/06/2016	03/06/2016	03/06/2016	03/06/2016	03/06/2016	03/06/2016	03/06/2016
			Date Received	04/06/2016 15:37	04/06/2016 15:37	04/06/2016 15:37	04/06/2016 15:37	04/06/2016 15:37	04/06/2016 15:37	04/06/2016 15:37	04/06/2016 15:37	04/06/2016 15:37
			SDG Ref	160604-60	160604-60	160604-60	160604-60	160604-60	160604-60	160604-60	160604-60	160604-60
			Lab Sample No.(s)	13540987	13541088	13541121	13541150	13541166	13541036	13541045	13541020	13541058
			AGS Reference	ES	ES	ES	ES	ES	ES	ES	ES	ES
Component	LOD	Units	Method									
Aliphatics >C21-C35	<0.1	mg/kg	TM173	8.15	13.2	3.57	3.12	<0.1	5.98		27.2	14.1
Aliphatics >C35-C44	<0.1	mg/kg	TM173	0.844	6.75	<0.1	<0.1	<0.1	<0.1		25.1	18.3
Total Aliphatics >C12-C44	<0.1	mg/kg	TM173	9.62	20.4	3.57	3.37	0.284	6.18		53.2	36.2
Aromatics >EC5-EC7	<0.01	mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01
Aromatics >EC7-EC8	<0.01	mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01
Aromatics >EC8-EC10	<0.01	mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	0.27		<0.01	<0.01
Aromatics >EC10-EC12	<0.01	mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	0.205		<0.01	<0.01
Aromatics >EC12-EC16	<0.1	mg/kg	TM173	0.332	<0.1	<0.1	<0.1	0.183	<0.1		<0.1	0.579
Aromatics >EC16-EC21	<0.1	mg/kg	TM173	7.05	2.71	1.15	<0.1	<0.1	1.34		0.802	2.7
Aromatics >EC21-EC35	<0.1	mg/kg	TM173	40.9	24.8	15	1.7	0.606	8.19		42.2	12.8
Aromatics >EC35-EC44	<0.1	mg/kg	TM173	12.2	11.2	3.95	0.653	<0.1	1.5		37.7	17.6
Aromatics >EC40-EC44	<0.1	mg/kg	TM173	4.7	4.38	1.34	<0.1	<0.1	<0.1		16.5	8.46
Total Aromatics >EC12-EC44	<0.1	mg/kg	TM173	60.5	38.7	20.1	2.35	0.789	11		80.6	33.7
Total Aliphatics & Aromatics >C5-C44	<0.1	mg/kg	TM173	70.1	59.1	23.6	5.73	1.07	18.4		134	69.9
Aromatics >EC16-EC35	<0.1	mg/kg	TM173	47.9	27.5	16.1	1.7	0.606	9.53		43	15.5
VOC MS (S)												
Methyl Tertiary Butyl Ether	<0.01	mg/kg M	TM116	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01
Benzene	<0.009	mg/kg M	TM116	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009		<0.009	<0.009
Toluene	<0.007	mg/kg M	TM116	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007		<0.007	<0.007
Ethylbenzene	<0.004	mg/kg M	TM116	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004		<0.004	<0.004
p/m-Xylene	<0.01	mg/kg *	TM116	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01
o-Xylene	<0.01	mg/kg M	TM116	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01
Tert-amyl methyl ether	<0.01	mg/kg *	TM116	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	<0.01

SOLID

Component	LOD	Units	WS06	WS07	WS08	WS12	
			1.30 - 1.30	0.70 - 0.70	0.30 - 0.30	0.60 - 0.60	
			SOLID	SOLID	SOLID	SOLID	
			03/06/2016	03/06/2016	03/06/2016	03/06/2016	
			04/06/2016 15:37	04/06/2016 15:37	04/06/2016 15:37	04/06/2016 15:37	
			160604-60	160604-60	160604-60	160604-60	
			13541068	13541004	13541080	13541200	
			ES	ES	ES	ES	
MISC							
Moisture Content Ratio (% of as received sample)		%	14	18	6.3	12	
Date of Analysis		-		06/09/2016	06/09/2016	06/09/2016	
Analysed By		-		Lauren Sargeant	Lauren Sargeant	Rebecca Rawlings	
Comments		-		0	0	0	
Chrysotile (White) Asbestos		- *		Not Detected	Not Detected	Not Detected	
Amosite (Brown) Asbestos		- *		Not Detected	Not Detected	Not Detected	
Crocidolite (Blue) Asbestos		- *		Not Detected	Not Detected	Not Detected	
Fibrous Anthophyllite		- *		Not Detected	Not Detected	Not Detected	
Fibrous Tremolite		- *		Not Detected	Not Detected	Not Detected	
Fibrous Actinolite		- *		Not Detected	Not Detected	Not Detected	
Non-Asbestos Fibre		-		Not Detected	Not Detected	Not Detected	
pH	1	pH Units M	8.27	8.42	11.5	9.04	
Chromium, Hexavalent	<0.6	mg/kg *	<0.6	<0.6	<0.6	<0.6	
Cyanide, Total	<1	mg/kg M	<1	<1	<1	<1	
Arsenic	<0.6	mg/kg M	10.5	28.8	2.3	16.9	
Cadmium	<0.02	mg/kg M	0.497	0.86	0.15	0.651	
Chromium	<0.9	mg/kg M	24.6	25.6	8.35	13.8	
Copper	<1.4	mg/kg M	19.1	31.4	4.17	12.7	
Lead	<0.7	mg/kg M	12.9	20.1	<0.7	724	
Mercury	<0.14	mg/kg M	<0.14	<0.14	<0.14	<0.14	
Nickel	<0.2	mg/kg M	25.8	76.3	2.6	19	
Selenium	<1	mg/kg *	<1	<10	<1	<1	
Zinc	<1.9	mg/kg M	68.5	56.4	7.26	53.9	
Water Soluble Sulphate as SO4 2:1 Extract	<0.004	g/l M	0.194				
Soil Organic Matter (SOM)	<0.35	% *					
PAH by GCMS							
Naphthalene-d8 % recovery**		%	99.4	105	111	109	
Acenaphthene-d10 % recovery**		%	96.4	96.6	103	101	
Phenanthrene-d10 % recovery**		%	95.1	97.3	104	100	
Chrysene-d12 % recovery**		%	90.6	93.9	99.3	98	
Perylene-d12 % recovery**		%	99.4	85.1	86.3	92.7	
Naphthalene	<0.009	mg/kg M	0.0201	<0.009	<0.009	<0.009	
Acenaphthylene	<0.012	mg/kg M	<0.012	<0.012	<0.012	<0.012	
Acenaphthene	<0.008	mg/kg M	0.0119	<0.008	<0.008	<0.008	
Fluorene	<0.01	mg/kg M	0.0123	<0.01	<0.01	<0.01	
Phenanthrene	<0.015	mg/kg M	0.112	<0.015	<0.015	0.025	
Anthracene	<0.016	mg/kg M	0.0229	<0.016	<0.016	<0.016	
Fluoranthene	<0.017	mg/kg M	0.0992	<0.017	<0.017	0.0506	
Pyrene	<0.015	mg/kg M	0.0749	<0.015	<0.015	0.0418	
Benz(a)anthracene	<0.014	mg/kg M	0.0283	<0.014	<0.014	<0.014	
Chrysene	<0.01	mg/kg M	0.027	<0.01	<0.01	0.0208	
Benzo(b)fluoranthene	<0.015	mg/kg M	0.0424	<0.015	<0.015	0.026	
Benzo(k)fluoranthene	<0.014	mg/kg M	0.0196	<0.014	<0.014	<0.014	
Benzo(a)pyrene	<0.015	mg/kg M	0.0355	<0.015	<0.015	0.0185	
Indeno(1,2,3-cd)pyrene	<0.018	mg/kg M	<0.018	<0.018	<0.018	<0.018	
Dibenzo(a,h)anthracene	<0.023	mg/kg M	<0.023	<0.023	<0.023	<0.023	
Benzo(g,h,i)perylene	<0.024	mg/kg M	<0.024	<0.024	<0.024	<0.024	
PAH, Total Detected USEPA 16	<0.118	mg/kg	0.506	<0.118	<0.118	0.183	
TPH CWG (S)							
GRO Surrogate % recovery**		%	86	121	102	97	
GRO TOT (Moisture Corrected)	<0.044	mg/kg M	4.87	<0.044	<0.044	<0.044	
Aliphatics >C5-C6	<0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	
Aliphatics >C6-C8	<0.01	mg/kg	0.014	<0.01	<0.01	<0.01	
Aliphatics >C8-C10	<0.01	mg/kg	1.73	<0.01	<0.01	<0.01	
Aliphatics >C10-C12	<0.01	mg/kg	1.18	<0.01	<0.01	<0.01	
Aliphatics >C12-C16	<0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	
Aliphatics >C16-C21	<0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	

SOLID

			WS06	WS07	WS08	WS12	
			1.30 - 1.30	0.70 - 0.70	0.30 - 0.30	0.60 - 0.60	
			SOLID	SOLID	SOLID	SOLID	
			03/06/2016	03/06/2016	03/06/2016	03/06/2016	
			04/06/2016 15:37	04/06/2016 15:37	04/06/2016 15:37	04/06/2016 15:37	
			160604-60	160604-60	160604-60	160604-60	
			13541068	13541004	13541080	13541200	
			ES	ES	ES	ES	
Component	LOD	Units					
Aliphatics >C21-C35	<0.1	mg/kg	3.94	<0.1	3.14	<0.1	
Aliphatics >C35-C44	<0.1	mg/kg	1.75	<0.1	<0.1	<0.1	
Total Aliphatics >C12-C44	<0.1	mg/kg	5.69	<0.1	3.14	<0.1	
Aromatics >EC5-EC7	<0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	
Aromatics >EC7-EC8	<0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	
Aromatics >EC8-EC10	<0.01	mg/kg	1.15	<0.01	<0.01	<0.01	
Aromatics >EC10-EC12	<0.01	mg/kg	0.784	<0.01	<0.01	<0.01	
Aromatics >EC12-EC16	<0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	
Aromatics >EC16-EC21	<0.1	mg/kg	0.688	<0.1	<0.1	<0.1	
Aromatics >EC21-EC35	<0.1	mg/kg	9.94	<0.1	0.129	<0.1	
Aromatics >EC35-EC44	<0.1	mg/kg	15.4	<0.1	<0.1	<0.1	
Aromatics >EC40-EC44	<0.1	mg/kg	7.67	<0.1	<0.1	<0.1	
Total Aromatics >EC12-EC44	<0.1	mg/kg	26	<0.1	0.129	<0.1	
Total Aliphatics & Aromatics >C5-C44	<0.1	mg/kg	36.6	<0.1	3.27	<0.1	
Aromatics >EC16-EC35	<0.1	mg/kg	10.6	<0.1	0.129	<0.1	
VOC MS (S)							
Methyl Tertiary Butyl Ether	<0.01	mg/kg M	<0.01	<0.01	<0.01	<0.01	
Benzene	<0.009	mg/kg M	<0.009	<0.009	<0.009	<0.009	
Toluene	<0.007	mg/kg M	<0.007	<0.007	<0.007	<0.007	
Ethylbenzene	<0.004	mg/kg M	<0.004	<0.004	<0.004	<0.004	
p/m-Xylene	<0.01	mg/kg *	<0.01	<0.01	<0.01	<0.01	
o-Xylene	<0.01	mg/kg M	<0.01	<0.01	<0.01	<0.01	
Tert-amyl methyl ether	<0.01	mg/kg *	<0.01	<0.01	<0.01	<0.01	

NRA

			Customer Sample Ref.	BH01	BH04	BH05	WS08
			Depth (m)	0.60 - 0.60	0.70 - 0.70	0.85 - 0.85	0.30 - 0.30
			Sample Type	SOLID	SOLID	SOLID	SOLID
			Date Sampled	03/06/2016	03/06/2016	03/06/2016	03/06/2016
			Date Received	04/06/2016 15:37	04/06/2016 15:37	04/06/2016 15:37	04/06/2016 15:37
			SDG Ref	160604-60	160604-60	160604-60	160604-60
			Lab Sample No.(s)	13540987	13541121	13541150	13541080
			AGS Reference	ES	ES	ES	ES
Component	LOD	Units	Method				
MISC							
Arsenic (diss.filt) NRA leach	<0.12	µg/l	TM152	5.24	1.64	0.647	<0.12
Cadmium (diss.filt) NRA leach	<0.1	µg/l	TM152	<0.1	<0.1	<0.1	<0.1
Chromium (diss.filt) NRA leach	<0.22	µg/l	TM152	1.6	1.46	3.03	1.47
Copper (diss.filt) NRA leach	<0.85	µg/l	TM152	1.1	1.23	<0.85	<0.85
Lead (diss.filt) NRA leach	<0.02	µg/l	TM152	1.21	0.468	0.087	<0.02
Nickel (diss.filt) NRA leach	<0.15	µg/l	TM152	2.82	2.72	1.54	0.337
Selenium (diss.filt) NRA leach	<0.39	µg/l	TM152	0.435	<0.39	<0.39	<0.39
Zinc (diss.filt) NRA leach	<0.41	µg/l	TM152	2.65	1.44	0.55	<0.41
Mercury (diss.filt) NRA leach	<0.01	µg/l	TM183	<0.01	0.011	<0.01	0.0152
Cyanide, Total NRA leach	<50	µg/l	TM227	<50	<50	<50	<50

NRA

			Customer Sample Ref.	BH01	BH04	BH05	WS08										
			Depth (m)	0.60 - 0.60	0.70 - 0.70	0.85 - 0.85	0.30 - 0.30										
			Sample Type	SOLID	SOLID	SOLID	SOLID										
			Date Sampled	03/06/2016	03/06/2016	03/06/2016	03/06/2016										
			Date Received	04/06/2016 15:37	04/06/2016 15:37	04/06/2016 15:37	04/06/2016 15:37										
			SDG Ref	160604-60	160604-60	160604-60	160604-60										
			Lab Sample No.(s)	13540987	13541121	13541150	13541080										
			AGS Reference	ES	ES	ES	ES										
Component	LOD	Units	Method														

ALcontrol Laboratories

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WSP PB
4th Floor
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EC2M 4YE
Attention : George Baggot

CERTIFICATE OF ANALYSIS

Date:	13/06/2016 16:59		
Customer:	H_WSP_LON		
Sample Delivery Group (SDG):	160607-39	**Report No.:**	364753
Your Reference:	70020138		
Location:	Tradeteam Site (DHL) Gloucester		

We received 16 samples on Tuesday June 07, 2016 and 15 of these samples were scheduled for analysis which was then completed on Monday June 13, 2016. Accredited laboratory tests are defined in the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with data sections alone.

All chemical testing (unless subcontracting) is performed at ALcontrol Hawarden Laboratories.

Approved By:

[redacted]

Operations Manager

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SOLID

			Customer Sample Ref.	BH02	BH02	BH03	BH03	WS01	WS01	WS02	WS04
			Depth (m)	0.50 - 0.50	1.80 - 1.80	0.40 - 0.40	0.80 - 0.80	0.30 - 0.30	0.70 - 0.70	0.22 - 0.22	0.30 - 0.30
			Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
			Date Sampled	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016
			Date Received	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07
			SDG Ref	160607-39	160607-39	160607-39	160607-39	160607-39	160607-39	160607-39	160607-39
			Lab Sample No.(s)	13551311	13551320	13551282	13551296	13551336	13551344	13551380	13551388
			AGS Reference	ES	ES	ES	ES	ES	ES	ES	ES
Component	LOD	Units	Method								
MISC											
Moisture Content Ratio (% of as received sample)		%	PM024	16	18	19	23	17	21	7.6	12
Date of Analysis		-	TM048	06/10/2016		06/10/2016		06/10/2016		06/10/2016	06/10/2016
Analysed By		-	TM048	Rebecca Rawlings		Kevin Gill		Rebecca Rawlings		Rebecca Rawlings	Rebecca Rawlings
Comments		-	TM048	0		0		0		0	0
Chrysotile (White) Asbestos		- *	TM048	Not Detected		Not Detected		Not Detected		Not Detected	Not Detected
Amosite (Brown) Asbestos		- *	TM048	Not Detected		Not Detected		Not Detected		Not Detected	Not Detected
Crocidolite (Blue) Asbestos		- *	TM048	Not Detected		Not Detected		Not Detected		Not Detected	Not Detected
Fibrous Anthophyllite		- *	TM048	Not Detected		Not Detected		Not Detected		Not Detected	Not Detected
Fibrous Tremolite		- *	TM048	Not Detected		Not Detected		Not Detected		Not Detected	Not Detected
Fibrous Actinolite		- *	TM048	Not Detected		Not Detected		Not Detected		Not Detected	Not Detected
Non-Asbestos Fibre		-	TM048	Not Detected		Not Detected		Not Detected		Not Detected	Not Detected
Soil Organic Matter (SOM)	<0.35	% *	TM132	3.26		1.17					
pH	1	pH Units M	TM133	8.18	8.13	8.54	8.56				11.3
Chromium, Hexavalent	<0.6	mg/kg *	TM151	<0.6	<0.6	<0.6	<0.6				<0.6
Cyanide, Total	<1	mg/kg M	TM153	<1	<1	<1	<1				<1
Arsenic	<0.6	mg/kg M	TM181	14.7	8.33	13.4	12.9				12.6
Cadmium	<0.02	mg/kg M	TM181	0.712	0.37	0.54	0.415				0.489
Chromium	<0.9	mg/kg M	TM181	29.3	30.2	27.4	27.6				19.1
Copper	<1.4	mg/kg M	TM181	46.8	22.1	26.4	22.5				17.2
Lead	<0.7	mg/kg M	TM181	65.3	12.4	17.4	11.2				13.9
Mercury	<0.14	mg/kg M	TM181	<0.14	<0.14	<0.14	<0.14				<0.14
Nickel	<0.2	mg/kg M	TM181	30	38.1	34.3	27.9				25.5
Selenium	<1	mg/kg *	TM181	<1	<1	<1	<1				<1
Zinc	<1.9	mg/kg M	TM181	131	67.2	54.2	72.1				56.3
Water Soluble Sulphate as SO4 2:1 Extract	<0.004	g/l M	TM243			0.0747	0.121				
Phenol	<0.01	mg/kg M	TM062 (S)								
Cresols	<0.01	mg/kg M	TM062 (S)								
Xylenols	<0.015	mg/kg M	TM062 (S)								
Phenols, Total Detected monohydric	<0.035	mg/kg M	TM062 (S)								
PAH by GCMS											
Naphthalene-d8 % recovery**		%	TM218	98.4	106	101	97.9	108	107	94.6	99.9
Acenaphthene-d10 % recovery**		%	TM218	96.8	104	98.9	96.6	106	105	94.1	97.6
Phenanthrene-d10 % recovery**		%	TM218	95.2	103	97.3	94.3	104	102	92.4	95.9
Chrysene-d12 % recovery**		%	TM218	91.5	96.4	93.7	87.8	100	94	88.8	92.8
Perylene-d12 % recovery**		%	TM218	99.3	94	100	85.1	106	89	99.4	101
Naphthalene	<0.009	mg/kg M	TM218	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	0.0161	<0.009
Acenaphthylene	<0.012	mg/kg M	TM218	<0.012	<0.012	<0.012	<0.012	<0.012	<0.012	0.0199	<0.012
Acenaphthene	<0.008	mg/kg M	TM218	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	0.00938	0.018
Fluorene	<0.01	mg/kg M	TM218	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0278	<0.01
Phenanthrene	<0.015	mg/kg M	TM218	0.0661	<0.015	<0.015	<0.015	<0.015	<0.015	0.197	0.214
Anthracene	<0.016	mg/kg M	TM218	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	0.0513	0.0474
Fluoranthene	<0.017	mg/kg M	TM218	0.086	<0.017	<0.017	<0.017	<0.017	<0.017	0.242	0.314
Pyrene	<0.015	mg/kg M	TM218	0.0664	<0.015	<0.015	<0.015	<0.015	<0.015	0.208	0.238
Benz(a)anthracene	<0.014	mg/kg M	TM218	0.0673	<0.014	<0.014	<0.014	<0.014	<0.014	0.126	0.128
Chrysene	<0.01	mg/kg M	TM218	0.0441	<0.01	<0.01	<0.01	<0.01	<0.01	0.0956	0.125
Benzo(b)fluoranthene	<0.015	mg/kg M	TM218	0.0786	<0.015	<0.015	<0.015	<0.015	<0.015	0.162	0.198
Benzo(k)fluoranthene	<0.014	mg/kg M	TM218	0.0381	<0.014	<0.014	<0.014	<0.014	<0.014	0.0484	0.0779
Benzo(a)pyrene	<0.015	mg/kg M	TM218	0.061	<0.015	<0.015	<0.015	<0.015	<0.015	0.125	0.139
Indeno(1,2,3-cd)pyrene	<0.018	mg/kg M	TM218	0.0379	<0.018	<0.018	<0.018	<0.018	<0.018	0.0712	0.0861
Dibenzo(a,h)anthracene	<0.023	mg/kg M	TM218	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	0.0288
Benzo(g,h,i)perylene	<0.024	mg/kg M	TM218	0.0587	<0.024	<0.024	<0.024	<0.024	<0.024	0.102	0.105
PAH, Total Detected USEPA 16	<0.118	mg/kg	TM218	0.604	<0.118	<0.118	<0.118	<0.118	<0.118	1.5	1.72
Semi Volatile Organic Compounds											
Phenol	<0.1	mg/kg	TM157								
Pentachlorophenol	<0.1	mg/kg	TM157								
n-Nitroso-n-dipropylamine	<0.1	mg/kg	TM157								
Nitrobenzene	<0.1	mg/kg	TM157								

SOLID

			Customer Sample Ref.	BH02	BH02	BH03	BH03	WS01	WS01	WS02	WS04
			Depth (m)	0.50 - 0.50	1.80 - 1.80	0.40 - 0.40	0.80 - 0.80	0.30 - 0.30	0.70 - 0.70	0.22 - 0.22	0.30 - 0.30
			Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
			Date Sampled	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016
			Date Received	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07
			SDG Ref	160607-39	160607-39	160607-39	160607-39	160607-39	160607-39	160607-39	160607-39
			Lab Sample No.(s)	13551311	13551320	13551282	13551296	13551336	13551344	13551380	13551388
			AGS Reference	ES	ES	ES	ES	ES	ES	ES	ES
Component	LOD	Units	Method								
Isophorone	<0.1	mg/kg	TM157								
Hexachloroethane	<0.1	mg/kg	TM157								
Hexachlorocyclopentadiene	<0.1	mg/kg	TM157								
Hexachlorobutadiene	<0.1	mg/kg	TM157								
Hexachlorobenzene	<0.1	mg/kg	TM157								
n-Dioctyl phthalate	<0.1	mg/kg	TM157								
Dimethyl phthalate	<0.1	mg/kg	TM157								
Diethyl phthalate	<0.1	mg/kg	TM157								
n-Dibutyl phthalate	<0.1	mg/kg	TM157								
Dibenzofuran	<0.1	mg/kg	TM157								
Carbazole	<0.1	mg/kg	TM157								
Butylbenzyl phthalate	<0.1	mg/kg	TM157								
bis(2-Ethylhexyl) phthalate	<0.1	mg/kg	TM157								
bis(2-Chloroethoxy)methane	<0.1	mg/kg	TM157								
bis(2-Chloroethyl)ether	<0.1	mg/kg	TM157								
Azobenzene	<0.1	mg/kg	TM157								
4-Nitrophenol	<0.1	mg/kg	TM157								
4-Nitroaniline	<0.1	mg/kg	TM157								
4-Methylphenol	<0.1	mg/kg	TM157								
4-Chlorophenylphenylether	<0.1	mg/kg	TM157								
4-Chloroaniline	<0.1	mg/kg	TM157								
4-Chloro-3-methylphenol	<0.1	mg/kg	TM157								
4-Bromophenylphenylether	<0.1	mg/kg	TM157								
3-Nitroaniline	<0.1	mg/kg	TM157								
2-Nitrophenol	<0.1	mg/kg	TM157								
2-Nitroaniline	<0.1	mg/kg	TM157								
2-Methylphenol	<0.1	mg/kg	TM157								
1,2,4-Trichlorobenzene	<0.1	mg/kg	TM157								
2-Chlorophenol	<0.1	mg/kg	TM157								
2,6-Dinitrotoluene	<0.1	mg/kg	TM157								
2,4-Dinitrotoluene	<0.1	mg/kg	TM157								
2,4-Dimethylphenol	<0.1	mg/kg	TM157								
2,4-Dichlorophenol	<0.1	mg/kg	TM157								
2,4,6-Trichlorophenol	<0.1	mg/kg	TM157								
2,4,5-Trichlorophenol	<0.1	mg/kg	TM157								
1,4-Dichlorobenzene	<0.1	mg/kg	TM157								
1,3-Dichlorobenzene	<0.1	mg/kg	TM157								
1,2-Dichlorobenzene	<0.1	mg/kg	TM157								
2-Chloronaphthalene	<0.1	mg/kg	TM157								
2-Methylnaphthalene	<0.1	mg/kg	TM157								
Acenaphthylene	<0.1	mg/kg	TM157								
Acenaphthene	<0.1	mg/kg	TM157								
Anthracene	<0.1	mg/kg	TM157								
Benzo(a)anthracene	<0.1	mg/kg	TM157								
Benzo(b)fluoranthene	<0.1	mg/kg	TM157								
Benzo(k)fluoranthene	<0.1	mg/kg	TM157								
Benzo(a)pyrene	<0.1	mg/kg	TM157								
Benzo(g,h,i)perylene	<0.1	mg/kg	TM157								
Chrysene	<0.1	mg/kg	TM157								
Fluoranthene	<0.1	mg/kg	TM157								
Fluorene	<0.1	mg/kg	TM157								
Indeno(1,2,3-cd)pyrene	<0.1	mg/kg	TM157								
Phenanthrene	<0.1	mg/kg	TM157								
Pyrene	<0.1	mg/kg	TM157								
Naphthalene	<0.1	mg/kg	TM157								
Dibenzo(a,h)anthracene	<0.1	mg/kg	TM157								
Bis(2-chloroisopropyl) ether	<0.1	mg/kg	TM157								
TPH CWG (S)											

SOLID

			Customer Sample Ref.	BH02	BH02	BH03	BH03	WS01	WS01	WS02	WS04
			Depth (m)	0.50 - 0.50	1.80 - 1.80	0.40 - 0.40	0.80 - 0.80	0.30 - 0.30	0.70 - 0.70	0.22 - 0.22	0.30 - 0.30
			Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
			Date Sampled	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016
			Date Received	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07
			SDG Ref	160607-39	160607-39	160607-39	160607-39	160607-39	160607-39	160607-39	160607-39
			Lab Sample No.(s)	13551311	13551320	13551282	13551296	13551336	13551344	13551380	13551388
			AGS Reference	ES	ES	ES	ES	ES	ES	ES	ES
Component	LOD	Units	Method								
GRO Surrogate % recovery**		%	TM089	34	79	84	35	115	64	68	93
GRO TOT (Moisture Corrected)	<0.044	mg/kg M	TM089	<0.044	<0.044	<0.044	<0.044	0.0588	<0.044	<0.044	0.0859
Aliphatics >C5-C6	<0.01	mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aliphatics >C6-C8	<0.01	mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	0.0144	<0.01	<0.01	0.0158
Aliphatics >C8-C10	<0.01	mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0136
Aliphatics >C10-C12	<0.01	mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0147
Aliphatics >C12-C16	<0.1	mg/kg	TM173	<0.1	<0.1	<0.1	<0.1	1.01	<0.1	1.69	<0.1
Aliphatics >C16-C21	<0.1	mg/kg	TM173	<0.1	<0.1	<0.1	<0.1	4.72	<0.1	7.72	2.75
Aliphatics >C21-C35	<0.1	mg/kg	TM173	0.991	<0.1	<0.1	<0.1	43.4	0.422	31.7	59.2
Aliphatics >C35-C44	<0.1	mg/kg	TM173	<0.1	<0.1	<0.1	<0.1	2.29	<0.1	24.4	4.04
Total Aliphatics >C12-C44	<0.1	mg/kg	TM173	0.991	<0.1	<0.1	<0.1	51.5	0.422	65.5	66
Aromatics >EC5-EC7	<0.01	mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aromatics >EC7-EC8	<0.01	mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aromatics >EC8-EC10	<0.01	mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	0.0168	<0.01	<0.01	0.0158
Aromatics >EC10-EC12	<0.01	mg/kg	TM089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0102
Aromatics >EC12-EC16	<0.1	mg/kg	TM173	<0.1	<0.1	0.166	<0.1	0.166	<0.1	0.606	0.732
Aromatics >EC16-EC21	<0.1	mg/kg	TM173	0.673	<0.1	<0.1	<0.1	0.604	<0.1	2.95	2.97
Aromatics >EC21-EC35	<0.1	mg/kg	TM173	9.64	<0.1	2.94	<0.1	6.42	1.63	53.9	18.8
Aromatics >EC35-EC44	<0.1	mg/kg	TM173	9.07	<0.1	4.72	<0.1	3.96	<0.1	74.5	6.46
Aromatics >EC40-EC44	<0.1	mg/kg	TM173	4.61	<0.1	2.71	<0.1	1.89	<0.1	29.7	2.63
Total Aromatics >EC12-EC44	<0.1	mg/kg	TM173	19.4	<0.1	7.83	<0.1	11.1	1.63	132	29
Total Aliphatics & Aromatics >C5-C44	<0.1	mg/kg	TM173	20.4	<0.1	7.83	<0.1	62.7	2.05	197	95.1
Aromatics >EC16-EC35	<0.1	mg/kg	TM173	10.3	<0.1	2.94	<0.1	7.02	1.63	56.8	21.8
VOC MS (S)											
Methyl Tertiary Butyl Ether	<0.01	mg/kg M	TM116	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzene	<0.009	mg/kg M	TM116	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009
Toluene	<0.007	mg/kg M	TM116	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
Ethylbenzene	<0.004	mg/kg M	TM116	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
p/m-Xylene	<0.01	mg/kg *	TM116	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
o-Xylene	<0.01	mg/kg M	TM116	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Tert-amyl methyl ether	<0.01	mg/kg *	TM116	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dibromofluoromethane**		%	TM116							103	83
Toluene-d8**		%	TM116							94.7	92.6
4-Bromofluorobenzene**		%	TM116							77.9	79
Dichlorodifluoromethane	<0.006	mg/kg M	TM116							<0.006	<0.006
Chloromethane	<0.007	mg/kg *	TM116							<0.007	<0.007
Vinyl Chloride	<0.006	mg/kg M	TM116							<0.006	<0.006
Bromomethane	<0.01	mg/kg M	TM116							<0.01	<0.01
Chloroethane	<0.01	mg/kg M	TM116							<0.01	<0.01
Trichlorofluorormethane	<0.006	mg/kg M	TM116							<0.006	<0.006
1,1-Dichloroethene	<0.01	mg/kg *	TM116							<0.01	<0.01
Carbon Disulphide	<0.007	mg/kg M	TM116							<0.007	<0.007
Dichloromethane	<0.01	mg/kg *	TM116							<0.01	<0.01
trans-1,2-Dichloroethene	<0.01	mg/kg M	TM116							<0.01	<0.01
1,1-Dichloroethane	<0.008	mg/kg M	TM116							<0.008	<0.008
cis-1,2-Dichloroethene	<0.006	mg/kg M	TM116							<0.006	<0.006
2,2-Dichloropropane	<0.01	mg/kg M	TM116							<0.01	<0.01
Bromochloromethane	<0.01	mg/kg M	TM116							<0.01	<0.01
Chloroform	<0.008	mg/kg M	TM116							<0.008	<0.008
1,1,1-Trichloroethane	<0.007	mg/kg M	TM116							<0.007	<0.007
1,1-Dichloropropene	<0.01	mg/kg M	TM116							<0.01	<0.01
Carbontetrachloride	<0.01	mg/kg M	TM116							<0.01	<0.01
1,2-Dichloroethane	<0.005	mg/kg M	TM116							<0.005	<0.005
Trichloroethene	<0.009	mg/kg *	TM116							<0.009	<0.009
1,2-Dichloropropane	<0.01	mg/kg M	TM116							<0.01	<0.01
Dibromomethane	<0.009	mg/kg M	TM116							<0.009	<0.009
Bromodichloromethane	<0.007	mg/kg M	TM116							<0.007	<0.007
cis-1,3-Dichloropropene	<0.01	mg/kg M	TM116							<0.01	<0.01

SOLID

			Customer Sample Ref.	BH02	BH02	BH03	BH03	WS01	WS01	WS02	WS04
			Depth (m)	0.50 - 0.50	1.80 - 1.80	0.40 - 0.40	0.80 - 0.80	0.30 - 0.30	0.70 - 0.70	0.22 - 0.22	0.30 - 0.30
			Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
			Date Sampled	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016
			Date Received	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07
			SDG Ref	160607-39	160607-39	160607-39	160607-39	160607-39	160607-39	160607-39	160607-39
			Lab Sample No.(s)	13551311	13551320	13551282	13551296	13551336	13551344	13551380	13551388
			AGS Reference	ES	ES	ES	ES	ES	ES	ES	ES
Component	LOD	Units	Method								
trans-1,3-Dichloropropene	<0.01	mg/kg	TM116							<0.01	<0.01
1,1,2-Trichloroethane	<0.01	mg/kg M	TM116							<0.01	<0.01
1,3-Dichloropropane	<0.007	mg/kg M	TM116							<0.007	<0.007
Tetrachloroethene	<0.005	mg/kg M	TM116							<0.005	<0.005
Dibromochloromethane	<0.01	mg/kg M	TM116							<0.01	<0.01
1,2-Dibromoethane	<0.01	mg/kg M	TM116							<0.01	<0.01
Chlorobenzene	<0.005	mg/kg M	TM116							<0.005	<0.005
1,1,1,2-Tetrachloroethane	<0.01	mg/kg M	TM116							<0.01	<0.01
Styrene	<0.01	mg/kg *	TM116							<0.01	<0.01
Bromoform	<0.01	mg/kg M	TM116							<0.01	<0.01
Isopropylbenzene	<0.005	mg/kg *	TM116							<0.005	<0.005
1,1,2,2-Tetrachloroethane	<0.01	mg/kg M	TM116							<0.01	<0.01
1,2,3-Trichloropropane	<0.016	mg/kg M	TM116							<0.016	<0.016
Bromobenzene	<0.01	mg/kg M	TM116							<0.01	<0.01
Propylbenzene	<0.01	mg/kg M	TM116							<0.01	<0.01
2-Chlorotoluene	<0.009	mg/kg M	TM116							<0.009	<0.009
1,3,5-Trimethylbenzene	<0.008	mg/kg M	TM116							<0.008	<0.008
4-Chlorotoluene	<0.01	mg/kg M	TM116							<0.01	<0.01
tert-Butylbenzene	<0.014	mg/kg M	TM116							<0.014	<0.014
1,2,4-Trimethylbenzene	<0.009	mg/kg *	TM116							<0.009	<0.009
sec-Butylbenzene	<0.01	mg/kg M	TM116							<0.01	<0.01
4-Isopropyltoluene	<0.01	mg/kg M	TM116							<0.01	<0.01
1,3-Dichlorobenzene	<0.008	mg/kg M	TM116							<0.008	<0.008
1,4-Dichlorobenzene	<0.005	mg/kg M	TM116							<0.005	<0.005
n-Butylbenzene	<0.011	mg/kg	TM116							<0.011	<0.011
1,2-Dichlorobenzene	<0.01	mg/kg M	TM116							<0.01	<0.01
1,2-Dibromo-3-chloropropane	<0.014	mg/kg M	TM116							<0.014	<0.014
1,2,4-Trichlorobenzene	<0.02	mg/kg	TM116							<0.02	<0.02
Hexachlorobutadiene	<0.02	mg/kg	TM116							<0.02	<0.02
Naphthalene	<0.013	mg/kg M	TM116							<0.013	<0.013
1,2,3-Trichlorobenzene	<0.02	mg/kg *	TM116							<0.02	<0.02

SOLID

Component	LOD	Units	WS09 0.20 - 0.20 SOLID 06/06/2016 07/06/2016 13:07 160607-39 13551265 ES	WS09 0.35 - 0.35 SOLID 06/06/2016 07/06/2016 13:07 160607-39 13551273 ES	WS10 0.30 - 0.30 SOLID 06/06/2016 07/06/2016 13:07 160607-39 13551352 ES	WS10 1.65 - 1.65 SOLID 06/06/2016 07/06/2016 13:07 160607-39 13551363 ES	WS10 2.50 - 2.50 SOLID 06/06/2016 07/06/2016 13:07 160607-39 13551371 ES	WS11 0.30 - 0.50 SOLID 06/06/2016 07/06/2016 13:07 160607-39 13551240 ES	WS11 0.50 - 0.50 SOLID 06/06/2016 07/06/2016 13:07 160607-39 13551328 ES
MISC									
Moisture Content Ratio (% of as received sample)		%	2.2	18	5.6	19	15	6.9	19
Date of Analysis		-	06/10/2016		06/10/2016			06/10/2016	
Analysed By		-	Rebecca Rawlings		Rebecca Rawlings			Rebecca Rawlings	
Comments		-	0		0			0	
Chrysotile (White) Asbestos		- *	Not Detected		Not Detected			Not Detected	
Amosite (Brown) Asbestos		- *	Not Detected		Not Detected			Not Detected	
Crocidolite (Blue) Asbestos		- *	Not Detected		Not Detected			Not Detected	
Fibrous Anthophyllite		- *	Not Detected		Not Detected			Not Detected	
Fibrous Tremolite		- *	Not Detected		Not Detected			Not Detected	
Fibrous Actinolite		- *	Not Detected		Not Detected			Not Detected	
Non-Asbestos Fibre		-	Not Detected		Not Detected			Not Detected	
Soil Organic Matter (SOM)	<0.35	% *			<0.35	1.29			
pH	1	pH Units M	9.32	8.36	9.95			9.97	
Chromium, Hexavalent	<0.6	mg/kg *	<0.6		<0.6			1.04	
Cyanide, Total	<1	mg/kg M	<1		<1			<1	
Arsenic	<0.6	mg/kg M	2.49		1.56			26.7	
Cadmium	<0.02	mg/kg M	0.116		0.132			3.84	
Chromium	<0.9	mg/kg M	4.84		6.45			5.79	
Copper	<1.4	mg/kg M	3.7		3.12			6.86	
Lead	<0.7	mg/kg M	2.12		0.861			78.2	
Mercury	<0.14	mg/kg M	<0.14		<0.14			<0.14	
Nickel	<0.2	mg/kg M	4.56		1.81			7.68	
Selenium	<1	mg/kg *	<1		<1			<1	
Zinc	<1.9	mg/kg M	16.4		6.17			342	
Water Soluble Sulphate as SO4 2:1 Extract	<0.004	g/l M		2.1					
Phenol	<0.01	mg/kg M			<0.01	<0.01	<0.01		
Cresols	<0.01	mg/kg M			<0.01	<0.01	<0.01		
Xylenols	<0.015	mg/kg M			<0.015	<0.015	<0.015		
Phenols, Total Detected monohydric	<0.035	mg/kg M			<0.035	<0.035	<0.035		
PAH by GCMS									
Naphthalene-d8 % recovery**		%	96.5		91	108	98.5	92.5	108
Acenaphthene-d10 % recovery**		%	95.4		89.1	107	97.7	90.2	107
Phenanthrene-d10 % recovery**		%	93.5		88.2	104	94.9	89.5	104
Chrysene-d12 % recovery**		%	90.1		83.8	99.7	86.9	85	97
Perylene-d12 % recovery**		%	100		93	105	82.6	92.6	94.7
Naphthalene	<0.009	mg/kg M	<0.009		<0.009	<0.009	<0.009	<0.009	<0.009
Acenaphthylene	<0.012	mg/kg M	<0.012		<0.012	<0.012	<0.012	<0.012	<0.012
Acenaphthene	<0.008	mg/kg M	<0.008		<0.008	<0.008	<0.008	<0.008	<0.008
Fluorene	<0.01	mg/kg M	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	<0.015	mg/kg M	<0.015		<0.015	<0.015	<0.015	<0.015	<0.015
Anthracene	<0.016	mg/kg M	<0.016		<0.016	<0.016	<0.016	<0.016	<0.016
Fluoranthene	<0.017	mg/kg M	<0.017		<0.017	<0.017	<0.017	<0.017	<0.017
Pyrene	<0.015	mg/kg M	<0.015		<0.015	<0.015	<0.015	<0.015	<0.015
Benz(a)anthracene	<0.014	mg/kg M	<0.014		<0.014	<0.014	<0.014	<0.014	<0.014
Chrysene	<0.01	mg/kg M	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene	<0.015	mg/kg M	<0.015		<0.015	<0.015	<0.015	<0.015	<0.015
Benzo(k)fluoranthene	<0.014	mg/kg M	<0.014		<0.014	<0.014	<0.014	<0.014	<0.014
Benzo(a)pyrene	<0.015	mg/kg M	<0.015		<0.015	<0.015	<0.015	0.0171	<0.015
Indeno(1,2,3-cd)pyrene	<0.018	mg/kg M	<0.018		<0.018	<0.018	<0.018	<0.018	<0.018
Dibenzo(a,h)anthracene	<0.023	mg/kg M	<0.023		<0.023	<0.023	<0.023	<0.023	<0.023
Benzo(g,h,i)perylene	<0.024	mg/kg M	<0.024		<0.024	<0.024	<0.024	<0.024	<0.024
PAH, Total Detected USEPA 16	<0.118	mg/kg	<0.118		<0.118	<0.118	<0.118	<0.118	<0.118
Semi Volatile Organic Compounds									
Phenol	<0.1	mg/kg			<0.1	<0.1	<0.1		
Pentachlorophenol	<0.1	mg/kg			<0.1	<0.1	<0.1		
n-Nitroso-n-dipropylamine	<0.1	mg/kg			<0.1	<0.1	<0.1		
Nitrobenzene	<0.1	mg/kg			<0.1	<0.1	<0.1		

SOLID

			WS09	WS09	WS10	WS10	WS10	WS11	WS11	
			0.20 - 0.20	0.35 - 0.35	0.30 - 0.30	1.65 - 1.65	2.50 - 2.50	0.30 - 0.30	0.50 - 0.50	
			SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	
			06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016	
			07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	
			160607-39	160607-39	160607-39	160607-39	160607-39	160607-39	160607-39	
			13551265	13551273	13551352	13551363	13551371	13551240	13551328	
			ES	ES	ES	ES	ES	ES	ES	
Component	LOD	Units								
Isophorone	<0.1	mg/kg			<0.1	<0.1	<0.1			
Hexachloroethane	<0.1	mg/kg			<0.1	<0.1	<0.1			
Hexachlorocyclopentadiene	<0.1	mg/kg			<0.1	<0.1	<0.1			
Hexachlorobutadiene	<0.1	mg/kg			<0.1	<0.1	<0.1			
Hexachlorobenzene	<0.1	mg/kg			<0.1	<0.1	<0.1			
n-Dioctyl phthalate	<0.1	mg/kg			<0.1	<0.1	<0.1			
Dimethyl phthalate	<0.1	mg/kg			<0.1	<0.1	<0.1			
Diethyl phthalate	<0.1	mg/kg			<0.1	<0.1	<0.1			
n-Dibutyl phthalate	<0.1	mg/kg			<0.1	<0.1	<0.1			
Dibenzofuran	<0.1	mg/kg			<0.1	<0.1	<0.1			
Carbazole	<0.1	mg/kg			<0.1	<0.1	<0.1			
Butylbenzyl phthalate	<0.1	mg/kg			<0.1	<0.1	<0.1			
bis(2-Ethylhexyl) phthalate	<0.1	mg/kg			<0.1	<0.1	<0.1			
bis(2-Chloroethoxy)methane	<0.1	mg/kg			<0.1	<0.1	<0.1			
bis(2-Chloroethyl)ether	<0.1	mg/kg			<0.1	<0.1	<0.1			
Azobenzene	<0.1	mg/kg			<0.1	<0.1	<0.1			
4-Nitrophenol	<0.1	mg/kg			<0.1	<0.1	<0.1			
4-Nitroaniline	<0.1	mg/kg			<0.1	<0.1	<0.1			
4-Methylphenol	<0.1	mg/kg			<0.1	<0.1	<0.1			
4-Chlorophenylphenylether	<0.1	mg/kg			<0.1	<0.1	<0.1			
4-Chloroaniline	<0.1	mg/kg			<0.1	<0.1	<0.1			
4-Chloro-3-methylphenol	<0.1	mg/kg			<0.1	<0.1	<0.1			
4-Bromophenylphenylether	<0.1	mg/kg			<0.1	<0.1	<0.1			
3-Nitroaniline	<0.1	mg/kg			<0.1	<0.1	<0.1			
2-Nitrophenol	<0.1	mg/kg			<0.1	<0.1	<0.1			
2-Nitroaniline	<0.1	mg/kg			<0.1	<0.1	<0.1			
2-Methylphenol	<0.1	mg/kg			<0.1	<0.1	<0.1			
1,2,4-Trichlorobenzene	<0.1	mg/kg			<0.1	<0.1	<0.1			
2-Chlorophenol	<0.1	mg/kg			<0.1	<0.1	<0.1			
2,6-Dinitrotoluene	<0.1	mg/kg			<0.1	<0.1	<0.1			
2,4-Dinitrotoluene	<0.1	mg/kg			<0.1	<0.1	<0.1			
2,4-Dimethylphenol	<0.1	mg/kg			<0.1	<0.1	<0.1			
2,4-Dichlorophenol	<0.1	mg/kg			<0.1	<0.1	<0.1			
2,4,6-Trichlorophenol	<0.1	mg/kg			<0.1	<0.1	<0.1			
2,4,5-Trichlorophenol	<0.1	mg/kg			<0.1	<0.1	<0.1			
1,4-Dichlorobenzene	<0.1	mg/kg			<0.1	<0.1	<0.1			
1,3-Dichlorobenzene	<0.1	mg/kg			<0.1	<0.1	<0.1			
1,2-Dichlorobenzene	<0.1	mg/kg			<0.1	<0.1	<0.1			
2-Chloronaphthalene	<0.1	mg/kg			<0.1	<0.1	<0.1			
2-Methylnaphthalene	<0.1	mg/kg			<0.1	<0.1	<0.1			
Acenaphthylene	<0.1	mg/kg			<0.1	<0.1	<0.1			
Acenaphthene	<0.1	mg/kg			<0.1	<0.1	<0.1			
Anthracene	<0.1	mg/kg			<0.1	<0.1	<0.1			
Benzo(a)anthracene	<0.1	mg/kg			<0.1	<0.1	<0.1			
Benzo(b)fluoranthene	<0.1	mg/kg			<0.1	<0.1	<0.1			
Benzo(k)fluoranthene	<0.1	mg/kg			<0.1	<0.1	<0.1			
Benzo(a)pyrene	<0.1	mg/kg			<0.1	<0.1	<0.1			
Benzo(g,h,i)perylene	<0.1	mg/kg			<0.1	<0.1	<0.1			
Chrysene	<0.1	mg/kg			<0.1	<0.1	<0.1			
Fluoranthene	<0.1	mg/kg			<0.1	<0.1	<0.1			
Fluorene	<0.1	mg/kg			<0.1	<0.1	<0.1			
Indeno(1,2,3-cd)pyrene	<0.1	mg/kg			<0.1	<0.1	<0.1			
Phenanthrene	<0.1	mg/kg			<0.1	<0.1	<0.1			
Pyrene	<0.1	mg/kg			<0.1	<0.1	<0.1			
Naphthalene	<0.1	mg/kg			<0.1	<0.1	<0.1			
Dibenzo(a,h)anthracene	<0.1	mg/kg			<0.1	<0.1	<0.1			
Bis(2-chloroisopropyl) ether	<0.1	mg/kg			<0.1	<0.1	<0.1			
TPH CWG (S)										

SOLID

			WS09	WS09	WS10	WS10	WS10	WS11	WS11	
			0.20 - 0.20	0.35 - 0.35	0.30 - 0.30	1.65 - 1.65	2.50 - 2.50	0.30 - 0.50	0.50 - 0.50	
			SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	
			06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016	
			07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	
			160607-39	160607-39	160607-39	160607-39	160607-39	160607-39	160607-39	
			13551265	13551273	13551352	13551363	13551371	13551240	13551328	
			ES	ES	ES	ES	ES	ES	ES	
Component	LOD	Units								
GRO Surrogate % recovery**		%	90		103	71	21	104	76	
GRO TOT (Moisture Corrected)	<0.044	mg/kg M	<0.044		<0.044	0.903	0.434	<0.044	0.0632	
Aliphatics >C5-C6	<0.01	mg/kg	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	
Aliphatics >C6-C8	<0.01	mg/kg	<0.01		<0.01	<0.01	0.0106	<0.01	<0.01	
Aliphatics >C8-C10	<0.01	mg/kg	<0.01		<0.01	0.286	0.13	<0.01	<0.01	
Aliphatics >C10-C12	<0.01	mg/kg	<0.01		<0.01	0.248	0.123	<0.01	0.0223	
Aliphatics >C12-C16	<0.1	mg/kg	<0.1		<0.1	3.15	2.42	<0.1	<0.1	
Aliphatics >C16-C21	<0.1	mg/kg	<0.1		0.319	6.47	4.26	<0.1	<0.1	
Aliphatics >C21-C35	<0.1	mg/kg	21.9		3.91	6.23	6.49	1.38	<0.1	
Aliphatics >C35-C44	<0.1	mg/kg	50.5		<0.1	<0.1	<0.1	<0.1	<0.1	
Total Aliphatics >C12-C44	<0.1	mg/kg	72.4		4.23	15.8	13.2	1.38	<0.1	
Aromatics >EC5-EC7	<0.01	mg/kg	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	
Aromatics >EC7-EC8	<0.01	mg/kg	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	
Aromatics >EC8-EC10	<0.01	mg/kg	<0.01		<0.01	0.191	0.0861	<0.01	<0.01	
Aromatics >EC10-EC12	<0.01	mg/kg	<0.01		<0.01	0.165	0.0814	<0.01	0.0149	
Aromatics >EC12-EC16	<0.1	mg/kg	0.278		<0.1	1.7	0.414	0.186	<0.1	
Aromatics >EC16-EC21	<0.1	mg/kg	<0.1		<0.1	3.69	2.07	<0.1	<0.1	
Aromatics >EC21-EC35	<0.1	mg/kg	28.6		1.7	3.2	3.35	1.81	<0.1	
Aromatics >EC35-EC44	<0.1	mg/kg	66.5		0.385	<0.1	<0.1	3.89	<0.1	
Aromatics >EC40-EC44	<0.1	mg/kg	30		<0.1	<0.1	<0.1	2.2	<0.1	
Total Aromatics >EC12-EC44	<0.1	mg/kg	95.3		2.08	8.59	5.84	5.88	<0.1	
Total Aliphatics & Aromatics >C5-C44	<0.1	mg/kg	168		6.32	25.3	19.4	7.27	<0.1	
Aromatics >EC16-EC35	<0.1	mg/kg	28.6		1.7	6.89	5.42	1.81	<0.1	
VOC MS (S)										
Methyl Tertiary Butyl Ether	<0.01	mg/kg M	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	
Benzene	<0.009	mg/kg M	<0.009		<0.009	<0.009	<0.009	<0.009	<0.009	
Toluene	<0.007	mg/kg M	<0.007		<0.007	<0.007	<0.007	<0.007	<0.007	
Ethylbenzene	<0.004	mg/kg M	<0.004		<0.004	<0.004	<0.004	<0.004	<0.004	
p/m-Xylene	<0.01	mg/kg *	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	
o-Xylene	<0.01	mg/kg M	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	
Tert-amyl methyl ether	<0.01	mg/kg *	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	
Dibromofluoromethane**		%			105	103	101			
Toluene-d8**		%			103	96.2	89.6			
4-Bromofluorobenzene**		%			101	65.5	56			
Dichlorodifluoromethane	<0.006	mg/kg M			<0.006	<0.006	<0.006			
Chloromethane	<0.007	mg/kg *			<0.007	<0.007	<0.007			
Vinyl Chloride	<0.006	mg/kg M			<0.006	<0.006	<0.006			
Bromomethane	<0.01	mg/kg M			<0.01	<0.01	<0.01			
Chloroethane	<0.01	mg/kg M			<0.01	<0.01	<0.01			
Trichlorofluorormethane	<0.006	mg/kg M			<0.006	<0.006	<0.006			
1,1-Dichloroethene	<0.01	mg/kg *			<0.01	<0.01	<0.01			
Carbon Disulphide	<0.007	mg/kg M			<0.007	<0.007	<0.007			
Dichloromethane	<0.01	mg/kg *			<0.01	<0.01	<0.01			
trans-1,2-Dichloroethene	<0.01	mg/kg M			<0.01	<0.01	<0.01			
1,1-Dichloroethane	<0.008	mg/kg M			<0.008	<0.008	<0.008			
cis-1,2-Dichloroethene	<0.006	mg/kg M			<0.006	<0.006	<0.006			
2,2-Dichloropropane	<0.01	mg/kg M			<0.01	<0.01	<0.01			
Bromochloromethane	<0.01	mg/kg M			<0.01	<0.01	<0.01			
Chloroform	<0.008	mg/kg M			<0.008	<0.008	<0.008			
1,1,1-Trichloroethane	<0.007	mg/kg M			<0.007	<0.007	<0.007			
1,1-Dichloropropene	<0.01	mg/kg M			<0.01	<0.01	<0.01			
Carbontetrachloride	<0.01	mg/kg M			<0.01	<0.01	<0.01			
1,2-Dichloroethane	<0.005	mg/kg M			<0.005	<0.005	<0.005			
Trichloroethene	<0.009	mg/kg *			<0.009	<0.009	<0.009			
1,2-Dichloropropane	<0.01	mg/kg M			<0.01	<0.01	<0.01			
Dibromomethane	<0.009	mg/kg M			<0.009	<0.009	<0.009			
Bromodichloromethane	<0.007	mg/kg M			<0.007	<0.007	<0.007			
cis-1,3-Dichloropropene	<0.01	mg/kg M			<0.01	<0.01	<0.01			

SOLID

			WS09	WS09	WS10	WS10	WS10	WS11	WS11	
			0.20 - 0.20	0.35 - 0.35	0.30 - 0.30	1.65 - 1.65	2.50 - 2.50	0.30 - 0.30	0.50 - 0.50	
			SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	
			06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016	
			07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	
			160607-39	160607-39	160607-39	160607-39	160607-39	160607-39	160607-39	
			13551265	13551273	13551352	13551363	13551371	13551240	13551328	
			ES	ES	ES	ES	ES	ES	ES	
Component	LOD	Units								
trans-1,3-Dichloropropene	<0.01	mg/kg			<0.01	<0.01	<0.01			
1,1,2-Trichloroethane	<0.01	mg/kg M			<0.01	<0.01	<0.01			
1,3-Dichloropropane	<0.007	mg/kg M			<0.007	<0.007	<0.007			
Tetrachloroethene	<0.005	mg/kg M			<0.005	<0.005	<0.005			
Dibromochloromethane	<0.01	mg/kg M			<0.01	<0.01	<0.01			
1,2-Dibromoethane	<0.01	mg/kg M			<0.01	<0.01	<0.01			
Chlorobenzene	<0.005	mg/kg M			<0.005	<0.005	<0.005			
1,1,1,2-Tetrachloroethane	<0.01	mg/kg M			<0.01	<0.01	<0.01			
Styrene	<0.01	mg/kg *			<0.01	<0.01	<0.01			
Bromoform	<0.01	mg/kg M			<0.01	<0.01	<0.01			
Isopropylbenzene	<0.005	mg/kg *			<0.005	<0.005	<0.005			
1,1,2,2-Tetrachloroethane	<0.01	mg/kg M			<0.01	<0.01	<0.01			
1,2,3-Trichloropropane	<0.016	mg/kg M			<0.016	<0.016	<0.016			
Bromobenzene	<0.01	mg/kg M			<0.01	<0.01	<0.01			
Propylbenzene	<0.01	mg/kg M			<0.01	<0.01	<0.01			
2-Chlorotoluene	<0.009	mg/kg M			<0.009	<0.009	<0.009			
1,3,5-Trimethylbenzene	<0.008	mg/kg M			<0.008	<0.008	<0.008			
4-Chlorotoluene	<0.01	mg/kg M			<0.01	<0.01	<0.01			
tert-Butylbenzene	<0.014	mg/kg M			<0.014	<0.014	<0.014			
1,2,4-Trimethylbenzene	<0.009	mg/kg *			<0.009	<0.009	<0.009			
sec-Butylbenzene	<0.01	mg/kg M			<0.01	<0.01	<0.01			
4-Isopropyltoluene	<0.01	mg/kg M			<0.01	<0.01	<0.01			
1,3-Dichlorobenzene	<0.008	mg/kg M			<0.008	<0.008	<0.008			
1,4-Dichlorobenzene	<0.005	mg/kg M			<0.005	<0.005	<0.005			
n-Butylbenzene	<0.011	mg/kg			<0.011	<0.011	<0.011			
1,2-Dichlorobenzene	<0.01	mg/kg M			<0.01	<0.01	<0.01			
1,2-Dibromo-3-chloropropane	<0.014	mg/kg M			<0.014	<0.014	<0.014			
1,2,4-Trichlorobenzene	<0.02	mg/kg			<0.02	<0.02	<0.02			
Hexachlorobutadiene	<0.02	mg/kg			<0.02	<0.02	<0.02			
Naphthalene	<0.013	mg/kg M			<0.013	<0.013	<0.013			
1,2,3-Trichlorobenzene	<0.02	mg/kg *			<0.02	<0.02	<0.02			

NRA

			Customer Sample Ref.	BH02	BH03	WS04	WS10	WS11
			Depth (m)	0.50 - 0.50	0.40 - 0.40	0.30 - 0.30	0.30 - 0.30	0.30 - 0.30
			Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID
			Date Sampled	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016
			Date Received	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07
			SDG Ref	160607-39	160607-39	160607-39	160607-39	160607-39
			Lab Sample No.(s)	13551311	13551282	13551388	13551352	13551240
			AGS Reference	ES	ES	ES	ES	ES
Component	LOD	Units	Method					
MISC								
Arsenic (diss.filt) NRA leach	<0.12	µg/l	TM152	3.95	<0.12	0.375	0.151	5.53
Cadmium (diss.filt) NRA leach	<0.1	µg/l	TM152	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium (diss.filt) NRA leach	<0.22	µg/l	TM152	1.13	2.69	4.84	<0.22	<0.22
Copper (diss.filt) NRA leach	<0.85	µg/l	TM152	1.11	<0.85	2.23	<0.85	<0.85
Lead (diss.filt) NRA leach	<0.02	µg/l	TM152	1.13	<0.02	<0.02	<0.02	0.092
Nickel (diss.filt) NRA leach	<0.15	µg/l	TM152	1.99	0.223	0.635	<0.15	<0.15
Selenium (diss.filt) NRA leach	<0.39	µg/l	TM152	0.569	<0.39	6.73	<0.39	<0.39
Zinc (diss.filt) NRA leach	<0.41	µg/l	TM152	1.85	1.08	<0.41	<0.41	1.06
Mercury (diss.filt) NRA leach	<0.01	µg/l	TM183	<0.01	<0.01	<0.01	<0.01	<0.01
Cyanide, Free NRA leach	<50	µg/l	TM227	<50	<50	<50	<50	<50

NRA

			Customer Sample Ref.	BH02	BH03	WS04	WS10	WS11										
			Depth (m)	0.50 - 0.50	0.40 - 0.40	0.30 - 0.30	0.30 - 0.30	0.30 - 0.30										
			Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID										
			Date Sampled	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016										
			Date Received	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07										
			SDG Ref	160607-39	160607-39	160607-39	160607-39	160607-39										
			Lab Sample No.(s)	13551311	13551282	13551388	13551352	13551240										
			AGS Reference	ES	ES	ES	ES	ES										
Component	LOD	Units	Method															

NRA

			Customer Sample Ref.	BH02	BH03	WS04	WS10	WS11									
			Depth (m)	0.50 - 0.50	0.40 - 0.40	0.30 - 0.30	0.30 - 0.30	0.30 - 0.30									
			Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID									
			Date Sampled	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016									
			Date Received	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07									
			SDG Ref	160607-39	160607-39	160607-39	160607-39	160607-39									
			Lab Sample No.(s)	13551311	13551282	13551388	13551352	13551240									
			AGS Reference	ES	ES	ES	ES	ES									
Component	LOD	Units	Method														

NRA

			Customer Sample Ref.	BH02	BH03	WS04	WS10	WS11									
			Depth (m)	0.50 - 0.50	0.40 - 0.40	0.30 - 0.30	0.30 - 0.30	0.30 - 0.30									
			Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID									
			Date Sampled	06/06/2016	06/06/2016	06/06/2016	06/06/2016	06/06/2016									
			Date Received	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07	07/06/2016 13:07									
			SDG Ref	160607-39	160607-39	160607-39	160607-39	160607-39									
			Lab Sample No.(s)	13551311	13551282	13551388	13551352	13551240									
			AGS Reference	ES	ES	ES	ES	ES									
Component	LOD	Units	Method														

NRA

Component	LOD	Units		
MISC				
Arsenic (diss.filt) NRA leach	<0.12	µg/l		
Cadmium (diss.filt) NRA leach	<0.1	µg/l		
Chromium (diss.filt) NRA leach	<0.22	µg/l		
Copper (diss.filt) NRA leach	<0.85	µg/l		
Lead (diss.filt) NRA leach	<0.02	µg/l		
Nickel (diss.filt) NRA leach	<0.15	µg/l		
Selenium (diss.filt) NRA leach	<0.39	µg/l		
Zinc (diss.filt) NRA leach	<0.41	µg/l		
Mercury (diss.filt) NRA leach	<0.01	µg/l		
Cyanide, Free NRA leach	<50	µg/l		

NRA

Component	LOD	Units		

NRA

Component	LOD	Units		

NRA

Component	LOD	Units		

ALcontrol Laboratories

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WSP PB
4th Floor
6 Devonshire Square
London
EC2M 4YE
Attention : George Baggot

CERTIFICATE OF ANALYSIS

Date:	13/06/2016 16:12		
Customer:	H_WSP_LON		
Sample Delivery Group (SDG):	160609-89	**Report No.:**	364712
Your Reference:	70020138		
Location:	Tradeteam Site (DHL) Gloucester		

We received 1 sample on Thursday June 09, 2016 and 1 of these samples were scheduled for analysis which was then completed on Monday June 13, 2016. Accredited laboratory tests are defined in the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with data sections alone.

All chemical testing (unless subcontracting) is performed at ALcontrol Hawarden Laboratories.

Approved By:

[redacted]

Operations Manager

Alcontrol Laboratories is a trading division of Alcontrol UK Limited
Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291

LIQUID

			Customer Sample Ref.	WS10					
			Depth (m)	0.00 - 0.00					
			Sample Type	LIQUID					
			Date Sampled	08/06/2016					
			Date Received	09/06/2016 12:52					
			SDG Ref	160609-89					
			Lab Sample No.(s)	13566116					
			AGS Reference	EW					
Component	LOD	Units	Method						
PAH Spec MS - Aqueous (W)									
Naphthalene (aq)	<0.1	µg/l *	TM178	2.61					
Acenaphthene (aq)	<0.015	µg/l *	TM178	<0.015					
Acenaphthylene (aq)	<0.011	µg/l *	TM178	<0.011					
Fluoranthene (aq)	<0.017	µg/l *	TM178	<0.017					
Anthracene (aq)	<0.015	µg/l *	TM178	<0.015					
Phenanthrene (aq)	<0.022	µg/l *	TM178	<0.022					
Fluorene (aq)	<0.014	µg/l *	TM178	<0.014					
Chrysene (aq)	<0.013	µg/l *	TM178	<0.013					
Pyrene (aq)	<0.015	µg/l *	TM178	<0.015					
Benzo(a)anthracene (aq)	<0.017	µg/l *	TM178	<0.017					
Benzo(b)fluoranthene (aq)	<0.023	µg/l *	TM178	<0.023					
Benzo(k)fluoranthene (aq)	<0.027	µg/l *	TM178	<0.027					
Benzo(a)pyrene (aq)	<0.009	µg/l *	TM178	<0.009					
Dibenzo(a,h)anthracene (aq)	<0.016	µg/l *	TM178	0.0424					
Benzo(g,h,i)perylene (aq)	<0.016	µg/l *	TM178	0.0883					
Indeno(1,2,3-cd)pyrene (aq)	<0.014	µg/l *	TM178	0.0532					
PAH, Total Detected USEPA 16 (aq)	<0.344	µg/l	TM178	2.79					
SVOC MS (W) - Aqueous									
1,2,4-Trichlorobenzene (aq)	<1	µg/l *	TM176	<1					
1,2-Dichlorobenzene (aq)	<1	µg/l *	TM176	<1					
1,3-Dichlorobenzene (aq)	<1	µg/l *	TM176	<1					
1,4-Dichlorobenzene (aq)	<1	µg/l	TM176	<1					
2,4,5-Trichlorophenol (aq)	<1	µg/l *	TM176	<1					
2,4,6-Trichlorophenol (aq)	<1	µg/l *	TM176	<1					
2,4-Dichlorophenol (aq)	<1	µg/l *	TM176	<1					
2,4-Dimethylphenol (aq)	<1	µg/l *	TM176	<1					
2,4-Dinitrotoluene (aq)	<1	µg/l *	TM176	<1					
2,6-Dinitrotoluene (aq)	<1	µg/l *	TM176	<1					
2-Chloronaphthalene (aq)	<1	µg/l *	TM176	<1					
2-Chlorophenol (aq)	<1	µg/l *	TM176	<1					
2-Methylnaphthalene (aq)	<1	µg/l *	TM176	<1					
2-Methylphenol (aq)	<1	µg/l *	TM176	<1					
2-Nitroaniline (aq)	<1	µg/l *	TM176	<1					
2-Nitrophenol (aq)	<1	µg/l *	TM176	<1					
3-Nitroaniline (aq)	<1	µg/l *	TM176	<1					
4-Bromophenylphenylether (aq)	<1	µg/l *	TM176	<1					
4-Chloro-3-methylphenol (aq)	<1	µg/l *	TM176	<1					
4-Chloroaniline (aq)	<1	µg/l	TM176	<1					
4-Chlorophenylphenylether (aq)	<1	µg/l *	TM176	<1					
4-Methylphenol (aq)	<1	µg/l *	TM176	<1					
4-Nitroaniline (aq)	<1	µg/l *	TM176	<1					
4-Nitrophenol (aq)	<1	µg/l	TM176	<1					
Azobenzene (aq)	<1	µg/l *	TM176	<1					
Acenaphthylene (aq)	<1	µg/l *	TM176	<1					
Acenaphthene (aq)	<1	µg/l *	TM176	<1					
Anthracene (aq)	<1	µg/l *	TM176	<1					
bis(2-Chloroethyl)ether (aq)	<1	µg/l *	TM176	<1					
bis(2-Chloroethoxy)methane (aq)	<1	µg/l *	TM176	<1					
bis(2-Ethylhexyl) phthalate (aq)	<2	µg/l *	TM176	2.25					
Butylbenzyl phthalate (aq)	<1	µg/l *	TM176	<1					
Benzo(a)anthracene (aq)	<1	µg/l *	TM176	<1					
Benzo(b)fluoranthene (aq)	<1	µg/l *	TM176	<1					
Benzo(k)fluoranthene (aq)	<1	µg/l *	TM176	<1					
Benzo(a)pyrene (aq)	<1	µg/l *	TM176	<1					
Benzo(g,h,i)perylene (aq)	<1	µg/l *	TM176	<1					
Carbazole (aq)	<1	µg/l *	TM176	<1					
Chrysene (aq)	<1	µg/l *	TM176	<1					

LIQUID

			Customer Sample Ref.	WS10					
			Depth (m)	0.00 - 0.00					
			Sample Type	LIQUID					
			Date Sampled	08/06/2016					
			Date Received	09/06/2016 12:52					
			SDG Ref	160609-89					
			Lab Sample No.(s)	13566116					
			AGS Reference	EW					
Component	LOD	Units	Method						
Dibenzofuran (aq)	<1	µg/l *	TM176	<1					
n-Dibutyl phthalate (aq)	<1	µg/l *	TM176	<1					
Diethyl phthalate (aq)	<1	µg/l *	TM176	<1					
Dibenzo(a,h)anthracene (aq)	<1	µg/l *	TM176	<1					
Dimethyl phthalate (aq)	<1	µg/l *	TM176	<1					
n-Dioctyl phthalate (aq)	<5	µg/l *	TM176	<5					
Fluoranthene (aq)	<1	µg/l *	TM176	<1					
Fluorene (aq)	<1	µg/l *	TM176	<1					
Hexachlorobenzene (aq)	<1	µg/l *	TM176	<1					
Hexachlorobutadiene (aq)	<1	µg/l *	TM176	<1					
Pentachlorophenol (aq)	<1	µg/l	TM176	<1					
Phenol (aq)	<1	µg/l	TM176	<1					
n-Nitroso-n-dipropylamine (aq)	<1	µg/l *	TM176	<1					
Hexachloroethane (aq)	<1	µg/l *	TM176	<1					
Nitrobenzene (aq)	<1	µg/l *	TM176	<1					
Naphthalene (aq)	<1	µg/l *	TM176	<1					
Isophorone (aq)	<1	µg/l *	TM176	<1					
Hexachlorocyclopentadiene (aq)	<1	µg/l	TM176	<1					
Phenanthrene (aq)	<1	µg/l *	TM176	<1					
Indeno(1,2,3-cd)pyrene (aq)	<1	µg/l *	TM176	<1					
Pyrene (aq)	<1	µg/l *	TM176	3.43					
TPH CWG (W)									
GRO Surrogate % recovery**		%	TM245	87					
GRO >C5-C12	<50	µg/l *	TM245	1080					
Aliphatics >C5-C6	<10	µg/l	TM245	<10					
Aliphatics >C6-C8	<10	µg/l	TM245	<10					
Aliphatics >C8-C10	<10	µg/l	TM245	126					
Aliphatics >C10-C12	<10	µg/l	TM245	516					
Aliphatics >C12-C16 (aq)	<10	µg/l	TM174	11600					
Aliphatics >C16-C21 (aq)	<10	µg/l	TM174	13700					
Aliphatics >C21-C35 (aq)	<10	µg/l	TM174	6630					
Total Aliphatics >C12-C35 (aq)	<10	µg/l	TM174	31900					
Aromatics >EC5-EC7	<10	µg/l	TM245	<10					
Aromatics >EC7-EC8	<10	µg/l	TM245	<10					
Aromatics >EC8-EC10	<10	µg/l	TM245	84					
Aromatics >EC10-EC12	<10	µg/l	TM245	344					
Aromatics >EC12-EC16 (aq)	<10	µg/l	TM174	3100					
Aromatics >EC16-EC21 (aq)	<10	µg/l	TM174	6770					
Aromatics >EC21-EC35 (aq)	<10	µg/l	TM174	2970					
Total Aromatics >EC12-EC35 (aq)	<10	µg/l	TM174	12800					
Total Aliphatics & Aromatics >C5-35 (aq)	<10	µg/l	TM174	45800					
Aromatics >EC16-EC35 (aq)	<10	µg/l	TM174	9740					
VOC MS (W)									
Dibromofluoromethane**		%	TM208	107					
Toluene-d8**		%	TM208	99.6					
4-Bromofluorobenzene**		%	TM208	98.3					
Dichlorodifluoromethane	<1	µg/l	TM208	<1					
Chloromethane	<1	µg/l *	TM208	<1					
Vinyl chloride	<1	µg/l *	TM208	<1					
Bromomethane	<1	µg/l *	TM208	<1					
Chloroethane	<1	µg/l *	TM208	<1					
Trichlorofluoromethane	<1	µg/l *	TM208	<1					
1,1-Dichloroethene	<1	µg/l *	TM208	<1					
Carbon disulphide	<1	µg/l *	TM208	<1					
Dichloromethane	<3	µg/l *	TM208	<3					
Methyl tertiary butyl ether (MTBE)	<1	µg/l *	TM208	<1					
trans-1,2-Dichloroethene	<1	µg/l *	TM208	<1					
1,1-Dichloroethane	<1	µg/l *	TM208	<1					

LIQUID

			Customer Sample Ref.	WS10					
			Depth (m)	0.00 - 0.00					
			Sample Type	LIQUID					
			Date Sampled	08/06/2016					
			Date Received	09/06/2016 12:52					
			SDG Ref	160609-89					
			Lab Sample No.(s)	13566116					
			AGS Reference	EW					
Component	LOD	Units	Method						
cis-1,2-Dichloroethene	<1	µg/l *	TM208	<1					
2,2-Dichloropropane	<1	µg/l	TM208	<1					
Bromochloromethane	<1	µg/l *	TM208	<1					
Chloroform	<1	µg/l *	TM208	<1					
1,1,1-Trichloroethane	<1	µg/l *	TM208	<1					
1,1-Dichloropropene	<1	µg/l *	TM208	<1					
Carbontetrachloride	<1	µg/l *	TM208	<1					
1,2-Dichloroethane	<1	µg/l	TM208	<1					
Benzene	<1	µg/l *	TM208	<1					
Trichloroethene	<1	µg/l *	TM208	<1					
1,2-Dichloropropane	<1	µg/l *	TM208	<1					
Dibromomethane	<1	µg/l *	TM208	<1					
Bromodichloromethane	<1	µg/l *	TM208	<1					
cis-1,3-Dichloropropene	<1	µg/l *	TM208	<1					
Toluene	<1	µg/l *	TM208	<1					
trans-1,3-Dichloropropene	<1	µg/l *	TM208	<1					
1,1,2-Trichloroethane	<1	µg/l *	TM208	<1					
1,3-Dichloropropane	<1	µg/l *	TM208	<1					
Tetrachloroethene	<1	µg/l *	TM208	<1					
Dibromochloromethane	<1	µg/l *	TM208	<1					
1,2-Dibromoethane	<1	µg/l *	TM208	<1					
Chlorobenzene	<1	µg/l *	TM208	<1					
1,1,1,2-Tetrachloroethane	<1	µg/l *	TM208	<1					
Ethylbenzene	<1	µg/l *	TM208	<1					
m,p-Xylene	<1	µg/l *	TM208	<1					
o-Xylene	<1	µg/l *	TM208	<1					
Styrene	<1	µg/l *	TM208	<1					
Bromoform	<1	µg/l *	TM208	<1					
Isopropylbenzene	<1	µg/l *	TM208	<1					
1,1,2,2-Tetrachloroethane	<1	µg/l	TM208	<1					
1,2,3-Trichloropropane	<1	µg/l *	TM208	<1					
Bromobenzene	<1	µg/l *	TM208	<1					
Propylbenzene	<1	µg/l *	TM208	<1					
2-Chlorotoluene	<1	µg/l *	TM208	<1					
1,3,5-Trimethylbenzene	<1	µg/l *	TM208	<1					
4-Chlorotoluene	<1	µg/l *	TM208	<1					
tert-Butylbenzene	<1	µg/l *	TM208	<1					
1,2,4-Trimethylbenzene	<1	µg/l *	TM208	<1					
sec-Butylbenzene	<1	µg/l *	TM208	<1					
4-iso-Propyltoluene	<1	µg/l *	TM208	<1					
1,3-Dichlorobenzene	<1	µg/l *	TM208	<1					
1,4-Dichlorobenzene	<1	µg/l *	TM208	<1					
n-Butylbenzene	<1	µg/l *	TM208	<1					
1,2-Dichlorobenzene	<1	µg/l	TM208	<1					
1,2-Dibromo-3-chloropropane	<1	µg/l	TM208	<1					
1,2,4-Trichlorobenzene	<1	µg/l *	TM208	<1					
Hexachlorobutadiene	<1	µg/l *	TM208	<1					
tert-Amyl methyl ether (TAME)	<1	µg/l *	TM208	<1					
Naphthalene	<1	µg/l *	TM208	<1					
1,2,3-Trichlorobenzene	<1	µg/l *	TM208	<1					
1,3,5-Trichlorobenzene	<1	µg/l	TM208	<1					
Sum of detected Xylenes	<2	µg/l	TM208	<2					

ALcontrol Laboratories

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6 Devonshire Square
London
EC2M 4YE

Attention: George Baggot

CERTIFICATE OF ANALYSIS

Date:	01 July 2016
Customer:	H_WSP_LON
Sample Delivery Group (SDG):	160627-8
Your Reference:	70020138
Location:	Tradeteam Site (DHL) Gloucester
Report No:	367242

We received 6 samples on Monday June 27, 2016 and 6 of these samples were scheduled for analysis which was completed on Friday July 01, 2016. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:

[redacted]

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	160627-8	**Location:**	Tradeteam Site (DHL) Gloucester	**Order Number:**	70020138-001
Job:	H_WSP_LON-223	**Customer:**	WSP PB LBH	**Report Number:**	367242
Client Reference:	70020138	**Attention:**	George Baggot	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
13662747	BH01	EW	0.00 - 0.00	21/06/2016
13662767	BH02	EW	0.00 - 0.00	21/06/2016
13662738	BH04	EW	0.00 - 0.00	21/06/2016
13662720	WS01	EW	0.00 - 0.00	21/06/2016
13662758	WS03	EW	0.00 - 0.00	21/06/2016
13662731	WS10	EW	0.00 - 0.00	21/06/2016

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG:	160627-8	**Location:**	Tradeteam Site (DHL) Gloucester	**Order Number:**	70020138-001
Job:	H_WSP_LON-223	**Customer:**	WSP PB LBH	**Report Number:**	367242
Client Reference:	70020138	**Attention:**	George Baggot	**Superseded Report:**	

LIQUID

Results Legend

X **Test**

N **No Determination Possible**

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container
			13662747	BH01	EW	0.00 - 0.00	1000ml glass bottle
			13662747	BH01	EW	0.00 - 0.00	500ml Plastic (ALE2
			13662747	BH01	EW	0.00 - 0.00	Dissolved Metals Pr
			13662747	BH01	EW	0.00 - 0.00	Vial (ALE297)
			13662767	BH02	EW	0.00 - 0.00	1000ml glass bottle
			13662767	BH02	EW	0.00 - 0.00	500ml Plastic (ALE2
			13662767	BH02	EW	0.00 - 0.00	Dissolved Metals Pr
			13662767	BH02	EW	0.00 - 0.00	Vial (ALE297)
			13662738	BH04	EW	0.00 - 0.00	1000ml glass bottle
			13662738	BH04	EW	0.00 - 0.00	500ml Plastic (ALE2
			13662738	BH04	EW	0.00 - 0.00	Dissolved Metals Pr
			13662738	BH04	EW	0.00 - 0.00	Vial (ALE297)
			13662720	WS01	EW	0.00 - 0.00	1000ml glass bottle
			13662720	WS01	EW	0.00 - 0.00	500ml Plastic (ALE2
			13662720	WS01	EW	0.00 - 0.00	Dissolved Metals Pr
			13662720	WS01	EW	0.00 - 0.00	Vial (ALE297)
			13662758	WS03	EW	0.00 - 0.00	1000ml glass bottle
			13662758	WS03	EW	0.00 - 0.00	500ml Plastic (ALE2
			13662758	WS03	EW	0.00 - 0.00	Dissolved Metals Pr
			13662758	WS03	EW	0.00 - 0.00	Vial (ALE297)
			13662731	WS10	EW	0.00 - 0.00	1000ml glass bottle
			13662731	WS10	EW	0.00 - 0.00	Dissolved Metals Pr
			13662731	WS10	EW	0.00 - 0.00	Vial (ALE297)
Anions by Kone (w)	All	NDPs: 0 Tests: 6		X			X			X			X			X			X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 6		X			X			X			X			X			X	
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 6	X			X			X			X			X			X			
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 6	X			X			X			X			X			X			
GRO by GC-FID (W)	All	NDPs: 0 Tests: 6			X			X			X			X			X				X
Low Level Cyanide (W)	All	NDPs: 0 Tests: 6	X			X			X			X			X			X			
Low Level Hexavalent Chromium (w)	All	NDPs: 0 Tests: 6		X			X			X			X			X			X		
Mercury Dissolved	All	NDPs: 1 Tests: 5			X			N				X			X			X			X
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 6	X			X			X			X			X			X			
pH Value	All	NDPs: 0 Tests: 6		X			X			X			X			X			X		
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 2											X						X		
TPH CWG (W)	All	NDPs: 0 Tests: 6	X			X			X			X			X			X			
VOC MS (W)	All	NDPs: 0 Tests: 6			X			X			X			X			X			X	

CERTIFICATE OF ANALYSIS

SDG:	160627-8	**Location:**	Tradeteam Site (DHL) Gloucester	**Order Number:**	70020138-001
Job:	H_WSP_LON-223	**Customer:**	WSP PB LBH	**Report Number:**	367242
Client Reference:	70020138	**Attention:**	George Baggot	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample R	BH01	BH02	BH04	WS01	WS03	WS10
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			Date Sampled	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016
			Sample Time	.	.	.	.	.	.
			Date Received	27/06/2016	27/06/2016	27/06/2016	27/06/2016	27/06/2016	27/06/2016
			SDG Ref	160627-8	160627-8	160627-8	160627-8	160627-8	160627-8
			Lab Sample No.(s)	13662747	13662767	13662738	13662720	13662758	13662731
			AGS Reference	EW	EW	EW	EW	EW	EW
Arsenic (diss.filt)	<0.12 µg/l	TM152		0.665 #	10.3 #	3.26 #	2.94 #	2.95 #	1.1 #
Cadmium (diss.filt)	<0.1 µg/l	TM152		<0.1 #	<0.1 #	<0.1 #	0.122 #	<0.1 #	<0.1 #
Chromium (diss.filt)	<0.22 µg/l	TM152		8.71 #	6.46 #	15.9 #	4.61 #	8.02 #	4.94 #
Copper (diss.filt)	<0.85 µg/l	TM152		1.55 #	7.78 #	6.16 #	6.33 #	5.93 #	1.94 #
Lead (diss.filt)	<0.02 µg/l	TM152		0.073 #	0.442 #	1.52 #	0.265 #	0.108 #	<0.02 #
Nickel (diss.filt)	<0.15 µg/l	TM152		5.16 #	6.59 #	53.7 #	9.16 #	10.8 #	2.13 #
Selenium (diss.filt)	<0.39 µg/l	TM152		2.59 #	134 #	9.58 #	64.9 #	14.5 #	1.73 #
Zinc (diss.filt)	<0.41 µg/l	TM152		5.77 #	1.18 #	22.4 #	17.1 #	12.9 #	2.04 #
Mercury (diss.filt)	<0.01 µg/l	TM183		<0.01 #		<0.01 #	<0.01 #	<0.01 #	0.012 #
Sulphate	<2000 µg/l	TM184		165000 #	350000 #	1110000 #	1600000 #	949000 #	28300 #
pH	<1 pH Units	TM256		7.24 #	8.07 #	7.04 #	7.32 #	7.34 #	7.72 #
Cyanide, Total (low level)	<5 µg/l	TM279		<5 #	<5 #	<5 #	<5 #	<5 #	<5 #
Low Level Hexavalent Chromium	<3 µg/l	TM331		<3	<3	<3	<3	<3	<3

CERTIFICATE OF ANALYSIS

SDG:	160627-8	**Location:**	Tradeteam Site (DHL) Gloucester	**Order Number:**	70020138-001
Job:	H_WSP_LON-223	**Customer:**	WSP PB LBH	**Report Number:**	367242
Client Reference:	70020138	**Attention:**	George Baggot	**Superseded Report:**	

PAH Spec MS - Aqueous (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample R	BH01	BH02	BH04	WS01	WS03	WS10
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			Date Sampled	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016
			Sample Time	.	.	.	.	.	.
			Date Received	27/06/2016	27/06/2016	27/06/2016	27/06/2016	27/06/2016	27/06/2016
			SDG Ref	160627-8	160627-8	160627-8	160627-8	160627-8	160627-8
			Lab Sample No.(s)	13662747	13662767	13662738	13662720	13662758	13662731
			AGS Reference	EW	EW	EW	EW	EW	EW
Naphthalene (aq)	<0.1 µg/l	TM178		<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #
Acenaphthene (aq)	<0.015 µg/l	TM178		<0.015 #	<0.015 #	<0.015 #	<0.015 #	<0.015 #	<0.015 #
Acenaphthylene (aq)	<0.011 µg/l	TM178		<0.011 #	<0.011 #	<0.011 #	<0.011 #	<0.011 #	<0.011 #
Fluoranthene (aq)	<0.017 µg/l	TM178		<0.017 #	0.0257 #	0.0198 #	<0.017 #	0.0411 #	<0.017 #
Anthracene (aq)	<0.015 µg/l	TM178		<0.015 #	<0.015 #	<0.015 #	<0.015 #	<0.015 #	<0.015 #
Phenanthrene (aq)	<0.022 µg/l	TM178		<0.022 #	<0.022 #	<0.022 #	<0.022 #	<0.022 #	<0.022 #
Fluorene (aq)	<0.014 µg/l	TM178		<0.014 #	<0.014 #	<0.014 #	<0.014 #	<0.014 #	<0.014 #
Chrysene (aq)	<0.013 µg/l	TM178		<0.013 #	0.0265 #	<0.013 #	<0.013 #	0.0133 #	<0.013 #
Pyrene (aq)	<0.015 µg/l	TM178		<0.015 #	0.0631 #	0.0236 #	<0.015 #	0.0601 #	0.0688 #
Benzo(a)anthracene (aq)	<0.017 µg/l	TM178		<0.017 #	0.0355 #	<0.017 #	<0.017 #	<0.017 #	<0.017 #
Benzo(b)fluoranthene (aq)	<0.023 µg/l	TM178		<0.023 #	0.113 #	<0.023 #	<0.023 #	0.0609 #	<0.023 #
Benzo(k)fluoranthene (aq)	<0.027 µg/l	TM178		<0.027 #	0.0287 #	<0.027 #	<0.027 #	<0.027 #	<0.027 #
Benzo(a)pyrene (aq)	<0.009 µg/l	TM178		<0.009 #	0.0408 #	<0.009 #	<0.009 #	0.0395 #	<0.009 #
Dibenzo(a,h)anthracene (aq)	<0.016 µg/l	TM178		<0.016 #	<0.016 #	<0.016 #	<0.016 #	0.0283 #	<0.016 #
Benzo(g,h,i)perylene (aq)	<0.016 µg/l	TM178		<0.016 #	0.0597 #	<0.016 #	<0.016 #	0.0574 #	<0.016 #
Indeno(1,2,3-cd)pyrene (aq)	<0.014 µg/l	TM178		<0.014 #	0.0405 #	<0.014 #	<0.014 #	0.0668 #	<0.014 #
PAH, Total Detected USEPA 16 (aq)	<0.344 µg/l	TM178		<0.344	0.434	<0.344	<0.344	0.367	<0.344

CERTIFICATE OF ANALYSIS

SDG:	160627-8	**Location:**	Tradeteam Site (DHL) Gloucester	**Order Number:**	70020138-001
Job:	H_WSP_LON-223	**Customer:**	WSP PB LBH	**Report Number:**	367242
Client Reference:	70020138	**Attention:**	George Baggot	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample R	WS01	WS10				
			Depth (m)	0.00 - 0.00	0.00 - 0.00				
			Sample Type	Water(GW/SW)	Water(GW/SW)				
			Date Sampled	21/06/2016	21/06/2016				
			Sample Time	.	.				
			Date Received	27/06/2016	27/06/2016				
			SDG Ref	160627-8	160627-8				
			Lab Sample No.(s)	13662720	13662731				
			AGS Reference	EW	EW				
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176		<1 #	<1 #				
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176		<1 #	<1 #				
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176		<1 #	<1 #				
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176		<1	<1				
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176		<1 #	<1 #				
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176		<1 #	<1 #				
2,4-Dichlorophenol (aq)	<1 µg/l	TM176		<1 #	<1 #				
2,4-Dimethylphenol (aq)	<1 µg/l	TM176		<1 #	<1 #				
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176		<1 #	<1 #				
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176		<1 #	<1 #				
2-Chloronaphthalene (aq)	<1 µg/l	TM176		<1 #	<1 #				
2-Chlorophenol (aq)	<1 µg/l	TM176		<1 #	<1 #				
2-Methylnaphthalene (aq)	<1 µg/l	TM176		<1 #	<1 #				
2-Methylphenol (aq)	<1 µg/l	TM176		<1 #	<1 #				
2-Nitroaniline (aq)	<1 µg/l	TM176		<1 #	<1 #				
2-Nitrophenol (aq)	<1 µg/l	TM176		<1 #	<1 #				
3-Nitroaniline (aq)	<1 µg/l	TM176		<1 #	<1 #				
4-Bromophenylphenylether (aq)	<1 µg/l	TM176		<1 #	<1 #				
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176		<1 #	<1 #				
4-Chloroaniline (aq)	<1 µg/l	TM176		<1	<1				
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176		<1 #	<1 #				
4-Methylphenol (aq)	<1 µg/l	TM176		<1 #	<1 #				
4-Nitroaniline (aq)	<1 µg/l	TM176		<1 #	<1 #				
4-Nitrophenol (aq)	<1 µg/l	TM176		<1	<1				
Azobenzene (aq)	<1 µg/l	TM176		<1 #	<1 #				
Acenaphthylene (aq)	<1 µg/l	TM176		<1 #	<1 #				
Acenaphthene (aq)	<1 µg/l	TM176		<1 #	<1 #				
Anthracene (aq)	<1 µg/l	TM176		<1 #	<1 #				
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176		<1 #	<1 #				
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176		<1 #	<1 #				
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176		<2 #	<2 #				
Butylbenzyl phthalate (aq)	<1 µg/l	TM176		<1 #	<1 #				

CERTIFICATE OF ANALYSIS

SDG:	160627-8	**Location:**	Tradeteam Site (DHL) Gloucester	**Order Number:**	70020138-001
Job:	H_WSP_LON-223	**Customer:**	WSP PB LBH	**Report Number:**	367242
Client Reference:	70020138	**Attention:**	George Baggot	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Customer Sample R			WS01	WS10					
Depth (m)			0.00 - 0.00	0.00 - 0.00					
Sample Type			Water(GW/SW)	Water(GW/SW)					
Date Sampled			21/06/2016	21/06/2016					
Sample Time			.	.					
Date Received			27/06/2016	27/06/2016					
SDG Ref			160627-8	160627-8					
Lab Sample No.(s)			13662720	13662731					
AGS Reference			EW	EW					
Component	**LOD/Units**	**Method**							
Benzo(a)anthracene (aq)	<1 µg/l	TM176	<1 #	<1 #					
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176	<1 #	<1 #					
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	<1 #	<1 #					
Benzo(a)pyrene (aq)	<1 µg/l	TM176	<1 #	<1 #					
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176	<1 #	<1 #					
Carbazole (aq)	<1 µg/l	TM176	<1 #	<1 #					
Chrysene (aq)	<1 µg/l	TM176	<1 #	<1 #					
Dibenzofuran (aq)	<1 µg/l	TM176	<1 #	<1 #					
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #					
Diethyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #					
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176	<1 #	<1 #					
Dimethyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #					
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	<5 #	<5 #					
Fluoranthene (aq)	<1 µg/l	TM176	<1 #	<1 #					
Fluorene (aq)	<1 µg/l	TM176	<1 #	<1 #					
Hexachlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #					
Hexachlorobutadiene (aq)	<1 µg/l	TM176	<1 #	<1 #					
Pentachlorophenol (aq)	<1 µg/l	TM176	<1	<1					
Phenol (aq)	<1 µg/l	TM176	<1	<1					
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<1 #	<1 #					
Hexachloroethane (aq)	<1 µg/l	TM176	<1 #	<1 #					
Nitrobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #					
Naphthalene (aq)	<1 µg/l	TM176	<1 #	<1 #					
Isophorone (aq)	<1 µg/l	TM176	<1 #	<1 #					
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176	<1	<1					
Phenanthrene (aq)	<1 µg/l	TM176	<1 #	<1 #					
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176	<1 #	<1 #					
Pyrene (aq)	<1 µg/l	TM176	<1 #	<1 #					

CERTIFICATE OF ANALYSIS

SDG:	160627-8	**Location:**	Tradeteam Site (DHL) Gloucester	**Order Number:**	70020138-001
Job:	H_WSP_LON-223	**Customer:**	WSP PB LBH	**Report Number:**	367242
Client Reference:	70020138	**Attention:**	George Baggot	**Superseded Report:**	

TPH CWG (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample R	BH01	BH02	BH04	WS01	WS03	WS10
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			Date Sampled	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016
			Sample Time	.	.	.	.	.	.
			Date Received	27/06/2016	27/06/2016	27/06/2016	27/06/2016	27/06/2016	27/06/2016
			SDG Ref	160627-8	160627-8	160627-8	160627-8	160627-8	160627-8
			Lab Sample No.(s)	13662747	13662767	13662738	13662720	13662758	13662731
			AGS Reference	EW	EW	EW	EW	EW	EW
GRO Surrogate % recovery**	%	TM245		99	106	94	96	95	97
GRO >C5-C12	<50 µg/l	TM245		<50 #	<50 #	<50 #	<50 #	<50 #	<50 #
Aliphatics >C5-C6	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		<10	17	<10	<10	<10	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		<10	17	<10	<10	<10	<10
Aromatics >EC5-EC7	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245		<10	<10	<10	<10	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<10	48	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		<10	48	<10	<10	<10	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		<10	75	<10	<10	13	10
Aromatics >EC16-EC35 (aq)	<10 µg/l	TM174		<10	48	<10	<10	<10	<10

CERTIFICATE OF ANALYSIS

SDG:	160627-8	**Location:**	Tradeteam Site (DHL) Gloucester	**Order Number:**	70020138-001
Job:	H_WSP_LON-223	**Customer:**	WSP PB LBH	**Report Number:**	367242
Client Reference:	70020138	**Attention:**	George Baggot	**Superseded Report:**	

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample R	BH01	BH02	BH04	WS01	WS03	WS10
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			Date Sampled	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016
			Sample Time	.	.	.	.	.	.
			Date Received	27/06/2016	27/06/2016	27/06/2016	27/06/2016	27/06/2016	27/06/2016
			SDG Ref	160627-8	160627-8	160627-8	160627-8	160627-8	160627-8
			Lab Sample No.(s)	13662747	13662767	13662738	13662720	13662758	13662731
			AGS Reference	EW	EW	EW	EW	EW	EW
Dibromofluoromethane**	%	TM208					107 1		113 1
Toluene-d8**	%	TM208					98 1		97 1
4-Bromofluorobenzene**	%	TM208					99 1		93.1 1
Dichlorodifluoromethane	<1 µg/l	TM208					<1 1		<1 1
Chloromethane	<1 µg/l	TM208					<1 1 #		<1 1 #
Vinyl chloride	<1 µg/l	TM208					<1 1 #		<1 1 #
Bromomethane	<1 µg/l	TM208					<1 1 #		<1 1 #
Chloroethane	<1 µg/l	TM208					<1 1 #		<1 1 #
Trichlorofluoromethane	<1 µg/l	TM208					<1 1 #		<1 1 #
1,1-Dichloroethene	<1 µg/l	TM208					<1 1 #		<1 1 #
Carbon disulphide	<1 µg/l	TM208					<1 1 #		<1 1 #
Dichloromethane	<3 µg/l	TM208					<3 1 #		<3 1 #
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208		<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
trans-1,2-Dichloroethene	<1 µg/l	TM208					<1 1 #		<1 1 #
1,1-Dichloroethane	<1 µg/l	TM208					<1 1 #		<1 1 #
cis-1,2-Dichloroethene	<1 µg/l	TM208					<1 1 #		<1 1 #
2,2-Dichloropropane	<1 µg/l	TM208					<1 1		<1 1
Bromochloromethane	<1 µg/l	TM208					<1 1 #		<1 1 #
Chloroform	<1 µg/l	TM208					<1 1 #		<1 1 #
1,1,1-Trichloroethane	<1 µg/l	TM208					<1 1 #		<1 1 #
1,1-Dichloropropene	<1 µg/l	TM208					<1 1 #		<1 1 #
Carbontetrachloride	<1 µg/l	TM208					<1 1 #		<1 1 #
1,2-Dichloroethane	<1 µg/l	TM208					<1 1		<1 1
Benzene	<1 µg/l	TM208		<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	1.52 1 #
Trichloroethene	<1 µg/l	TM208					<1 1 #		<1 1 #
1,2-Dichloropropane	<1 µg/l	TM208					<1 1 #		<1 1 #
Dibromomethane	<1 µg/l	TM208					<1 1 #		<1 1 #
Bromodichloromethane	<1 µg/l	TM208					<1 1 #		<1 1 #
cis-1,3-Dichloropropene	<1 µg/l	TM208					<1 1 #		<1 1 #
Toluene	<1 µg/l	TM208		<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
trans-1,3-Dichloropropene	<1 µg/l	TM208					<1 1 #		<1 1 #
1,1,2-Trichloroethane	<1 µg/l	TM208					<1 1 #		<1 1 #

CERTIFICATE OF ANALYSIS

SDG:	160627-8	**Location:**	Tradeteam Site (DHL) Gloucester	**Order Number:**	70020138-001
Job:	H_WSP_LON-223	**Customer:**	WSP PB LBH	**Report Number:**	367242
Client Reference:	70020138	**Attention:**	George Baggot	**Superseded Report:**	

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample R	BH01	BH02	BH04	WS01	WS03	WS10
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			Date Sampled	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016
			Sample Time	.	.	.	.	.	.
			Date Received	27/06/2016	27/06/2016	27/06/2016	27/06/2016	27/06/2016	27/06/2016
			SDG Ref	160627-8	160627-8	160627-8	160627-8	160627-8	160627-8
			Lab Sample No.(s)	13662747	13662767	13662738	13662720	13662758	13662731
			AGS Reference	EW	EW	EW	EW	EW	EW
1,3-Dichloropropane	<1 µg/l	TM208					<1 1 #		<1 1 #
Tetrachloroethene	<1 µg/l	TM208					<1 1 #		<1 1 #
Dibromochloromethane	<1 µg/l	TM208					<1 1 #		<1 1 #
1,2-Dibromoethane	<1 µg/l	TM208					<1 1 #		<1 1 #
Chlorobenzene	<1 µg/l	TM208					<1 1 #		<1 1 #
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208					<1 1 #		<1 1 #
Ethylbenzene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
m,p-Xylene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
o-Xylene	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Styrene	<1 µg/l	TM208					<1 1 #		<1 1 #
Bromoform	<1 µg/l	TM208					<1 1 #		<1 1 #
Isopropylbenzene	<1 µg/l	TM208					<1 1 #		<1 1 #
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208					<1 1		<1 1
1,2,3-Trichloropropane	<1 µg/l	TM208					<1 1 #		<1 1 #
Bromobenzene	<1 µg/l	TM208					<1 1 #		<1 1 #
Propylbenzene	<1 µg/l	TM208					<1 1 #		<1 1 #
2-Chlorotoluene	<1 µg/l	TM208					<1 1 #		<1 1 #
1,3,5-Trimethylbenzene	<1 µg/l	TM208					<1 1 #		<1 1 #
4-Chlorotoluene	<1 µg/l	TM208					<1 1 #		<1 1 #
tert-Butylbenzene	<1 µg/l	TM208					<1 1 #		<1 1 #
1,2,4-Trimethylbenzene	<1 µg/l	TM208					<1 1 #		<1 1 #
sec-Butylbenzene	<1 µg/l	TM208					<1 1 #		<1 1 #
4-iso-Propyltoluene	<1 µg/l	TM208					<1 1 #		<1 1 #
1,3-Dichlorobenzene	<1 µg/l	TM208					<1 1 #		<1 1 #
1,4-Dichlorobenzene	<1 µg/l	TM208					<1 1 #		<1 1 #
n-Butylbenzene	<1 µg/l	TM208					<1 1 #		<1 1 #
1,2-Dichlorobenzene	<1 µg/l	TM208					<1 1		<1 1
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208					<1 1		<1 1
1,2,4-Trichlorobenzene	<1 µg/l	TM208					<1 1 #		<1 1 #
Hexachlorobutadiene	<1 µg/l	TM208					<1 1 #		<1 1 #
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #	<1 1 #
Naphthalene	<1 µg/l	TM208					<1 1 #		<1 1 #

CERTIFICATE OF ANALYSIS

SDG:	160627-8	**Location:**	Tradeteam Site (DHL) Gloucester	**Order Number:**	70020138-001
Job:	H_WSP_LON-223	**Customer:**	WSP PB LBH	**Report Number:**	367242
Client Reference:	70020138	**Attention:**	George Baggot	**Superseded Report:**	

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample R	BH01	BH02	BH04	WS01	WS03	WS10
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)	Water(GW/SW)
			Date Sampled	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016	21/06/2016
			Sample Time	.	.	.	.	.	.
			Date Received	27/06/2016	27/06/2016	27/06/2016	27/06/2016	27/06/2016	27/06/2016
			SDG Ref	160627-8	160627-8	160627-8	160627-8	160627-8	160627-8
			Lab Sample No.(s)	13662747	13662767	13662738	13662720	13662758	13662731
			AGS Reference	EW	EW	EW	EW	EW	EW
1,2,3-Trichlorobenzene	<1 µg/l	TM208					<1 1 #		<1 1 #
1,3,5-Trichlorobenzene	<1 µg/l	TM208					<1 1		<1 1
Sum of detected Xylenes	<2 µg/l	TM208		<2 1	<2 1	<2 1	<2 1	<2 1	<2 1

CERTIFICATE OF ANALYSIS

SDG:	160627-8	**Location:**	Tradeteam Site (DHL) Gloucester	**Order Number:**	70020138-001
Job:	H_WSP_LON-223	**Customer:**	WSP PB LBH	**Report Number:**	367242
Client Reference:	70020138	**Attention:**	George Baggot	**Superseded Report:**	

Notification of NDPs (No determination possible)

Date Received : 27/06/2016 09:19:29

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
13662767	BH02 EWZ	0.00 - 0.00	Mercury Dissolved	Sample cannot be filtered

CERTIFICATE OF ANALYSIS

SDG:	160627-8	**Location:**	Tradeteam Site (DHL) Gloucester	**Order Number:**	70020138-001
Job:	H_WSP_LON-223	**Customer:**	WSP PB LBH	**Report Number:**	367242
Client Reference:	70020138	**Attention:**	George Baggot	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample [1]	Surrogate Corrected
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID		
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS		
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters		
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters		
TM245	By GC-FID	Determination of GRO by Headspace in waters		
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter		
TM279		Determination of Low Level Easily Liberatable (Free) Cyanides and Total Cyanides in Waters using the Skalar SANS+ System Segmented Flow Analyser		
TM331		Low Level Hexavalent Chromium		

[1] Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

CERTIFICATE OF ANALYSIS

SDG:	160627-8	**Location:**	Tradeteam Site (DHL) Gloucester	**Order Number:**	70020138-001
Job:	H_WSP_LON-223	**Customer:**	WSP PB LBH	**Report Number:**	367242
Client Reference:	70020138	**Attention:**	George Baggot	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	13662747	13662767	13662738	13662720	13662758	13662731
Customer Sample Ref.	BH01	BH02	BH04	WS01	WS03	WS10
AGS Ref.	EW	EW	EW	EW	EW	EW
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID
Anions by Kone (w)	29-Jun-2016	28-Jun-2016	29-Jun-2016	29-Jun-2016	28-Jun-2016	29-Jun-2016
Dissolved Metals by ICP-MS	30-Jun-2016	30-Jun-2016	30-Jun-2016	30-Jun-2016	30-Jun-2016	30-Jun-2016
EPH CWG (Aliphatic) Aqueous GC (W)	30-Jun-2016	30-Jun-2016	30-Jun-2016	30-Jun-2016	30-Jun-2016	30-Jun-2016
EPH CWG (Aromatic) Aqueous GC (W)	30-Jun-2016	30-Jun-2016	30-Jun-2016	30-Jun-2016	30-Jun-2016	30-Jun-2016
GRO by GC-FID (W)	30-Jun-2016	30-Jun-2016	30-Jun-2016	30-Jun-2016	30-Jun-2016	30-Jun-2016
Low Level Cyanide (W)	29-Jun-2016	30-Jun-2016	29-Jun-2016	29-Jun-2016	29-Jun-2016	29-Jun-2016
Low Level Hexavalent Chromium (w)	29-Jun-2016	27-Jun-2016	29-Jun-2016	27-Jun-2016	27-Jun-2016	29-Jun-2016
Mercury Dissolved	01-Jul-2016		01-Jul-2016	01-Jul-2016	01-Jul-2016	01-Jul-2016
PAH Spec MS - Aqueous (W)	30-Jun-2016	30-Jun-2016	30-Jun-2016	30-Jun-2016	30-Jun-2016	30-Jun-2016
pH Value	28-Jun-2016	28-Jun-2016	28-Jun-2016	28-Jun-2016	28-Jun-2016	28-Jun-2016
SVOC MS (W) - Aqueous				30-Jun-2016		30-Jun-2016
TPH CWG (W)	30-Jun-2016	30-Jun-2016	30-Jun-2016	30-Jun-2016	30-Jun-2016	30-Jun-2016
VOC MS (W)	29-Jun-2016	29-Jun-2016	29-Jun-2016	29-Jun-2016	29-Jun-2016	29-Jun-2016

SDG:	160627-8	**Location:**	Tradeteam Site (DHL) Gloucester	**Order Number:**	70020138-001
Job:	H_WSP_LON-223	**Customer:**	WSP PB LBH	**Report Number:**	367242
Client Reference:	70020138	**Attention:**	George Baggot	**Superseded Report:**	

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt . However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment . Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect .

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill /made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than : - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Commercial, SOM=1%

Site Area(s) Selected: Whole site,2016,2018
Phase(s): All phases

Notes: * For results below LOD, a value of half LOD is used in the calculation of the mean

Unrecognised analytes

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
Bis(2-chloroisopropyl)ether (TIC) (Unrecognised code)	0.10	0.050	0.10	-	-	-	-	mg/kg	1	1	0	0	

Aliphatics and Aromatics

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
Aliphatic C05-C06	0.010	0.005	0.010	0.010	0.005	0.010	3,190	mg/kg	22	32	0	0	
Aliphatic C06-C08	0.010	0.008	0.037	0.010	0.006	0.014	7,780	mg/kg	22	32	5	0	
Aliphatic C08-C10	0.010	0.21	3.30	0.010	0.17	1.73	2,000	mg/kg	22	32	6	0	
Aliphatic C10-C12	0.010	0.63	10.9	0.010	0.12	1.18	9,690	mg/kg	22	32	7	0	
Aliphatic C12-C16	0.10	9.72	170	0.10	1.98	19.4	58,800	mg/kg	22	32	11	0	
Aliphatic C16-C21	0.10	12.4	201	0.10	4.18	42.7	-	mg/kg	22	32	14	0	
Aliphatic C21-C35	0.10	16.6	59.2	0.10	3.23	13.2	-	mg/kg	22	32	24	0	
Aliphatic C35-C44	0.10	7.04	50.5	0.10	0.70	6.75	1,910,000	mg/kg	22	32	11	0	

Commercial, SOM=1%

Site Area(s) Selected: Whole site,2016,2018
Phase(s): All phases

Notes: * For results below LOD, a value of half LOD is used in the calculation of the mean

Aliphatics and Aromatics

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
Aliphatics C12-C44	0.10	45.5	428	0.10	9.96	72.5	-	mg/kg	22	32	25	0	
Aromatic C06-C07	0.010	0.005	0.010	0.010	0.005	0.010	-	mg/kg	22	32	0	0	
Aromatic C07-C08	0.010	0.005	0.010	0.010	0.005	0.010	56,100	mg/kg	22	32	0	0	
Aromatic C08-C10	0.010	0.15	2.27	0.010	0.11	1.15	3,460	mg/kg	22	32	7	0	
Aromatic C10-C12	0.010	0.42	7.25	0.010	0.083	0.78	16,200	mg/kg	22	32	7	0	
Aromatic C12-C16	0.10	1.82	29.4	0.10	0.43	2.77	36,200	mg/kg	22	32	14	0	
Aromatic C12-C44	0.10	34.0	132	0.10	9.80	38.7	-	mg/kg	22	32	25	0	
Aromatic C16-C21	0.10	4.54	60.3	0.10	1.64	11.2	28,600	mg/kg	22	32	17	0	
Aromatic C16-C35	0.10	19.3	82.0	0.10	6.27	27.5	-	mg/kg	22	32	25	0	
Aromatic C21-C35	0.10	14.8	53.9	0.10	4.66	24.8	28,600	mg/kg	22	32	25	0	
Aromatic C35-C44	0.10	12.9	74.5	0.10	3.15	15.4	28,600	mg/kg	22	32	20	0	
Aromatic C40-C44	0.10	5.44	30.0	0.10	1.52	7.67	-	mg/kg	22	32	14	0	
Total Aliphatics and Aromatics (C5-C44)	0.10	81.0	564	0.10	20.2	90.9	-	mg/kg	22	32	26	0	
TPH Hazard Index	-	0.002	0.011	-	0.0005	0.002	1.00	mg/kg	22	32	N/A	0	

Commercial, SOM=1%

Site Area(s) Selected: Whole site,2016,2018
Phase(s): All phases

Notes: * For results below LOD, a value of half LOD is used in the calculation of the mean

Asbestos

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
Asbestos Ex. actinolite	-	-	-	-	-	-	-	No units	5	5	0	0	
Asbestos Ex. Amosite	-	-	-	-	-	-	-	No units	5	5	0	0	
Asbestos Ex. anthophyllite	-	-	-	-	-	-	-	No units	5	5	0	0	
Asbestos Ex. Chrysotile	-	-	-	-	-	-	-	No units	5	5	0	0	
Asbestos Ex. crocidolite	-	-	-	-	-	-	-	No units	5	5	0	0	
Asbestos Ex. tremolite	-	-	-	-	-	-	-	No units	5	5	0	0	
Non-Asbestos Fibres	-	-	-	-	-	-	-	No units	5	5	0	0	
Asbestos Ex. actinolite	-	-	-	-	-	-	-	UNKNOWN	17	17	0	0	
Asbestos Ex. Amosite	-	-	-	-	-	-	-	UNKNOWN	17	17	0	0	
Asbestos Ex. anthophyllite	-	-	-	-	-	-	-	UNKNOWN	17	17	0	0	
Asbestos Ex. Chrysotile	-	-	-	-	-	-	-	UNKNOWN	17	17	0	0	
Asbestos Ex. crocidolite	-	-	-	-	-	-	-	UNKNOWN	17	17	0	0	
Asbestos Ex. tremolite	-	-	-	-	-	-	-	UNKNOWN	17	17	0	0	
Non-Asbestos Fibres	-	-	-	-	-	-	-	UNKNOWN	17	17	0	0	

Commercial, SOM=1%

Site Area(s) Selected: Whole site,2016,2018
Phase(s): All phases

Notes: * For results below LOD, a value of half LOD is used in the calculation of the mean

BTEX and Fuel Additives

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
1,2,4-Trimethylbenzene	0.009	0.015	0.090	0.009	0.005	0.009	611	mg/kg	4	6	0	0	
1,3,5-Trimethylbenzene	0.008	0.013	0.080	0.008	0.004	0.008	-	mg/kg	4	6	0	0	
Benzene	0.009	0.014	0.090	0.009	0.008	0.090	27.0	mg/kg	22	32	0	0	
Ethylbenzene	0.004	0.006	0.040	0.004	0.003	0.040	5,710	mg/kg	22	32	0	0	
Methyl t-butylether (MTBE)	0.010	0.015	0.10	0.010	0.008	0.10	7,480	mg/kg	22	32	0	0	
Tertiary Amyl Methyl Ether (TAME)	0.010	0.015	0.10	0.010	0.008	0.10	-	mg/kg	22	32	0	0	
Toluene	0.007	0.011	0.070	0.007	0.006	0.070	56,300	mg/kg	22	32	0	0	
Xylene - Total (Summed)	0.010	0.030	0.10	0.010	0.017	0.10	5,920	mg/kg	22	32	32	0	
Xylene-m & p	0.010	0.015	0.10	0.010	0.008	0.10	5,920	mg/kg	22	32	0	0	
Xylene-o	0.010	0.015	0.10	0.010	0.008	0.10	5,920	mg/kg	22	32	0	0	

Commercial, SOM=1%

Site Area(s) Selected: Whole site,2016,2018
Phase(s): All phases

Notes: * For results below LOD, a value of half LOD is used in the calculation of the mean

Chlorinated Aliphatics

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
1,1,1,2-Tetrachloroethane	0.010	0.016	0.10	0.010	0.005	0.010	108	mg/kg	4	6	0	0	
1,1,1-Trichloroethane	0.007	0.011	0.070	0.007	0.004	0.007	1,580	mg/kg	4	6	0	0	
1,1,2,2-Tetrachloroethane	0.010	0.016	0.10	0.010	0.005	0.010	274	mg/kg	4	6	0	0	
1,1,2-Trichloroethane	0.010	0.016	0.10	0.010	0.005	0.010	89.0	mg/kg	4	6	0	0	
1,1-Dichloroethane	0.008	0.013	0.080	0.008	0.004	0.008	263	mg/kg	4	6	0	0	
1,1-Dichloroethene	0.010	0.016	0.10	0.010	0.005	0.010	24.0	mg/kg	4	6	0	0	
1,1-Dichloropropene	0.010	0.016	0.10	0.010	0.005	0.010	-	mg/kg	4	6	0	0	
1,2,3-Trichloropropane	0.016	0.026	0.16	0.016	0.008	0.016	-	mg/kg	4	6	0	0	
1,2-Dichloroethane	0.005	0.008	0.050	0.005	0.003	0.005	0.67	mg/kg	4	6	0	0	
1,2-Dichloropropane	0.010	0.016	0.10	0.010	0.005	0.010	3.10	mg/kg	4	6	0	0	
1,3-Dichloropropane	0.007	0.011	0.070	0.007	0.004	0.007	-	mg/kg	4	6	0	0	
2,2-Dichloropropane	0.010	0.016	0.10	0.010	0.005	0.010	-	mg/kg	4	6	0	0	
Carbon tetrachloride	0.010	0.016	0.10	0.010	0.005	0.010	31.0	mg/kg	4	6	0	0	
Chloroethane	0.010	0.016	0.10	0.010	0.005	0.010	904	mg/kg	4	6	0	0	
Chloroform	0.008	0.013	0.080	0.008	0.004	0.008	99.0	mg/kg	4	6	0	0	
Chloromethane	0.007	0.011	0.070	0.007	0.004	0.007	0.96	mg/kg	4	6	0	0	

Commercial, SOM=1%

Site Area(s) Selected: Whole site,2016,2018
Phase(s): All phases

Notes: * For results below LOD, a value of half LOD is used in the calculation of the mean

Chlorinated Aliphatics

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
Cis 1,2-Dichloroethene	0.006	0.010	0.060	0.006	0.003	0.006	14.0	mg/kg	4	6	0	0	
Cis 1,3-Dichloropropene	0.010	0.016	0.10	0.010	0.005	0.010	-	mg/kg	4	6	0	0	
Dichloromethane	0.010	0.016	0.10	0.010	0.005	0.010	257	mg/kg	4	6	0	0	
Hexachlorobutadiene	0.020	0.020	0.10	0.020	0.010	0.020	31.0	mg/kg	4	6	0	0	
Hexachloroethane	0.10	0.050	0.10	0.10	0.050	0.10	21.0	mg/kg	2	4	0	0	
Tetrachloroethene (PCE)	0.005	0.008	0.050	0.005	0.003	0.005	19.0	mg/kg	4	6	0	0	
Trans-1,2-Dichloroethene	0.010	0.016	0.10	0.010	0.005	0.010	21.0	mg/kg	4	6	0	0	
Trans-1,3-Dichloropropene	0.010	0.016	0.10	0.010	0.005	0.010	-	mg/kg	4	6	0	0	
Trichloroethene (TCE)	0.009	0.015	0.090	0.009	0.005	0.009	1.20	mg/kg	4	6	0	0	
Vinyl chloride	0.006	0.010	0.060	0.006	0.003	0.006	0.059	mg/kg	4	6	0	0	

Commercial, SOM=1%

Site Area(s) Selected: Whole site,2016,2018
Phase(s): All phases

Notes: * For results below LOD, a value of half LOD is used in the calculation of the mean

Chlorinated Aromatics

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
1,2,3-Trichlorobenzene	0.020	0.033	0.20	0.020	0.010	0.020	102	mg/kg	4	6	0	0	
1,2,4-Trichlorobenzene	0.020	0.020	0.10	0.020	0.010	0.020	265	mg/kg	4	6	0	0	
1,2-Dichlorobenzene	0.010	0.016	0.10	0.010	0.005	0.010	2,020	mg/kg	4	6	0	0	
1,3-Dichlorobenzene	0.008	0.013	0.080	0.008	0.004	0.008	30.0	mg/kg	4	6	0	0	
1,4-Dichlorobenzene	0.005	0.008	0.050	0.005	0.003	0.005	584	mg/kg	4	6	0	0	
2-Chlorotoluene	0.009	0.015	0.090	0.009	0.005	0.009	-	mg/kg	4	6	0	0	
4-Chlorotoluene	0.010	0.016	0.10	0.010	0.005	0.010	-	mg/kg	4	6	0	0	
Chlorobenzene	0.005	0.008	0.050	0.005	0.003	0.005	58.0	mg/kg	4	6	0	0	
Hexachlorobenzene	0.10	0.050	0.10	0.10	0.050	0.10	105	mg/kg	2	4	0	0	

Commercial, SOM=1%

Site Area(s) Selected: Whole site,2016,2018
Phase(s): All phases

Notes: * For results below LOD, a value of half LOD is used in the calculation of the mean

Chlorinated Phenols

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
2,4,5-Trichlorophenol	0.10	0.050	0.10	0.10	0.050	0.10	-	mg/kg	2	4	0	0	
2,4,6-Trichlorophenol	0.10	0.050	0.10	0.10	0.050	0.10	2,700	mg/kg	2	4	0	0	
2,4-Dichlorophenol	0.10	0.050	0.10	0.10	0.050	0.10	2,700	mg/kg	2	4	0	0	
2-Chlorophenol	0.10	0.050	0.10	0.10	0.050	0.10	2,700	mg/kg	2	4	0	0	
4-Chloro-3-Methlphenol	0.10	0.050	0.10	0.10	0.050	0.10	-	mg/kg	2	4	0	0	
Chlorophenols - Total (Summed Isomers)	0.10	0.10	0.10	0.10	0.10	0.10	2,700	mg/kg	2	4	4	0	

Dioxins and Furans

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
Dibenzofuran	0.10	0.050	0.10	0.10	0.050	0.10	-	mg/kg	2	4	0	0	

Commercial, SOM=1%

Site Area(s) Selected: Whole site,2016,2018
Phase(s): All phases

Notes: * For results below LOD, a value of half LOD is used in the calculation of the mean

Dyes

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
3-Nitroaniline	0.10	0.050	0.10	0.10	0.050	0.10	-	mg/kg	2	4	0	0	
4-Nitroaniline	0.10	0.050	0.10	0.10	0.050	0.10	-	mg/kg	2	4	0	0	

Explosives

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
2,4-Dinitrotoluene	0.10	0.050	0.10	0.10	0.050	0.10	3,720	mg/kg	2	4	0	0	
2,6-Dinitrotoluene	0.10	0.050	0.10	0.10	0.050	0.10	1,850	mg/kg	2	4	0	0	

Commercial, SOM=1%

Site Area(s) Selected: Whole site,2016,2018
Phase(s): All phases

Notes: * For results below LOD, a value of half LOD is used in the calculation of the mean

General Chemistry

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
pH	7.54	9.56	11.9	7.90	8.35	9.04	-	pH Units	20	27	27	0	

Commercial, SOM=1%

Site Area(s) Selected: Whole site,2016,2018
Phase(s): All phases

Notes: * For results below LOD, a value of half LOD is used in the calculation of the mean

Halogonated Hydrocarbons

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
1,2-Dibromo-3-Chloropropane	0.014	0.023	0.14	0.014	0.007	0.014	-	mg/kg	4	6	0	0	
1,2-Dibromoethane	0.010	0.016	0.10	0.010	0.005	0.010	-	mg/kg	4	6	0	0	
Bromobenzene	0.010	0.016	0.10	0.010	0.005	0.010	91.0	mg/kg	4	6	0	0	
Bromochloromethane	0.010	0.016	0.10	0.010	0.005	0.010	-	mg/kg	4	6	0	0	
Bromodichloromethane	0.007	0.011	0.070	0.007	0.004	0.007	2.00	mg/kg	4	6	0	0	
Bromoform	0.010	0.016	0.10	0.010	0.005	0.010	714	mg/kg	4	6	0	0	
Bromomethane	0.010	0.016	0.10	0.010	0.005	0.010	-	mg/kg	4	6	0	0	
Dibromochloromethane	0.010	0.016	0.10	0.010	0.005	0.010	-	mg/kg	4	6	0	0	
Dibromomethane	0.009	0.015	0.090	0.009	0.005	0.009	-	mg/kg	4	6	0	0	
Dichlorodifluoromethane	0.006	0.010	0.060	0.006	0.003	0.006	-	mg/kg	4	6	0	0	
Trichlorofluoromethane	0.006	0.010	0.060	0.006	0.003	0.006	-	mg/kg	4	6	0	0	

Commercial, SOM=1%

Site Area(s) Selected: Whole site,2016,2018
Phase(s): All phases

Notes: * For results below LOD, a value of half LOD is used in the calculation of the mean

Inorganics

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
Chloride	20.3	20.3	20.3	-	-	-	-	mg/kg	1	1	1	0	
Cyanide (Total)	1.00	0.50	1.00	1.00	0.50	1.00	-	mg/kg	19	24	0	0	
Sulphate as SO4	4,000	47,800	113,000	74,700	803,617	2,100,000	-	ug/l	9	12	11	0	

Ketones

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
Isophorone	0.10	0.050	0.10	0.10	0.050	0.10	-	mg/kg	2	4	0	0	

Commercial, SOM=1%

Site Area(s) Selected: Whole site,2016,2018
Phase(s): All phases

Notes: * For results below LOD, a value of half LOD is used in the calculation of the mean

Metals

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
Arsenic	1.15	11.5	26.7	8.33	15.3	28.8	635	mg/kg	19	24	24	0	
Cadmium	0.020	0.89	3.84	0.37	0.61	1.00	223	mg/kg	19	24	22	0	
Chromium	3.88	13.1	28.2	13.8	24.9	30.2	-	mg/kg	19	24	24	0	
Copper	1.40	18.8	60.2	12.7	28.9	61.3	69,800	mg/kg	19	24	23	0	
Hexavalent Chromium	0.60	0.35	1.04	0.60	0.30	0.60	24.0	mg/kg	19	24	1	0	
Lead	0.70	979	13,300	11.2	101	724	1,390	mg/kg	19	24	23	1	WS05
Mercury	0.14	0.11	0.34	0.14	0.070	0.14	1,110	mg/kg	19	24	2	0	
Nickel	1.81	14.1	29.0	19.0	35.9	76.3	1,710	mg/kg	19	24	24	0	
Selenium	1.00	0.50	1.00	1.00	1.00	10.0	12,300	mg/kg	19	24	0	0	
Zinc	6.17	111	374	53.9	86.3	209	1,050,000	mg/kg	19	24	24	0	

Commercial, SOM=1%

Site Area(s) Selected: Whole site,2016,2018
Phase(s): All phases

Notes: * For results below LOD, a value of half LOD is used in the calculation of the mean

Other

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
Soil Organic Matter (SOM)	0.35	0.94	2.16	1.03	1.65	3.26	-	%	7	9	8	0	
2-Chloronaphthalene	0.10	0.050	0.10	0.10	0.050	0.10	370	mg/kg	2	4	0	0	
4-Bromophenylphenyl ether	0.10	0.050	0.10	0.10	0.050	0.10	-	mg/kg	2	4	0	0	
4-Chloroaniline	0.10	0.050	0.10	0.10	0.050	0.10	-	mg/kg	2	4	0	0	
4-Chlorophenyl phenyl ether	0.10	0.050	0.10	0.10	0.050	0.10	-	mg/kg	2	4	0	0	
Azobenzene	0.10	0.050	0.10	0.10	0.050	0.10	-	mg/kg	2	4	0	0	
Bis (2-chloroethoxy) methane	0.10	0.050	0.10	0.10	0.050	0.10	-	mg/kg	2	4	0	0	
Bis (2-chloroethyl) ether	0.10	0.050	0.10	0.10	0.050	0.10	-	mg/kg	2	4	0	0	
Carbazole	0.10	0.050	0.10	0.10	0.050	0.10	-	mg/kg	2	4	0	0	
Carbon Disulphide	0.007	0.011	0.070	0.007	0.004	0.007	11.0	mg/kg	4	6	0	0	
Nitrobenzene	0.10	0.050	0.10	0.10	0.050	0.10	-	mg/kg	2	4	0	0	
n-Nitrosodi-n-Propylamine	0.10	0.050	0.10	0.10	0.050	0.10	-	mg/kg	2	4	0	0	
Styrene	0.010	0.016	0.10	0.010	0.005	0.010	3,170	mg/kg	4	6	0	0	

Commercial, SOM=1%

Site Area(s) Selected: Whole site,2016,2018
Phase(s): All phases

Notes: * For results below LOD, a value of half LOD is used in the calculation of the mean

PAHs

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
2-Methylnaphthalene	0.10	0.050	0.10	0.10	0.050	0.10	-	mg/kg	2	4	0	0	
Acenaphthene	0.008	0.009	0.10	0.008	0.005	0.012	-	mg/kg	22	31	5	0	
Acenaphthylene	0.012	0.012	0.10	0.012	0.006	0.012	-	mg/kg	22	31	4	0	
Anthracene	0.016	0.027	0.11	0.016	0.011	0.023	-	mg/kg	22	31	9	0	
Benzo (a) anthracene	0.014	0.073	0.32	0.014	0.023	0.12	-	mg/kg	22	31	12	0	
Benzo (a) pyrene	0.015	0.078	0.41	0.015	0.021	0.079	38.0	mg/kg	22	31	14	0	
Benzo (b) fluoranthene	0.015	0.11	0.63	0.015	0.026	0.11	-	mg/kg	22	31	13	0	
Benzo (ghi) perylene	0.024	0.074	0.39	0.024	0.019	0.059	-	mg/kg	22	31	11	0	
Benzo (k) fluoranthene	0.014	0.042	0.23	0.014	0.014	0.044	-	mg/kg	22	31	12	0	
Chrysene	0.010	0.073	0.40	0.010	0.018	0.089	-	mg/kg	22	31	13	0	
Dibenzo (ah) anthracene	0.023	0.021	0.10	0.023	0.012	0.023	-	mg/kg	22	31	5	0	
Fluoranthene	0.017	0.15	0.71	0.017	0.045	0.23	-	mg/kg	22	31	15	0	
Fluorene	0.010	0.010	0.10	0.010	0.006	0.012	-	mg/kg	22	31	3	0	
Indeno (1,2,3-cd) pyrene	0.018	0.054	0.29	0.018	0.014	0.044	-	mg/kg	22	31	11	0	
Naphthalene	0.009	0.017	0.10	0.009	0.006	0.020	193	mg/kg	22	31	10	0	
PAH Total (EPA 16)	0.12	0.92	4.61	0.12	0.24	1.11	-	mg/kg	21	30	13	0	

Commercial, SOM=1%

Site Area(s) Selected: Whole site,2016,2018
Phase(s): All phases

Notes: * For results below LOD, a value of half LOD is used in the calculation of the mean

PAHs

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
Phenanthrene	0.015	0.081	0.33	0.015	0.033	0.13	-	mg/kg	22	31	14	0	
Pyrene	0.015	0.13	0.60	0.015	0.036	0.19	-	mg/kg	22	31	15	0	

Pesticides, Herbicides and Insecticides

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
Hexachlorocyclopentadiene	0.10	0.050	0.10	0.10	0.050	0.10	-	mg/kg	2	4	0	0	
Pentachlorophenol	0.10	0.050	0.10	0.10	0.050	0.10	406	mg/kg	2	4	0	0	

Commercial, SOM=1%

Site Area(s) Selected: Whole site,2016,2018
Phase(s): All phases

Notes: * For results below LOD, a value of half LOD is used in the calculation of the mean

Pharmaceuticals

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
2-Nitroaniline	0.10	0.050	0.10	0.10	0.050	0.10	-	mg/kg	2	4	0	0	

Commercial, SOM=1%

Site Area(s) Selected: Whole site,2016,2018
Phase(s): All phases

Notes: * For results below LOD, a value of half LOD is used in the calculation of the mean

Phenols

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
2,4-Dimethylphenol	0.10	0.050	0.10	0.10	0.050	0.10	15,700	mg/kg	2	4	0	0	
2-Methylphenol (o-Cresol)	0.10	0.050	0.10	0.10	0.050	0.10	160,000	mg/kg	2	4	0	0	
2-Nitrophenol	0.10	0.050	0.10	0.10	0.050	0.10	-	mg/kg	2	4	0	0	
4-Methylphenol	0.10	0.050	0.10	0.10	0.050	0.10	160,000	mg/kg	2	4	0	0	
4-Nitrophenol	0.10	0.050	0.10	0.10	0.050	0.10	-	mg/kg	2	4	0	0	
Cresols	0.010	0.005	0.010	0.010	0.005	0.010	160,000	mg/kg	1	3	0	0	
Methylphenols Total (Summed)	0.10	0.10	0.10	0.10	0.10	0.10	160,000	mg/kg	2	4	4	0	
Phenol	0.010	0.028	0.10	0.010	0.005	0.010	760	mg/kg	2	4	0	0	
Phenol (Monohydric)	0.035	0.018	0.035	0.035	0.018	0.035	-	mg/kg	1	3	0	0	
Xylenols	0.015	0.008	0.015	0.015	0.008	0.015	-	mg/kg	1	3	0	0	

Commercial, SOM=1%

Site Area(s) Selected: Whole site,2016,2018
Phase(s): All phases

Notes: * For results below LOD, a value of half LOD is used in the calculation of the mean

Phthalates

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
Bis (2-ethylhexyl) phthalate	0.10	0.050	0.10	0.10	0.050	0.10	85,200	mg/kg	2	4	0	0	
Butyl benzyl phthalate	0.10	0.050	0.10	0.10	0.050	0.10	940,000	mg/kg	2	4	0	0	
Diethyl phthalate	0.10	0.050	0.10	0.10	0.050	0.10	144,000	mg/kg	2	4	0	0	
Dimethyl phthalate	0.10	0.050	0.10	0.10	0.050	0.10	-	mg/kg	2	4	0	0	
Di-n-butyl phthalate	0.10	0.050	0.10	0.10	0.050	0.10	15,400	mg/kg	2	4	0	0	
Di-n-octyl phthalate	0.10	0.050	0.10	0.10	0.050	0.10	89,100	mg/kg	2	4	0	0	

Commercial, SOM=1%

Site Area(s) Selected: Whole site,2016,2018
Phase(s): All phases

Notes: * For results below LOD, a value of half LOD is used in the calculation of the mean

QA Standard

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
4-Bromofluorobenzene	77.9	89.3	101	56.0	60.8	65.5	-	%	4	6	6	0	
Acenaphthene-d10	89.1	98.9	107	92.3	99.5	107	-	%	21	30	30	0	
Chrysene-d12	83.8	94.0	105	79.5	92.0	99.7	-	%	21	30	30	0	
Dibromofluoromethane	83.0	106	133	101	102	103	-	%	4	6	6	0	
Naphthalene-d8	91.0	102	113	91.4	103	111	-	%	21	30	30	0	
Perylene-d12 IS	86.3	97.0	106	78.4	90.9	105	-	%	17	26	26	0	
Perylene-d12**	87.5	90.7	95.1	-	-	-	-	%	4	4	4	0	
Phenanthrene-d10 IS	87.2	97.6	108	93.8	97.9	104	-	%	21	30	30	0	
Toluene-d8 Surrogate	92.6	97.4	103	89.6	92.9	96.2	-	%	4	6	6	0	

Commercial, SOM=1%

Site Area(s) Selected: Whole site,2016,2018
Phase(s): All phases

Notes: * For results below LOD, a value of half LOD is used in the calculation of the mean

TPH/EPH

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
GRO Surrogate	53.0	86.2	129	21.0	74.4	121	-	%	22	32	32	0	
PRO (C5-C12)	0.044	1.41	23.7	0.044	0.49	4.87	-	mg/kg	22	32	8	0	

VOCs

Analyte	Madeground			Natural Ground			Assessment Criteria (AC)	Units	No. of Locations	No. of Samples	No. of Samples > LOD	No. of Locations >AC	Locations Failing Screening
	Min	Mean*	Max	Min	Mean*	Max							
4-Isopropyltoluene	0.010	0.016	0.10	0.010	0.005	0.010	-	mg/kg	4	6	0	0	
iso-Propylbenzene	0.005	0.008	0.050	0.005	0.003	0.005	1,300	mg/kg	4	6	0	0	
n-Butylbenzene	0.011	0.018	0.11	0.011	0.006	0.011	-	mg/kg	4	6	0	0	
n-Propylbenzene	0.010	0.016	0.10	0.010	0.005	0.010	3,860	mg/kg	4	6	0	0	
Sec-Butylbenzene	0.010	0.016	0.10	0.010	0.005	0.010	-	mg/kg	4	6	0	0	
Tert-Butylbenzene	0.014	0.023	0.14	0.014	0.007	0.014	-	mg/kg	4	6	0	0	

THERE WERE NO EXCEEDANCES OF Commercial, SOM=1%

EXCEEDANCES OF Commercial, SOM=1%

Metals

Analyte	Point ID	Depth	Result	Threshold	Units	Stratum
Lead	WS05	0.65 - 0.65	13300	1390	mg/kg	Made Ground Cohesive

Region	Wales and England
Water Body	Groundwater
Water Body Type	NA
Surface Water Type	NA

Hardness	NA
Recieving surface water status	NA
Altitude	NA

Sample Matrix: LEACHATE

Site Area(s) Selected: Whole site
Event(s) Selected: All events

General Chemistry

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
pH	9.3	10.2	11.1	6.50/10.0	UK DWS	pH Units	2	2	1	TP102
Electrical conductivity	220	347	474	2,500	UK DWS	uS/cm	2	2	0	

Inorganics

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Cyanide (Total)	0.50	0.25	0.50	-		mg/kg	2	-	0	
Cyanide (Free)	50.0	25.0	50.0	50.0	UK DWS - Assumes Total Cyanide	ug/l	5	-	0	
Cyanide (Total)	50.0	25.0	50.0	50.0	UK DWS	ug/l	6	-	0	

Sample Matrix: LEACHATE

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Metals

ANALYTE	MIN	MEAN*	MAX	ASSESSMENT CRITERIA (AC)	ASSESSMENT CRITERIA SOURCE	UNITS	NO. LOCATIONS SAMPLED	NO. SAMPLES > LOD	NO. LOCATIONS > AC	LOCATION(S) FAILING SCREENING
Arsenic	0.005	0.015	0.028	-		mg/kg	2	1	0	
Cadmium	0.0008	0.0004	0.0008	-		mg/kg	2	-	0	
Chromium	0.013	0.013	0.013	-		mg/kg	2	2	0	
Copper	0.003	0.009	0.017	-		mg/kg	2	1	0	
Ferric Iron	0.50	0.25	0.50	-		mg/kg	1	-	0	
Ferrous Iron	1.00	0.50	1.00	-		mg/kg	1	-	0	
Iron	0.190	0.095	0.190	-		mg/kg	1	-	0	
Lead	0.002	0.013	0.024	-		mg/kg	2	1	0	
Mercury	0.0001	0.0001	0.0001	-		mg/kg	2	1	0	
Nickel	0.004	0.013	0.024	-		mg/kg	2	1	0	
Selenium	0.005	0.004	0.006	-		mg/kg	2	1	0	
Zinc	0.078	0.089	0.099	-		mg/kg	2	2	0	
Arsenic	0.12	1.88	5.53	10.0	UK DWS	ug/l	11	8	0	
Cadmium	0.080	0.048	0.100	5.00	UK DWS	ug/l	11	-	0	
Chromium	0.22	1.72	4.84	50.0	UK DWS	ug/l	11	9	0	
Copper	0.30	0.87	2.23	2,000	UK DWS	ug/l	11	5	0	
Ferric Iron	50.0	25.0	50.0	-		ug/l	1	-	0	
Ferrous Iron	100.0	50.0	100.0	-		ug/l	1	-	0	

Sample Matrix: LEACHATE

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Metals

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Iron	19.00	9.50	19.00	200	UK DWS	ug/l	1	-	0	
Lead	0.02	0.50	2.41	10.0	UK DWS	ug/l	11	6	0	
Mercury	0.010	0.007	0.015	1.00	UK DWS	ug/l	11	3	0	
Nickel	0.15	1.19	2.82	20.0	UK DWS	ug/l	11	8	0	
Selenium	0.39	0.88	6.73	10.0	UK DWS	ug/l	11	4	0	
Zinc	0.41	2.46	9.94	-		ug/l	11	8	0	

Physical

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Temperature	18.7	19.2	19.7	-		DegC	2	2	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Unrecognised analytes — Aquifer: ALV

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
(Unrecognised code)	0.10	0.10	0.10	-		%	1	1	0	
(Unrecognised code)	0.005	0.003	0.005	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Aliphatics and Aromatics — Aquifer: ALV

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Aliphatic C05-C06	10.00	5.00	10.00	15,000	WHO 2008	ug/l	1	-	0	
Aliphatic C06-C08	10.00	5.00	10.00	15,000	WHO 2008	ug/l	1	-	0	
Aliphatic C08-C10	10.00	5.00	10.00	300	WHO 2008	ug/l	1	-	0	
Aliphatic C10-C12	10.00	5.00	10.00	300	WHO 2008	ug/l	1	-	0	
Aliphatic C12-C16	10.00	5.00	10.00	300	WHO 2008	ug/l	1	-	0	
Aliphatic C16-C21	10.00	5.00	10.00	-		ug/l	1	-	0	
Aliphatic C21-C35	10.00	5.00	10.00	-		ug/l	1	-	0	
Aliphatics C12-C35	10.00	5.00	10.00	-		ug/l	1	-	0	
Aromatic C06-C07	10.00	5.00	10.00	-		ug/l	1	-	0	
Aromatic C07-C08	10.00	5.00	10.00	-		ug/l	1	-	0	
Aromatic C08-C10	10.00	5.00	10.00	300	WHO 2008	ug/l	1	-	0	
Aromatic C10-C12	10.00	5.00	10.00	90.0	WHO 2008	ug/l	1	-	0	
Aromatic C12-C16	10.00	5.00	10.00	90.0	WHO 2008	ug/l	1	-	0	
Aromatic C12-C35	10.00	5.00	10.00	-		ug/l	1	-	0	
Aromatic C16-C21	10.00	5.00	10.00	90.0	WHO 2008	ug/l	1	-	0	
Aromatic C21-C35	10.00	5.00	10.00	90.0	WHO 2008	ug/l	1	-	0	
Total Aliphatics and Aromatics (C5-C35)	10.00	5.00	10.00	10.0	EA 2009	ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

BTEX and Fuel Additives — Aquifer: ALV

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Benzene	7.00	3.50	7.00	1.00	UK DWS	ug/l	1	-	0	
BTEX	28.0	14.0	28.0	-		ug/l	1	-	0	
Ethylbenzene	5.00	2.50	5.00	300	WHO 2017	ug/l	1	-	0	
Methyl t-butylether (MTBE)	3.00	1.50	3.00	15.0	WHO 2017	ug/l	1	-	0	
Toluene	4.00	2.00	4.00	700	WHO 2017	ug/l	1	-	0	
Xylene-m & p	8.00	4.00	8.00	-		ug/l	1	-	0	
Xylene-o	3.00	1.50	3.00	-		ug/l	1	-	0	

General Chemistry — Aquifer: ALV

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
pH	7.34	7.34	7.34	6.50/10.0	UK DWS	pH Units	1	1	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Inorganics — Aquifer: ALV

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Cyanide (Total)	50.0	25.0	50.0	50.0	UK DWS	ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Metals — Aquifer: ALV

ANALYTE	MIN	MEAN*	MAX	ASSESSMENT CRITERIA (AC)	ASSESSMENT CRITERIA SOURCE	UNITS	NO. LOCATIONS SAMPLED	NO. SAMPLES > LOD	NO. LOCATIONS > AC	LOCATION(S) FAILING SCREENING
Arsenic	0.50	0.25	0.50	10.0	UK DWS	ug/l	1	-	0	
Cadmium	0.080	0.040	0.080	5.00	UK DWS	ug/l	1	-	0	
Chromium	1.00	0.50	1.00	50.0	UK DWS	ug/l	1	-	0	
Copper	1.01	1.01	1.01	2,000	UK DWS	ug/l	1	1	0	
Hexavalent Chromium	30.0	15.0	30.0	-		ug/l	1	-	0	
Lead	0.31	0.31	0.31	10.0	UK DWS	ug/l	1	1	0	
Mercury	0.010	0.005	0.010	1.00	UK DWS	ug/l	1	-	0	
Nickel	59.1	59.1	59.1	20.0	UK DWS	ug/l	1	1	1	BH05
Selenium	23.7	23.7	23.7	10.0	UK DWS	ug/l	1	1	1	BH05
Zinc	7.61	7.61	7.61	-		ug/l	1	1	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

PAHs — Aquifer: ALV

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Acenaphthene	0.005	0.003	0.005	-		ug/l	1	-	0	
Acenaphthylene	0.005	0.003	0.005	-		ug/l	1	-	0	
Anthracene	0.005	0.003	0.005	-		ug/l	1	-	0	
Benzo (a) anthracene	0.005	0.003	0.005	-		ug/l	1	-	0	
Benzo (a) pyrene	0.002	0.001	0.002	0.010	UK DWS	ug/l	1	-	0	
Benzo (b) fluoranthene	0.005	0.003	0.005	-		ug/l	1	-	0	
Benzo (k) fluoranthene	0.005	0.003	0.005	-		ug/l	1	-	0	
Chrysene	0.005	0.003	0.005	-		ug/l	1	-	0	
Dibenzo (ah) anthracene	0.005	0.003	0.005	-		ug/l	1	-	0	
Fluoranthene	0.005	0.003	0.005	-		ug/l	1	-	0	
Fluorene	0.005	0.003	0.005	-		ug/l	1	-	0	
Indeno (1,2,3-cd) pyrene	0.005	0.003	0.005	-		ug/l	1	-	0	
Naphthalene	0.010	0.005	0.010	-		ug/l	1	-	0	
PAH Total (EPA 16)	0.082	0.041	0.082	-		ug/l	1	-	0	
Phenanthrene	0.005	0.003	0.005	-		ug/l	1	-	0	
Pyrene	0.005	0.003	0.005	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Phenols — Aquifer: ALV

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Xylenols	11.00	5.50	11.00	-		ug/l	1	-	0	

TPH/EPH — Aquifer: ALV

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
GRO Surrogate	90.0	90.0	90.0	-		%	1	1	0	
PRO (C5-C12)	50.0	25.0	50.0	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Unrecognised analytes — Aquifer: CHAM

ANALYTE	MIN	MEAN*	MAX	ASSESSMENT CRITERIA (AC)	ASSESSMENT CRITERIA SOURCE	UNITS	NO. LOCATIONS SAMPLED	NO. SAMPLES > LOD	NO. LOCATIONS > AC	LOCATION(S) FAILING SCREENING
(Unrecognised code)	0.14	0.15	0.15	-		%	2	2	0	
(Unrecognised code)	0.005	0.003	0.005	-		ug/l	2	-	0	
C16-C35 Aromatics (Unrecognised code)	10.0	13.6	48.0	-		ug/l	5	1	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Aliphatics and Aromatics — Aquifer: CHAM

ANALYTE	MIN	MEAN*	MAX	ASSESSMENT CRITERIA (AC)	ASSESSMENT CRITERIA SOURCE	UNITS	NO. LOCATIONS SAMPLED	NO. SAMPLES > LOD	NO. LOCATIONS > AC	LOCATION(S) FAILING SCREENING
Aliphatic C05-C06	10.00	5.00	10.00	15,000	WHO 2008	ug/l	7	-	0	
Aliphatic C06-C08	10.00	5.00	10.00	15,000	WHO 2008	ug/l	7	-	0	
Aliphatic C08-C10	10.00	5.00	10.00	300	WHO 2008	ug/l	7	-	0	
Aliphatic C10-C12	10.00	5.00	10.00	300	WHO 2008	ug/l	7	-	0	
Aliphatic C12-C16	10.00	5.00	10.00	300	WHO 2008	ug/l	7	-	0	
Aliphatic C16-C21	10.00	5.00	10.00	-		ug/l	7	-	0	
Aliphatic C21-C35	10.00	6.71	17.00	-		ug/l	7	1	0	
Aliphatics C12-C35	10.00	6.71	17.00	-		ug/l	7	1	0	
Aromatic C06-C07	10.00	5.00	10.00	-		ug/l	7	-	0	
Aromatic C07-C08	10.00	5.00	10.00	-		ug/l	7	-	0	
Aromatic C08-C10	10.00	5.00	10.00	300	WHO 2008	ug/l	7	-	0	
Aromatic C10-C12	10.00	5.00	10.00	90.0	WHO 2008	ug/l	7	-	0	
Aromatic C12-C16	10.00	5.00	10.00	90.0	WHO 2008	ug/l	7	-	0	
Aromatic C12-C35	10.0	11.1	48.0	-		ug/l	7	1	0	
Aromatic C16-C21	10.00	5.00	10.00	90.0	WHO 2008	ug/l	7	-	0	
Aromatic C21-C35	10.0	11.1	48.0	90.0	WHO 2008	ug/l	7	1	0	
Total Aliphatics and Aromatics (C5-C35)	10.0	16.1	75.0	10.0	EA 2009	ug/l	7	2	2	BH02, WS03

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

BTEX and Fuel Additives — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
1,2,4-Trimethylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,3,5-Trimethylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
Benzene	1.00	1.36	7.00	1.00	UK DWS	ug/l	7	-	0	
BTEX	28.0	14.0	28.0	-		ug/l	2	-	0	
Ethylbenzene	1.00	1.07	5.00	300	WHO 2017	ug/l	7	-	0	
Methyl t-butylether (MTBE)	1.00	0.79	3.00	15.0	WHO 2017	ug/l	7	-	0	
Tertiary Amyl Methyl Ether (TAME)	1.00	0.50	1.00	-		ug/l	5	-	0	
Toluene	1.00	0.93	4.00	700	WHO 2017	ug/l	7	-	0	
Xylene	2.00	1.00	2.00	500	WHO 2017	ug/l	5	-	0	
Xylene-m & p	1.00	1.50	8.00	-		ug/l	7	-	0	
Xylene-o	1.00	0.79	3.00	-		ug/l	7	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Chlorinated Aliphatics — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
1,1,1,2-Tetrachloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,1,1-Trichloroethane	1.00	0.50	1.00	2,000	WHO 2017	ug/l	1	-	0	
1,1,2,2-Tetrachloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,1,2-Trichloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,1-Dichloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,1-Dichloroethene	1.00	0.50	1.00	140	WHO 2017	ug/l	1	-	0	
1,1-Dichloropropene	1.00	0.50	1.00	20.0	WHO 2017	ug/l	1	-	0	
1,2,3-Trichloropropane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,2-Dichloroethane	1.00	0.50	1.00	3.00	UK DWS	ug/l	1	-	0	
1,2-Dichloropropane	1.00	0.50	1.00	40.0	WHO 2017	ug/l	1	-	0	
1,3-Dichloropropane	1.00	0.50	1.00	-		ug/l	1	-	0	
2,2-Dichloropropane	1.00	0.50	1.00	-		ug/l	1	-	0	
Carbon tetrachloride	1.00	0.50	1.00	3.00	UK DWS	ug/l	1	-	0	
Chloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Chloroform	1.00	0.50	1.00	-		ug/l	1	-	0	
Chloromethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Cis 1,2-Dichloroethene	1.00	0.50	1.00	50.0	WHO 2017	ug/l	1	-	0	
Cis 1,3-Dichloropropene	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Chlorinated Aliphatics — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Dichloromethane	3.00	1.50	3.00	20.0	WHO 2017	ug/l	1	-	0	
Hexachlorobutadiene	1.00	0.50	1.00	0.60	WHO 2017	ug/l	1	-	0	
Hexachloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Tetrachloroethene (PCE)	1.00	0.50	1.00	-		ug/l	1	-	0	
Trans-1,2-Dichloroethene	1.00	0.50	1.00	50.0	WHO 2017	ug/l	1	-	0	
Trans-1,3-Dichloropropene	1.00	0.50	1.00	-		ug/l	1	-	0	
Trichloroethene (TCE)	1.00	0.50	1.00	-		ug/l	1	-	0	
Vinyl chloride	1.00	0.50	1.00	0.50	UK DWS	ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Chlorinated Aromatics — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
1,2,3-Trichlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,2,4-Trichlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,2-Dichlorobenzene	1.00	0.50	1.00	1,000	WHO 2017	ug/l	1	-	0	
1,3,5-Trichlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,3-Dichlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,4-Dichlorobenzene	1.00	0.50	1.00	300	WHO 2017	ug/l	1	-	0	
2-Chlorotoluene	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Chlorotoluene	1.00	0.50	1.00	-		ug/l	1	-	0	
Chlorobenzene	1.00	0.50	1.00	300	WHO 2017	ug/l	1	-	0	
Hexachlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Chlorinated Phenols — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
2,4,5-Trichlorophenol	1.00	0.50	1.00	-		ug/l	1	-	0	
2,4,6-Trichlorophenol	1.00	0.50	1.00	200	WHO 2017	ug/l	1	-	0	
2,4-Dichlorophenol	1.00	0.50	1.00	-		ug/l	1	-	0	
2-Chlorophenol	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Chloro-3-Methlphenol	1.00	0.50	1.00	-		ug/l	1	-	0	

Dioxins and Furans — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Dibenzofuran	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Dyes — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
3-Nitroaniline	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Nitroaniline	1.00	0.50	1.00	-		ug/l	1	-	0	

Explosives — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
2,4-Dinitrotoluene	1.00	0.50	1.00	-		ug/l	1	-	0	
2,6-Dinitrotoluene	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

General Chemistry — Aquifer: CHAM

ANALYTE	MIN	MEAN*	MAX	ASSESSMENT CRITERIA (AC)	ASSESSMENT CRITERIA SOURCE	UNITS	NO. LOCATIONS SAMPLED	NO. SAMPLES > LOD	NO. LOCATIONS > AC	LOCATION(S) FAILING SCREENING
pH	7.04	7.46	8.07	6.50/10.0	UK DWS	pH Units	7	7	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Halogonated Hydrocarbons — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
1,2-Dibromo-3-Chloropropane	1.00	0.50	1.00	1.00	WHO 2017	ug/l	1	-	0	
1,2-Dibromoethane	1.00	0.50	1.00	0.40	WHO 2017	ug/l	1	-	0	
Bromobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
Bromochloromethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Bromodichloromethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Bromoform	1.00	0.50	1.00	-		ug/l	1	-	0	
Bromomethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Dibromochloromethane	1.00	0.50	1.00	100	WHO 2017	ug/l	1	-	0	
Dibromomethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Dichlorodifluoromethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Trichlorofluoromethane	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Inorganics — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Cyanide	5.00	2.50	5.00	50.0	UK DWS - Assumes Total Cyanide	ug/l	5	-	0	
Cyanide (Total)	50.0	25.0	50.0	50.0	UK DWS	ug/l	2	-	0	
Sulphate as SO4	165000	834800	1600000	250,000	UK DWS	ug/l	5	5	4	BH02, BH04, WS01, WS03

Ketones — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Isophorone	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Metals — Aquifer: CHAM

ANALYTE	MIN	MEAN*	MAX	ASSESSMENT CRITERIA (AC)	ASSESSMENT CRITERIA SOURCE	UNITS	NO. LOCATIONS SAMPLED	NO. SAMPLES > LOD	NO. LOCATIONS > AC	LOCATION(S) FAILING SCREENING
Arsenic	0.65	3.12	10.30	10.0	UK DWS	ug/l	7	7	1	BH02
Cadmium	0.080	0.057	0.122	5.00	UK DWS	ug/l	7	1	0	
Chromium	1.00	6.62	15.90	50.0	UK DWS	ug/l	7	6	0	
Copper	1.35	4.75	7.78	2,000	UK DWS	ug/l	7	7	0	
Hexavalent Chromium	3.00	5.36	30.00	-		ug/l	7	-	0	
Lead	0.07	0.52	1.52	10.0	UK DWS	ug/l	7	6	0	
Mercury	0.010	0.032	0.164	1.00	UK DWS	ug/l	6	1	0	
Nickel	4.1	13.4	53.7	20.0	UK DWS	ug/l	7	7	1	BH04
Selenium	1.7	38.7	134.0	10.0	UK DWS	ug/l	7	7	4	BH02, BH102, WS01, WS03
Zinc	1.0	11.8	22.7	-		ug/l	7	6	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Other — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
2-Chloronaphthalene	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Bromophenylphenyl ether	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Chloroaniline	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Chlorophenyl phenyl ether	1.00	0.50	1.00	-		ug/l	1	-	0	
Azobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
Bis (2-chloroethoxy) methane	1.00	0.50	1.00	-		ug/l	1	-	0	
Bis (2-chloroethyl) ether	1.00	0.50	1.00	-		ug/l	1	-	0	
Carbazole	1.00	0.50	1.00	-		ug/l	1	-	0	
Carbon Disulphide	1.00	0.50	1.00	-		ug/l	1	-	0	
Nitrobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
n-Nitrosodi-n-Propylamine	1.00	0.50	1.00	-		ug/l	1	-	0	
Styrene	1.00	0.50	1.00	20.0	WHO 2017	ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

PAHs — Aquifer: CHAM

ANALYTE	MIN	MEAN*	MAX	ASSESSMENT CRITERIA (AC)	ASSESSMENT CRITERIA SOURCE	UNITS	NO. LOCATIONS SAMPLED	NO. SAMPLES > LOD	NO. LOCATIONS > AC	LOCATION(S) FAILING SCREENING
2-Methylnaphthalene	1.00	0.50	1.00	-		ug/l	1	-	0	
Acenaphthene	0.005	0.006	0.015	-		ug/l	7	-	0	
Acenaphthylene	0.005	0.005	0.011	-		ug/l	7	-	0	
Anthracene	0.005	0.006	0.015	-		ug/l	7	-	0	
Benzo (a) anthracene	0.005	0.011	0.036	-		ug/l	7	1	0	
Benzo (a) pyrene	0.002	0.014	0.041	0.010	UK DWS	ug/l	7	2	2	BH02, WS03
Benzo (b) fluoranthene	0.005	0.030	0.113	-		ug/l	7	2	0	
Benzo (ghi) perylene	0.016	0.028	0.060	-		ug/l	5	2	0	
Benzo (k) fluoranthene	0.005	0.013	0.029	-		ug/l	7	1	0	
Chrysene	0.005	0.009	0.027	-		ug/l	7	2	0	
Dibenzo (ah) anthracene	0.005	0.009	0.028	-		ug/l	7	1	0	
Fluoranthene	0.005	0.016	0.041	-		ug/l	7	3	0	
Fluorene	0.005	0.006	0.014	-		ug/l	7	-	0	
Indeno (1,2,3-cd) pyrene	0.005	0.019	0.067	-		ug/l	7	2	0	
Naphthalene	0.010	0.037	0.100	-		ug/l	7	-	0	
PAH (Total)	0.34	0.26	0.43	-		ug/l	5	2	0	
PAH Total (EPA 16)	0.082	0.041	0.082	-		ug/l	2	-	0	
Phenanthrene	0.005	0.009	0.022	-		ug/l	7	2	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

PAHs — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Pyrene	0.005	0.024	0.063	-		ug/l	7	3	0	

Pesticides, Herbicides and Insectici — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Hexachlorocyclopentadiene	1.00	0.50	1.00	-		ug/l	1	-	0	
Pentachlorophenol	1.00	0.50	1.00	9.00	WHO 2017	ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Pharmaceuticals — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
2-Nitroaniline	1.00	0.50	1.00	-		ug/l	1	-	0	

Phenols — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
2,4-Dimethylphenol	1.00	0.50	1.00	-		ug/l	1	-	0	
2-Methylphenol (o-Cresol)	1.00	0.50	1.00	-		ug/l	1	-	0	
2-Nitrophenol	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Methylphenol	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Nitrophenol	1.00	0.50	1.00	-		ug/l	1	-	0	
Phenol	1.00	0.50	1.00	-		ug/l	1	-	0	
Xylenols	11.00	5.50	11.00	-		ug/l	2	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Phthalates — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Bis (2-ethylhexyl) phthalate	2.00	1.00	2.00	8.00	WHO 2017	ug/l	1	-	0	
Butyl benzyl phthalate	1.00	0.50	1.00	-		ug/l	1	-	0	
Diethyl phthalate	1.00	0.50	1.00	-		ug/l	1	-	0	
Dimethyl phthalate	1.00	0.50	1.00	-		ug/l	1	-	0	
Di-n-butyl phthalate	1.00	0.50	1.00	-		ug/l	1	-	0	
Di-n-octyl phthalate	5.00	2.50	5.00	-		ug/l	1	-	0	

QA Standard — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
4-Bromofluorobenzene	99.0	99.0	99.0	-		%	1	1	0	
Dibromofluoromethane	107	107	107	-		%	1	1	0	
Toluene-d8 Surrogate	98.0	98.0	98.0	-		%	1	1	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

TPH/EPH

Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
GRO Surrogate	94.0	98.3	106.0	-		%	7	7	0	
PRO (C5-C12)	50.0	25.0	50.0	-		ug/l	7	-	0	

VOCs

Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
4-Isopropyltoluene	1.00	0.50	1.00	-		ug/l	1	-	0	
iso-Propylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
n-Butylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
n-Propylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
Sec-Butylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
Tert-Butylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Unrecognised analytes — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
(Unrecognised code)	25.0	25.0	25.0	-		ug/l	1	1	0	
C16-C35 Aromatics (Unrecognised code)	9740	9740	9740	-		ug/l	1	1	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Aliphatics and Aromatics — Aquifer: MG

ANALYTE	MIN	MEAN*	MAX	ASSESSMENT CRITERIA (AC)	ASSESSMENT CRITERIA SOURCE	UNITS	NO. LOCATIONS SAMPLED	NO. SAMPLES > LOD	NO. LOCATIONS > AC	LOCATION(S) FAILING SCREENING
Aliphatic C05-C06	10.00	5.00	10.00	15,000	WHO 2008	ug/l	1	-	0	
Aliphatic C06-C08	10.00	5.00	10.00	15,000	WHO 2008	ug/l	1	-	0	
Aliphatic C08-C10	10.0	65.5	126.0	300	WHO 2008	ug/l	1	1	0	
Aliphatic C10-C12	10	261	516	300	WHO 2008	ug/l	1	1	1	WS10
Aliphatic C12-C16	10	5803	11600	300	WHO 2008	ug/l	1	1	1	WS10
Aliphatic C16-C21	10	6853	13700	-		ug/l	1	1	0	
Aliphatic C21-C35	10	3318	6630	-		ug/l	1	1	0	
Aliphatics C12-C35	10	15953	31900	-		ug/l	1	1	0	
Aromatic C06-C07	10.00	5.00	10.00	-		ug/l	1	-	0	
Aromatic C07-C08	10.00	5.00	10.00	-		ug/l	1	-	0	
Aromatic C08-C10	10.0	44.5	84.0	300	WHO 2008	ug/l	1	1	0	
Aromatic C10-C12	10	175	344	90.0	WHO 2008	ug/l	1	1	1	WS10
Aromatic C12-C16	10	1553	3100	90.0	WHO 2008	ug/l	1	1	1	WS10
Aromatic C12-C35	25	6413	12800	-		ug/l	1	2	0	
Aromatic C16-C21	15	3393	6770	90.0	WHO 2008	ug/l	1	2	1	WS10
Aromatic C21-C35	10	1490	2970	90.0	WHO 2008	ug/l	1	2	1	WS10
Total Aliphatics and Aromatics (C5-C35)	49	22925	45800	10.0	EA 2009	ug/l	1	2	1	WS10

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

BTEX and Fuel Additives — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
1,2,4-Trimethylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,3,5-Trimethylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
Benzene	1.00	2.00	7.00	1.00	UK DWS	ug/l	1	-	0	
BTEX	28.0	14.0	28.0	-		ug/l	1	-	0	
Ethylbenzene	1.00	1.50	5.00	300	WHO 2017	ug/l	1	-	0	
Methyl t-butylether (MTBE)	1.00	1.00	3.00	15.0	WHO 2017	ug/l	1	-	0	
Tertiary Amyl Methyl Ether (TAME)	1.00	0.50	1.00	-		ug/l	1	-	0	
Toluene	1.00	1.25	4.00	700	WHO 2017	ug/l	1	-	0	
Xylene	2.00	1.00	2.00	500	WHO 2017	ug/l	1	-	0	
Xylene-m & p	1.00	2.25	8.00	-		ug/l	1	-	0	
Xylene-o	1.00	1.00	3.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Chlorinated Aliphatics — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
1,1,1,2-Tetrachloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,1,1-Trichloroethane	1.00	0.50	1.00	2,000	WHO 2017	ug/l	1	-	0	
1,1,2,2-Tetrachloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,1,2-Trichloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,1-Dichloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,1-Dichloroethene	1.00	0.50	1.00	140	WHO 2017	ug/l	1	-	0	
1,1-Dichloropropene	1.00	0.50	1.00	20.0	WHO 2017	ug/l	1	-	0	
1,2,3-Trichloropropane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,2-Dichloroethane	1.00	0.50	1.00	3.00	UK DWS	ug/l	1	-	0	
1,2-Dichloropropane	1.00	0.50	1.00	40.0	WHO 2017	ug/l	1	-	0	
1,3-Dichloropropane	1.00	0.50	1.00	-		ug/l	1	-	0	
2,2-Dichloropropane	1.00	0.50	1.00	-		ug/l	1	-	0	
Carbon tetrachloride	1.00	0.50	1.00	3.00	UK DWS	ug/l	1	-	0	
Chloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Chloroform	1.00	0.50	1.00	-		ug/l	1	-	0	
Chloromethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Cis 1,2-Dichloroethene	1.00	0.50	1.00	50.0	WHO 2017	ug/l	1	-	0	
Cis 1,3-Dichloropropene	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Chlorinated Aliphatics — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Dichloromethane	3.00	1.50	3.00	20.0	WHO 2017	ug/l	1	-	0	
Hexachlorobutadiene	1.00	0.50	1.00	0.60	WHO 2017	ug/l	1	-	0	
Hexachloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Tetrachloroethene (PCE)	1.00	0.50	1.00	-		ug/l	1	-	0	
Trans-1,2-Dichloroethene	1.00	0.50	1.00	50.0	WHO 2017	ug/l	1	-	0	
Trans-1,3-Dichloropropene	1.00	0.50	1.00	-		ug/l	1	-	0	
Trichloroethene (TCE)	1.00	0.50	1.00	-		ug/l	1	-	0	
Vinyl chloride	1.00	0.50	1.00	0.50	UK DWS	ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Chlorinated Aromatics — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
1,2,3-Trichlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,2,4-Trichlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,2-Dichlorobenzene	1.00	0.50	1.00	1,000	WHO 2017	ug/l	1	-	0	
1,3,5-Trichlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,3-Dichlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,4-Dichlorobenzene	1.00	0.50	1.00	300	WHO 2017	ug/l	1	-	0	
2-Chlorotoluene	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Chlorotoluene	1.00	0.50	1.00	-		ug/l	1	-	0	
Chlorobenzene	1.00	0.50	1.00	300	WHO 2017	ug/l	1	-	0	
Hexachlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Chlorinated Phenols — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
2,4,5-Trichlorophenol	1.00	0.50	1.00	-		ug/l	1	-	0	
2,4,6-Trichlorophenol	1.00	0.50	1.00	200	WHO 2017	ug/l	1	-	0	
2,4-Dichlorophenol	1.00	0.50	1.00	-		ug/l	1	-	0	
2-Chlorophenol	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Chloro-3-Methlphenol	1.00	0.50	1.00	-		ug/l	1	-	0	

Dioxins and Furans — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Dibenzofuran	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Dyes — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
3-Nitroaniline	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Nitroaniline	1.00	0.50	1.00	-		ug/l	1	-	0	

Explosives — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
2,4-Dinitrotoluene	1.00	0.50	1.00	-		ug/l	1	-	0	
2,6-Dinitrotoluene	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Halogonated Hydrocarbons — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
1,2-Dibromo-3-Chloropropane	1.00	0.50	1.00	1.00	WHO 2017	ug/l	1	-	0	
1,2-Dibromoethane	1.00	0.50	1.00	0.40	WHO 2017	ug/l	1	-	0	
Bromobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
Bromochloromethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Bromodichloromethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Bromoform	1.00	0.50	1.00	-		ug/l	1	-	0	
Bromomethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Dibromochloromethane	1.00	0.50	1.00	100	WHO 2017	ug/l	1	-	0	
Dibromomethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Dichlorodifluoromethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Trichlorofluoromethane	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Ketones — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Isophorone	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Other

Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
2-Chloronaphthalene	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Bromophenylphenyl ether	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Chloroaniline	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Chlorophenyl phenyl ether	1.00	0.50	1.00	-		ug/l	1	-	0	
Azobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
Bis (2-chloroethoxy) methane	1.00	0.50	1.00	-		ug/l	1	-	0	
Bis (2-chloroethyl) ether	1.00	0.50	1.00	-		ug/l	1	-	0	
Carbazole	1.00	0.50	1.00	-		ug/l	1	-	0	
Carbon Disulphide	1.00	0.50	1.00	-		ug/l	1	-	0	
Nitrobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
n-Nitrosodi-n-Propylamine	1.00	0.50	1.00	-		ug/l	1	-	0	
Styrene	1.00	0.50	1.00	20.0	WHO 2017	ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

PAHs — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
2-Methylnaphthalene	1.00	0.50	1.00	-		ug/l	1	-	0	
Acenaphthene	0.005	0.005	0.015	-		ug/l	1	-	0	
Acenaphthylene	0.005	0.004	0.011	-		ug/l	1	-	0	
Anthracene	0.005	0.005	0.015	-		ug/l	1	-	0	
Benzo (a) anthracene	0.005	0.006	0.017	-		ug/l	1	-	0	
Benzo (a) pyrene	0.002	0.003	0.009	0.010	UK DWS	ug/l	1	-	0	
Benzo (b) fluoranthene	0.005	0.007	0.023	-		ug/l	1	-	0	
Benzo (ghi) perylene	0.088	0.088	0.088	-		ug/l	1	1	0	
Benzo (k) fluoranthene	0.005	0.008	0.027	-		ug/l	1	-	0	
Chrysene	0.010	0.008	0.013	-		ug/l	1	1	0	
Dibenzo (ah) anthracene	0.005	0.022	0.042	-		ug/l	1	1	0	
Fluoranthene	0.005	0.006	0.017	-		ug/l	1	-	0	
Fluorene	0.005	0.005	0.014	-		ug/l	1	-	0	
Indeno (1,2,3-cd) pyrene	0.005	0.028	0.053	-		ug/l	1	1	0	
Naphthalene	0.01	1.31	2.61	-		ug/l	1	1	0	
PAH (Total)	2.79	2.79	2.79	-		ug/l	1	1	0	
PAH Total (EPA 16)	0.082	0.041	0.082	-		ug/l	1	-	0	
Phenanthrene	0.010	0.010	0.022	-		ug/l	1	1	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

PAHs — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Pyrene	0.03	1.73	3.43	-		ug/l	1	2	0	

Pesticides, Herbicides and Insectici — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Hexachlorocyclopentadiene	1.00	0.50	1.00	-		ug/l	1	-	0	
Pentachlorophenol	1.00	0.50	1.00	9.00	WHO 2017	ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Pharmaceuticals — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
2-Nitroaniline	1.00	0.50	1.00	-		ug/l	1	-	0	

Phenols — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
2,4-Dimethylphenol	1.00	0.50	1.00	-		ug/l	1	-	0	
2-Methylphenol (o-Cresol)	1.00	0.50	1.00	-		ug/l	1	-	0	
2-Nitrophenol	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Methylphenol	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Nitrophenol	1.00	0.50	1.00	-		ug/l	1	-	0	
Phenol	1.00	0.50	1.00	-		ug/l	1	-	0	
Xylenols	11.00	5.50	11.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Phthalates — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Bis (2-ethylhexyl) phthalate	2.25	2.25	2.25	8.00	WHO 2017	ug/l	1	1	0	
Butyl benzyl phthalate	1.00	0.50	1.00	-		ug/l	1	-	0	
Diethyl phthalate	1.00	0.50	1.00	-		ug/l	1	-	0	
Dimethyl phthalate	1.00	0.50	1.00	-		ug/l	1	-	0	
Di-n-butyl phthalate	1.00	0.50	1.00	-		ug/l	1	-	0	
Di-n-octyl phthalate	5.00	2.50	5.00	-		ug/l	1	-	0	

QA Standard — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
4-Bromofluorobenzene	98.3	98.3	98.3	-		%	1	1	0	
Dibromofluoromethane	107	107	107	-		%	1	1	0	
Toluene-d8 Surrogate	99.6	99.6	99.6	-		%	1	1	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

TPH/EPH — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
GRO Surrogate	87.0	90.0	93.0	-		%	1	2	0	
PRO (C5-C12)	50	553	1080	-		ug/l	1	1	0	

VOCs — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
4-Isopropyltoluene	1.00	0.50	1.00	-		ug/l	1	-	0	
iso-Propylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
n-Butylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
n-Propylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
Sec-Butylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
Tert-Butylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

BTEX and Fuel Additives

Aquifer: N/A

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Xylene - Total (Summed)	1.00	3.80	8.00	-		ug/l	9	10	0	

Chlorinated Phenols

Aquifer: N/A

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Chlorophenols - Total (Summed Isomers)	1.00	1.00	1.00	-		ug/l	2	2	0	

Phenols

Aquifer: N/A

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Methylphenols Total (Summed)	1.00	1.00	1.00	-		ug/l	2	2	0	

EXCEEDANCES OF THRESHOLDS

Sample matrix: LEACHATE

General Chemistry

Analyte	Point ID	Response Zone Depth (m)	Result	Criteria Source	Threshold	Units	Stratum
pH	TP102	0.4 - 0.4	11.1	UK DWS	10.0	pH Units	Made Ground Granular

EXCEEDANCES OF THRESHOLDS

Sample matrix: WATER

Aliphatics and Aromatics

Analyte	Point ID	Response Zone Depth (M)	Result	Criteria Source	Threshold	Units	Stratum
Aliphatic C10-C12	WS10	0.5 - 1.5	516	WHO 2008	300	ug/l	Made Ground Granular / Charmouth Mudstone Formation
Aliphatic C12-C16	WS10	0.5 - 1.5	11600	WHO 2008	300	ug/l	Made Ground Granular / Charmouth Mudstone Formation
Aromatic C10-C12	WS10	0.5 - 1.5	344	WHO 2008	90.0	ug/l	Made Ground Granular / Charmouth Mudstone Formation
Aromatic C12-C16	WS10	0.5 - 1.5	3100	WHO 2008	90.0	ug/l	Made Ground Granular / Charmouth Mudstone Formation
Aromatic C16-C21	WS10	0.5 - 1.5	6770	WHO 2008	90.0	ug/l	Made Ground Granular / Charmouth Mudstone Formation
Aromatic C21-C35	WS10	0.5 - 1.5	2970	WHO 2008	90.0	ug/l	Made Ground Granular / Charmouth Mudstone Formation
Total Aliphatics and Aromatics (C5-C35)	BH02	2 - 7	75.0	EA 2009	10.0	ug/l	Charmouth Mudstone Formation
	WS03	1 - 4	13.0	EA 2009	10.0	ug/l	
	WS10	0.5 - 1.5	49.0	EA 2009	10.0	ug/l	Made Ground Granular / Charmouth Mudstone Formation
		0.5 - 1.5	45800	EA 2009	10.0	ug/l	

Inorganics

Analyte	Point ID	Response Zone Depth (M)	Result	Criteria Source	Threshold	Units	Stratum
Sulphate as SO4	BH02	2 - 7	350000	UK DWS	250000	ug/l	Charmouth Mudstone Formation
	BH04	1.5 - 7	1110000	UK DWS	250000	ug/l	Alluvium / Charmouth Mudstone Formation
	WS01	1 - 3	1600000	UK DWS	250000	ug/l	Charmouth Mudstone Formation
	WS03	1 - 4	949000	UK DWS	250000	ug/l	

Metals

Analyte	Point ID	Response Zone Depth (M)	Result	Criteria Source	Threshold	Units	Stratum
Arsenic	BH02	2 - 7	10.3	UK DWS	10.0	ug/l	Charmouth Mudstone Formation
Nickel	BH04	1.5 - 7	53.7	UK DWS	20.0	ug/l	Alluvium / Charmouth Mudstone Formation
	BH05	1 - 3	59.1	UK DWS	20.0	ug/l	Alluvium
Selenium	BH02	2 - 7	134	UK DWS	10.0	ug/l	Charmouth Mudstone Formation
	BH05	1 - 3	23.7	UK DWS	10.0	ug/l	Alluvium
	BH102	2.13 - 8	43.8	UK DWS	10.0	ug/l	Charmouth Mudstone Formation
	WS01	1 - 3	64.9	UK DWS	10.0	ug/l	
	WS03	1 - 4	14.5	UK DWS	10.0	ug/l	

PAHs

EXCEEDANCES OF THRESHOLDS

Sample matrix: WATER

PAHs

Analyte	Point ID	Response Zone Depth (M)	Result	Criteria Source	Threshold	Units	Stratum
Benzo (a) pyrene	BH02	2 - 7	0.041	UK DWS	0.010	ug/l	Charmouth Mudstone Formation
	WS03	1 - 4	0.040	UK DWS	0.010	ug/l	

PRE-REPORT DATA CHECK

The following analyte codes are not recognised in the gINT library.
These analytes cannot be compared to exceedance values but can still be mapped.

CNMT

ItemKey / Analyte code

B2CIPE(T)

All SampleMatrix fields are complete

The following result units are different to the screening units.
Check the units reported by the lab are correct. Otherwise, seek advice to add the result units to the Gint library.
These analytes cannot be compared to exceedance values but can still be mapped.

Analyte	Result Units	Screening Units
Arsenic	mg/kg	ug/l
Cadmium	mg/kg	ug/l
Cyanide (Total)	mg/kg	ug/l
Chromium	mg/kg	ug/l
Copper	mg/kg	ug/l
Iron	mg/kg	ug/l
Mercury	mg/kg	ug/l
Nickel	mg/kg	ug/l
Lead	mg/kg	ug/l
Selenium	mg/kg	ug/l
Zinc	mg/kg	ug/l

Region	Wales and England
Water Body	Surface water
Water Body Type	Inland
Surface Water Type	River or Stream

Hardness	> 250 mg/l
Recieving surface water status	Good (or below)
Altitude	Any

Sample Matrix: LEACHATE

Site Area(s) Selected: Whole site
Event(s) Selected: All events

General Chemistry

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
pH	9.3	10.2	11.1	6.00/9.00	EQS 2015	pH Units	2	2	2	TP102, TP106
Electrical conductivity	220	347	474	-		uS/cm	2	2	0	

Inorganics

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Cyanide (Total)	0.50	0.25	0.50	-		mg/kg	2	-	0	
Cyanide (Free)	50.0	25.0	50.0	1.00	EQS 2015	ug/l	5	-	0	
Cyanide (Total)	50.0	25.0	50.0	1.00	EQS 2015 - Assumes Free Cyanide	ug/l	6	-	0	

Sample Matrix: LEACHATE

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Metals

ANALYTE	MIN	MEAN*	MAX	ASSESSMENT CRITERIA (AC)	ASSESSMENT CRITERIA SOURCE	UNITS	NO. LOCATIONS SAMPLED	NO. SAMPLES > LOD	NO. LOCATIONS > AC	LOCATION(S) FAILING SCREENING
Arsenic	0.005	0.015	0.028	-		mg/kg	2	1	0	
Cadmium	0.0008	0.0004	0.0008	-		mg/kg	2	-	0	
Chromium	0.013	0.013	0.013	-		mg/kg	2	2	0	
Copper	0.003	0.009	0.017	-		mg/kg	2	1	0	
Ferric Iron	0.50	0.25	0.50	-		mg/kg	1	-	0	
Ferrous Iron	1.00	0.50	1.00	-		mg/kg	1	-	0	
Iron	0.190	0.095	0.190	-		mg/kg	1	-	0	
Lead	0.002	0.013	0.024	-		mg/kg	2	1	0	
Mercury	0.0001	0.0001	0.0001	-		mg/kg	2	1	0	
Nickel	0.004	0.013	0.024	-		mg/kg	2	1	0	
Selenium	0.005	0.004	0.006	-		mg/kg	2	1	0	
Zinc	0.078	0.089	0.099	-		mg/kg	2	2	0	
Arsenic	0.12	1.88	5.53	50.0	EQS 2015	ug/l	11	8	0	
Cadmium	0.080	0.048	0.100	-		ug/l	11	-	0	
Chromium	0.22	1.72	4.84	4.70	EQS 2015	ug/l	11	9	1	WS04
Copper	0.30	0.87	2.23	1.00	EQS 2015 - Bioavailable	ug/l	11	5	5	BH01, BH02, BH04, TP106, WS04
Ferric Iron	50.0	25.0	50.0	-		ug/l	1	-	0	
Ferrous Iron	100.0	50.0	100.0	-		ug/l	1	-	0	

Sample Matrix: LEACHATE

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Metals

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Iron	19.00	9.50	19.00	1,000	EQS 2015	ug/l	1	-	0	
Lead	0.02	0.50	2.41	1.20	EQS 2015 - Bioavailable	ug/l	11	6	2	BH01, TP106
Mercury	0.010	0.007	0.015	0.070	EQS 2015 MAC	ug/l	11	3	0	
Nickel	0.15	1.19	2.82	4.00	EQS 2015 - Bioavailable	ug/l	11	8	0	
Selenium	0.39	0.88	6.73	-		ug/l	11	4	0	
Zinc	0.41	2.46	9.94	10.9	EQS 2015 - Bioavailable	ug/l	11	8	0	

Physical

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Temperature	18.7	19.2	19.7	-		DegC	2	2	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Unrecognised analytes — Aquifer: ALV

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
(Unrecognised code)	0.10	0.10	0.10	-		%	1	1	0	
(Unrecognised code)	0.005	0.003	0.005	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Aliphatics and Aromatics — Aquifer: ALV

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Aliphatic C05-C06	10.00	5.00	10.00	-		ug/l	1	-	0	
Aliphatic C06-C08	10.00	5.00	10.00	-		ug/l	1	-	0	
Aliphatic C08-C10	10.00	5.00	10.00	-		ug/l	1	-	0	
Aliphatic C10-C12	10.00	5.00	10.00	-		ug/l	1	-	0	
Aliphatic C12-C16	10.00	5.00	10.00	-		ug/l	1	-	0	
Aliphatic C16-C21	10.00	5.00	10.00	-		ug/l	1	-	0	
Aliphatic C21-C35	10.00	5.00	10.00	-		ug/l	1	-	0	
Aliphatics C12-C35	10.00	5.00	10.00	-		ug/l	1	-	0	
Aromatic C06-C07	10.00	5.00	10.00	10.0	CL:AIRE 2017	ug/l	1	-	0	
Aromatic C07-C08	10.00	5.00	10.00	74.0	CL:AIRE 2017	ug/l	1	-	0	
Aromatic C08-C10	10.00	5.00	10.00	20.0	CL:AIRE 2017	ug/l	1	-	0	
Aromatic C10-C12	10.00	5.00	10.00	2.00	CL:AIRE 2017	ug/l	1	-	0	
Aromatic C12-C16	10.00	5.00	10.00	2.00	CL:AIRE 2017	ug/l	1	-	0	
Aromatic C12-C35	10.00	5.00	10.00	-		ug/l	1	-	0	
Aromatic C16-C21	10.00	5.00	10.00	0.10	CL:AIRE 2017	ug/l	1	-	0	
Aromatic C21-C35	10.00	5.00	10.00	0.0002	CL:AIRE 2017	ug/l	1	-	0	
Total Aliphatics and Aromatics (C5-C35)	10.00	5.00	10.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

BTEX and Fuel Additives — Aquifer: ALV

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Benzene	7.00	3.50	7.00	10.0	EQS 2015	ug/l	1	-	0	
BTEX	28.0	14.0	28.0	-		ug/l	1	-	0	
Ethylbenzene	5.00	2.50	5.00	20.0	Proposed EQS	ug/l	1	-	0	
Methyl t-butylether (MTBE)	3.00	1.50	3.00	-		ug/l	1	-	0	
Toluene	4.00	2.00	4.00	74.0	EQS 2015	ug/l	1	-	0	
Xylene-m & p	8.00	4.00	8.00	-		ug/l	1	-	0	
Xylene-o	3.00	1.50	3.00	-		ug/l	1	-	0	

General Chemistry — Aquifer: ALV

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
pH	7.34	7.34	7.34	6.00/9.00	EQS 2015	pH Units	1	1	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Inorganics — Aquifer: ALV

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Cyanide (Total)	50.0	25.0	50.0	1.00	EQS 2015 - Assumes Free Cyanide	ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Metals — Aquifer: ALV

ANALYTE	MIN	MEAN*	MAX	ASSESSMENT CRITERIA (AC)	ASSESSMENT CRITERIA SOURCE	UNITS	NO. LOCATIONS SAMPLED	NO. SAMPLES > LOD	NO. LOCATIONS > AC	LOCATION(S) FAILING SCREENING
Arsenic	0.50	0.25	0.50	50.0	EQS 2015	ug/l	1	-	0	
Cadmium	0.080	0.040	0.080	-		ug/l	1	-	0	
Chromium	1.00	0.50	1.00	4.70	EQS 2015	ug/l	1	-	0	
Copper	1.01	1.01	1.01	1.00	EQS 2015 - Bioavailable	ug/l	1	1	1	BH05
Hexavalent Chromium	30.0	15.0	30.0	3.40	EQS 2015	ug/l	1	-	0	
Lead	0.31	0.31	0.31	1.20	EQS 2015 - Bioavailable	ug/l	1	1	0	
Mercury	0.010	0.005	0.010	0.070	EQS 2015 MAC	ug/l	1	-	0	
Nickel	59.1	59.1	59.1	4.00	EQS 2015 - Bioavailable	ug/l	1	1	1	BH05
Selenium	23.7	23.7	23.7	-		ug/l	1	1	0	
Zinc	7.61	7.61	7.61	10.9	EQS 2015 - Bioavailable	ug/l	1	1	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

PAHs — Aquifer: ALV

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Acenaphthene	0.005	0.003	0.005	-		ug/l	1	-	0	
Acenaphthylene	0.005	0.003	0.005	-		ug/l	1	-	0	
Anthracene	0.005	0.003	0.005	0.10	EQS 2015	ug/l	1	-	0	
Benzo (a) anthracene	0.005	0.003	0.005	-		ug/l	1	-	0	
Benzo (a) pyrene	0.002	0.001	0.002	0.0002	EQS 2015	ug/l	1	-	0	
Benzo (b) fluoranthene	0.005	0.003	0.005	0.017	EQS 2015 MAC	ug/l	1	-	0	
Benzo (k) fluoranthene	0.005	0.003	0.005	0.017	EQS 2015 MAC	ug/l	1	-	0	
Chrysene	0.005	0.003	0.005	-		ug/l	1	-	0	
Dibenzo (ah) anthracene	0.005	0.003	0.005	-		ug/l	1	-	0	
Fluoranthene	0.005	0.003	0.005	0.006	EQS 2015	ug/l	1	-	0	
Fluorene	0.005	0.003	0.005	-		ug/l	1	-	0	
Indeno (1,2,3-cd) pyrene	0.005	0.003	0.005	-		ug/l	1	-	0	
Naphthalene	0.010	0.005	0.010	2.00	EQS 2015	ug/l	1	-	0	
PAH Total (EPA 16)	0.082	0.041	0.082	-		ug/l	1	-	0	
Phenanthrene	0.005	0.003	0.005	-		ug/l	1	-	0	
Pyrene	0.005	0.003	0.005	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Phenols — Aquifer: ALV

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Xylenols	11.00	5.50	11.00	-		ug/l	1	-	0	

TPH/EPH — Aquifer: ALV

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
GRO Surrogate	90.0	90.0	90.0	-		%	1	1	0	
PRO (C5-C12)	50.0	25.0	50.0	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Unrecognised analytes — Aquifer: CHAM

ANALYTE	MIN	MEAN*	MAX	ASSESSMENT CRITERIA (AC)	ASSESSMENT CRITERIA SOURCE	UNITS	NO. LOCATIONS SAMPLED	NO. SAMPLES > LOD	NO. LOCATIONS > AC	LOCATION(S) FAILING SCREENING
(Unrecognised code)	0.14	0.15	0.15	-		%	2	2	0	
(Unrecognised code)	0.005	0.003	0.005	-		ug/l	2	-	0	
C16-C35 Aromatics (Unrecognised code)	10.0	13.6	48.0	-		ug/l	5	1	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Aliphatics and Aromatics — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Aliphatic C05-C06	10.00	5.00	10.00	-		ug/l	7	-	0	
Aliphatic C06-C08	10.00	5.00	10.00	-		ug/l	7	-	0	
Aliphatic C08-C10	10.00	5.00	10.00	-		ug/l	7	-	0	
Aliphatic C10-C12	10.00	5.00	10.00	-		ug/l	7	-	0	
Aliphatic C12-C16	10.00	5.00	10.00	-		ug/l	7	-	0	
Aliphatic C16-C21	10.00	5.00	10.00	-		ug/l	7	-	0	
Aliphatic C21-C35	10.00	6.71	17.00	-		ug/l	7	1	0	
Aliphatics C12-C35	10.00	6.71	17.00	-		ug/l	7	1	0	
Aromatic C06-C07	10.00	5.00	10.00	10.0	CL:AIRE 2017	ug/l	7	-	0	
Aromatic C07-C08	10.00	5.00	10.00	74.0	CL:AIRE 2017	ug/l	7	-	0	
Aromatic C08-C10	10.00	5.00	10.00	20.0	CL:AIRE 2017	ug/l	7	-	0	
Aromatic C10-C12	10.00	5.00	10.00	2.00	CL:AIRE 2017	ug/l	7	-	0	
Aromatic C12-C16	10.00	5.00	10.00	2.00	CL:AIRE 2017	ug/l	7	-	0	
Aromatic C12-C35	10.0	11.1	48.0	-		ug/l	7	1	0	
Aromatic C16-C21	10.00	5.00	10.00	0.10	CL:AIRE 2017	ug/l	7	-	0	
Aromatic C21-C35	10.0	11.1	48.0	0.0002	CL:AIRE 2017	ug/l	7	1	1	BH02
Total Aliphatics and Aromatics (C5-C35)	10.0	16.1	75.0	-		ug/l	7	2	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

BTEX and Fuel Additives — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
1,2,4-Trimethylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,3,5-Trimethylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
Benzene	1.00	1.36	7.00	10.0	EQS 2015	ug/l	7	-	0	
BTEX	28.0	14.0	28.0	-		ug/l	2	-	0	
Ethylbenzene	1.00	1.07	5.00	20.0	Proposed EQS	ug/l	7	-	0	
Methyl t-butylether (MTBE)	1.00	0.79	3.00	-		ug/l	7	-	0	
Tertiary Amyl Methyl Ether (TAME)	1.00	0.50	1.00	-		ug/l	5	-	0	
Toluene	1.00	0.93	4.00	74.0	EQS 2015	ug/l	7	-	0	
Xylene	2.00	1.00	2.00	30.0	CL:AIRE 2017	ug/l	5	-	0	
Xylene-m & p	1.00	1.50	8.00	-		ug/l	7	-	0	
Xylene-o	1.00	0.79	3.00	-		ug/l	7	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Chlorinated Aliphatics — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
1,1,1,2-Tetrachloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,1,1-Trichloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,1,2,2-Tetrachloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,1,2-Trichloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,1-Dichloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,1-Dichloroethene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,1-Dichloropropene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,2,3-Trichloropropane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,2-Dichloroethane	1.00	0.50	1.00	10.0	EQS 2015	ug/l	1	-	0	
1,2-Dichloropropane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,3-Dichloropropane	1.00	0.50	1.00	-		ug/l	1	-	0	
2,2-Dichloropropane	1.00	0.50	1.00	-		ug/l	1	-	0	
Carbon tetrachloride	1.00	0.50	1.00	12.0	EQS 2015	ug/l	1	-	0	
Chloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Chloroform	1.00	0.50	1.00	2.50	EQS 2015	ug/l	1	-	0	
Chloromethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Cis 1,2-Dichloroethene	1.00	0.50	1.00	-		ug/l	1	-	0	
Cis 1,3-Dichloropropene	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Chlorinated Aliphatics — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Dichloromethane	3.00	1.50	3.00	20.0	EQS 2015	ug/l	1	-	0	
Hexachlorobutadiene	1.00	0.50	1.00	0.60	EQS 2015 MAC	ug/l	1	-	0	
Hexachloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Tetrachloroethene (PCE)	1.00	0.50	1.00	10.0	EQS 2015	ug/l	1	-	0	
Trans-1,2-Dichloroethene	1.00	0.50	1.00	-		ug/l	1	-	0	
Trans-1,3-Dichloropropene	1.00	0.50	1.00	-		ug/l	1	-	0	
Trichloroethene (TCE)	1.00	0.50	1.00	10.0	EQS 2015	ug/l	1	-	0	
Vinyl chloride	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Chlorinated Aromatics — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
1,2,3-Trichlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,2,4-Trichlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,2-Dichlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,3,5-Trichlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,3-Dichlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,4-Dichlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
2-Chlorotoluene	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Chlorotoluene	1.00	0.50	1.00	-		ug/l	1	-	0	
Chlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
Hexachlorobenzene	1.00	0.50	1.00	0.050	EQS 2015 MAC	ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Chlorinated Phenols — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
2,4,5-Trichlorophenol	1.00	0.50	1.00	-		ug/l	1	-	0	
2,4,6-Trichlorophenol	1.00	0.50	1.00	-		ug/l	1	-	0	
2,4-Dichlorophenol	1.00	0.50	1.00	4.20	EQS 2015	ug/l	1	-	0	
2-Chlorophenol	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Chloro-3-Methlphenol	1.00	0.50	1.00	-		ug/l	1	-	0	

Dioxins and Furans — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Dibenzofuran	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Dyes — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
3-Nitroaniline	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Nitroaniline	1.00	0.50	1.00	-		ug/l	1	-	0	

Explosives — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
2,4-Dinitrotoluene	1.00	0.50	1.00	-		ug/l	1	-	0	
2,6-Dinitrotoluene	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

General Chemistry — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
pH	7.04	7.46	8.07	6.00/9.00	EQS 2015	pH Units	7	7	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Halogonated Hydrocarbons — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
1,2-Dibromo-3-Chloropropane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,2-Dibromoethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Bromobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
Bromochloromethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Bromodichloromethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Bromoform	1.00	0.50	1.00	-		ug/l	1	-	0	
Bromomethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Dibromochloromethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Dibromomethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Dichlorodifluoromethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Trichlorofluoromethane	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Inorganics — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Cyanide	5.00	2.50	5.00	1.00	EQS 2015 - Assumes Free Cyanide	ug/l	5	-	0	
Cyanide (Total)	50.0	25.0	50.0	1.00	EQS 2015 - Assumes Free Cyanide	ug/l	2	-	0	
Sulphate as SO4	165000	834800	1600000	-		ug/l	5	5	0	

Ketones — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Isophorone	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Metals — Aquifer: CHAM

ANALYTE	MIN	MEAN*	MAX	ASSESSMENT CRITERIA (AC)	ASSESSMENT CRITERIA SOURCE	UNITS	NO. LOCATIONS SAMPLED	NO. SAMPLES > LOD	NO. LOCATIONS > AC	LOCATION(S) FAILING SCREENING
Arsenic	0.65	3.12	10.30	50.0	EQS 2015	ug/l	7	7	0	
Cadmium	0.080	0.057	0.122	-		ug/l	7	1	0	
Chromium	1.00	6.62	15.90	4.70	EQS 2015	ug/l	7	6	4	BH01, BH02, BH04, WS03
Copper	1.35	4.75	7.78	1.00	EQS 2015 - Bioavailable	ug/l	7	7	7	BH01, BH02, BH04, BH101, BH102, WS01, WS03
Hexavalent Chromium	3.00	5.36	30.00	3.40	EQS 2015	ug/l	7	-	0	
Lead	0.07	0.52	1.52	1.20	EQS 2015 - Bioavailable	ug/l	7	6	1	BH04
Mercury	0.010	0.032	0.164	0.070	EQS 2015 MAC	ug/l	6	1	1	BH101
Nickel	4.1	13.4	53.7	4.00	EQS 2015 - Bioavailable	ug/l	7	7	7	BH01, BH02, BH04, BH101, BH102, WS01, WS03
Selenium	1.7	38.7	134.0	-		ug/l	7	7	0	
Zinc	1.0	11.8	22.7	10.9	EQS 2015 - Bioavailable	ug/l	7	6	4	BH04, BH102, WS01, WS03

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Other — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
2-Chloronaphthalene	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Bromophenylphenyl ether	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Chloroaniline	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Chlorophenyl phenyl ether	1.00	0.50	1.00	-		ug/l	1	-	0	
Azobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
Bis (2-chloroethoxy) methane	1.00	0.50	1.00	-		ug/l	1	-	0	
Bis (2-chloroethyl) ether	1.00	0.50	1.00	-		ug/l	1	-	0	
Carbazole	1.00	0.50	1.00	-		ug/l	1	-	0	
Carbon Disulphide	1.00	0.50	1.00	-		ug/l	1	-	0	
Nitrobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
n-Nitrosodi-n-Propylamine	1.00	0.50	1.00	-		ug/l	1	-	0	
Styrene	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

PAHs — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
2-Methylnaphthalene	1.00	0.50	1.00	-		ug/l	1	-	0	
Acenaphthene	0.005	0.006	0.015	-		ug/l	7	-	0	
Acenaphthylene	0.005	0.005	0.011	-		ug/l	7	-	0	
Anthracene	0.005	0.006	0.015	0.10	EQS 2015	ug/l	7	-	0	
Benzo (a) anthracene	0.005	0.011	0.036	-		ug/l	7	1	0	
Benzo (a) pyrene	0.002	0.014	0.041	0.0002	EQS 2015	ug/l	7	2	2	BH02, WS03
Benzo (b) fluoranthene	0.005	0.030	0.113	0.017	EQS 2015 MAC	ug/l	7	2	2	BH02, WS03
Benzo (ghi) perylene	0.016	0.028	0.060	0.008	EQS 2015 MAC	ug/l	5	2	2	BH02, WS03
Benzo (k) fluoranthene	0.005	0.013	0.029	0.017	EQS 2015 MAC	ug/l	7	1	1	BH02
Chrysene	0.005	0.009	0.027	-		ug/l	7	2	0	
Dibenzo (ah) anthracene	0.005	0.009	0.028	-		ug/l	7	1	0	
Fluoranthene	0.005	0.016	0.041	0.006	EQS 2015	ug/l	7	3	3	BH02, BH04, WS03
Fluorene	0.005	0.006	0.014	-		ug/l	7	-	0	
Indeno (1,2,3-cd) pyrene	0.005	0.019	0.067	-		ug/l	7	2	0	
Naphthalene	0.010	0.037	0.100	2.00	EQS 2015	ug/l	7	-	0	
PAH (Total)	0.34	0.26	0.43	-		ug/l	5	2	0	
PAH Total (EPA 16)	0.082	0.041	0.082	-		ug/l	2	-	0	
Phenanthrene	0.005	0.009	0.022	-		ug/l	7	2	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

PAHs — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Pyrene	0.005	0.024	0.063	-		ug/l	7	3	0	

Pesticides, Herbicides and Insectici — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Hexachlorocyclopentadiene	1.00	0.50	1.00	-		ug/l	1	-	0	
Pentachlorophenol	1.00	0.50	1.00	0.40	EQS 2015	ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Pharmaceuticals — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
2-Nitroaniline	1.00	0.50	1.00	-		ug/l	1	-	0	

Phenols — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
2,4-Dimethylphenol	1.00	0.50	1.00	-		ug/l	1	-	0	
2-Methylphenol (o-Cresol)	1.00	0.50	1.00	-		ug/l	1	-	0	
2-Nitrophenol	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Methylphenol	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Nitrophenol	1.00	0.50	1.00	-		ug/l	1	-	0	
Phenol	1.00	0.50	1.00	7.70	EQS 2015	ug/l	1	-	0	
Xylenols	11.00	5.50	11.00	-		ug/l	2	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Phthalates — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Bis (2-ethylhexyl) phthalate	2.00	1.00	2.00	1.30	EQS 2015	ug/l	1	-	0	
Butyl benzyl phthalate	1.00	0.50	1.00	7.50	EQS 2015	ug/l	1	-	0	
Diethyl phthalate	1.00	0.50	1.00	-		ug/l	1	-	0	
Dimethyl phthalate	1.00	0.50	1.00	-		ug/l	1	-	0	
Di-n-butyl phthalate	1.00	0.50	1.00	-		ug/l	1	-	0	
Di-n-octyl phthalate	5.00	2.50	5.00	-		ug/l	1	-	0	

QA Standard — Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
4-Bromofluorobenzene	99.0	99.0	99.0	-		%	1	1	0	
Dibromofluoromethane	107	107	107	-		%	1	1	0	
Toluene-d8 Surrogate	98.0	98.0	98.0	-		%	1	1	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

TPH/EPH

Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
GRO Surrogate	94.0	98.3	106.0	-		%	7	7	0	
PRO (C5-C12)	50.0	25.0	50.0	-		ug/l	7	-	0	

VOCs

Aquifer: CHAM

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
4-Isopropyltoluene	1.00	0.50	1.00	-		ug/l	1	-	0	
iso-Propylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
n-Butylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
n-Propylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
Sec-Butylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
Tert-Butylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Unrecognised analytes — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
(Unrecognised code)	25.0	25.0	25.0	-		ug/l	1	1	0	
C16-C35 Aromatics (Unrecognised code)	9740	9740	9740	-		ug/l	1	1	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Aliphatics and Aromatics — Aquifer: MG

ANALYTE	MIN	MEAN*	MAX	ASSESSMENT CRITERIA (AC)	ASSESSMENT CRITERIA SOURCE	UNITS	NO. LOCATIONS SAMPLED	NO. SAMPLES > LOD	NO. LOCATIONS > AC	LOCATION(S) FAILING SCREENING
Aliphatic C05-C06	10.00	5.00	10.00	-		ug/l	1	-	0	
Aliphatic C06-C08	10.00	5.00	10.00	-		ug/l	1	-	0	
Aliphatic C08-C10	10.0	65.5	126.0	-		ug/l	1	1	0	
Aliphatic C10-C12	10	261	516	-		ug/l	1	1	0	
Aliphatic C12-C16	10	5803	11600	-		ug/l	1	1	0	
Aliphatic C16-C21	10	6853	13700	-		ug/l	1	1	0	
Aliphatic C21-C35	10	3318	6630	-		ug/l	1	1	0	
Aliphatics C12-C35	10	15953	31900	-		ug/l	1	1	0	
Aromatic C06-C07	10.00	5.00	10.00	10.0	CL:AIRE 2017	ug/l	1	-	0	
Aromatic C07-C08	10.00	5.00	10.00	74.0	CL:AIRE 2017	ug/l	1	-	0	
Aromatic C08-C10	10.0	44.5	84.0	20.0	CL:AIRE 2017	ug/l	1	1	1	WS10
Aromatic C10-C12	10	175	344	2.00	CL:AIRE 2017	ug/l	1	1	1	WS10
Aromatic C12-C16	10	1553	3100	2.00	CL:AIRE 2017	ug/l	1	1	1	WS10
Aromatic C12-C35	25	6413	12800	-		ug/l	1	2	0	
Aromatic C16-C21	15	3393	6770	0.10	CL:AIRE 2017	ug/l	1	2	1	WS10
Aromatic C21-C35	10	1490	2970	0.0002	CL:AIRE 2017	ug/l	1	2	1	WS10
Total Aliphatics and Aromatics (C5-C35)	49	22925	45800	-		ug/l	1	2	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

BTEX and Fuel Additives — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
1,2,4-Trimethylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,3,5-Trimethylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
Benzene	1.00	2.00	7.00	10.0	EQS 2015	ug/l	1	-	0	
BTEX	28.0	14.0	28.0	-		ug/l	1	-	0	
Ethylbenzene	1.00	1.50	5.00	20.0	Proposed EQS	ug/l	1	-	0	
Methyl t-butylether (MTBE)	1.00	1.00	3.00	-		ug/l	1	-	0	
Tertiary Amyl Methyl Ether (TAME)	1.00	0.50	1.00	-		ug/l	1	-	0	
Toluene	1.00	1.25	4.00	74.0	EQS 2015	ug/l	1	-	0	
Xylene	2.00	1.00	2.00	30.0	CL:AIRE 2017	ug/l	1	-	0	
Xylene-m & p	1.00	2.25	8.00	-		ug/l	1	-	0	
Xylene-o	1.00	1.00	3.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Chlorinated Aliphatics — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
1,1,1,2-Tetrachloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,1,1-Trichloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,1,2,2-Tetrachloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,1,2-Trichloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,1-Dichloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,1-Dichloroethene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,1-Dichloropropene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,2,3-Trichloropropane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,2-Dichloroethane	1.00	0.50	1.00	10.0	EQS 2015	ug/l	1	-	0	
1,2-Dichloropropane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,3-Dichloropropane	1.00	0.50	1.00	-		ug/l	1	-	0	
2,2-Dichloropropane	1.00	0.50	1.00	-		ug/l	1	-	0	
Carbon tetrachloride	1.00	0.50	1.00	12.0	EQS 2015	ug/l	1	-	0	
Chloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Chloroform	1.00	0.50	1.00	2.50	EQS 2015	ug/l	1	-	0	
Chloromethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Cis 1,2-Dichloroethene	1.00	0.50	1.00	-		ug/l	1	-	0	
Cis 1,3-Dichloropropene	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Chlorinated Aliphatics — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Dichloromethane	3.00	1.50	3.00	20.0	EQS 2015	ug/l	1	-	0	
Hexachlorobutadiene	1.00	0.50	1.00	0.60	EQS 2015 MAC	ug/l	1	-	0	
Hexachloroethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Tetrachloroethene (PCE)	1.00	0.50	1.00	10.0	EQS 2015	ug/l	1	-	0	
Trans-1,2-Dichloroethene	1.00	0.50	1.00	-		ug/l	1	-	0	
Trans-1,3-Dichloropropene	1.00	0.50	1.00	-		ug/l	1	-	0	
Trichloroethene (TCE)	1.00	0.50	1.00	10.0	EQS 2015	ug/l	1	-	0	
Vinyl chloride	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Chlorinated Aromatics — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
1,2,3-Trichlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,2,4-Trichlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,2-Dichlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,3,5-Trichlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,3-Dichlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
1,4-Dichlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
2-Chlorotoluene	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Chlorotoluene	1.00	0.50	1.00	-		ug/l	1	-	0	
Chlorobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
Hexachlorobenzene	1.00	0.50	1.00	0.050	EQS 2015 MAC	ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Chlorinated Phenols — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
2,4,5-Trichlorophenol	1.00	0.50	1.00	-		ug/l	1	-	0	
2,4,6-Trichlorophenol	1.00	0.50	1.00	-		ug/l	1	-	0	
2,4-Dichlorophenol	1.00	0.50	1.00	4.20	EQS 2015	ug/l	1	-	0	
2-Chlorophenol	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Chloro-3-Methlphenol	1.00	0.50	1.00	-		ug/l	1	-	0	

Dioxins and Furans — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Dibenzofuran	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Dyes — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
3-Nitroaniline	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Nitroaniline	1.00	0.50	1.00	-		ug/l	1	-	0	

Explosives — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
2,4-Dinitrotoluene	1.00	0.50	1.00	-		ug/l	1	-	0	
2,6-Dinitrotoluene	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Halogonated Hydrocarbons — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
1,2-Dibromo-3-Chloropropane	1.00	0.50	1.00	-		ug/l	1	-	0	
1,2-Dibromoethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Bromobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
Bromochloromethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Bromodichloromethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Bromoform	1.00	0.50	1.00	-		ug/l	1	-	0	
Bromomethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Dibromochloromethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Dibromomethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Dichlorodifluoromethane	1.00	0.50	1.00	-		ug/l	1	-	0	
Trichlorofluoromethane	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Ketones — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Isophorone	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Other

Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
2-Chloronaphthalene	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Bromophenylphenyl ether	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Chloroaniline	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Chlorophenyl phenyl ether	1.00	0.50	1.00	-		ug/l	1	-	0	
Azobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
Bis (2-chloroethoxy) methane	1.00	0.50	1.00	-		ug/l	1	-	0	
Bis (2-chloroethyl) ether	1.00	0.50	1.00	-		ug/l	1	-	0	
Carbazole	1.00	0.50	1.00	-		ug/l	1	-	0	
Carbon Disulphide	1.00	0.50	1.00	-		ug/l	1	-	0	
Nitrobenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
n-Nitrosodi-n-Propylamine	1.00	0.50	1.00	-		ug/l	1	-	0	
Styrene	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

PAHs — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
2-Methylnaphthalene	1.00	0.50	1.00	-		ug/l	1	-	0	
Acenaphthene	0.005	0.005	0.015	-		ug/l	1	-	0	
Acenaphthylene	0.005	0.004	0.011	-		ug/l	1	-	0	
Anthracene	0.005	0.005	0.015	0.10	EQS 2015	ug/l	1	-	0	
Benzo (a) anthracene	0.005	0.006	0.017	-		ug/l	1	-	0	
Benzo (a) pyrene	0.002	0.003	0.009	0.0002	EQS 2015	ug/l	1	-	0	
Benzo (b) fluoranthene	0.005	0.007	0.023	0.017	EQS 2015 MAC	ug/l	1	-	0	
Benzo (ghi) perylene	0.088	0.088	0.088	0.008	EQS 2015 MAC	ug/l	1	1	1	WS10
Benzo (k) fluoranthene	0.005	0.008	0.027	0.017	EQS 2015 MAC	ug/l	1	-	0	
Chrysene	0.010	0.008	0.013	-		ug/l	1	1	0	
Dibenzo (ah) anthracene	0.005	0.022	0.042	-		ug/l	1	1	0	
Fluoranthene	0.005	0.006	0.017	0.006	EQS 2015	ug/l	1	-	0	
Fluorene	0.005	0.005	0.014	-		ug/l	1	-	0	
Indeno (1,2,3-cd) pyrene	0.005	0.028	0.053	-		ug/l	1	1	0	
Naphthalene	0.01	1.31	2.61	2.00	EQS 2015	ug/l	1	1	1	WS10
PAH (Total)	2.79	2.79	2.79	-		ug/l	1	1	0	
PAH Total (EPA 16)	0.082	0.041	0.082	-		ug/l	1	-	0	
Phenanthrene	0.010	0.010	0.022	-		ug/l	1	1	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

PAHs — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Pyrene	0.03	1.73	3.43	-		ug/l	1	2	0	

Pesticides, Herbicides and Insectici — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Hexachlorocyclopentadiene	1.00	0.50	1.00	-		ug/l	1	-	0	
Pentachlorophenol	1.00	0.50	1.00	0.40	EQS 2015	ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Pharmaceuticals — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
2-Nitroaniline	1.00	0.50	1.00	-		ug/l	1	-	0	

Phenols — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
2,4-Dimethylphenol	1.00	0.50	1.00	-		ug/l	1	-	0	
2-Methylphenol (o-Cresol)	1.00	0.50	1.00	-		ug/l	1	-	0	
2-Nitrophenol	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Methylphenol	1.00	0.50	1.00	-		ug/l	1	-	0	
4-Nitrophenol	1.00	0.50	1.00	-		ug/l	1	-	0	
Phenol	1.00	0.50	1.00	7.70	EQS 2015	ug/l	1	-	0	
Xylenols	11.00	5.50	11.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Phthalates — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Bis (2-ethylhexyl) phthalate	2.25	2.25	2.25	1.30	EQS 2015	ug/l	1	1	1	WS10
Butyl benzyl phthalate	1.00	0.50	1.00	7.50	EQS 2015	ug/l	1	-	0	
Diethyl phthalate	1.00	0.50	1.00	-		ug/l	1	-	0	
Dimethyl phthalate	1.00	0.50	1.00	-		ug/l	1	-	0	
Di-n-butyl phthalate	1.00	0.50	1.00	-		ug/l	1	-	0	
Di-n-octyl phthalate	5.00	2.50	5.00	-		ug/l	1	-	0	

QA Standard — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
4-Bromofluorobenzene	98.3	98.3	98.3	-		%	1	1	0	
Dibromofluoromethane	107	107	107	-		%	1	1	0	
Toluene-d8 Surrogate	99.6	99.6	99.6	-		%	1	1	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

TPH/EPH — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
GRO Surrogate	87.0	90.0	93.0	-		%	1	2	0	
PRO (C5-C12)	50	553	1080	-		ug/l	1	1	0	

VOCs — Aquifer: MG

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
4-Isopropyltoluene	1.00	0.50	1.00	-		ug/l	1	-	0	
iso-Propylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
n-Butylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
n-Propylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
Sec-Butylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	
Tert-Butylbenzene	1.00	0.50	1.00	-		ug/l	1	-	0	

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

Sample Matrix: WATER

Site Area(s) Selected: Whole site
Event(s) Selected: All events

BTEX and Fuel Additives

Aquifer: N/A

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Xylene - Total (Summed)	1.00	3.80	8.00	-		ug/l	9	10	0	

Chlorinated Phenols

Aquifer: N/A

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Chlorophenols - Total (Summed Isomers)	1.00	1.00	1.00	-		ug/l	2	2	0	

Phenols

Aquifer: N/A

Analyte	Min	Mean*	Max	Assessment Criteria (AC)	Assessment Criteria Source	Units	No. Locations Sampled	No. Samples > LOD	No. Locations > AC	Location(s) Failing Screening
Methylphenols Total (Summed)	1.00	1.00	1.00	-		ug/l	2	2	0	

EXCEEDANCES OF THRESHOLDS

Sample matrix: LEACHATE

General Chemistry

Analyte	Point ID	Response Zone Depth (M)	Result	Criteria Source	Threshold	Units	Stratum
pH	TP102	0.4 - 0.4	11.1	EQS 2015	9.00	pH Units	Made Ground Granular
	TP106	1 - 1	9.32	EQS 2015	9.00	pH Units	Made Ground Cohesive

Metals

Analyte	Point ID	Response Zone Depth (M)	Result	Criteria Source	Threshold	Units	Stratum
Chromium	WS04	0.3 - 0.3	4.84	EQS 2015	4.70	ug/l	Made Ground Cohesive
Copper	BH01	0.6 - 0.6	1.10	EQS 2015 - Bioavailable	1.00	ug/l	Made Ground Cohesive
	BH02	0.5 - 0.5	1.11	EQS 2015 - Bioavailable	1.00	ug/l	Alluvium
	BH04	0.7 - 0.7	1.23	EQS 2015 - Bioavailable	1.00	ug/l	Made Ground Cohesive
	TP106	1 - 1	1.65	EQS 2015 - Bioavailable	1.00	ug/l	
	WS04	0.3 - 0.3	2.23	EQS 2015 - Bioavailable	1.00	ug/l	
Lead	BH01	0.6 - 0.6	1.21	EQS 2015 - Bioavailable	1.20	ug/l	Made Ground Cohesive
	TP106	1 - 1	2.41	EQS 2015 - Bioavailable	1.20	ug/l	

EXCEEDANCES OF THRESHOLDS

Sample matrix: WATER

Aliphatics and Aromatics

Analyte	Point ID	Response Zone Depth (m)	Result	Criteria Source	Threshold	Units	Stratum
Aromatic C08-C10	WS10	0.5 - 1.5	84.0	CL:AIRE 2017	20.0	ug/l	Made Ground Granular / Charmouth Mudstone Formation
Aromatic C10-C12	WS10	0.5 - 1.5	344	CL:AIRE 2017	2.00	ug/l	Made Ground Granular / Charmouth Mudstone Formation
Aromatic C12-C16	WS10	0.5 - 1.5	3100	CL:AIRE 2017	2.00	ug/l	Made Ground Granular / Charmouth Mudstone Formation
Aromatic C16-C21	WS10	0.5 - 1.5	15.0	CL:AIRE 2017	0.10	ug/l	Made Ground Granular / Charmouth Mudstone Formation
		0.5 - 1.5	6770	CL:AIRE 2017	0.10	ug/l	
Aromatic C21-C35	BH02	2 - 7	48.0	CL:AIRE 2017	0.0002	ug/l	Charmouth Mudstone Formation
	WS10	0.5 - 1.5	10.0	CL:AIRE 2017	0.0002	ug/l	Made Ground Granular / Charmouth Mudstone Formation
		0.5 - 1.5	2970	CL:AIRE 2017	0.0002	ug/l	

Metals

Analyte	Point ID	Response Zone Depth (m)	Result	Criteria Source	Threshold	Units	Stratum
Chromium	BH01	2 - 7	8.71	EQS 2015	4.70	ug/l	Charmouth Mudstone Formation
	BH02	2 - 7	6.46	EQS 2015	4.70	ug/l	
	BH04	1.5 - 7	15.9	EQS 2015	4.70	ug/l	Alluvium / Charmouth Mudstone Formation
	WS03	1 - 4	8.02	EQS 2015	4.70	ug/l	Charmouth Mudstone Formation
Copper	BH01	2 - 7	1.55	EQS 2015 - Bioavailable	1.00	ug/l	Charmouth Mudstone Formation
	BH02	2 - 7	7.78	EQS 2015 - Bioavailable	1.00	ug/l	
	BH04	1.5 - 7	6.16	EQS 2015 - Bioavailable	1.00	ug/l	Alluvium / Charmouth Mudstone Formation
	BH05	1 - 3	1.01	EQS 2015 - Bioavailable	1.00	ug/l	Alluvium
	BH101	6.25 - 8	1.35	EQS 2015 - Bioavailable	1.00	ug/l	Charmouth Mudstone Formation
	BH102	2.13 - 8	4.13	EQS 2015 - Bioavailable	1.00	ug/l	
	WS01	1 - 3	6.33	EQS 2015 - Bioavailable	1.00	ug/l	
	WS03	1 - 4	5.93	EQS 2015 - Bioavailable	1.00	ug/l	
Lead	BH04	1.5 - 7	1.52	EQS 2015 - Bioavailable	1.20	ug/l	Alluvium / Charmouth Mudstone Formation
Mercury	BH101	6.25 - 8	0.16	EQS 2015 MAC	0.070	ug/l	Charmouth Mudstone Formation
Nickel	BH01	2 - 7	5.16	EQS 2015 - Bioavailable	4.00	ug/l	Charmouth Mudstone Formation
	BH02	2 - 7	6.59	EQS 2015 - Bioavailable	4.00	ug/l	
	BH04	1.5 - 7	53.7	EQS 2015 - Bioavailable	4.00	ug/l	Alluvium / Charmouth Mudstone Formation

EXCEEDANCES OF THRESHOLDS

Sample matrix: WATER

Metals

Analyte	Point ID	Response Zone Depth (m)	Result	Criteria Source	Threshold	Units	Stratum
Nickel	BH05	1 - 3	59.1	EQS 2015 - Bioavailable	4.00	ug/l	Alluvium
	BH101	6.25 - 8	4.12	EQS 2015 - Bioavailable	4.00	ug/l	Charmouth Mudstone Formation
	BH102	2.13 - 8	4.10	EQS 2015 - Bioavailable	4.00	ug/l	
	WS01	1 - 3	9.16	EQS 2015 - Bioavailable	4.00	ug/l	
	WS03	1 - 4	10.8	EQS 2015 - Bioavailable	4.00	ug/l	
Zinc	BH04	1.5 - 7	22.4	EQS 2015 - Bioavailable	10.9	ug/l	Alluvium / Charmouth Mudstone Formation
	BH102	2.13 - 8	22.7	EQS 2015 - Bioavailable	10.9	ug/l	Charmouth Mudstone Formation
	WS01	1 - 3	17.1	EQS 2015 - Bioavailable	10.9	ug/l	
	WS03	1 - 4	12.9	EQS 2015 - Bioavailable	10.9	ug/l	

PAHs

Analyte	Point ID	Response Zone Depth (m)	Result	Criteria Source	Threshold	Units	Stratum
Benzo (a) pyrene	BH02	2 - 7	0.041	EQS 2015	0.0002	ug/l	Charmouth Mudstone Formation
	WS03	1 - 4	0.040	EQS 2015	0.0002	ug/l	
Benzo (b) fluoranthene	BH02	2 - 7	0.11	EQS 2015 MAC	0.017	ug/l	Charmouth Mudstone Formation
	WS03	1 - 4	0.061	EQS 2015 MAC	0.017	ug/l	
Benzo (ghi) perylene	BH02	2 - 7	0.060	EQS 2015 MAC	0.008	ug/l	Charmouth Mudstone Formation
	WS03	1 - 4	0.057	EQS 2015 MAC	0.008	ug/l	
	WS10	0.5 - 1.5	0.088	EQS 2015 MAC	0.008	ug/l	Made Ground Granular / Charmouth Mudstone Formation
Benzo (k) fluoranthene	BH02	2 - 7	0.029	EQS 2015 MAC	0.017	ug/l	Charmouth Mudstone Formation
Fluoranthene	BH02	2 - 7	0.026	EQS 2015	0.006	ug/l	Charmouth Mudstone Formation
	BH04	1.5 - 7	0.020	EQS 2015	0.006	ug/l	Alluvium / Charmouth Mudstone Formation
	WS03	1 - 4	0.041	EQS 2015	0.006	ug/l	Charmouth Mudstone Formation
Naphthalene	WS10	0.5 - 1.5	2.61	EQS 2015	2.00	ug/l	Made Ground Granular / Charmouth Mudstone Formation

Phthalates

Analyte	Point ID	Response Zone Depth (m)	Result	Criteria Source	Threshold	Units	Stratum
Bis (2-ethylhexyl) phthalate	WS10	0.5 - 1.5	2.25	EQS 2015	1.30	ug/l	Made Ground Granular / Charmouth Mudstone Formation

Appendix H

GEOTECHNICAL LAB DATA

ALcontrol Laboratories

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WSP PB
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London
EC2M 4YE

Attention: George Baggot

CERTIFICATE OF ANALYSIS

Date:	19 July 2016
Customer:	H_WSP_LON
Sample Delivery Group (SDG):	160617-98
Your Reference:	70020138
Location:	Tradeteam Site (DHL) Gloucester
Report No:	369596

This report has been revised and directly supersedes 369556 in its entirety.

We received 18 samples on Friday June 17, 2016 and 18 of these samples were scheduled for analysis which was completed on Tuesday July 19, 2016. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:

[redacted]

Operations Manager

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Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291.

CERTIFICATE OF ANALYSIS

SDG:	160617-98	**Location:**	Tradeteam Site (DHL) Gloucester	**Order Number:**	70020138-001
Job:	H_WSP_LON-224	**Customer:**	WSP PB LBH	**Report Number:**	369596
Client Reference:	70020138	**Attention:**	George Baggot	**Superseded Report:**	369556

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
13614016	BH01	D	1.20 - 1.20	17/06/2016
13614020	BH01	D	3.00 - 3.00	17/06/2016
13614022	BH01	B	5.50 - 6.00	17/06/2016
13614024	BH01	D	6.50 - 6.50	17/06/2016
13614026	BH02	D	0.50 - 0.50	17/06/2016
13614030	BH02	U100	2.00 - 2.00	17/06/2016
13614028	BH02	B	2.00 - 2.50	17/06/2016
13614033	BH03	D	0.50 - 0.50	17/06/2016
13614035	BH03	B	1.00 - 1.50	17/06/2016
13614037	BH03	D	1.50 - 1.50	17/06/2016
13614041	BH03	U100	2.00 - 2.45	17/06/2016
13614039	BH03	B	2.00 - 2.50	17/06/2016
13614043	BH03	D	3.00 - 3.00	17/06/2016
13614047	BH03	D	5.00 - 5.00	17/06/2016
13614049	BH04	D	1.20 - 1.20	17/06/2016
13614051	BH04	B	1.50 - 2.00	17/06/2016
13614053	BH05	B	1.00 - 1.50	17/06/2016
13614018	BH05	D	1.50 - 1.50	17/06/2016

Only received samples which have had analysis scheduled will be shown on the following pages.

CERTIFICATE OF ANALYSIS

SDG:	160617-98	**Location:**	Tradeteam Site (DHL) Gloucester	**Order Number:**	70020138-001
Job:	H_WSP_LON-224	**Customer:**	WSP PB LBH	**Report Number:**	369596
Client Reference:	70020138	**Attention:**	George Baggot	**Superseded Report:**	369556

SOLID

Results Legend

X **Test**

N **No Determination Possible**

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container
Geotechnical Testing*	All	NDPs: 0 Tests: 18	13614016	BH01	D	1.20 - 1.20	Geolabs container
			13614020	BH01	D	3.00 - 3.00	Geolabs container
			13614022	BH01	B	5.50 - 6.00	Geolabs container
			13614024	BH01	D	6.50 - 6.50	Geolabs container
			13614026	BH02	D	0.50 - 0.50	Geolabs container
			13614030	BH02	U100	2.00 - 2.00	Geolabs container
			13614028	BH02	B	2.00 - 2.50	Geolabs container
			13614033	BH03	D	0.50 - 0.50	Geolabs container
			13614035	BH03	B	1.00 - 1.50	Geolabs container
			13614037	BH03	D	1.50 - 1.50	Geolabs container
			13614041	BH03	U100	2.00 - 2.45	Geolabs container
			13614039	BH03	B	2.00 - 2.50	Geolabs container
			13614043	BH03	D	3.00 - 3.00	Geolabs container
			13614047	BH03	D	5.00 - 5.00	Geolabs container
			13614049	BH04	D	1.20 - 1.20	Geolabs container
			13614051	BH04	B	1.50 - 2.00	Geolabs container
			13614053	BH05	B	1.00 - 1.50	Geolabs container
			13614018	BH05	D	1.50 - 1.50	Geolabs container
					X	X	X

CERTIFICATE OF ANALYSIS

SDG:	160617-98	**Location:**	Tradeteam Site (DHL) Gloucester	**Order Number:**	70020138-001
Job:	H_WSP_LON-224	**Customer:**	WSP PB LBH	**Report Number:**	369596
Client Reference:	70020138	**Attention:**	George Baggot	**Superseded Report:**	369556

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH01	BH01	BH01	BH01	BH02	BH02
			Depth (m)	1.20 - 1.20	3.00 - 3.00	5.50 - 6.00	6.50 - 6.50	0.50 - 0.50	2.00 - 2.00
			Sample Type	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils
			Date Sampled	17/06/2016	17/06/2016	17/06/2016	17/06/2016	17/06/2016	17/06/2016
			Sample Time	.	.	.	.	.	.
			Date Received	17/06/2016	17/06/2016	17/06/2016	17/06/2016	17/06/2016	17/06/2016
			SDG Ref	160617-98	160617-98	160617-98	160617-98	160617-98	160617-98
			Lab Sample No.(s)	13614016	13614020	13614022	13614024	13614026	13614030
			AGS Reference	D	D	B	D	D	U100
One Dimensional Consolidation*	-	SUB							See Attached
Moisture Content (GEOTECH)*	-	SUB		See Attached			See Attached	See Attached	
Plasticity Index 1 point*	-	SUB		See Attached				See Attached	
Plasticity Index 4 point*	-	SUB					See Attached		
PSD Wet/Dry sieve*	-	SUB				See Attached			
Sedimentation*	-	SUB				See Attached			
BRE SD1 Extended suite*	-	SUB			See Attached				

CERTIFICATE OF ANALYSIS

SDG:	160617-98	**Location:**	Tradeteam Site (DHL) Gloucester	**Order Number:**	70020138-001
Job:	H_WSP_LON-224	**Customer:**	WSP PB LBH	**Report Number:**	369596
Client Reference:	70020138	**Attention:**	George Baggot	**Superseded Report:**	369556

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH02	BH03	BH03	BH03	BH03	BH03
			Depth (m)	2.00 - 2.50	0.50 - 0.50	1.00 - 1.50	1.50 - 1.50	2.00 - 2.45	2.00 - 2.50
			Sample Type	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils
			Date Sampled	17/06/2016	17/06/2016	17/06/2016	17/06/2016	17/06/2016	17/06/2016
			Sample Time	.	.	.	.	.	.
			Date Received	17/06/2016	17/06/2016	17/06/2016	17/06/2016	17/06/2016	17/06/2016
			SDG Ref	160617-98	160617-98	160617-98	160617-98	160617-98	160617-98
			Lab Sample No.(s)	13614028	13614033	13614035	13614037	13614041	13614039
			AGS Reference	B	D	B	D	U100	B
One Dimensional Consolidation*	-	SUB					See Attached		
Moisture Content (GEOTECH)*	-	SUB			See Attached				
Plasticity Index 4 point*	-	SUB			See Attached				
PSD Wet/Dry sieve*	-	SUB	See Attached			See Attached			See Attached
Sedimentation*	-	SUB	See Attached						See Attached
CU Triaxial Effective stress multi stage $*	-	SUB						See Attached	

CERTIFICATE OF ANALYSIS

SDG:	160617-98	**Location:**	Tradeteam Site (DHL) Gloucester	**Order Number:**	70020138-001
Job:	H_WSP_LON-224	**Customer:**	WSP PB LBH	**Report Number:**	369596
Client Reference:	70020138	**Attention:**	George Baggot	**Superseded Report:**	369556

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH03	BH03	BH04	BH04	BH05	BH05
			Depth (m)	3.00 - 3.00	5.00 - 5.00	1.20 - 1.20	1.50 - 2.00	1.00 - 1.50	1.50 - 1.50
			Sample Type	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils
			Date Sampled	17/06/2016	17/06/2016	17/06/2016	17/06/2016	17/06/2016	17/06/2016
			Sample Time	.	.	.	.	.	.
			Date Received	17/06/2016	17/06/2016	17/06/2016	17/06/2016	17/06/2016	17/06/2016
			SDG Ref	160617-98	160617-98	160617-98	160617-98	160617-98	160617-98
			Lab Sample No.(s)	13614043	13614047	13614049	13614051	13614053	13614018
			AGS Reference	D	D	D	B	B	D
Moisture Content (GEOTECH)*	-	SUB		See Attached	See Attached	See Attached			See Attached
Plasticity Index 1 point*	-	SUB			See Attached	See Attached			
Plasticity Index 4 point*	-	SUB		See Attached					See Attached
PSD Wet/Dry sieve*	-	SUB					See Attached	See Attached	
Sedimentation*	-	SUB						See Attached	

CERTIFICATE OF ANALYSIS

SDG:	160617-98	**Location:**	Tradeteam Site (DHL) Gloucester	**Order Number:**	70020138-001
Job:	H_WSP_LON-224	**Customer:**	WSP PB LBH	**Report Number:**	369596
Client Reference:	70020138	**Attention:**	George Baggot	**Superseded Report:**	369556

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample [1]	Surrogate Corrected
SUB		Subcontracted Test		

[1] Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

CERTIFICATE OF ANALYSIS

SDG:	160617-98	**Location:**	Tradeteam Site (DHL) Gloucester	**Order Number:**	70020138-001
Job:	H_WSP_LON-224	**Customer:**	WSP PB LBH	**Report Number:**	369596
Client Reference:	70020138	**Attention:**	George Baggot	**Superseded Report:**	369556

Test Completion Dates

Lab Sample No(s)	13614016	13614020	13614022	13614024	13614026	13614028	13614030	13614033	13614035	13614037
Customer Sample Ref.	BH01	BH01	BH01	BH01	BH02	BH02	BH02	BH03	BH03	BH03
AGS Ref.	D	D	B	D	D	B	U100	D	B	D
Depth	1.20 - 1.20	3.00 - 3.00	5.50 - 6.00	6.50 - 6.50	0.50 - 0.50	2.00 - 2.50	2.00 - 2.00	0.50 - 0.50	1.00 - 1.50	1.50 - 1.50
Type	GEOTECH	GEOTECH	GEOTECH	GEOTECH	GEOTECH	GEOTECH	GEOTECH	GEOTECH	GEOTECH	GEOTECH
Geotechnical Testing*	18-Jul-2016	18-Jul-2016	18-Jul-2016	19-Jul-2016	18-Jul-2016	18-Jul-2016	18-Jul-2016	19-Jul-2016	18-Jul-2016	18-Jul-2016

Lab Sample No(s)	13614039	13614041	13614043	13614047	13614049	13614051	13614018	13614053
Customer Sample Ref.	BH03	BH03	BH03	BH03	BH04	BH04	BH05	BH05
AGS Ref.	B	U100	D	D	D	B	D	B
Depth	2.00 - 2.50	2.00 - 2.45	3.00 - 3.00	5.00 - 5.00	1.20 - 1.20	1.50 - 2.00	1.50 - 1.50	1.00 - 1.50
Type	GEOTECH	GEOTECH	GEOTECH	GEOTECH	GEOTECH	GEOTECH	GEOTECH	GEOTECH
Geotechnical Testing*	18-Jul-2016	19-Jul-2016	19-Jul-2016	18-Jul-2016	18-Jul-2016	18-Jul-2016	19-Jul-2016	18-Jul-2016

Laboratory Report

2788

GSTL
GEO Site & Testing Services Ltd

Contract Number: 31383

Client's Reference: **SDG 160617-98 P40520**

Report Date: **18-07-2016**

Client **ALcontrol Laboratories**
Hawarden Business Park
Manor Road
Flintshire
CH5 3US

Contract Title: **Tradeteam (DHL) Gloucester**

For the attention of: **Alcontrol GSTL**

Date Received: **21-06-2016**

Date Commenced: **21-06-2016**

Date Completed: **18-07-2016**

Test Description	Qty
Moisture Content - * UKAS	8
Plasticity 4 Point Limit (ALC) - * UKAS	8
PSD-Wet Sieve/Dry Sieve 1377 : 1990 Part 2 : 9.2 - * UKAS	6
Sedimentation - * UKAS	4
One Dimensional consolidation - * UKAS	2
BRE Suite SD1	1
CUD 100mm Consolidated undrained triaxial compression test on a Single Specimen with Multistage Loading with the measurement of pore water pressure including saturation and consolidation, test duration FOUR days. BS1377 : Part 8 : Clause 7 : 1990 - @ Non Accredited Test	1

Notes: **Observations and Interpretations are outside the UKAS Accreditation**
*** - denotes test included in laboratory scope of accreditation**
 # - denotes test carried out by approved contractor
@ - denotes non accredited tests

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved Signatories:
Alex Wynn (Associate Director) - Benjamin Sharp (Contracts Manager) - Emma Sharp (Office Manager)
Jon Tatam (Administrative/Quality Assistant) - Paul Evans (Quality/Technical Manager) - Vaughan Edwards (Managing Director)

GEO Site & Testing Services Ltd
Unit 4, Heol Aur, Dafen Ind Estate, Dafen, Llanelli, Carmarthenshire SA14 8QN
Tel: 01554 784040 Fax: 01554 784041 info@gstl.co.uk gstl.co.uk

Contract Number: 31383

Test Description	Qty
Extra over items for test duration in excess of four days.	13
Disposal of Samples on Project	1

Notes: **Observations and Interpretations are outside the UKAS Accreditation**
*** - denotes test included in laboratory scope of accreditation**
 # - denotes test carried out by approved contractor
@ - denotes non accredited tests

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved Signatories:
Alex Wynn (Associate Director) - Benjamin Sharp (Contracts Manager) - Emma Sharp (Office Manager)
Jon Tatam (Administrative/Quality Assistant) - Paul Evans (Quality/Technical Manager) - Vaughan Edwards (Managing Director)

GEO Site & Testing Services Ltd
Unit 4, Heol Aur, Dafen Ind Estate, Dafen, Llanelli, Carmarthenshire SA14 8QN
Tel: 01554 784040 Fax: 01554 784041 info@gstl.co.uk gstl.co.uk

Client ref: SDG 160617-97

Location: Tradeteam

Contract Number: 31383-

Hole Number	Sample Number	Type	Depth (m)	Description of Sample*
BH01		D	1.20	Brown fine to medium gravelly sandy soft silty CLAY.
BH01		D	6.50	Greyish brown sandy fine silty CLAY.
BH02		D	0.50	Brown fine to medium gravelly sandy soft silty CLAY.
BH03		D	0.50	Brown fine to medium gravelly sandy soft silty CLAY.
BH03		D	3.00	Greyish brown sandy fine silty CLAY.
BH03		D	5.00	Greyish brown sandy fine silty CLAY.
BH04		D	1.20	Brown fine to medium gravelly sandy soft silty CLAY.
BH05		D	1.50	Brown fine to medium gravelly sandy soft silty CLAY.

Note: Results on this table are in summary format and may not meet the requirements of the relevant standards, additional information is held by the laboratory

GSTL
GEO SITE & TESTING SERVICES LTD

For and behalf of GEO Site & Testing Services Ltd

Authorised By: [redacted]

Date: 19.7.16

[redacted]

UKAS TESTING 2788

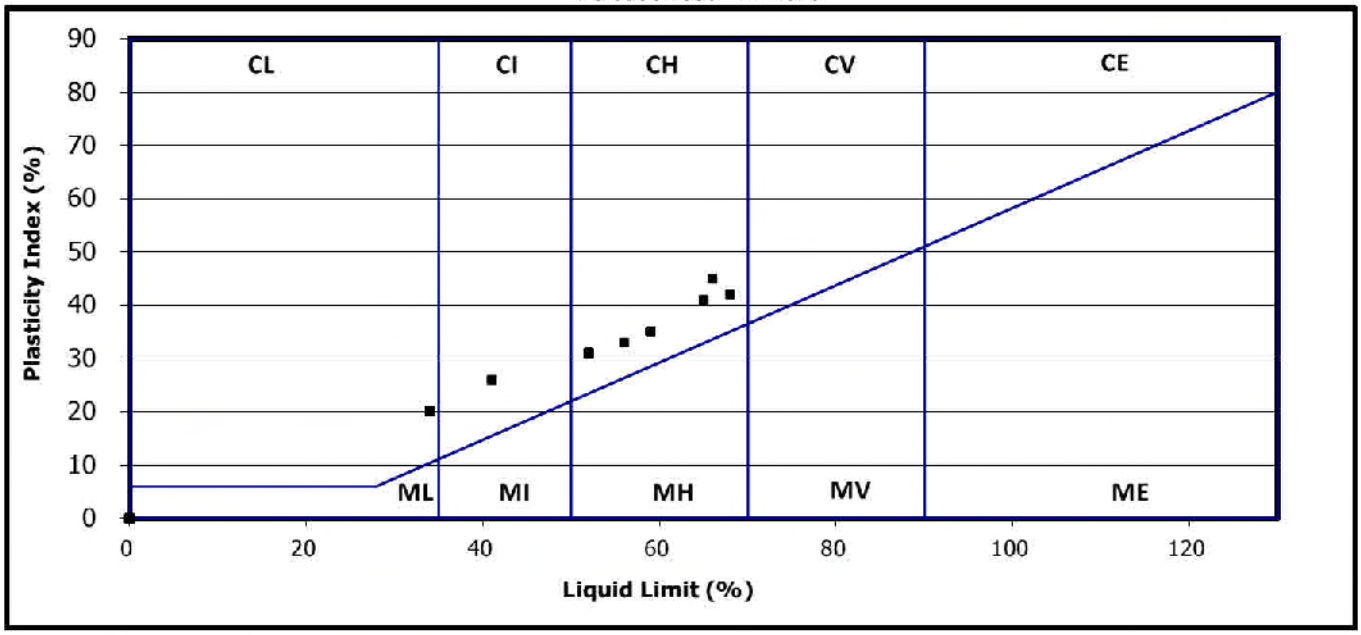
Test Report: **Method of the Determination of the plastic limit and plasticity index**
BS 1377 : Part 2 : 1990 Method 5

Client ref: **SDG 160617-97**
Location: **Tradeteam**
Contract Number: **31383-**

Hole/ Sample Number	Sample Type	Depth m	Moisture Content % Cl. 3.2	Liquid Limit % Cl. 4.3/4.4	Plastic Limit % Cl. 5.	Plasticity Index % Cl. 6.	% Passing .425mm	Remarks
BH01	D	1.20	20	41	15	26	73	CI Intermediate Plasticity
BH01	D	6.50	18	56	23	33	100	CH High Plasticity
BH02	D	0.50	22	52	21	31	73	CH High Plasticity
BH03	D	0.50	5.8	34	14	20	86	CL Low Plasticity
BH03	D	3.00	24	66	21	45	100	CH High Plasticity
BH03	D	5.00	21	68	26	42	84	CH High Plasticity
BH04	D	1.20	19	59	24	35	86	CH High Plasticity
BH05	D	1.50	24	65	24	41	83	CH High Plasticity

Symbols: **NP : Non Plastic** **# : Liquid Limit and Plastic Limit Wet Sieved**

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.
BS 5930:1999+A2:2010



For and behalf of GEO Site & Testing Services Ltd

Authorised By: [redacted]

Date: 19.7.16

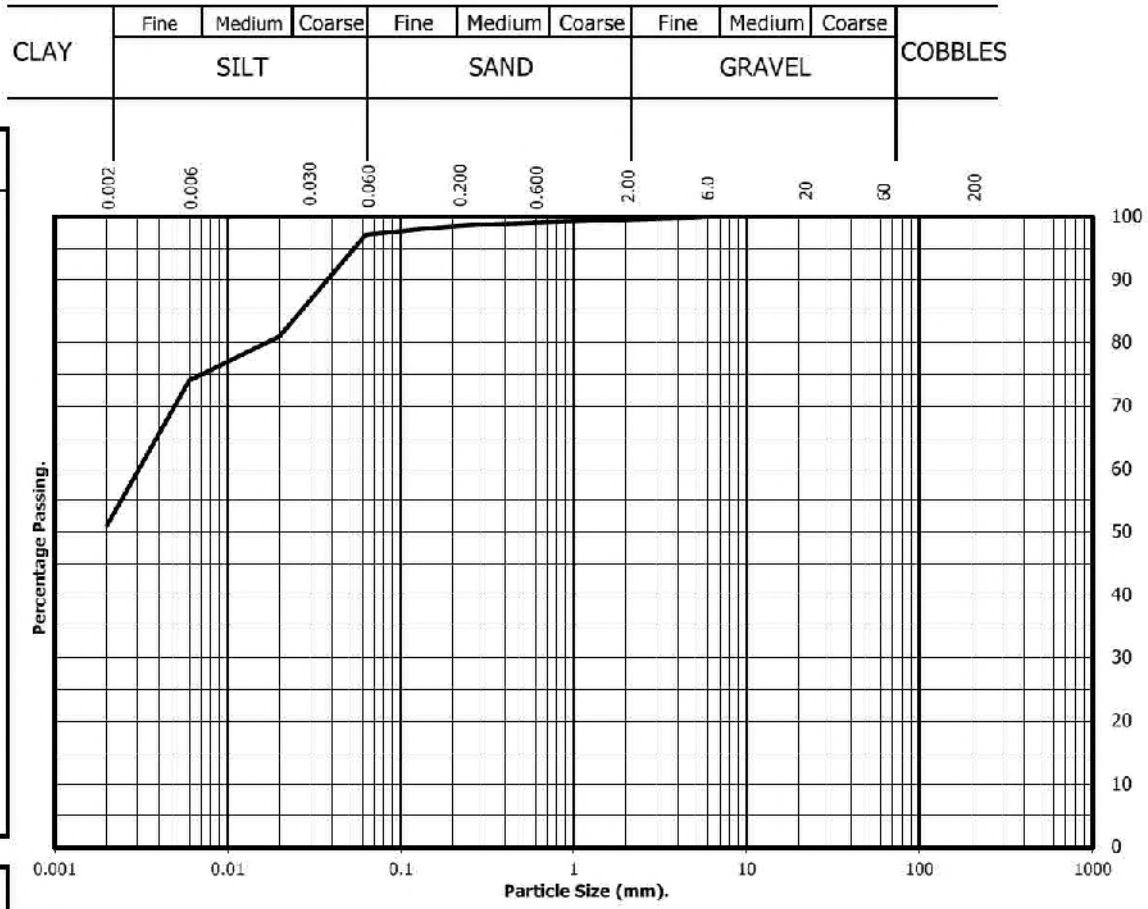
[redacted]

GEO/005

Test Report:

Particle Size Distribution Test
BS 1377 Part 2:1990.
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Client ref:	**SDG 160617-98**	**Sample Number:**	**N/A**
Contract Number:	**31383-**	**Depth from (m):**	**5.50**
Hole Number:	**BH1**	**Depth to (m):**	**6.00**
		Sample Type:	**B**
Location:	**Tradeteam**		
Description:	**Greyish brown sandy fine to medium silty CLAY.**		



BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5.0	100
3.35	100
2.00	100
1.18	99
0.60	99
0.425	99
0.300	99
0.212	98
0.150	98
0.063	97

Particle Diameter	% Passing
0.02	81
0.006	74
0.002	51

Clay	Silt	Sand	Gravel	Cobbles	Soil Fraction
51	46	3	0	0	Total Percentage

Remarks:
Cl 9.4.8 - Sample has not been pretreated

For and behalf of GEO Site & Testing Services Ltd

Authorised By: [redacted]

Date: 11.7.16

[redacted]

GSTL
GEO SITE & TESTING SERVICES LTD

UKAS TESTING
2788

Test Report:

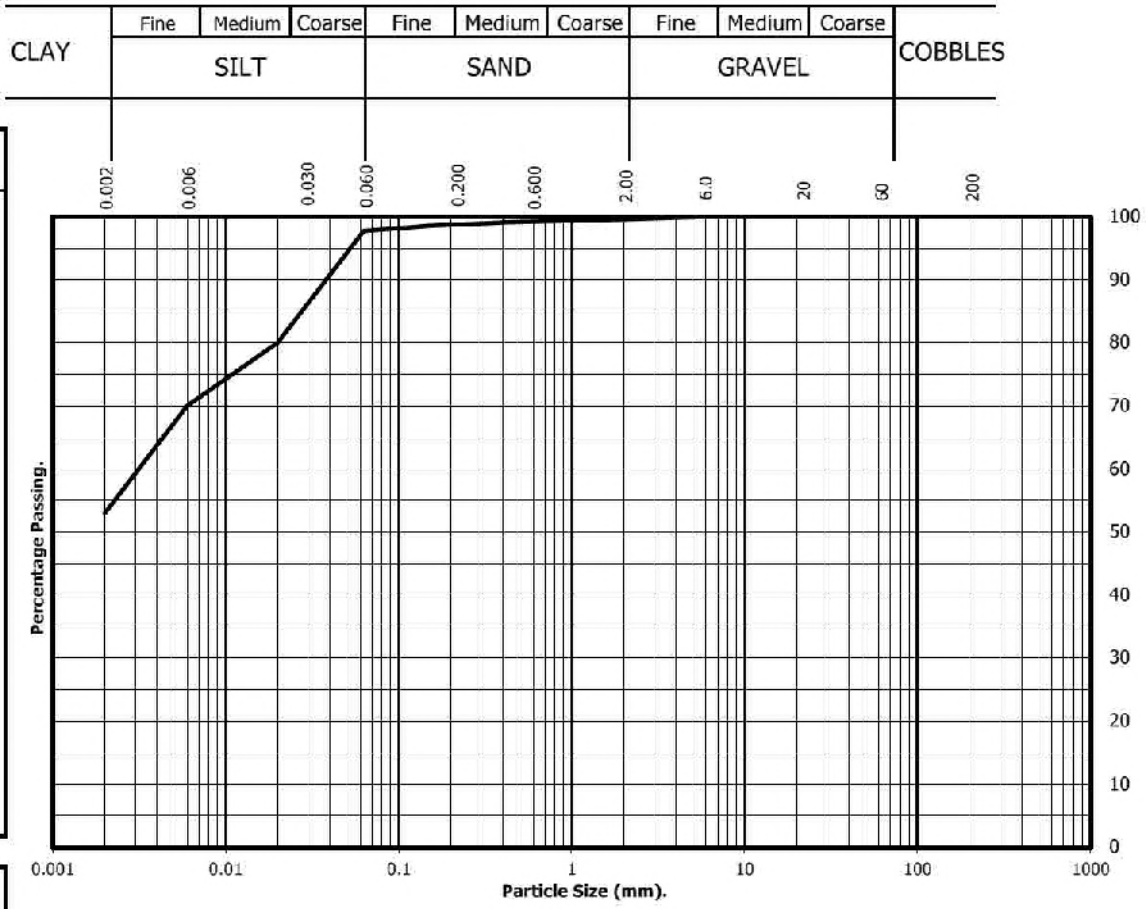
Particle Size Distribution Test
BS 1377 Part 2:1990.
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Client ref:	**SDG 160617-98**	**Sample Number:**	**N/A**
Contract Number:	**31383-**	**Depth from (m):**	**2.00**
Hole Number:	**BH2**	**Depth to (m):**	**2.50**
		Sample Type:	**B**

Location: **Tradeteam**

Description: **Greyish brown sandy fine to medium silty CLAY.**

BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5.0	100
3.35	100
2.00	100
1.18	99
0.60	99
0.425	99
0.300	99
0.212	99
0.150	99
0.063	98



Particle Diameter	% Passing
0.02	80
0.006	70
0.002	53

Clay	Silt	Sand	Gravel	Cobbles	Soil Fraction
53	45	2	0	0	Total Percentage

Remarks:

Cl 9.4.8 - Sample has not been pretreated

For and behalf of GEO Site & Testing Services Ltd

Authorised By: [redacted]

Date: 11.7.16

[redacted]

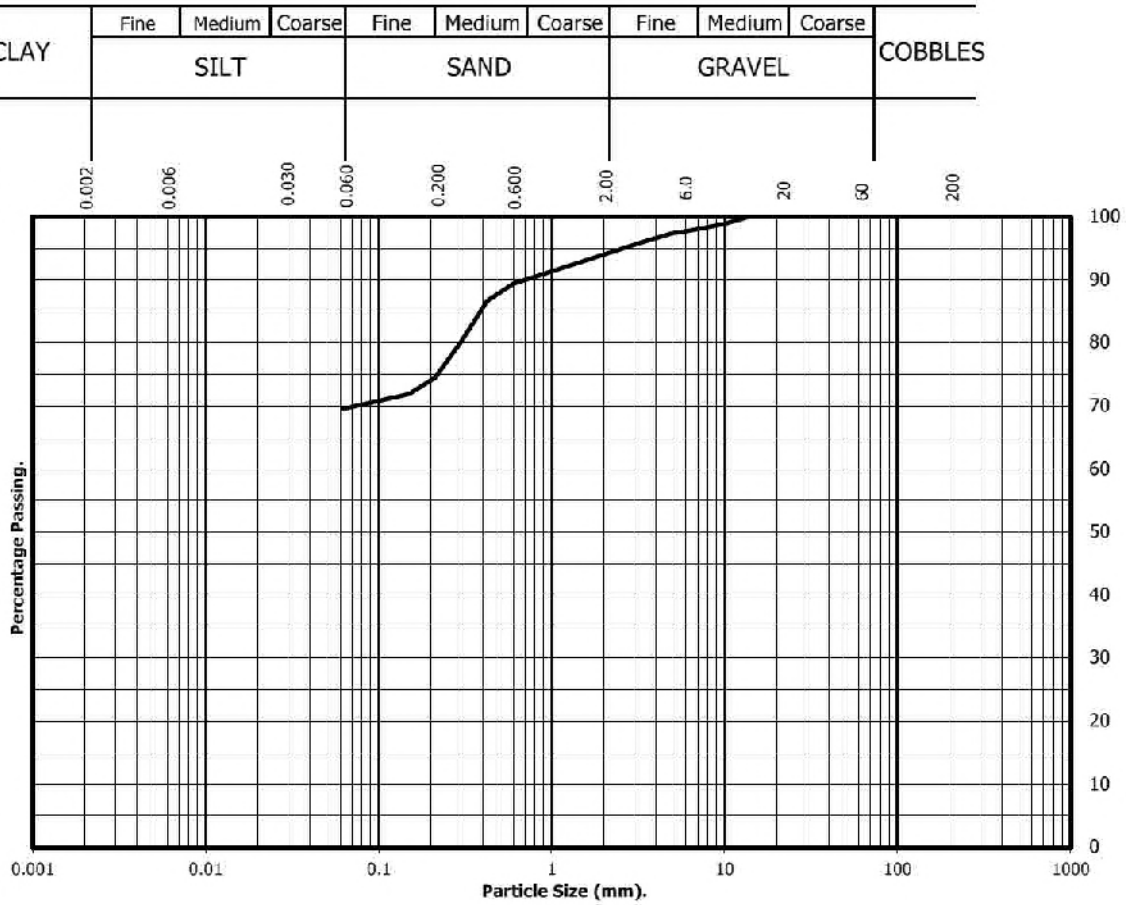
GSTL
GEO SITE & TESTING SERVICES LTD

UKAS TESTING
2788

Test Report:

Particle Size Distribution Test
BS 1377 Part 2:1990.
Wet Sieve, Clause 9.2

Client ref:	**SDG 160617-98**	**Sample Number:**	**N/A**
Contract Number:	**31383-**	**Depth from (m):**	**1.00**
Hole Number:	**BH3**	**Depth to (m):**	**1.50**
		Sample Type:	**B**
Location:	**Tradeteam**		
Description:	**Brown gravelly sandy fine to medium silty CLAY.**		



BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	99
6.3	98
5.0	97
3.35	96
2.00	94
1.18	92
0.60	89
0.425	87
0.300	80
0.212	74
0.150	72
0.063	70

Particle Diameter	% Passing
0.02	#
0.006	#
0.002	#

	Silt and Clay	Sand	Gravel	Cobbles	Soil Fraction
	70	24	6	0	Total Percentage

Remarks:
#- not determined

For and behalf of GEO Site & Testing Services Ltd

Authorised By: [redacted]

Date: 11.7.16

[redacted]

GSTL
GEO SITE & TESTING SERVICES LTD

UKAS TESTING
2788

GEO/104

Test Report:

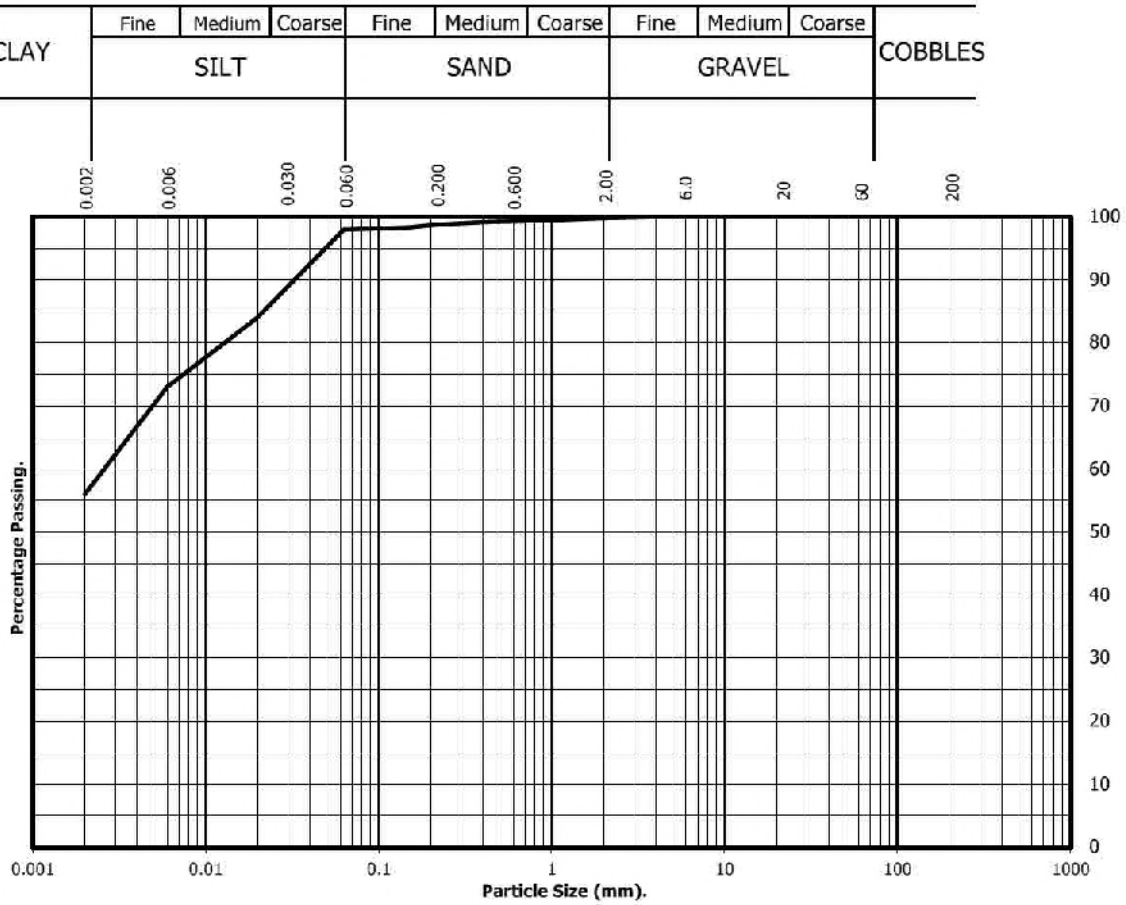
Particle Size Distribution Test
BS 1377 Part 2:1990.
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Client ref:	**SDG 160617-98**	**Sample Number:**	**N/A**
Contract Number:	**31383-**	**Depth from (m):**	**2.00**
Hole Number:	**BH3**	**Depth to (m):**	**2.50**
		Sample Type:	**B**

Location: **Tradeteam**

Description: **Greyish brown sandy fine to medium silty CLAY.**

BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5.0	100
3.35	100
2.00	100
1.18	100
0.60	99
0.425	99
0.300	99
0.212	99
0.150	98
0.063	98



Particle Diameter	% Passing
0.02	84
0.006	73
0.002	56

Clay	Silt	Sand	Gravel	Cobbles	Soil Fraction
56	42	2	0	0	Total Percentage

Remarks:

Cl 9.4.8 - Sample has not been pretreated

For and behalf of GEO Site & Testing Services Ltd

Authorised By: [redacted]

Date: 11.7.16

[redacted]

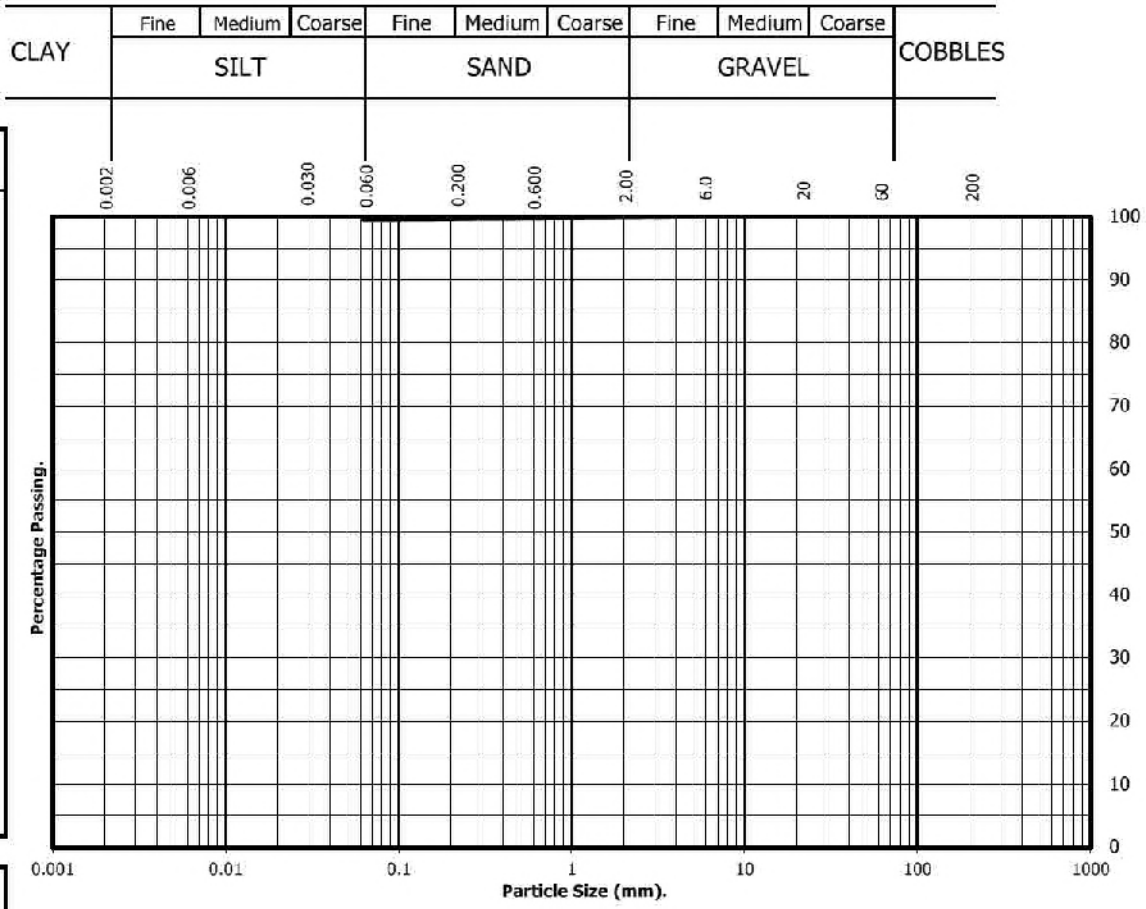
GSTL
GEO SITE & TESTING SERVICES LTD

UKAS TESTING
2788

Test Report:

Particle Size Distribution Test
BS 1377 Part 2:1990.
Wet Sieve, Clause 9.2

Client ref:	**SDG 160617-98**	**Sample Number:**	**N/A**
Contract Number:	**31383-**	**Depth from (m):**	**1.50**
Hole Number:	**BH4**	**Depth to (m):**	**2.00**
		Sample Type:	**B**
Location:	**Tradeteam**		
Description:	**Brown fine to medium silty CLAY.**		



BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5.0	100
3.35	100
2.00	100
1.18	100
0.60	100
0.425	100
0.300	100
0.212	100
0.150	100
0.063	100

Particle Diameter	% Passing
0.02	#
0.006	#
0.002	#

	Silt and Clay	Sand	Gravel	Cobbles	Soil Fraction
	100	0	0	0	Total Percentage

Remarks:
#- not determined

For and behalf of GEO Site & Testing Services Ltd

Authorised By: [redacted]

Date: 11.7.16

[redacted]

GSTL
GEO SITE & TESTING SERVICES LTD

UKAS TESTING
2788

GEO/104

Test Report:

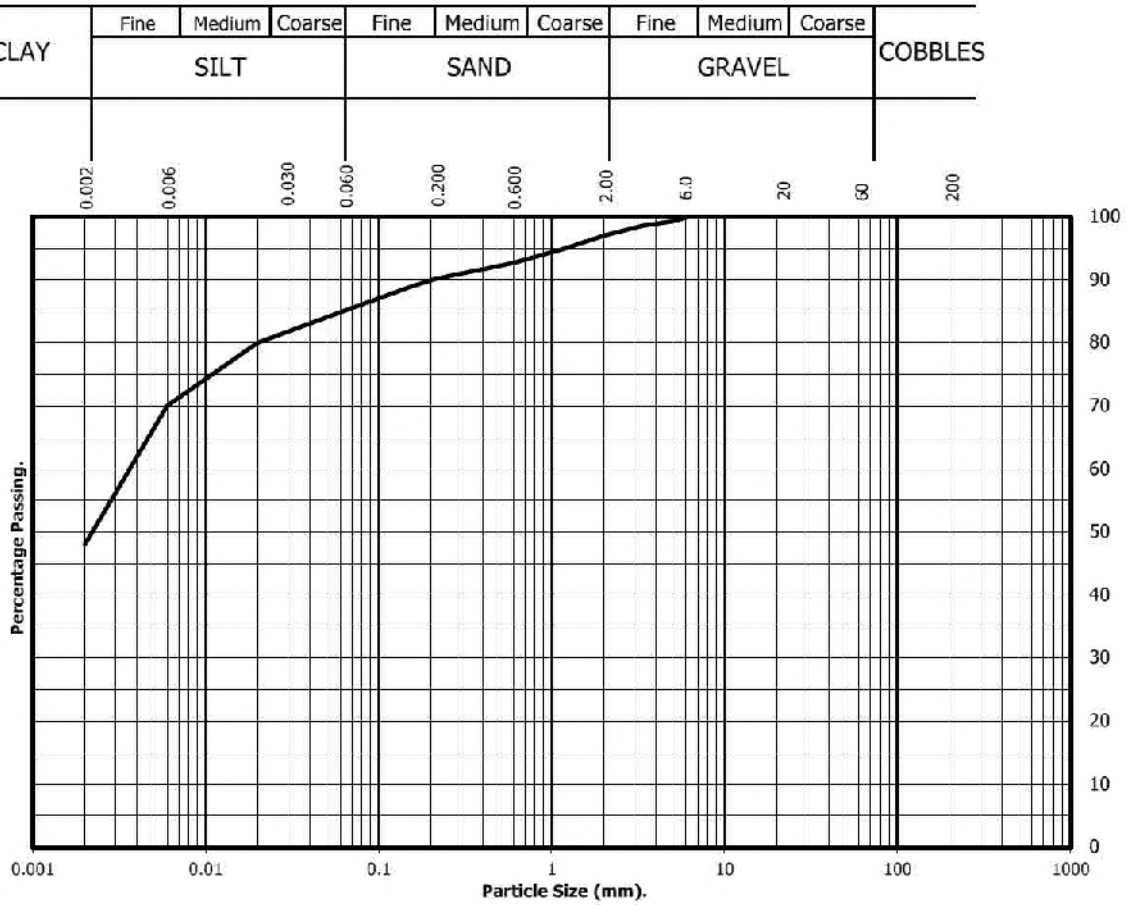
Particle Size Distribution Test
BS 1377 Part 2:1990.
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Client ref:	**SDG 160617-98**	**Sample Number:**	**N/A**
Contract Number:	**31383-**	**Depth from (m):**	**1.00**
Hole Number:	**BH5**	**Depth to (m):**	**1.50**
		Sample Type:	**B**

Location: **Tradeteam**

Description: **Brown gravelly sandy fine to medium silty CLAY.**

BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5.0	99
3.35	99
2.00	97
1.18	95
0.60	93
0.425	92
0.300	91
0.212	90
0.150	89
0.063	85



Particle Diameter	% Passing
0.02	80
0.006	70
0.002	48

Clay	Silt	Sand	Gravel	Cobbles	Soil Fraction
48	37	12	3	0	Total Percentage

Remarks:

Cl 9.4.8 - Sample has not been pretreated

For and behalf of GEO Site & Testing Services Ltd

Authorised By: [redacted]

Date: 11.7.16

GSTL
GEO SITE & TESTING SERVICES LTD

UKAS TESTING 2788

GEO Site & Testing Services Limited

Unit 4
Heol Aur
Dafen Ind EstateDafen
Carmarthenshire
SA14 8QN
[redacted]
Web: www.geo.uk.com

Certificate of Analysis

Date:	24-06-16
Client:	Alcontrol
Our Reference:	31383-
Client Reference:	160617-98
Contract Title:	Tradeteam
Description: (Total Samples)	1
Date Received:	00-01-00
Date Started:	22-06-16
Date Completed:	24-06-16
Test Procedures:	(BRE BR 279)

Notes:

Solid samples will be disposed 1 month and liquids 2 weeks after the date of issue of this test certificate

Approved By:

[redacted]

Authorised Signatories:

Laboratory Office Manager Contracts Manager Quality Manager

Contract No: 31383-
Client Ref: 160617-98
Location: Tradeteam
Date: 24-06-2016

Summary of Chemical Analysis

(BRE BR 279)

Hole Number	Sample Number	Sample Type	Depth m	Sulphate Content as SO_4			Chloride Content		pH Value @ 25°C	Total Sulphur % SO_4	Magnesium g/l	Nitrate NO_3 mg/l
				Acid Soluble Sulphate as % SO_4	Aqueous Extract Sulphate as g/l SO_4	Ground-water g/l	Semi Quantative Test Strip mg Cl/l	Quantative g/l				
				BR 279	BR 279	BR 279	BR 279	BR 279	BR 279	BR 279	BR 279	BR 279
BH01		D	3.00	0.21	0.04		ncp		7.55	0.09	<1	10.00

NCP - No Chloride present

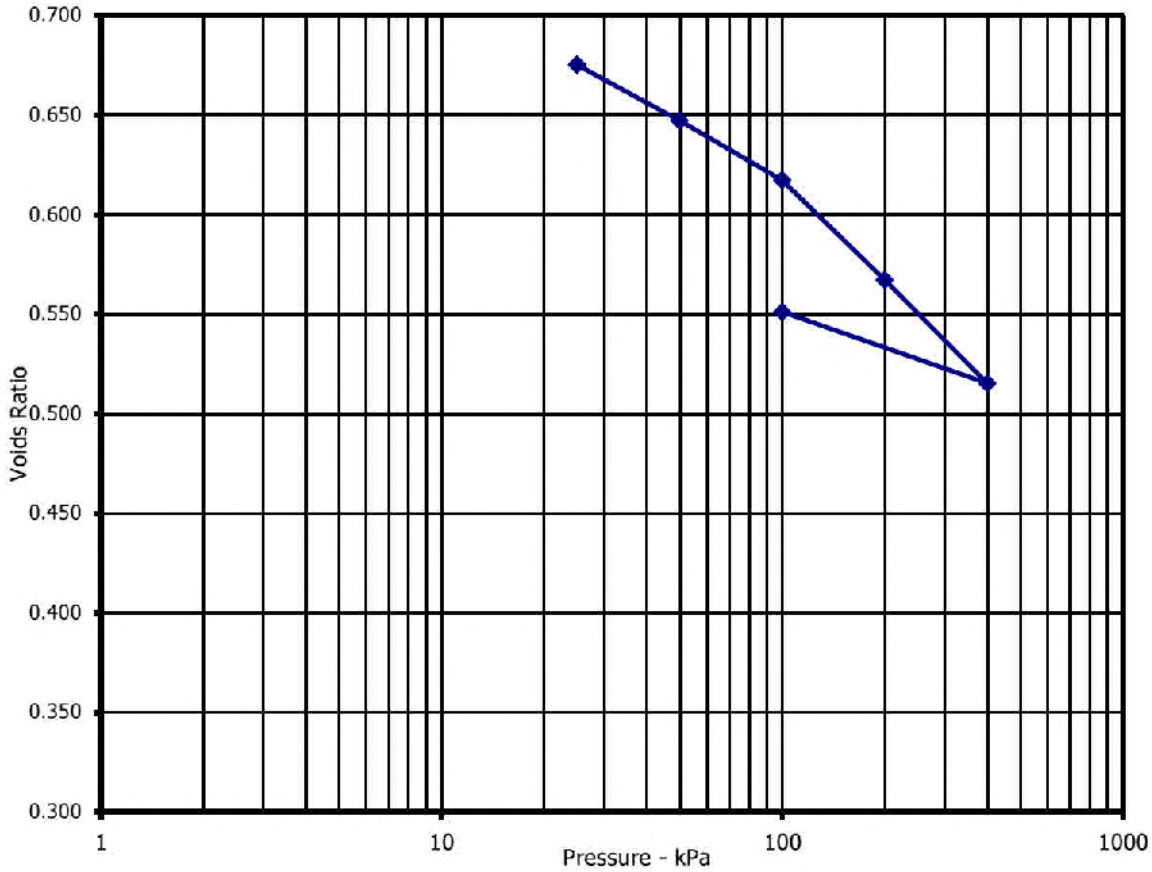
Test Report: ONE DIMENSIONAL CONSOLIDATION

BS1377: Part 5: 1990

Client ref: **SDG 160617-98**

Location: **Tradeteam**
Contract Number: **31383-**
Hole/Sample Number: **BH2**
Depth (m) : **2.00 - N/A**
Sample Type: **UT**

Initial Conditions		Pressure Range kPa			Mv m2/MN	Cv m2/yr	Method of time fitting used Cv Calculated using t90
Moisture Content (%):	24						
Bulk Density (Mg/m3):	1.94	0	-	25	0.48	18.08	Nominal Laboratory Temperature 20'C
Dry Density (Mg/m3):	1.56	25	-	50	0.67	6.72	
Voids Ratio:	0.696	50	-	100	0.36	6.86	Location of specimen with sample top
Degree of saturation:	91.6	100	-	200	0.31	4.33	
Height (mm):	19.85	200	-	400	0.17	5.14	Remarks:
Diameter (mm)	75.04	400	-	100	0.08	3.74	
Particle Density (Mg/m3) Assumed	2.65						



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Checked by **Approved by**

Date approved: 11-07-16

GSTL
GEO Site & Testing Services Limited

UKAS TESTING 2788

GEO/011 Issue No 1.2

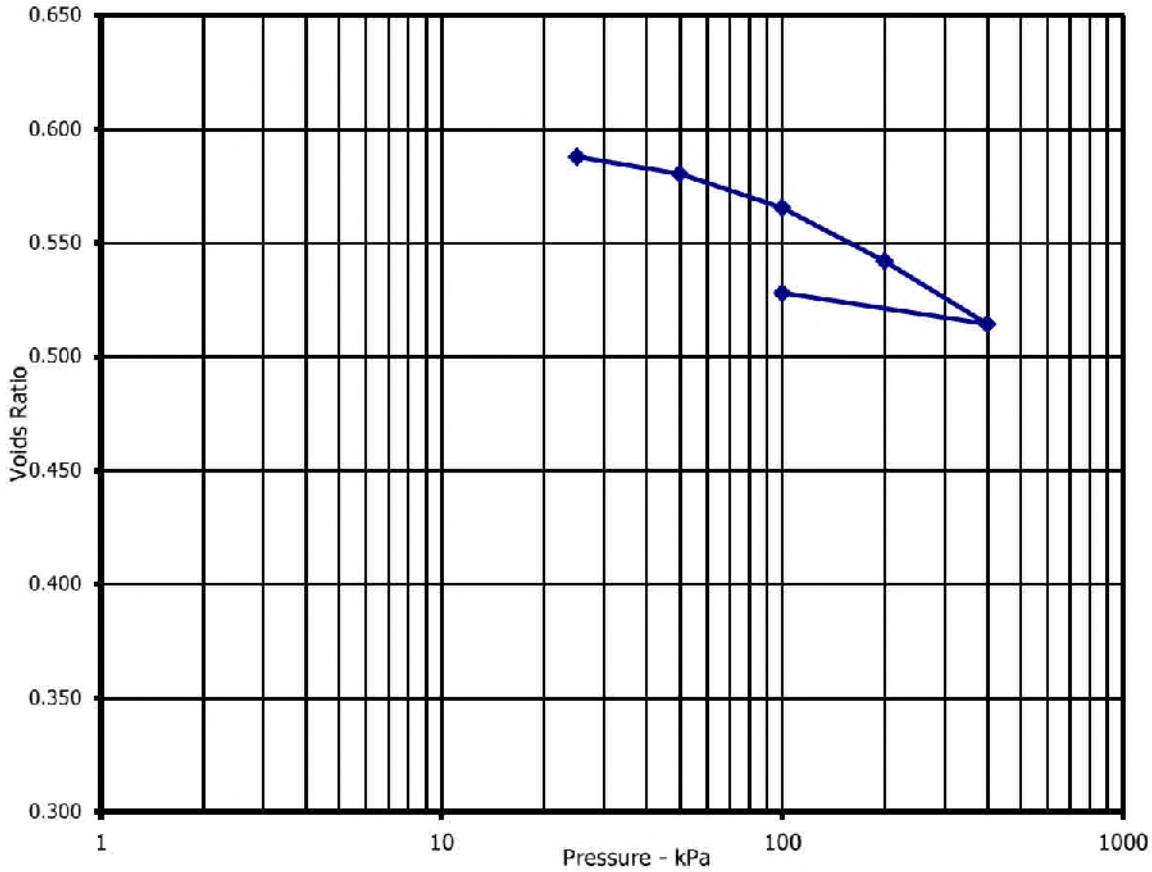
Test Report: ONE DIMENSIONAL CONSOLIDATION

BS1377: Part 5: 1990

Client ref: **SDG 160617-98**

Location: **Tradeteam**
Contract Number: **31383-**
Hole/Sample Number: **BH3**
Depth (m) : **1.50 - N/A**
Sample Type: **UT**

Initial Conditions		Pressure Range kPa			Mv m2/MN	Cv m2/yr	Method of time fitting used Cv Calculated using t90
Moisture Content (%):	22						
Bulk Density (Mg/m3):	2.04	0	-	25	0.01	18.15	Nominal Laboratory Temperature 20'C
Dry Density (Mg/m3):	1.67	25	-	50	0.19	3.45	
Voids Ratio:	0.588	50	-	100	0.19	10.75	Location of specimen with sample top
Degree of saturation:	100.4	100	-	200	0.15	4.67	
Height (mm):	19.77	200	-	400	0.09	10.14	Remarks:
Diameter (mm)	75.02	400	-	100	0.03	4.16	
Particle Density (Mg/m3) Assumed	2.65						



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GSTL GEO Site & Testing Services Limited

Checked by **Approved by**

Date approved: 11-07-16

UKAS TESTING 2788

GEO/011 Issue No 1.2

Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Specimen Details

Borehole		BH3
Sample No.		
Depth	from(m)	2.00
Depth	to(m)	2.45
Date		18-07-16
Disturbed / Undisturbed		Undisturbed

Description of Specimen

Greyish Brown slightly silty CLAY

Initial Specimen Conditions

Height	mm	205.00
Diameter	mm	103.00
Area	mm^2	8332.29
Volume	cm^3	1708.12
Mass	g	3431.30
Dry Mass	g	3060.30
Density	Mg/m^3	2.01
Dry Density	Mg/m^3	1.79
Moisture Content	%	12
Specific Gravity	kN/m^3	2.65
(assumed/measured)		assumed

Final Specimen Conditions

Moisture Content	%	10
Density	Mg/m^3	2.18
Dry Density	Mg/m^3	1.99

[redacted]

19-07-16
Date

Client Ref

160617-98

Contract No

31383

Tradeteam

GSTL
GEO SITE & TESTING SERVICES LTD

Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Specimen Details

Borehole		BH3
Sample No.		
Depth	from(m)	2.00
Depth	to(m)	2.45

Test Setup

Date started	25-06-16
Date Finished	18-07-16
Top Drain Used	y
Base Drain Used	y
Side Drains Used	y
Pressure System Number	P4
Cell Number	C4

Saturation

Cell Pressure Incr.	kPa	100.00
Back Pressure Incr.	kPa	95.00
Differential Pressure	kPa	5.00
Final Cell Pressure	kPa	700.00
Final Pore Pressure	kPa	690.00
Final B Value		0.97

Consolidation

Effective Pressure	kPa	200.00	400.00	
Cell Pressure	kPa	700.00	700.00	
Back Pressure	kPa	500.00	300.00	
Excess Pore Pressure	kPa	190.00	256.00	
Pore Pressure at End	kPa	500.00	300.00	
Consolidated Volume	cm^3	1602.02	1551.02	
Consolidated Height	mm	200.76	206.20	
Consolidated Area	mm^2	7987.25	7523.72	
Vol. Compressibility	m^2/MN	0.12423	0.10612	
Consolidation Coef.	$m^2/yr.$	0.15497	0.04377	

[redacted]

Checked and Approved By

19-07-16
Date

Client Ref

160617-98

Tradeteam

Contract No

31383

GSTL
GEO SITE & TESTING SERVICES LTD

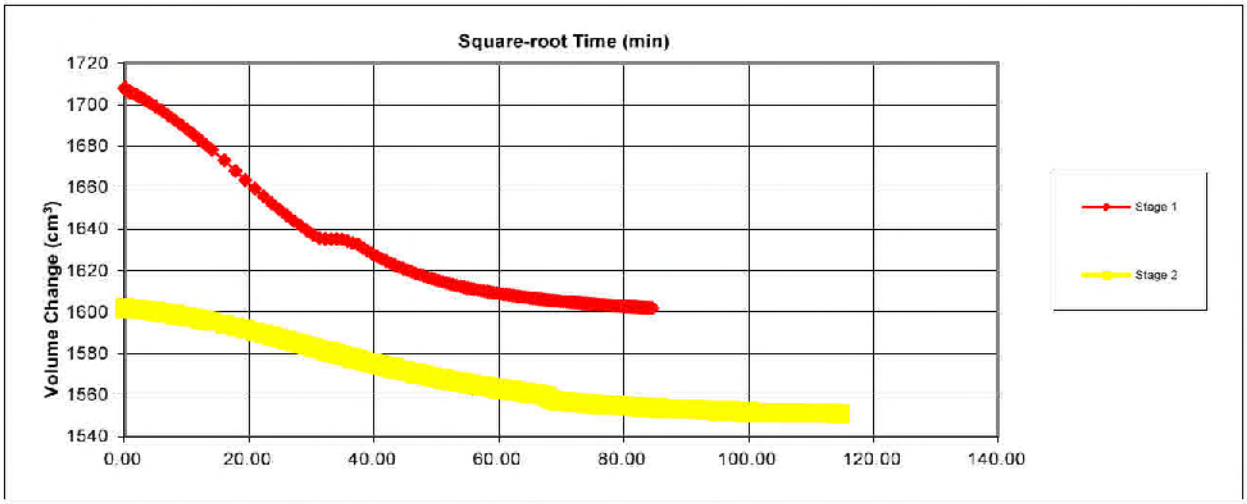
Consolidated Undrained Triaxial Compression Test

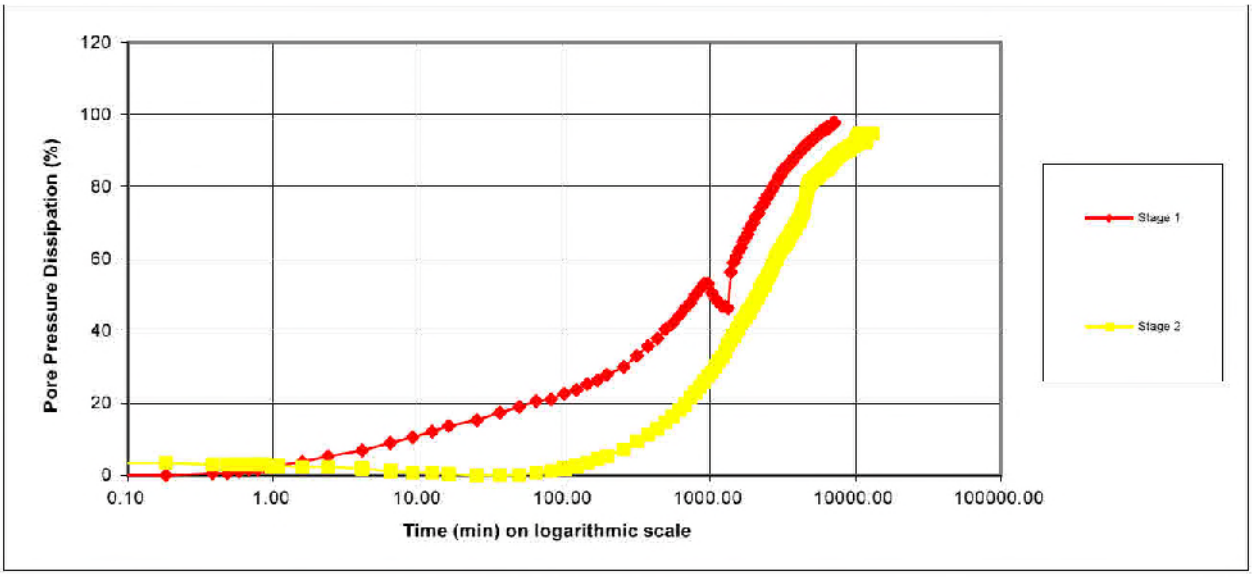
BS 1377 : Part 8 : 1990

Specimen Details

Borehole		BH3
Sample No.		
Depth	from(m)	2.00
Depth	to(m)	2.45

Consolidation Stage





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Checked and Approved By

19-07-16
Date

Client Ref
160617-98

Contract No
31383

Tradeteam

GSTL
GEO SITE & TESTING SERVICES LTD

Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Specimen Details

Borehole		BH3
Sample No.		
Depth	from(m)	2.00
Depth	to(m)	2.45

Shearing

Initial Cell Pressure	kPa	700	700	
Initial Pore Pressure	kPa	500	300	
Rate of Strain	mm/min	0.0031	0.0009	
Max Deviator Stress				
Axial Strain		4.458	6.973	
Axial Stress	kPa	218.422	438.45	
Cor. Deviator stress	kPa	215.437	432.22	
Effective Major Stress	kPa	310.437	625.22	
Effective Minor Stress	kPa	96.000	193.00	
Effective Stress Ratio		3.234	3.239	
s'	kPa	203.219	409.11	
t'	kPa	107.219	216.11	
Max Effective Priciple Stress Ratio				
Axial Strain		4.458	7.909	
Axial Stress	kPa	218.422	447.775	
Cor. Deviator stress	kPa	214.437	428.444	
Effective Major Stress	kPa	310.437	615.444	
Effective Minor Stress	kPa	96.000	187.000	
Effective Stress Ratio		3.234	3.291	
s'	kPa	203.219	401.222	
t'	kPa	107.219	214.222	
Shear Resistance Angle	degs			33.0
Cohesion c'	kPa			-3

[redacted]

Checked and Approved By

19-07-16
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Client Ref

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Tradeteam

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GSTL
GEO SITE & TESTING SERVICES LTD

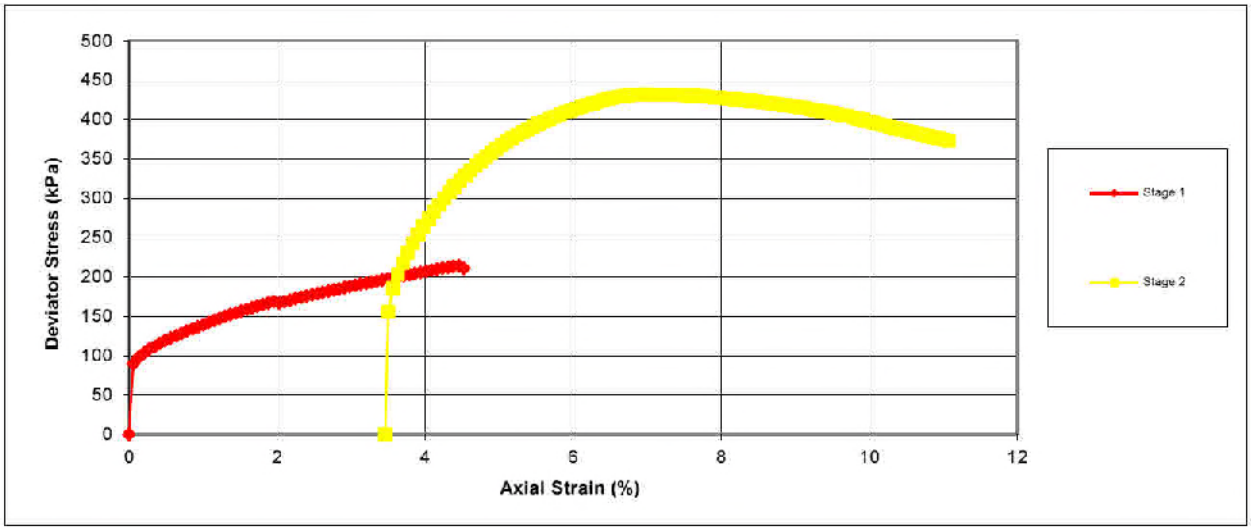
Consolidated Undrained Triaxial Compression Test

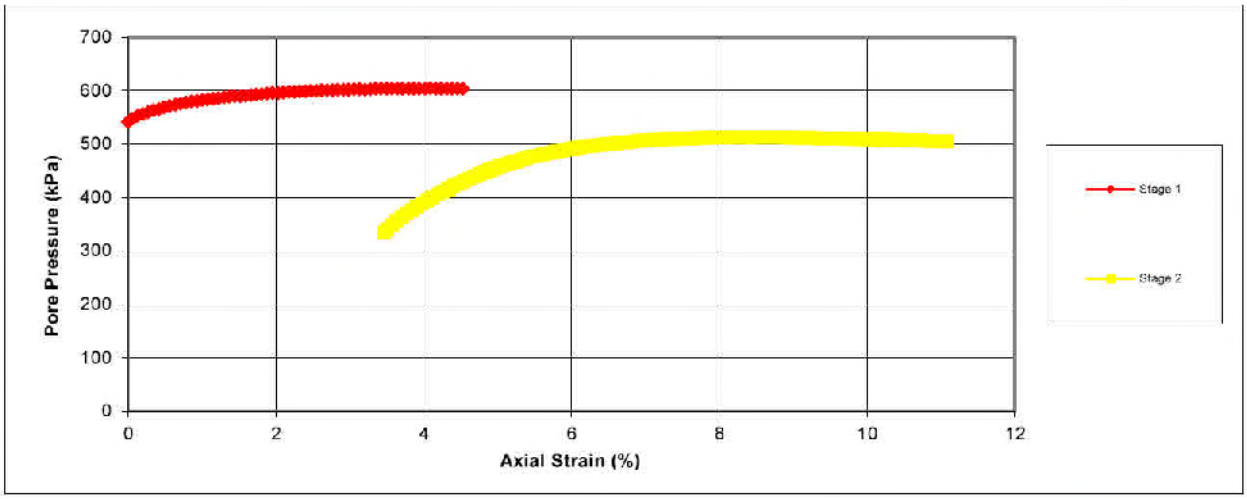
BS 1377 : Part 8 : 1990

Specimen Details

Borehole		BH3
Sample No.		
Depth	from(m)	2.00
Depth	to(m)	2.45

Shearing Stage





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Client Ref

160617-98

Contract No

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Tradeteam

GSTL
GEO SITE & TESTING SERVICES LTD

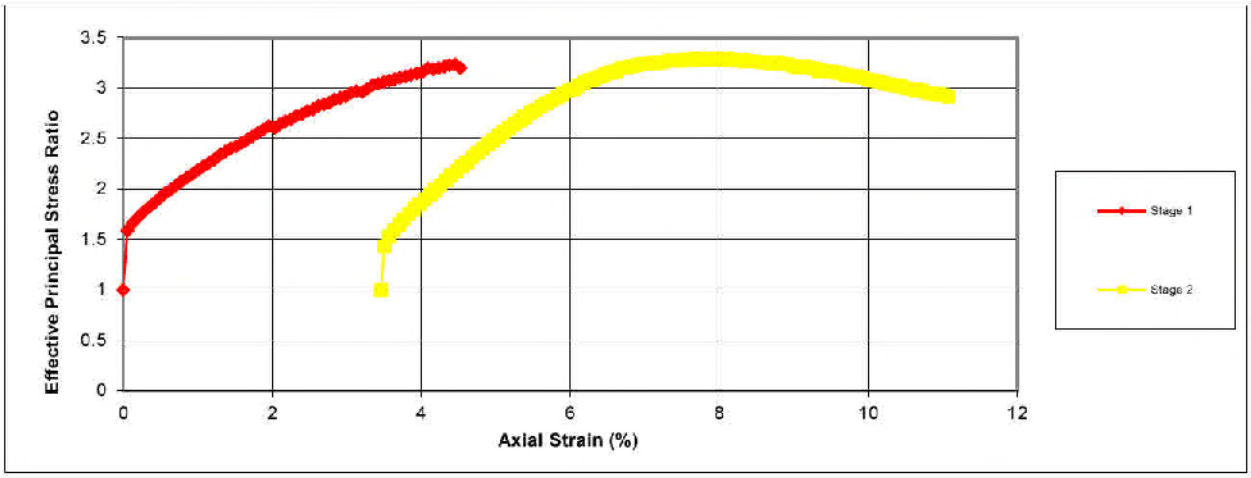
Consolidated Undrained Triaxial Compression Test

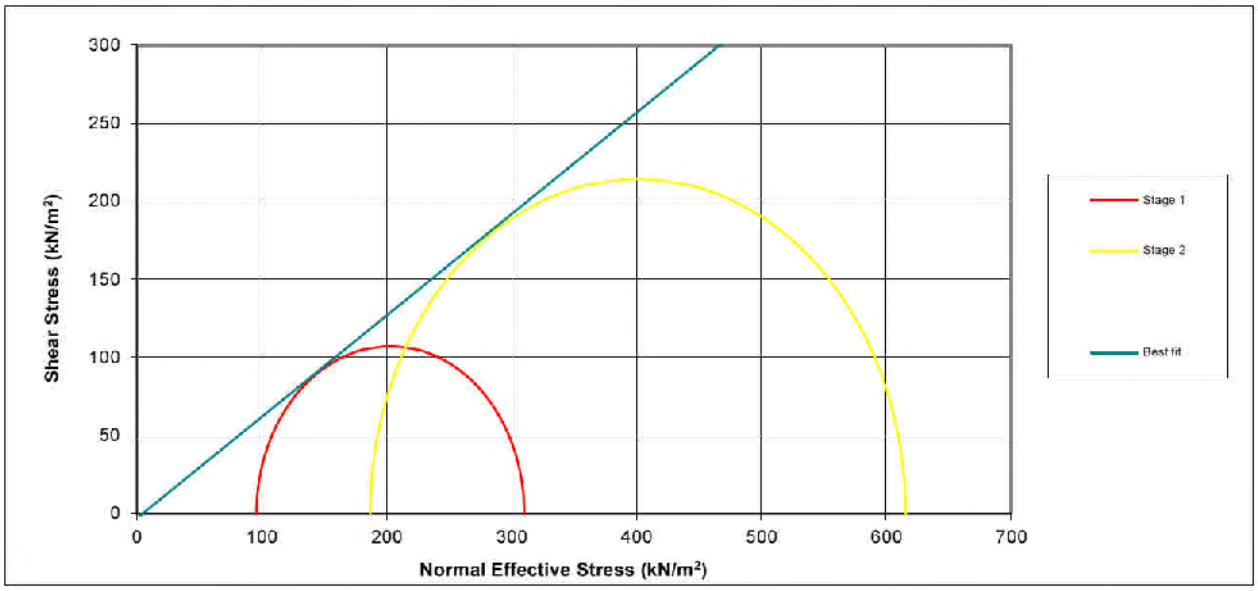
BS 1377 : Part 8 : 1990

Specimen Details

Borehole		BH3
Sample No.		
Depth	from(m)	2.00
Depth	to(m)	2.45

Shearing Stage





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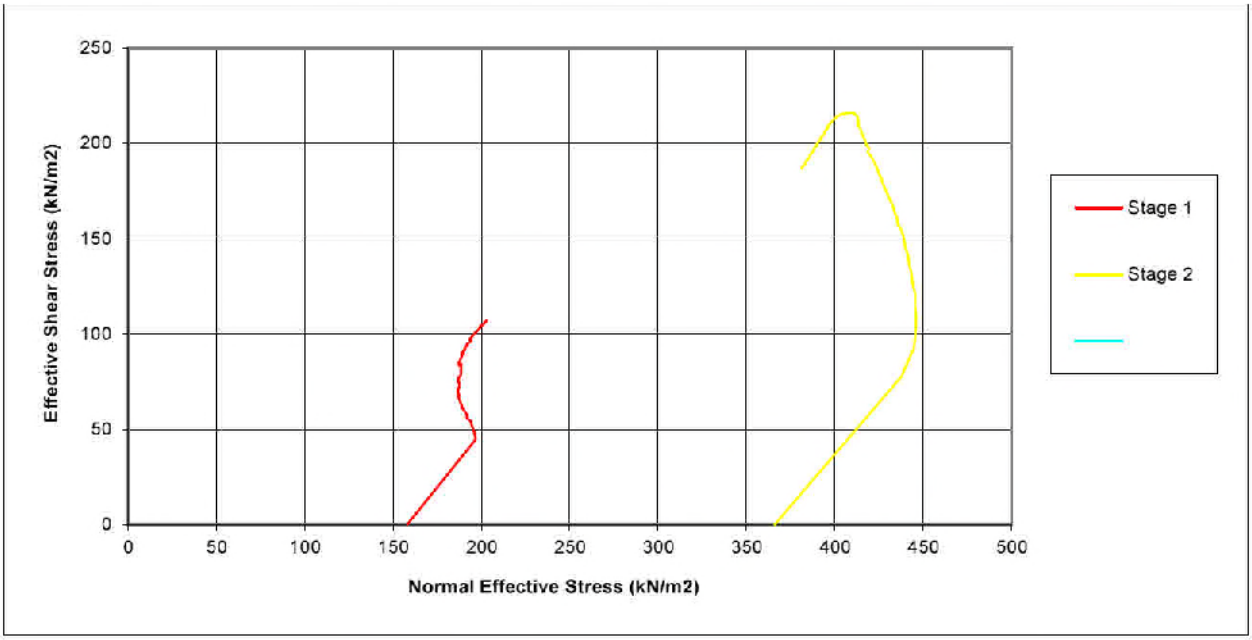
Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Specimen Details

Borehole		BH3
Sample No.		
Depth	from(m)	2.00
Depth	to(m)	2.45

Shearing Stage



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Checked and Approved By

19-07-16
Date

Client Ref
160617-98

Tradeteam

Contract No
31383

GSTL
GEO SITE & TESTING SERVICES LTD

Consolidated Undrained Triaxial Compression Test

BS 1377 : Part 8 : 1990

Specimen Details

Borehole		BH3
Sample No.		
Depth	from(m)	2.00
Depth	to(m)	2.45

[redacted]

Checked and Approved By

19-07-16
Date

Client Ref

160617-98

Tradeteam

Contract No

31383

GSTL
GEO SITE & TESTING SERVICES LTD

SDG:	160617-98	**Location:**	Tradeteam Site (DHL) Gloucester	**Order Number:**	70020138-001
Job:	H_WSP_LON-224	**Customer:**	WSP PB LBH	**Report Number:**	369596
Client Reference:	70020138	**Attention:**	George Baggot	**Superseded Report:**	369556

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before presevation was performed
§	Sampled on date not provided
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
[redacted]
Website: www.alsenvironmental.co.uk

WSP PB LBH
WSP PB
4th Floor
6 Devonshire Square
London
EC2M 4YE

Attention: George Baggot

CERTIFICATE OF ANALYSIS

Date:	13 April 2018
Customer:	H_WSP_LON
Sample Delivery Group (SDG):	180302-66
Your Reference:	70020138
Location:	Tradeteam Site (DHL) Gloucester
Report No:	451633

This report has been revised and directly supersedes 451021 in its entirety.

We received 93 samples on Friday March 02, 2018 and 30 of these samples were scheduled for analysis which was completed on Friday April 13, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

Approved By:

[redacted]

Operations Manager

ALS Life Sciences Limited. Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291.

CERTIFICATE OF ANALYSIS

SDG:	180302-66	**Client Reference:**	70020138	**Report Number:**	451633
Location:	Tradeteam Site (DHL) Glouc	**Order Number:**	70020138-006	**Superseded Report:**	451021

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17149875	BH101	B	0.50 - 0.50	14/02/2018
17149885	BH101	D	1.50 - 1.50	14/02/2018
17149916	BH101	D	2.50 - 2.50	14/02/2018
17149943	BH101	D	3.50 - 3.50	14/02/2018
17149981	BH101	D	4.50 - 4.50	14/02/2018
17150014	BH101	D	5.00 - 5.00	14/02/2018
17150042	BH101	D	6.00 - 6.45	14/02/2018
17150072	BH101	D	6.50 - 6.50	14/02/2018
17150103	BH101	D	7.50 - 7.50	14/02/2018
17149908	BH101	D	8.00 - 8.45	14/02/2018
17149959	BH102	D	0.60 - 0.60	14/02/2018
17149932	BH102	B	0.60 - 0.60	14/02/2018
17149997	BH102	D	1.20 - 1.20	14/02/2018
17150024	BH102	U100	1.50 - 1.95	14/02/2018
17150049	BH102	D	2.50 - 2.50	14/02/2018
17150079	BH102	D	2.60 - 2.60	14/02/2018
17150105	BH102	U100	3.00 - 3.45	14/02/2018
17149878	BH102	D	3.50 - 3.50	14/02/2018
17149889	BH102	D	4.00 - 4.00	14/02/2018
17149882	BH102	D	4.00 - 4.45	14/02/2018
17149892	BH102	D	4.50 - 4.50	14/02/2018
17149895	BH102	U100	5.00 - 5.45	14/02/2018
17149898	BH102	D	5.50 - 5.50	14/02/2018
17149901	BH102	D	6.50 - 6.50	14/02/2018
17149903	BH102	D	7.50 - 7.50	14/02/2018
17149906	BH102	D	8.00 - 8.00	14/02/2018
17149912	BH103	D	0.50 - 0.50	14/02/2018
17149910	BH103	B	0.50 - 1.00	14/02/2018
17149914	BH103	D	1.00 - 1.00	14/02/2018
17149918	BH103	D	1.20 - 1.20	14/02/2018
17149920	BH103	D	1.80 - 1.80	14/02/2018
17149923	BH103	U100	2.00 - 2.45	14/02/2018
17149926	BH103	D	3.00 - 3.00	14/02/2018
17149928	BH103	D	3.50 - 3.50	14/02/2018
17149930	BH103	U100	4.00 - 4.45	14/02/2018
17149934	BH103	D	4.50 - 4.50	14/02/2018
17149936	BH103	D	6.00 - 6.00	14/02/2018
17149938	BH103	D	8.00 - 8.10	14/02/2018
17149940	BH104	D	0.60 - 0.60	14/02/2018
17149946	BH104	D	1.20 - 1.20	14/02/2018
17149948	BH104	D	1.50 - 2.00	14/02/2018
17149951	BH104	D	2.50 - 2.50	14/02/2018
17149953	BH104	D	3.00 - 3.00	14/02/2018
17149956	BH104	D	3.50 - 3.50	14/02/2018
17149962	BH104	D	4.00 - 4.00	14/02/2018
17149964	BH104	D	4.50 - 4.50	14/02/2018
17149969	BH104	D	5.00 - 5.00	14/02/2018
17149972	BH104	D	6.00 - 6.00	14/02/2018
17149976	BH104	D	6.50 - 6.50	14/02/2018
17149984	BH104	D	7.50 - 7.50	14/02/2018
17149988	BH104	D	8.00 - 8.00	14/02/2018
17163224	BH106	B	1.20 - 1.20	14/02/2018
17149991	TP101	B	0.65 - 0.65	14/02/2018
17149994	TP101	B	1.20 - 1.20	14/02/2018
17149999	TP101	D	1.20 - 1.20	14/02/2018
17150002	TP102	B	0.50 - 0.50	14/02/2018
17150004	TP102	D	0.50 - 0.50	14/02/2018

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SDG:	180302-66	**Client Reference:**	70020138	**Report Number:**	451633
Location:	Tradeteam Site (DHL) Glouc	**Order Number:**	70020138-006	**Superseded Report:**	451021

17150006	TP102	B	1.20 - 1.20	14/02/2018
17150008	TP102	D	1.20 - 1.20	14/02/2018
17150010	TP103	B	0.70 - 0.70	14/02/2018
17150017	TP103	D	0.70 - 0.70	14/02/2018
17150019	TP103	B	1.60 - 1.60	14/02/2018
17150022	TP103	D	1.60 - 1.60	14/02/2018
17150026	TP104	B	0.50 - 0.50	14/02/2018
17150028	TP104	D	0.50 - 0.50	14/02/2018
17150030	TP104	B	1.30 - 1.30	14/02/2018
17150034	TP104	D	1.30 - 1.30	14/02/2018
17150036	TP105	B	0.60 - 0.60	14/02/2018
17150038	TP105	D	0.60 - 0.60	14/02/2018
17150040	TP105	B	1.40 - 1.40	14/02/2018
17150044	TP105	D	1.40 - 1.40	14/02/2018
17150047	TP106	B	0.40 - 0.40	14/02/2018
17150051	TP106	D	0.40 - 0.40	14/02/2018
17150055	TP106	D	1.20 - 1.20	14/02/2018
17150057	TP106	B	2.00 - 2.00	14/02/2018
17150060	TP106	D	2.00 - 2.00	14/02/2018
17150053	TP106.	B	1.20 - 1.20	14/02/2018
17150063	TP201	B	0.40 - 0.40	14/02/2018
17150066	TP201	D	0.40 - 0.40	14/02/2018
17150069	TP201	B	0.90 - 0.90	14/02/2018
17150076	TP201	D	0.90 - 0.90	14/02/2018
17150083	TP202	B	0.40 - 0.40	14/02/2018
17150086	TP202	D	0.40 - 0.40	14/02/2018
17150089	TP202	B	1.10 - 1.10	14/02/2018
17150091	TP202	D	1.10 - 1.10	14/02/2018
17150093	TP203	B	0.50 - 0.50	14/02/2018
17150095	TP203	D	0.50 - 0.50	14/02/2018
17150097	TP203	B	1.00 - 1.00	14/02/2018
17150099	TP203	D	1.00 - 1.00	14/02/2018
17150101	TP204	B	0.60 - 0.60	14/02/2018
17150108	TP204	D	0.60 - 0.60	14/02/2018
17150110	TP204	B	1.00 - 1.00	14/02/2018
17150112	TP204	D	1.00 - 1.00	14/02/2018

Maximum Sample/Coolbox Temperature (°C) : **4.2**

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

Validated

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Location:	Tradeteam Site (DHL) Glouc	**Order Number:**	70020138-006	**Superseded Report:**	451021

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
PL - Prepared Leachate
PR - Process Water
SA - Saline Water
TE - Trade Effluent
TS - Treated Sewage
US - Untreated Sewage
RE - Recreational Water
DW - Drinking Water Non-regulatory
UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			17149875		17149885	17150103	17149959	17149932	17150024	17150105	17149892	17149895		17149910	17149923	17149928	17149930	17149940	17149951	17149991	17149999
Customer Sample Reference			BH101		BH101	BH101	BH102	BH102	BH102	BH102	BH102	BH102		BH103	BH103	BH103	BH103	BH104	BH104	TP101	TP101
AGS Reference			B		D	D	D	B	U100	U100	D	U100		B	U100	D	U100	D	D	B	D
Depth (m)			0.50 - 0.50		1.50 - 1.50	7.50 - 7.50	0.60 - 0.60	0.60 - 0.60	1.50 - 1.95	3.00 - 3.45	4.50 - 4.50	5.00 - 5.45		0.50 - 1.00	2.00 - 2.45	3.50 - 3.50	4.00 - 4.45	0.60 - 0.60	2.50 - 2.50	0.65 - 0.65	1.20 - 1.20
Container			Geolabs container		BAG	Geolabs container	BAG	Geolabs container	Geolabs container	Geolabs container	Geolabs container	Geolabs container		BAG	Geolabs container	Geolabs container	Geolabs container	Geolabs container	Geolabs container	Geolabs container	Geolabs container	Geolabs container
Sample Type			S		S	S	S	S	S	S	S	S		S	S	S	S	S	S	S	S	S
Ammoniacal N as NH4 in 2:1 extract	All	NDPs: 0 Tests: 5			X		X							X							
Anions by Kone (soil)	All	NDPs: 0 Tests: 5			X		X							X							
Geotechnical Testing*	All	NDPs: 4 Tests: 26	X		X	X		N X	X	X	X	X		X	X	X	X	X	X	X	X
Magnesium (BRE)	All	NDPs: 0 Tests: 5			X		X							X							
NO3, NO2 and TON by KONE (s)	All	NDPs: 0 Tests: 5			X		X							X							
pH	All	NDPs: 0 Tests: 5			X		X							X							
Sample description	All	NDPs: 0 Tests: 5			X		X							X							
Total Sulphate	All	NDPs: 0 Tests: 5			X		X							X							
Total Sulphur	All	NDPs: 0 Tests: 5			X		X							X							

17150110	TP204	B	1.00 - 1.00	Geolabs container	S		
17150099	TP203	D	1.00 - 1.00	BAG	S		
17150097	TP203	B	1.00 - 1.00	Geolabs container	S		
17150083	TP202	B	0.40 - 0.40	Geolabs container	S		
17150069	TP201	B	0.90 - 0.90	Geolabs container	S		
17150063	TP201	B	0.40 - 0.40	Geolabs container	S		
17150053	TP106.	B	1.20 - 1.20	Geolabs container	S		
				BAG	S		
17150047	TP106	B	0.40 - 0.40	Geolabs container	S		
17150040	TP105	B	1.40 - 1.40	Geolabs container	S		
17150034	TP104	D	1.30 - 1.30	Geolabs container	S		
17150022	TP103	D	1.60 - 1.60	Geolabs container	S		
17150010	TP103	B	0.70 - 0.70	Geolabs container	S		
17150002	TP102	B	0.50 - 0.50	Geolabs container	S		

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SDG:	180302-66	**Client Reference:**	70020138	**Report Number:**	451633
Location:	Tradeteam Site (DHL) Glouc	**Order Number:**	70020138-006	**Superseded Report:**	451021

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Inclusions	Inclusions 2
17149885	BH101	1.50 - 1.50	Dark Brown	Clay	Stones	Vegetation
17149959	BH102	0.60 - 0.60	Dark Brown	Sandy Clay Loam	Stones	Vegetation
17149910	BH103	0.50 - 1.00	Light Brown	Sandy Clay Loam	Stones	Vegetation
17150099	TP203	1.00 - 1.00	Dark Brown	Silty Clay Loam	Stones	Vegetation
17150053	TP106.	1.20 - 1.20	Dark Brown	Clay	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Validated

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Location:	Tradeteam Site (DHL) Glouc	**Order Number:**	70020138-006	**Superseded Report:**	451021

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH101	BH101	BH101	BH102	BH102	BH102
			Depth (m)	0.50 - 0.50	1.50 - 1.50	7.50 - 7.50	0.60 - 0.60	0.60 - 0.60	1.50 - 1.95
			Sample Type	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils
			Date Sampled	14/02/2018	14/02/2018	14/02/2018	14/02/2018	14/02/2018	14/02/2018
			Sample Time	.	.	.	.	.	.
			Date Received	02/03/2018	02/03/2018	02/03/2018	02/03/2018	02/03/2018	02/03/2018
			SDG Ref	180302-66	180302-66	180302-66	180302-66	180302-66	180302-66
			Lab Sample No.(s)	17149875	17149885	17150103	17149959	17149932	17150024
			AGS Reference	B	D	D	D	B	U100
Moisture Content Ratio (% of as received sample)	%	PM024			18		13		
CBR Remoulded*		SUB						See Attached	
Moisture Content (GEOTECH)*		SUB			See Attached	See Attached			
Compaction 2.5kg*		SUB		See Attached				See Attached	
Plasticity Index 4 point*		SUB			See Attached	See Attached			
PSD Wet/Dry sieve*		SUB		See Attached					
Sedimentation*		SUB		See Attached					
Triaxial U100 Multi*		SUB							See Attached
Sulphur, Total	<0.02 %	TM132			0.0204		<0.02		
pH	1 pH Units	TM133			8.51		8.54		
Sulphate, acid soluble (total)	<0.02 %	TM221			0.0315		<0.02		
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243			0.0336 @		0.0269 @		
Chloride 2:1 water/soil extract BRE	<0.0025 g/l	TM243			0.0094 @		0.0103 @		
Nitrate as NO3, 2:1 water soluble (BRE)	<0.0003 g/l	TM243			0.000742		0.00167		
Ammoniacal N as NH4 in 2:1 extract BRE	<0.0003 g/l	TM248			0.00152		0.00249		
Magnesium (BRE)	<0.008 g/l	TM282			<0.008		<0.008		

Validated

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SDG:	180302-66	**Client Reference:**	70020138	**Report Number:**	451633
Location:	Tradeteam Site (DHL) Glouc	**Order Number:**	70020138-006	**Superseded Report:**	451021

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH102	BH102	BH102	BH103	BH103	BH103
			Depth (m)	3.00 - 3.45	4.50 - 4.50	5.00 - 5.45	0.50 - 1.00	2.00 - 2.45	3.50 - 3.50
			Sample Type	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils
			Date Sampled	14/02/2018	14/02/2018	14/02/2018	14/02/2018	14/02/2018	14/02/2018
			Sample Time	.	.	.	.	.	.
			Date Received	02/03/2018	02/03/2018	02/03/2018	02/03/2018	02/03/2018	02/03/2018
			SDG Ref	180302-66	180302-66	180302-66	180302-66	180302-66	180302-66
			Lab Sample No.(s)	17150105	17149892	17149895	17149910	17149923	17149928
			AGS Reference	U100	D	U100	B	U100	D
Moisture Content Ratio (% of as received sample)	%	PM024					16		
One Dimensional Consolidation*		SUB				See Attached		See Attached	
Moisture Content (GEOTECH)*		SUB			See Attached		See Attached		See Attached
Plasticity Index 4 point*		SUB			See Attached		See Attached		See Attached
Triaxial U100 Multi*		SUB	See Attached						
Sulphur, Total	<0.02 %	TM132					0.029		
pH	1 pH Units	TM133					8.41		
Sulphate, acid soluble (total)	<0.02 %	TM221					0.0534		
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243					0.156 @		
Chloride 2:1 water/soil extract BRE	<0.0025 g/l	TM243					0.0172 @		
Nitrate as NO3, 2:1 water soluble (BRE)	<0.0003 g/l	TM243					0.00149		
Ammoniacal N as NH4 in 2:1 extract BRE	<0.0003 g/l	TM248					0.00281		
Magnesium (BRE)	<0.008 g/l	TM282					<0.008		

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Location:	Tradeteam Site (DHL) Glouc	**Order Number:**	70020138-006	**Superseded Report:**	451021

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH103	BH104	BH104	TP101	TP101	TP102
			Depth (m)	4.00 - 4.45	0.60 - 0.60	2.50 - 2.50	0.65 - 0.65	1.20 - 1.20	0.50 - 0.50
			Sample Type	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils
			Date Sampled	14/02/2018	14/02/2018	14/02/2018	14/02/2018	14/02/2018	14/02/2018
			Sample Time	.	.	.	.	.	.
			Date Received	02/03/2018	02/03/2018	02/03/2018	02/03/2018	02/03/2018	02/03/2018
			SDG Ref	180302-66	180302-66	180302-66	180302-66	180302-66	180302-66
			Lab Sample No.(s)	17149930	17149940	17149951	17149991	17149999	17150002
			AGS Reference	U100	D	D	B	D	B
Moisture Content (GEOTECH)*		SUB			See Attached	See Attached	See Attached	See Attached	
Plasticity Index 4 point*		SUB			See Attached	See Attached		See Attached	
PSD Wet/Dry sieve*		SUB							See Attached
Sedimentation*		SUB							See Attached
Triaxial U100 Multi*		SUB		See Attached					

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Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP103	TP104	TP105	TP106	TP106.	TP201
			Depth (m)	1.60 - 1.60	1.30 - 1.30	1.40 - 1.40	0.40 - 0.40	1.20 - 1.20	0.40 - 0.40
			Sample Type	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils
			Date Sampled	14/02/2018	14/02/2018	14/02/2018	14/02/2018	14/02/2018	14/02/2018
			Sample Time	.	.	.	.	.	.
			Date Received	02/03/2018	02/03/2018	02/03/2018	02/03/2018	02/03/2018	02/03/2018
			SDG Ref	180302-66	180302-66	180302-66	180302-66	180302-66	180302-66
			Lab Sample No.(s)	17150022	17150034	17150040	17150047	17150053	17150063
			AGS Reference	D	D	B	B	B	B
Moisture Content Ratio (% of as received sample)	%	PM024						14	
Moisture Content (GEOTECH)*		SUB		See Attached	See Attached				
Plasticity Index 4 point*		SUB		See Attached	See Attached				
PSD Wet/Dry sieve*		SUB				See Attached	See Attached	See Attached	See Attached
Sedimentation*		SUB				See Attached	See Attached	See Attached	See Attached
Sulphur, Total	<0.02 %	TM132						0.0939 @	
pH	1 pH Units	TM133						8.01 @	
Sulphate, acid soluble (total)	<0.02 %	TM221						0.0786	
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243						0.238 @	
Chloride 2:1 water/soil extract BRE	<0.0025 g/l	TM243						0.0259 @	
Nitrate as NO3, 2:1 water soluble (BRE)	<0.0003 g/l	TM243						0.000394	
Ammoniacal N as NH4 in 2:1 extract BRE	<0.0003 g/l	TM248						0.00773	
Magnesium (BRE)	<0.008 g/l	TM282						<0.008	

Validated

CERTIFICATE OF ANALYSIS

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Location:	Tradeteam Site (DHL) Glouc	**Order Number:**	70020138-006	**Superseded Report:**	451021

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted test.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP201	TP203	TP203	TP204		
			Depth (m)	0.90 - 0.90	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00		
			Sample Type	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils		
			Date Sampled	14/02/2018	14/02/2018	14/02/2018	14/02/2018		
			Sample Time	.	.	.	.		
			Date Received	02/03/2018	02/03/2018	02/03/2018	02/03/2018		
			SDG Ref	180302-66	180302-66	180302-66	180302-66		
			Lab Sample No.(s)	17150069	17150097	17150099	17150110		
			AGS Reference	B	B	D	B		
Moisture Content Ratio (% of as received sample)	%	PM024				17			
Moisture Content (GEOTECH)*		SUB		See Attached			See Attached		
Plasticity Index 4 point*		SUB		See Attached			See Attached		
PSD Wet/Dry sieve*		SUB			See Attached				
Sedimentation*		SUB			See Attached				
Sulphur, Total	<0.02 %	TM132				0.038			
pH	1 pH Units	TM133				8.39			
Sulphate, acid soluble (total)	<0.02 %	TM221				0.0345			
Soluble Sulphate 2:1 extract as SO4 BRE	<0.004 g/l	TM243				0.0107 @			
Chloride 2:1 water/soil extract BRE	<0.0025 g/l	TM243				0.0279 @			
Nitrate as NO3, 2:1 water soluble (BRE)	<0.0003 g/l	TM243				0.000554			
Ammoniacal N as NH4 in 2:1 extract BRE	<0.0003 g/l	TM248				0.0076			
Magnesium (BRE)	<0.008 g/l	TM282				<0.008			

CERTIFICATE OF ANALYSIS

SDG:	180302-66	**Client Reference:**	70020138	**Report Number:**	451633
Location:	Tradeteam Site (DHL) Glouc	**Order Number:**	70020138-006	**Superseded Report:**	451021

Notification of NDPs (No determination possible)

Date Received : 02/03/2018 14:50:07

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
17150010	TP103 BZ	0.70 - 0.70	Geotechnical Testing*	Sample unsuitable for analysis
17150083	TP202 BZ	0.40 - 0.40	Geotechnical Testing*	Scheduling Error
17150063	TP201 BZ	0.40 - 0.40	Geotechnical Testing*	Insufficient Sample
17149932	BH102 BZ	0.60 - 0.60	Geotechnical Testing*	Insufficient Sample

CERTIFICATE OF ANALYSIS

SDG:	180302-66	**Client Reference:**	70020138	**Report Number:**	451633
Location:	Tradeteam Site (DHL) Glouc	**Order Number:**	70020138-006	**Superseded Report:**	451021

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
SUB		Subcontracted Test
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer
TM243		Mixed Anions In Soils By Kone
TM248	In-House Method	Determination of Ammonium BRE (2:1 Extract) on solids
TM282		Extraction of Magnesium by BRE Method

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

CERTIFICATE OF ANALYSIS

SDG:	180302-66	**Client Reference:**	70020138	**Report Number:**	451633
Location:	Tradeteam Site (DHL) Glouc	**Order Number:**	70020138-006	**Superseded Report:**	451021

Test Completion Dates

Lab Sample No(s)	17149875	17149885	17150103	17149892	17149895	17149932	17149959	17150024	17150105	17149910
Customer Sample Ref.	BH101	BH101	BH101	BH102	BH102	BH102	BH102	BH102	BH102	BH103
AGS Ref.	B	D	D	D	U100	B	D	U100	U100	B
Depth	0.50 - 0.50	1.50 - 1.50	7.50 - 7.50	4.50 - 4.50	5.00 - 5.45	0.60 - 0.60	0.60 - 0.60	1.50 - 1.95	3.00 - 3.45	0.50 - 1.00
Type	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils
Ammoniacal N as NH4 in 2:1 extract		15-Mar-2018					15-Mar-2018			15-Mar-2018
Anions by Kone (soil)		16-Mar-2018					16-Mar-2018			16-Mar-2018
Geotechnical Testing*	03-Apr-2018	03-Apr-2018	03-Apr-2018	03-Apr-2018	21-Mar-2018	10-Apr-2018		21-Mar-2018	21-Mar-2018	03-Apr-2018
Magnesium (BRE)		14-Mar-2018					14-Mar-2018			14-Mar-2018
NO3, NO2 and TON by KONE (s)		13-Mar-2018					13-Mar-2018			13-Mar-2018
pH		12-Mar-2018					12-Mar-2018			12-Mar-2018
Sample description		08-Mar-2018					08-Mar-2018			08-Mar-2018
Total Sulphate		13-Mar-2018					13-Mar-2018			13-Mar-2018
Total Sulphur		13-Mar-2018					13-Mar-2018			13-Mar-2018

Lab Sample No(s)	17149923	17149928	17149930	17149940	17149951	17149991	17149999	17150002	17150022	17150034
Customer Sample Ref.	BH103	BH103	BH103	BH104	BH104	TP101	TP101	TP102	TP103	TP104
AGS Ref.	U100	D	U100	D	D	B	D	B	D	D
Depth	2.00 - 2.45	3.50 - 3.50	4.00 - 4.45	0.60 - 0.60	2.50 - 2.50	0.65 - 0.65	1.20 - 1.20	0.50 - 0.50	1.60 - 1.60	1.30 - 1.30
Type	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils
Geotechnical Testing*	21-Mar-2018	03-Apr-2018	21-Mar-2018	03-Apr-2018	03-Apr-2018	21-Mar-2018	03-Apr-2018	21-Mar-2018	03-Apr-2018	03-Apr-2018

Lab Sample No(s)	17150040	17150047	17150063	17150069	17150097	17150099	17150110	17150053
Customer Sample Ref.	TP105	TP106	TP201	TP201	TP203	TP203	TP204	TP106.
AGS Ref.	B	B	B	B	B	D	B	B
Depth	1.40 - 1.40	0.40 - 0.40	0.40 - 0.40	0.90 - 0.90	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.20 - 1.20
Type	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils	GeoTech Soils
Ammoniacal N as NH4 in 2:1 extract						15-Mar-2018		15-Mar-2018
Anions by Kone (soil)						16-Mar-2018		16-Mar-2018
Geotechnical Testing*	21-Mar-2018	13-Apr-2018	03-Apr-2018	03-Apr-2018	21-Mar-2018		03-Apr-2018	21-Mar-2018
Magnesium (BRE)						14-Mar-2018		16-Mar-2018
NO3, NO2 and TON by KONE (s)						13-Mar-2018		16-Mar-2018
pH						12-Mar-2018		15-Mar-2018
Sample description						08-Mar-2018		15-Mar-2018
Total Sulphate						13-Mar-2018		16-Mar-2018
Total Sulphur						13-Mar-2018		16-Mar-2018

2718

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Deeside
CH5 3US

For the attention of Carrie Foster/Shaun Park

Version No. 4
Page No. 1 of 17
Date of Issue 13/04/2018

TEST REPORT

PROJECT/SITE	Tradeteam (DHL), Gloucester	Samples received	19/02/2018
GEL REPORT NUMBER	34023	Schedule received	05/03/2018
Your ref/PO:	180302-66	Testing commenced	07/03/2018
Test report refers to	Schedule 1	Status	Final

SUMMARY OF RESULTS ATTACHED

TEST METHOD & DESCRIPTION	QUANTITY	ACCREDITED TEST
BS EN ISO 17892-1: 2014:5. Water Content	13	YES
BS1377: Part 2: 1990:4.2-4.4&5.2-5.4, Liquid & Plastic Limits	12	YES
BS EN ISO 17892-4: 2016: 5.2, Particle Size Distribution - Wet Sieve	8	NO
BS EN ISO 17892-4: 2016: 5.4, Particle Size Distribution - Pipette	8	NO
BS1377: Part 4: 1990:3, Dry Density/Moisture Content Relationship	2	YES
BS1377: Part 4: 1990:7, California Bearing Ratio (CBR)	1	YES
BS EN ISO 17892-5: 2017, Oedometer	2	NO
BS1377: Part 7: 1990:8&9, Undrained Triaxial Compression	3	YES

Remarks
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Approved Signatories:
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Sort code: 30-15-99 **Bank account:** 00072116

Geotechnical Engineering Limited

LIQUID AND PLASTIC LIMITS

BS.1377 : PART 2 : 1990 : 4 and 5

CLIENT ALS ENVIRONMENTAL

SITE TRADETEAM (DHL), GLOUCESTER

borehole /trial pit no.	sample no./type	sample depth (m)	specimen depth (m)	natural water content (%)	specimen preparation and test method	fraction >0.425 mm (%)	liquid limit (%)	plastic limit (%)	plasticity index (%)	description and remarks
BH101	D	1.50	1.50	25.7	BXE	11	54	23	31	Grey mottled brown slightly gravelly slightly sandy CLAY
BH101	D	7.50	7.50	15.7	AXE	0	48	21	27	Grey slightly sandy CLAY
BH102	D	4.50	4.50	19.7	AXE	0	54	23	31	Grey slightly sandy CLAY
BH103	B	0.50	0.50	21.6	BXE	9	58	20	38	Grey mottled brown slightly gravelly slightly sandy CLAY
BH103	D	3.50	3.50	23.4	BXE	1	56	24	32	Greyish brown slightly sandy CLAY
BH104	D	0.60	0.60	26.4	BXE	6	56	22	34	Brown mottled grey slightly gravelly slightly sandy CLAY
BH104	D	2.50	2.50	21.7	BXD	7	55	22	33	Brown mottled grey and orangish brown slightly sandy CLAY with rare gypsum
TP101	B	0.65	0.65	4.4	E					Orangish brown slightly silty sandy GRAVEL
TP101	D	1.20	1.20	28.0	BXE	1	66	24	42	Grey mottled brown slightly sandy CLAY
TP103	D	1.60	1.60	30.2	BXD	6	69	28	41	Dark grey slightly sandy CLAY
TP104	D	1.30	1.30	19.4	BXE	9	48	18	30	Grey mottled brown slightly gravelly slightly sandy CLAY
TP201	B	0.90	0.90	25.6	BXE	3	57	23	34	Grey mottled brown slightly sandy CLAY
TP204	B	1.00	1.00	25.3	BXE	9	62	22	40	Brown mottled grey slightly gravelly slightly sandy CLAY

general remarks

natural water content determined in accordance with BS EN ISO 17892 - 1 : 2014 (unless specified)

NP denotes non plastic

# denotes sample tested is smaller than that which is recommended in accordance with BS1377 or BS EN ISO 17892

specimen preparation		test method	CONTRACT	CHECKED
A - as received	D - oven dried (60°C)	X - cone penetrometer (test 4.3)		
B - washed on 0.425mm sieve	E - oven dried (105°C)	Y - cone penetrometer (test 4.4)	34023	EC
C - air dried	F - not known	Z - casagrande apparatus (test 4.5)		

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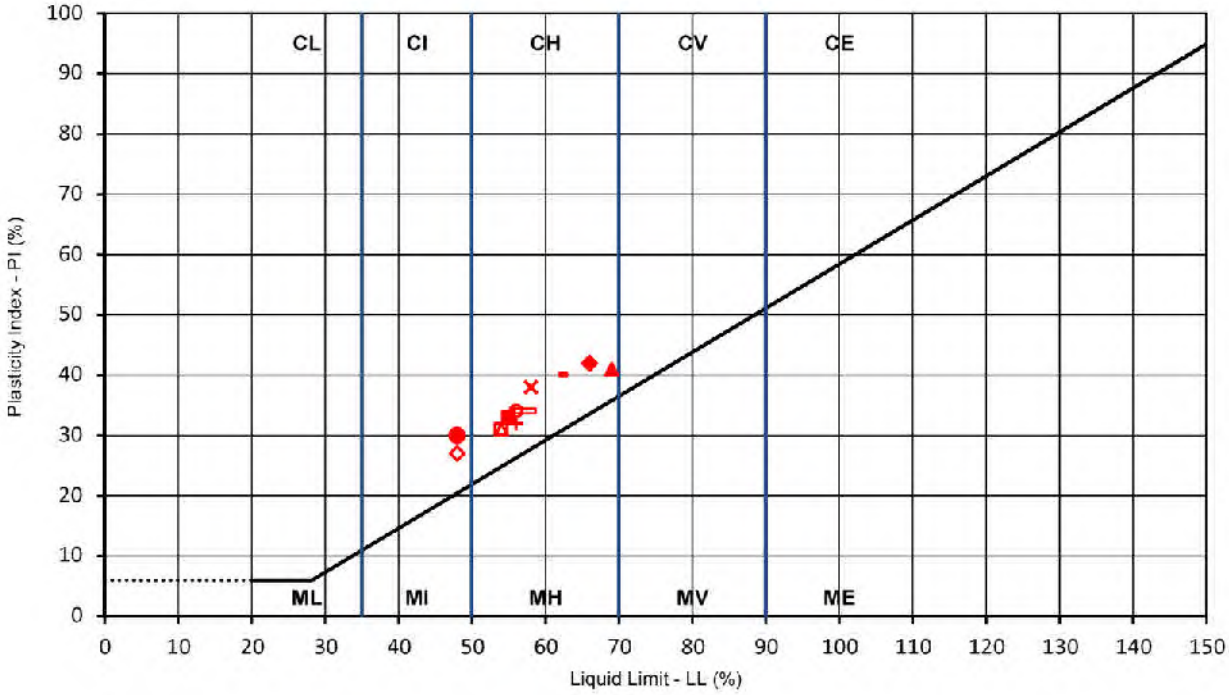
ATTERBERG LINE PLOT

CLIENT ALS ENVIRONMENTAL

SITE TRADETEAM (DHL), GLOUCESTER



	BH/TP No.	depth (m)	LL	PL	PI	remarks
□	BH101	1.50	54	23	31	
◇	BH101	7.50	48	21	27	
△	BH102	4.50	54	23	31	
×	BH103	0.50	58	20	38	
+	BH103	3.50	56	24	32	
○	BH104	0.60	56	22	34	
■	BH104	2.50	55	22	33	
◆	TP101	1.20	66	24	42	
▲	TP103	1.60	69	28	41	
●	TP104	1.30	48	18	30	
▭	TP201	0.90	57	23	34	
-	TP204	1.00	62	22	40	

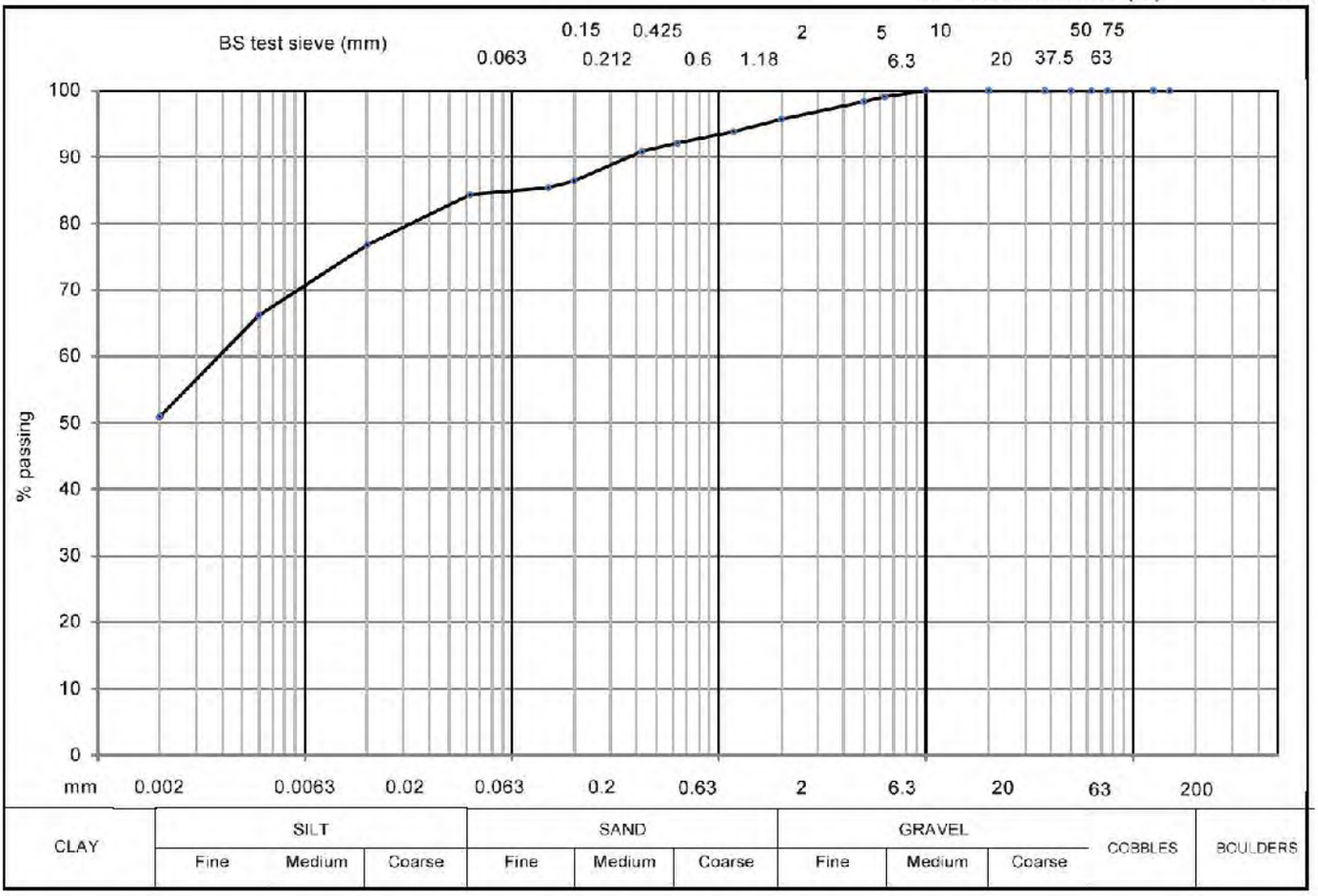
CONTRACT	CHECKED
34023	EC

Geotechnical Engineering Limited

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	ALS ENVIRONMENTAL	BH/TP No.	BH101
SITE	TRADETEAM (DHL), GLOUCESTER	SAMPLE No./TYPE	B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Greyish brown mottled orange slightly gravelly slightly sandy CLAY	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	1.00



soil type	% fraction
CLAY	51
SILT	33
SILT & CLAY	84
SAND	11
GRAVEL	4
COBBLE & BOULDER	0
test method(s)	5.2 & 5.4

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing
150	
75	
63	
50	
37.5	
20	
10	100
6.3	99
5	98
2	96
1.18	94
0.63	92
0.425	91
0.2	86
0.15	85
0.063	84

BS test sieve (µm)	% finer
20	77
6	66
2	51

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

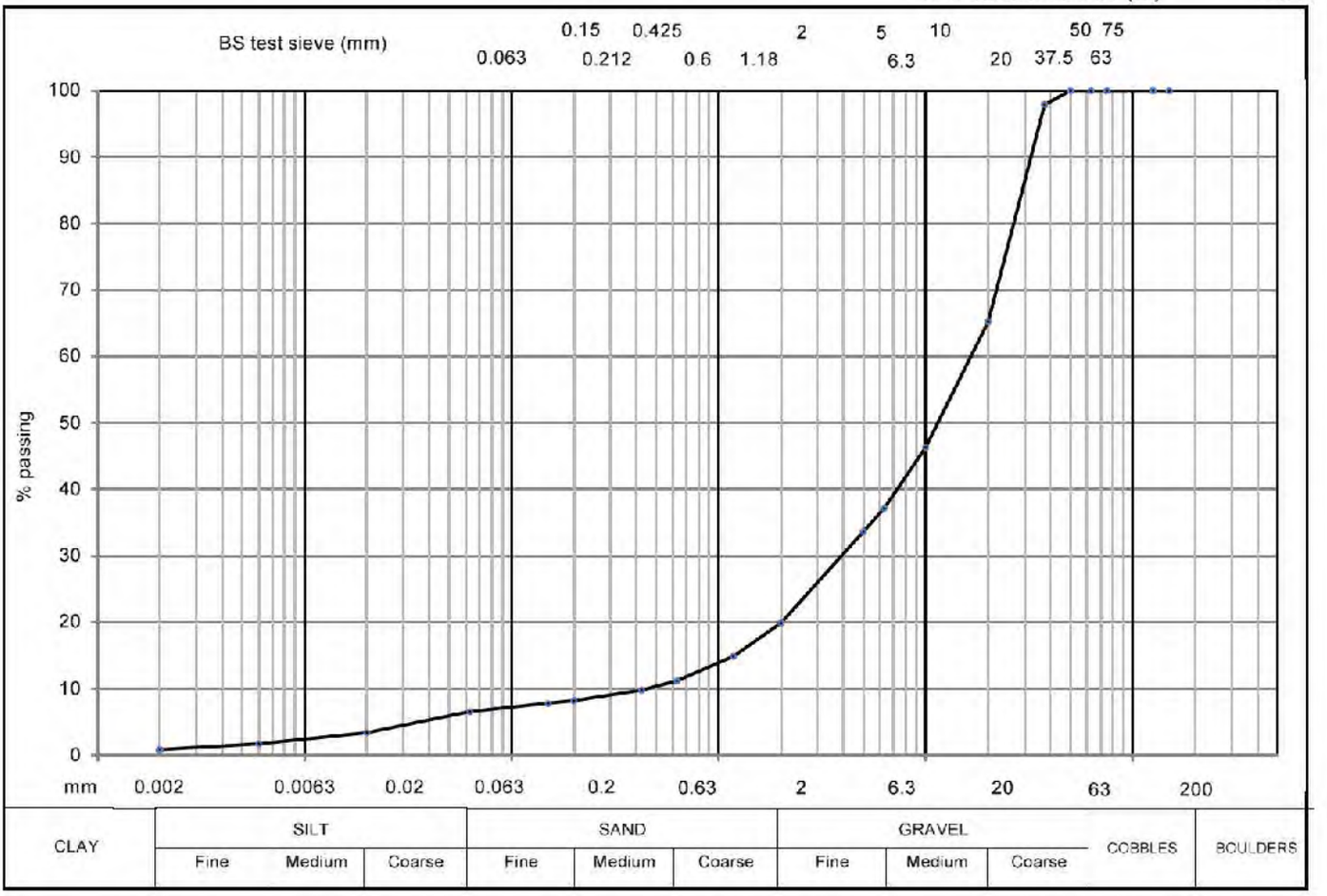
CONTRACT	CHECKED
34023	EC

Geotechnical Engineering Limited

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	ALS ENVIRONMENTAL	BH/TP No.	TP102
SITE	TRADETEAM (DHL), GLOUCESTER	SAMPLE No./TYPE	B
		SAMPLE DEPTH (m)	0.50
DESCRIPTION	Brown silty sandy GRAVEL	SPECIMEN TOP (m)	0.50
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	1
SILT	6
SILT & CLAY	7
SAND	13
GRAVEL	80
COBBLE & BOULDER	0
test method(s)	5.2# & 5.4

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing
150	
75	
63	
50	100
37.5	98
20	65
10	46
6.3	37

BS test sieve (mm)	% passing
5	34
2	20
1.18	15
0.63	11
0.425	10
0.2	8
0.15	8
0.063	7

BS test sieve (µm)	% finer
20	3
6	2
2	1

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

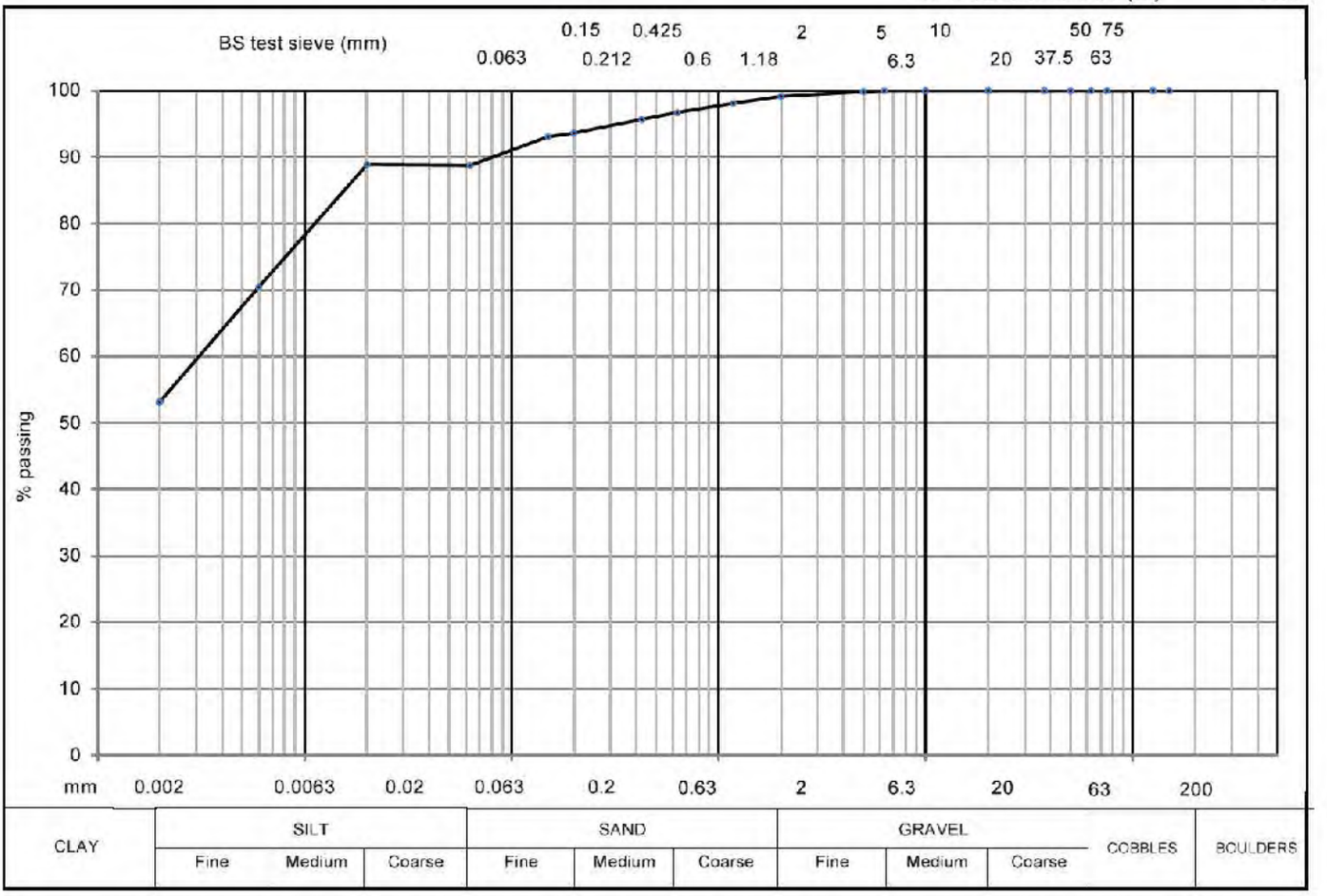
CONTRACT	CHECKED
34023	EC

Geotechnical Engineering Limited

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	ALS ENVIRONMENTAL	BH/TP No.	TP105
SITE	TRADETEAM (DHL), GLOUCESTER	SAMPLE No./TYPE	B
		SAMPLE DEPTH (m)	1.40
DESCRIPTION	Dark grey slightly sandy CLAY with frequent gypsum	SPECIMEN TOP (m)	1.40
		SPECIMEN BASE (m)	1.40



soil type	% fraction
CLAY	53
SILT	36
SILT & CLAY	89
SAND	10
GRAVEL	1
COBBLE & BOULDER	0
test method(s)	5.2 & 5.4

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing
150	
75	
63	
50	
37.5	
20	
10	
6.3	100

BS test sieve (mm)	% passing
5	100
2	99
1.18	98
0.63	97
0.425	96
0.2	94
0.15	93
0.063	89

BS test sieve (µm)	% finer
20	89
6	70
2	53

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

CONTRACT	CHECKED
34023	EC

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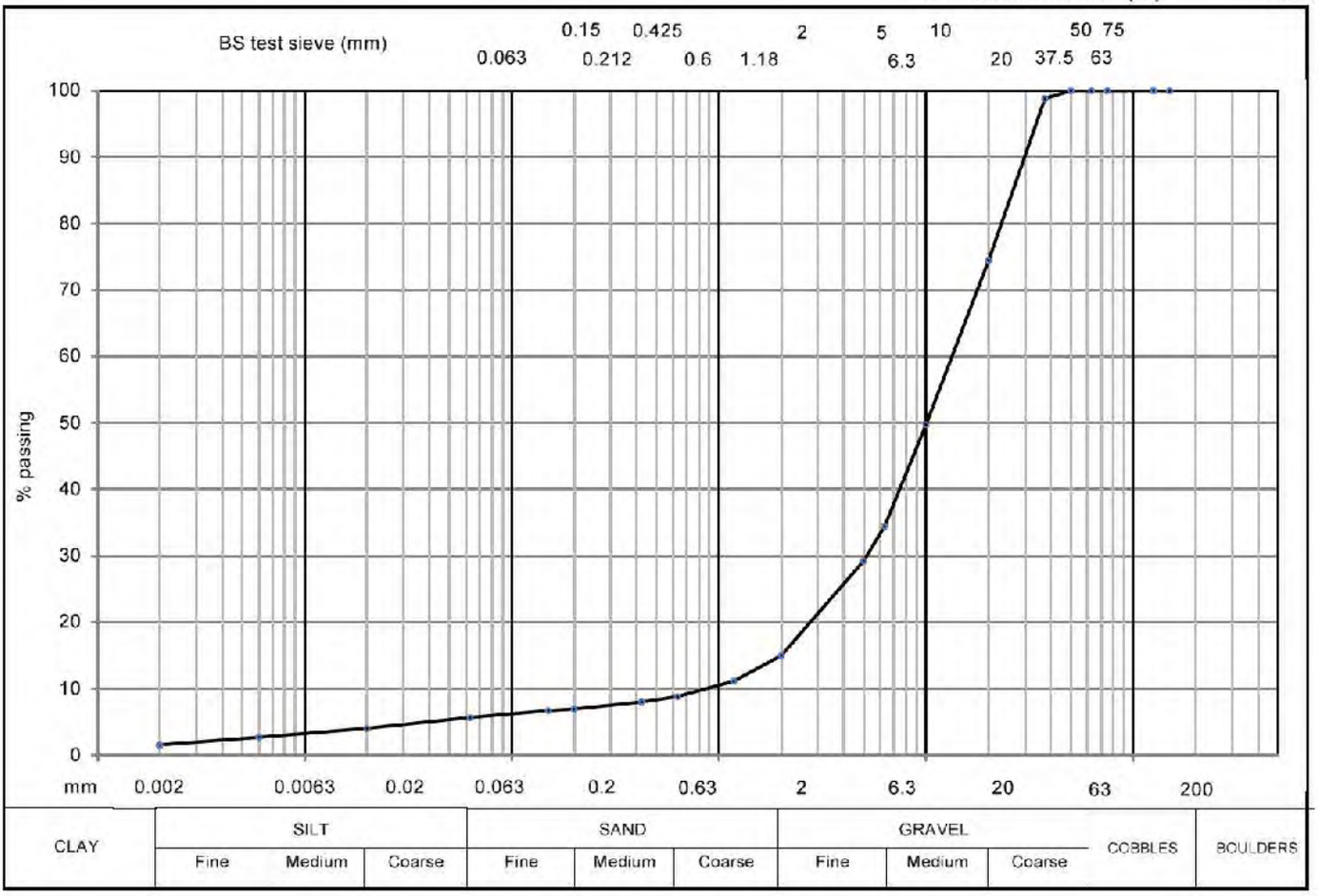
PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	ALS ENVIRONMENTAL	BH/TP No.	TP106
SITE	TRADETEAM (DHL), GLOUCESTER	SAMPLE No./TYPE	B
		SAMPLE DEPTH (m)	0.40
DESCRIPTION	Brown silty sandy GRAVEL	SPECIMEN TOP (m)	0.40
		SPECIMEN BASE (m)	N/A



soil type	% fraction
CLAY	2
SILT	4
SILT & CLAY	6
SAND	9
GRAVEL	85
COBBLE & BOULDER	0
test method(s)	5.2 & 5.4

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing	BS test sieve (mm)	% passing	BS test sieve (µm)	% finer
150		5	29	20	4
75		2	15	6	3
63		1.18	11	2	2
50	100	0.63	9		
37.5	99	0.425	8		
20	74	0.2	7		
10	50	0.15	7		
6.3	34	0.063	6		

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

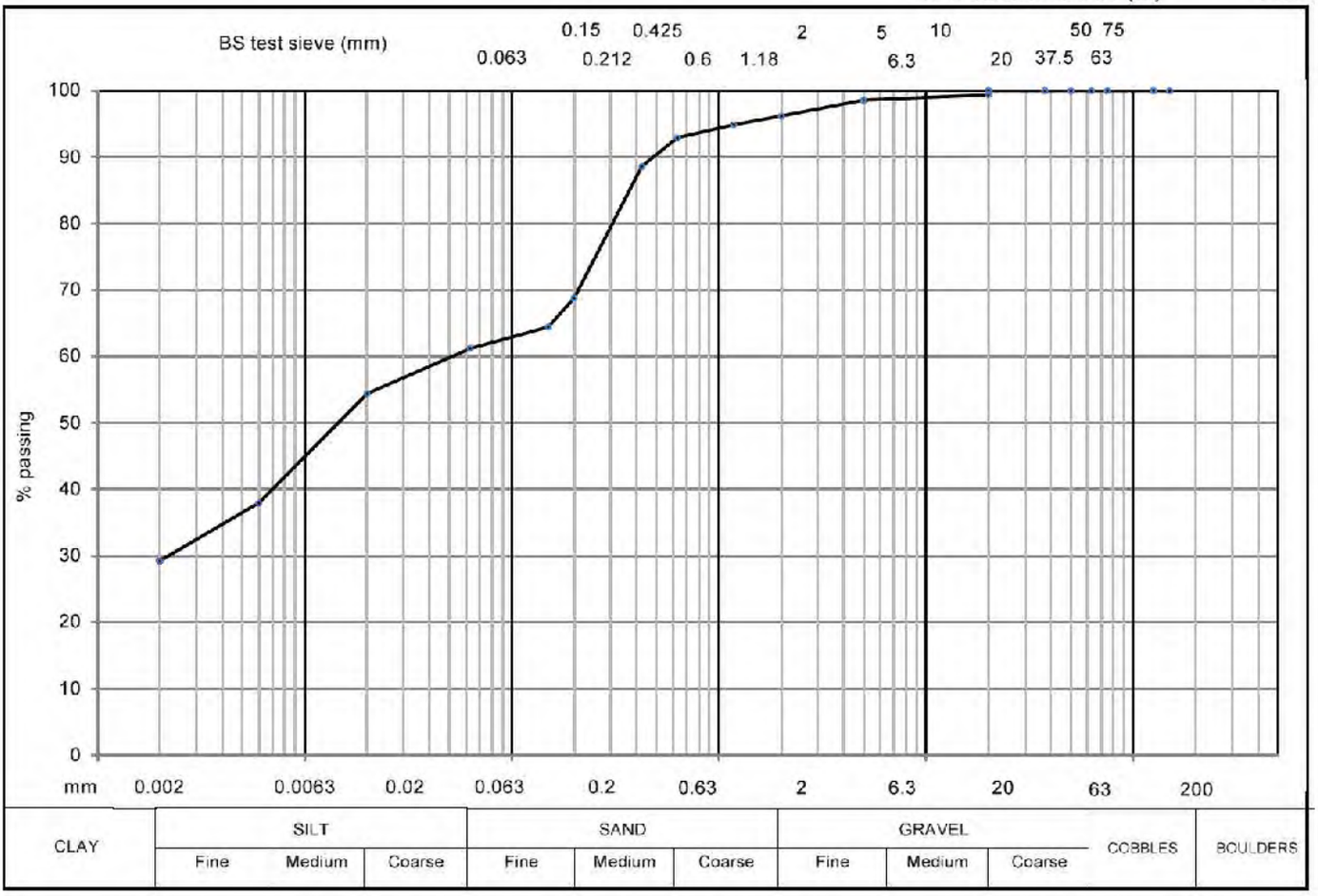
CONTRACT	CHECKED
34023	EC

Geotechnical Engineering Limited

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	ALS ENVIRONMENTAL	BH/TP No.	TP106
SITE	TRADETEAM (DHL), GLOUCESTER	SAMPLE No./TYPE	B
		SAMPLE DEPTH (m)	1.20
DESCRIPTION	Brown slightly gravelly sandy CLAY	SPECIMEN TOP (m)	1.20
		SPECIMEN BASE (m)	1.20



soil type	% fraction
CLAY	29
SILT	32
SILT & CLAY	61
SAND	35
GRAVEL	4
COBBLE & BOULDER	0
test method(s)	5.2 & 5.4

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing
150	
75	
63	
50	
37.5	
20	
10	100
6.3	99

BS test sieve (mm)	% passing
5	99
2	96
1.18	95
0.63	93
0.425	89
0.2	69
0.15	64
0.063	61

BS test sieve (µm)	% finer
20	54
6	38
2	29

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

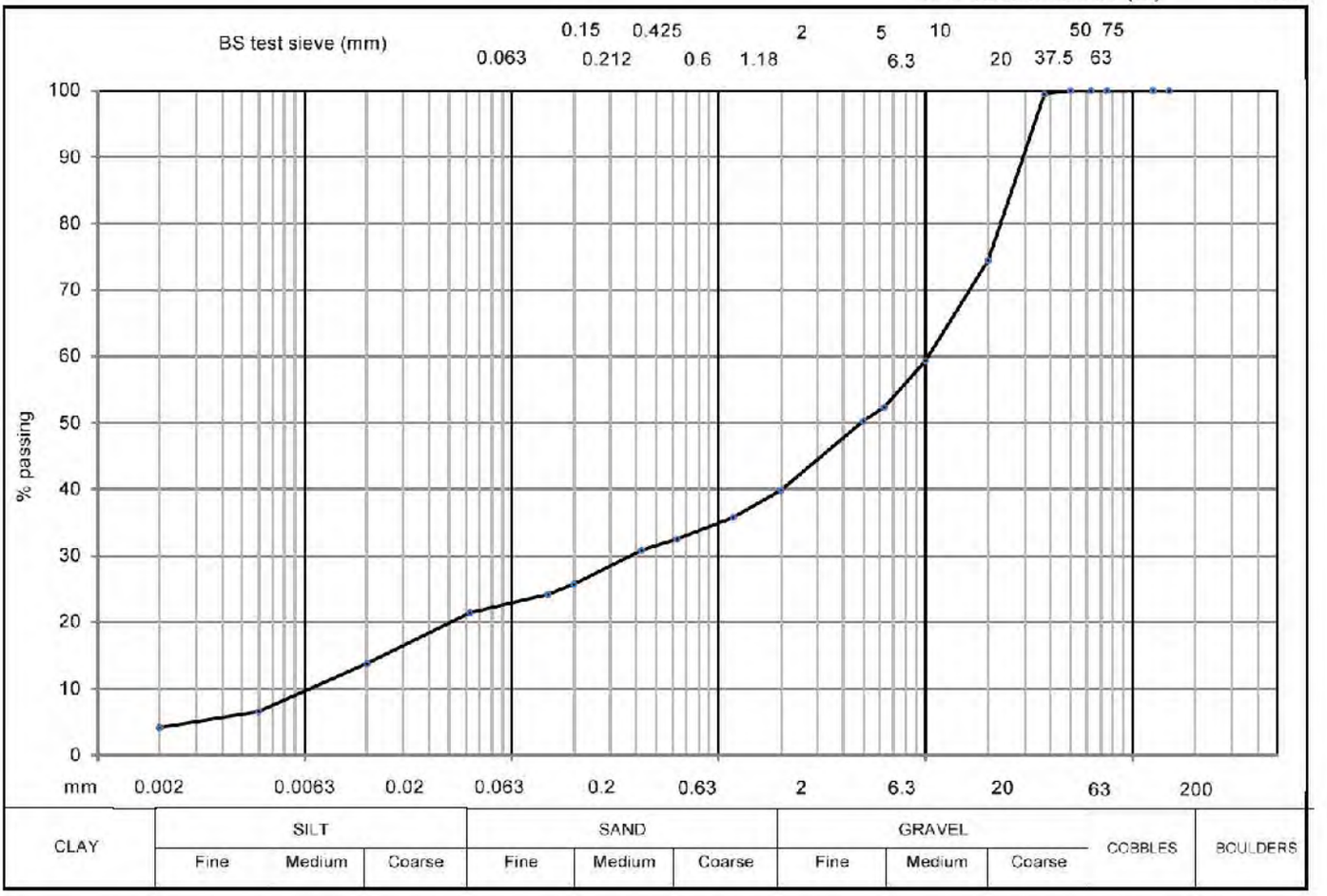
CONTRACT	CHECKED
34023	EC

Geotechnical Engineering Limited

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	ALS ENVIRONMENTAL	BH/TP No.	TP201
SITE	TRADETEAM (DHL), GLOUCESTER	SAMPLE No./TYPE	B
		SAMPLE DEPTH (m)	0.40
DESCRIPTION	Orangish brown sandy very silty GRAVEL	SPECIMEN TOP (m)	0.40
		SPECIMEN BASE (m)	0.40



soil type	% fraction
CLAY	4
SILT	17
SILT & CLAY	21
SAND	18
GRAVEL	60
COBBLE & BOULDER	0
test method(s)	5.2 & 5.4

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing
150	
75	
63	
50	100
37.5	99
20	74
10	59
6.3	52

BS test sieve (mm)	% passing
5	50
2	40
1.18	36
0.63	33
0.425	31
0.2	26
0.15	24
0.063	21

BS test sieve (µm)	% finer
20	14
6	7
2	4

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

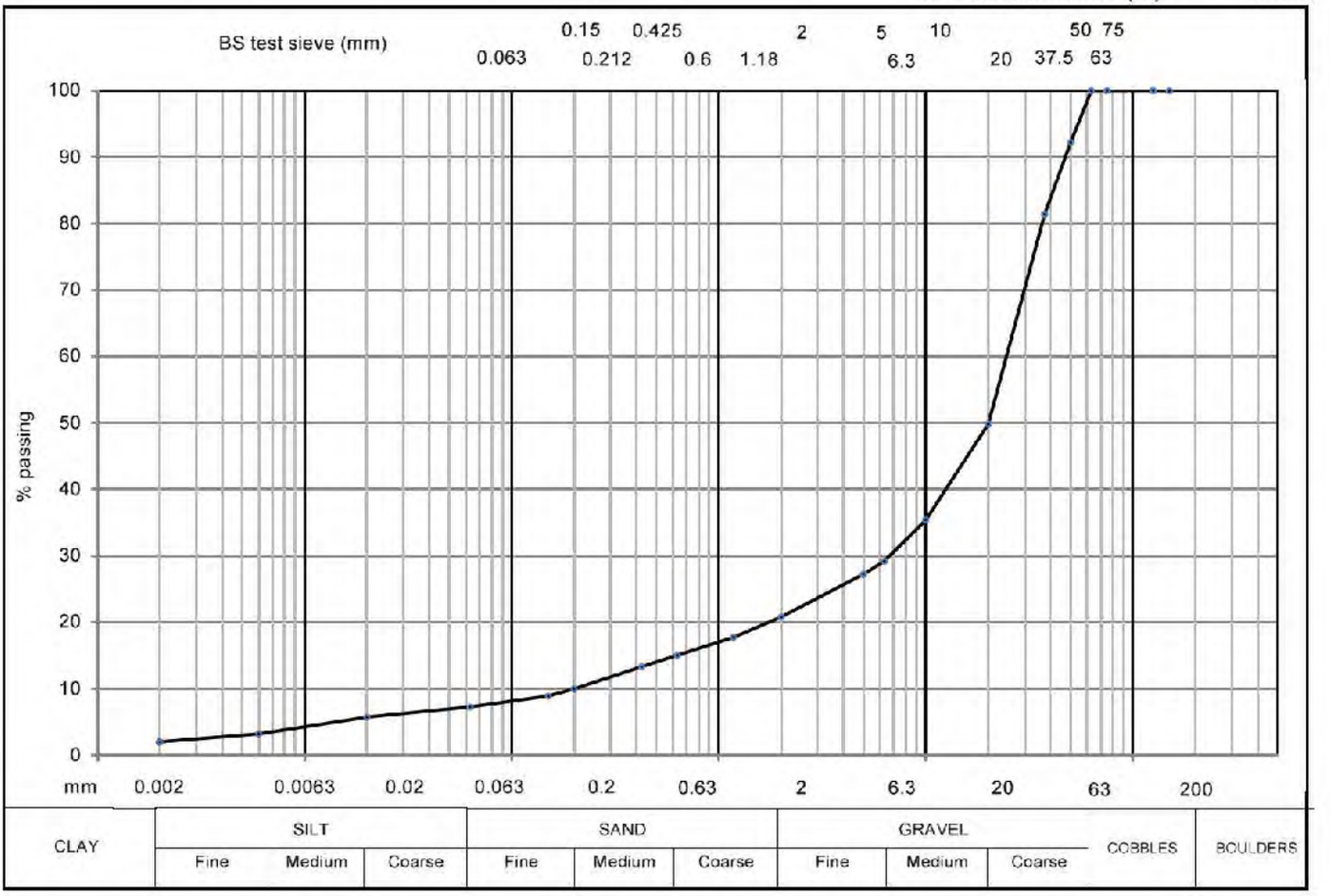
CONTRACT	CHECKED
34023	EC

Geotechnical Engineering Limited

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	ALS ENVIRONMENTAL	BH/TP No.	TP202
SITE	TRADETEAM (DHL), GLOUCESTER	SAMPLE No./TYPE	B
		SAMPLE DEPTH (m)	0.40
DESCRIPTION	Brown silty sandy GRAVEL	SPECIMEN TOP (m)	0.40
		SPECIMEN BASE (m)	0.40



soil type	% fraction
CLAY	2
SILT	5
SILT & CLAY	7
SAND	14
GRAVEL	79
COBBLE & BOULDER	0
test method(s)	5.2 & 5.4

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing
150	
75	
63	100
50	92
37.5	81
20	50
10	35
6.3	29

BS test sieve (mm)	% passing
5	27
2	21
1.18	18
0.63	15
0.425	13
0.2	10
0.15	9
0.063	7

BS test sieve (µm)	% finer
20	6
6	3
2	2

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

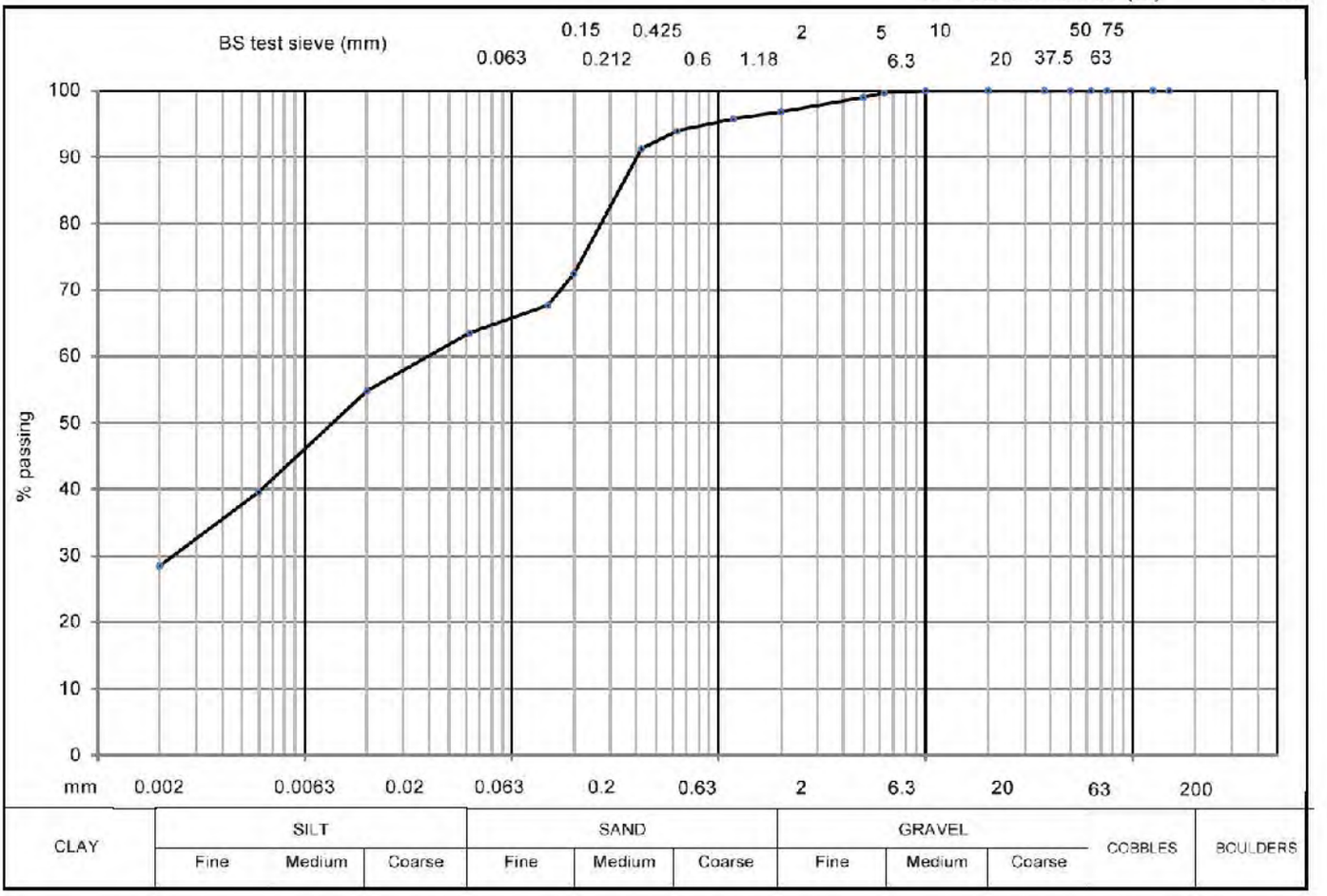
CONTRACT	CHECKED
34023	EC

Geotechnical Engineering Limited

PARTICLE SIZE DISTRIBUTION

BS EN ISO 17892 - 4 : 2016 : 5

CLIENT	ALS ENVIRONMENTAL	BH/TP No.	TP203
SITE	TRADETEAM (DHL), GLOUCESTER	SAMPLE No./TYPE	B
		SAMPLE DEPTH (m)	1.00
DESCRIPTION	Dark brownish grey slightly sandy silty CLAY	SPECIMEN TOP (m)	1.00
		SPECIMEN BASE (m)	1.00



soil type	% fraction
CLAY	29
SILT	35
SILT & CLAY	64
SAND	33
GRAVEL	3
COBBLE & BOULDER	0
test method(s)	5.2 & 5.4

test method

5.2 - sieving

5.3 - sedimentation by hydrometer

5.4 - sedimentation by pipette

BS test sieve (mm)	% passing
150	
75	
63	
50	
37.5	
20	
10	100
6.3	100

BS test sieve (mm)	% passing
5	99
2	97
1.18	96
0.63	94
0.425	91
0.2	72
0.15	68
0.063	64

BS test sieve (µm)	% finer
20	55
6	40
2	28

remarks

# denotes sample tested is smaller than that which is recommended in accordance with BS EN 17892

Particle density assigned an assumed value of 2.70 Mg/m3

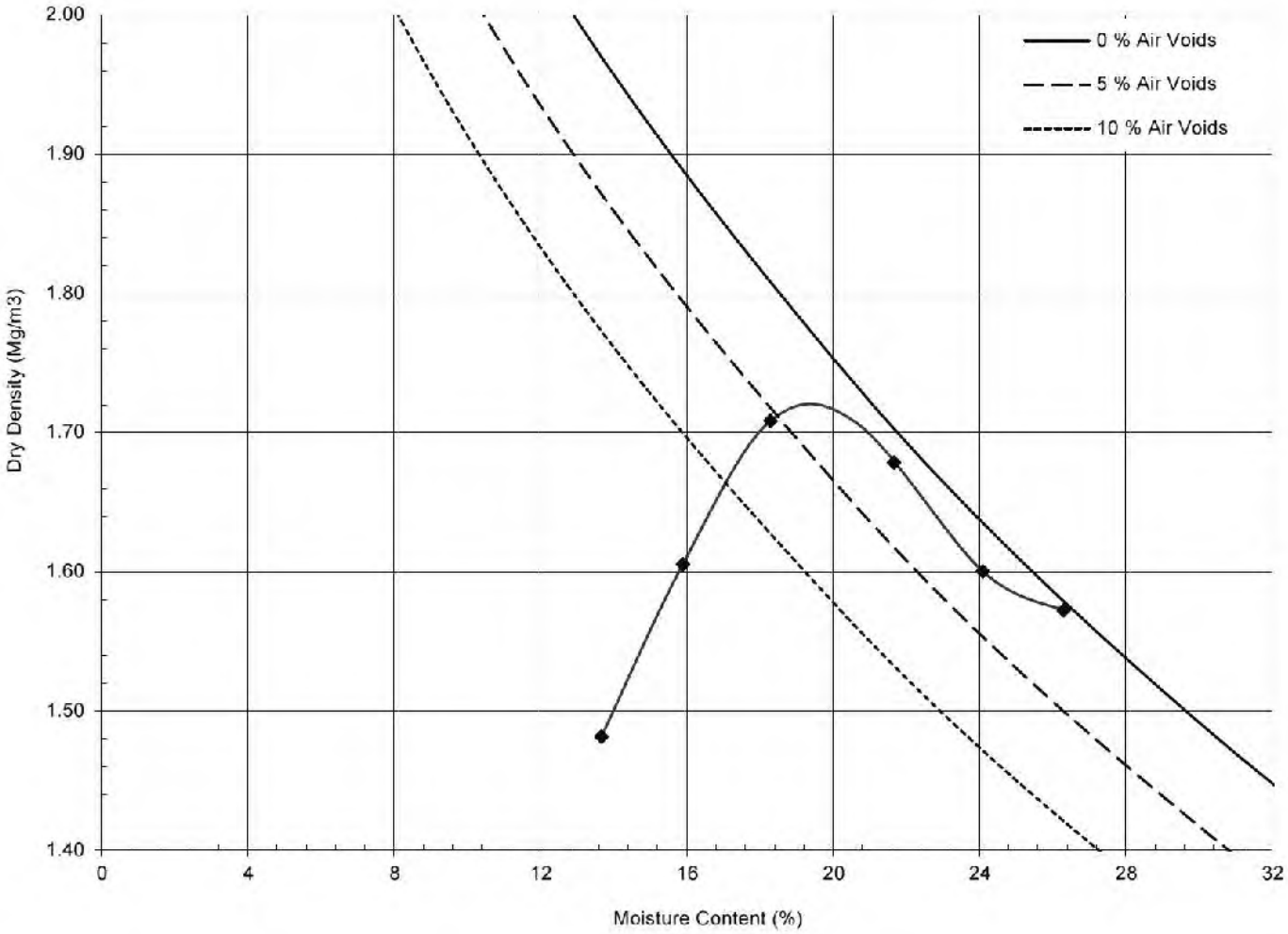
CONTRACT	CHECKED
34023	EC

Geotechnical Engineering Limited

DRY DENSITY/MOISTURE CONTENT RELATIONSHIP

BS. 1377 : Part 4 : 1990 : 3

CLIENT	ALS ENVIRONMENTAL	BH/TP No.	BH101
SITE	TRADETEAM (DHL), GLOUCESTER	SAMPLE No./TYPE	B
DESCRIPTION	Greyish brown mottled orange slightly gravelly slightly sandy CLAY	SAMPLE DEPTH (m)	0.50
		SPECIMEN DEPTH (m)	0.50



test method		3.3.4.1 2.5kg dynamic compaction - 1L mould			
preparation procedure		3.2.4.2 (grading zone 2)			
sample preparation		R			
proportion retained on 37.5mm sieve	%	0	initial moisture content	%	25
proportion retained on 20mm sieve	%	2	maximum dry density	(Mg/m3)	1.72
particle density	(Mg/m3)	2.7	optimum moisture content	%	19

remarks

# denotes particle density has been assigned an assumed value

C denotes sample has been chopped to pass 20mm sieve

S denotes sample has been shredded to pass 20mm sieve

R denotes sample material has been recycled between/for points

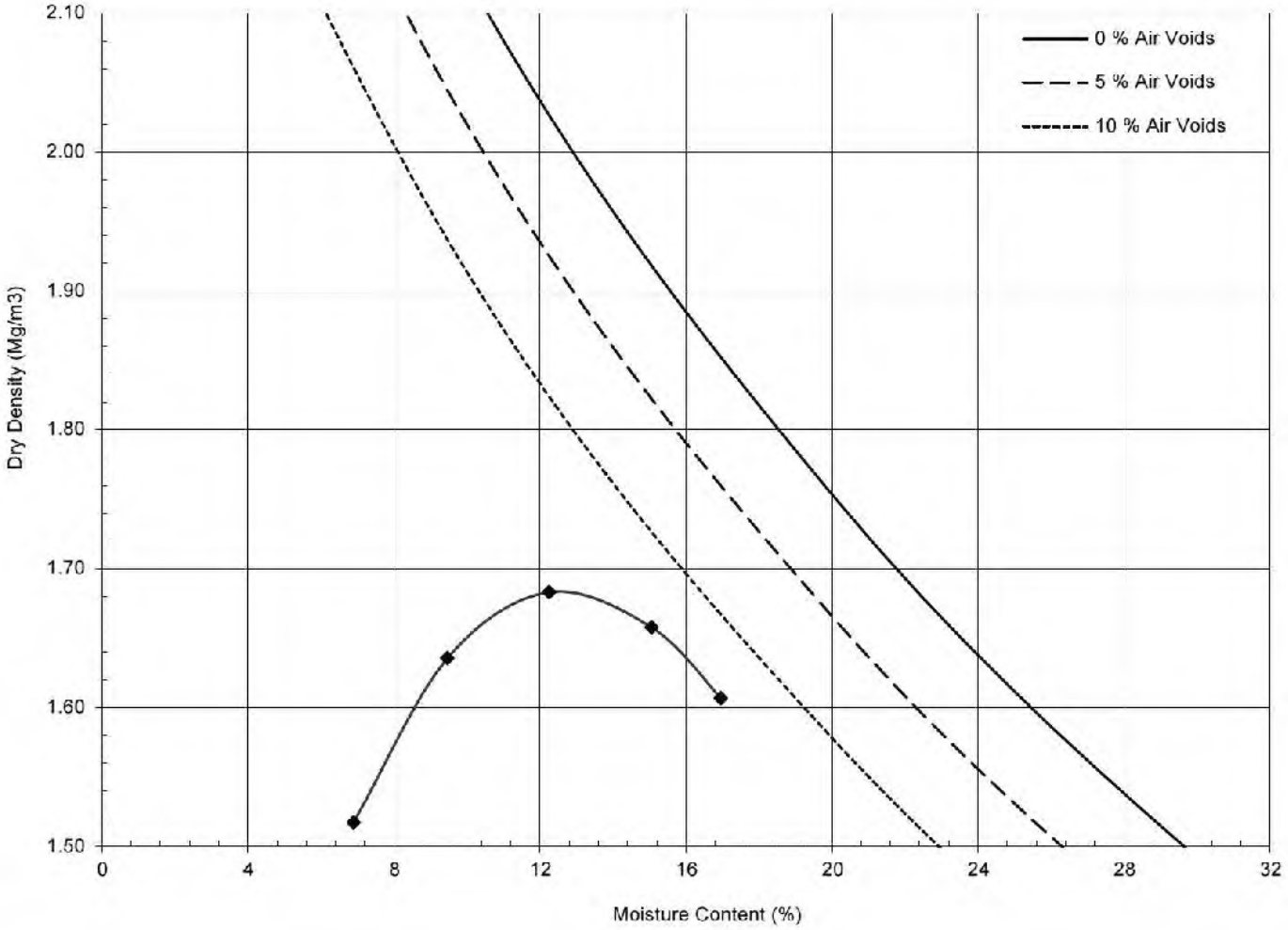
CONTRACT	CHECKED
34023	EC

Geotechnical Engineering Limited

DRY DENSITY/MOISTURE CONTENT RELATIONSHIP

BS. 1377 : Part 4 : 1990 : 3

CLIENT	ALS ENVIRONMENTAL	BH/TP No.	BH102
SITE	TRADETEAM (DHL), GLOUCESTER	SAMPLE No./TYPE	B
DESCRIPTION	Orangish brown mottled bluish grey slightly gravelly sandy silty CLAY	SAMPLE DEPTH (m)	0.60
		SPECIMEN DEPTH (m)	0.60



test method		3.3.4.1 2.5kg dynamic compaction - 1L mould			
preparation procedure		3.2.4.2 (grading zone 2)			
sample preparation		S R			
proportion retained on 37.5mm sieve	%	0	initial moisture content	%	14
proportion retained on 20mm sieve	%	4	maximum dry density	(Mg/m3)	1.69
particle density	(Mg/m3)	2.7	optimum moisture content	%	13

remarks

# denotes particle density has been assigned an assumed value

C denotes sample has been chopped to pass 20mm sieve

S denotes sample has been shredded to pass 20mm sieve

R denotes sample material has been recycled between/for points

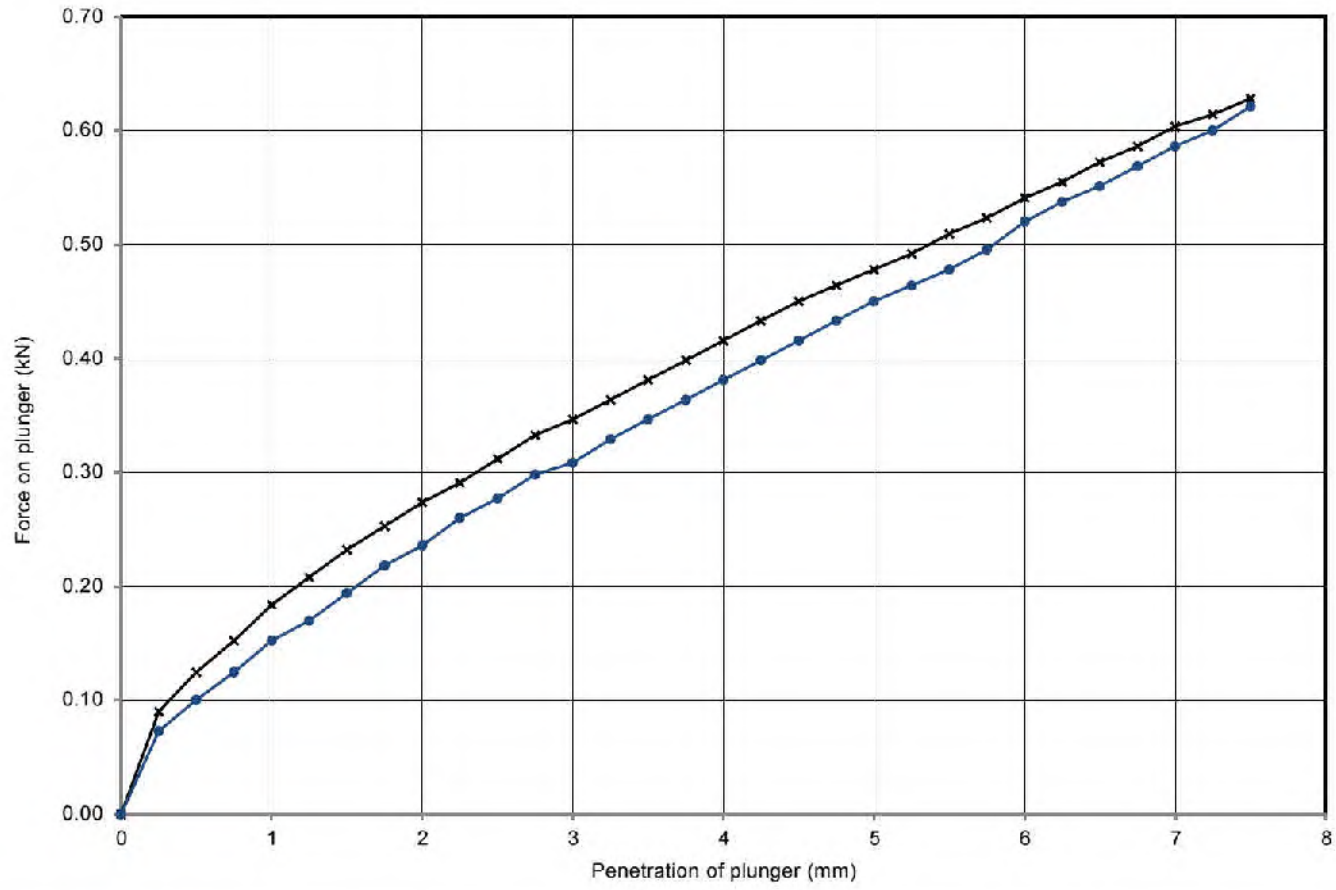
CONTRACT	CHECKED
34023	**EC**

Geotechnical Engineering Limited

CALIFORNIA BEARING RATIO

BS. 1377 : Part 4 : 1990 : 7

CLIENT	ALS ENVIRONMENTAL	BH/TP No.	BH102
SITE	TRADETEAM (DHL), GLOUCESTER	SAMPLE No./TYPE	B
		SAMPLE DEPTH (m)	0.60
DESCRIPTION	Orangish brown mottled bluish grey slightly gravelly sandy silty CLAY	SPECIMEN DEPTH (m)	0.60



sample preparation:	Dynamic compaction - 4.5kg rammer with specified effort		
proportion > 20mm removed (%)	5.1	sample condition	Unsoaked
surcharge mass (kg)	10	amount of swell (mm)	
INITIAL CONDITIONS		FINAL CONDITIONS	
moisture content (%)	14	moisture content top (%)	14
bulk density (Mg/m3)	2.16	moisture content base (%)	16
dry density (Mg/m3)	1.89		

remarks

results

CBR value top (%)	2.4
CBR value base (%)	2.3
average CBR value (%)	2.3

Top

Base

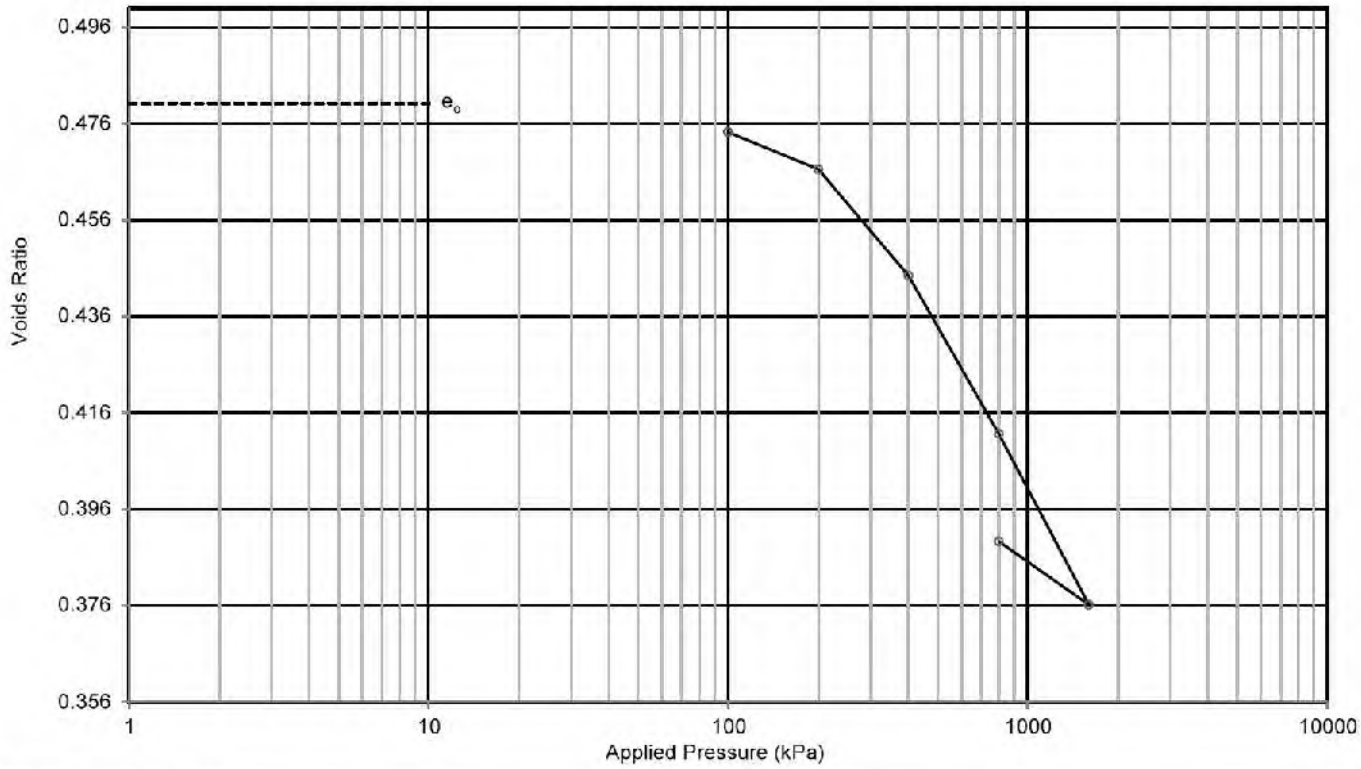
CONTRACT	CHECKED
34023	EC

Geotechnical Engineering Limited

DETERMINATION OF ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

BS EN ISO 17892 - 5 : 2017 : 6

CLIENT	ALS ENVIRONMENTAL	BH/TP No.	BH102
SITE	TRADETEAM (DHL), GLOUCESTER	SAMPLE No./TYPE	U
DESCRIPTION	Grey slightly sandy silty CLAY	SAMPLE DEPTH (m)	5.00
		SPECIMEN DEPTH (m)	5.23



test and sample details			test results			
			pressure stage (kPa)	voids ratio	laboratory coefficients of compressibility mv (m2/MN)	laboratory coefficients of consolidation Cv (m2/yr)
specimen diameter	mm	63.12				
specimen height	mm	18.86				
initial moisture content	%	18.1				
final moisture content	%	17.4				
initial bulk density	Mg/m3	2.15	100	0.474		
initial dry density	Mg/m3	1.82	200	0.467	0.052	0.57
initial voids ratio		0.480	400	0.444	0.075	0.78
initial degree of saturation	%	102	800	0.412	0.057	0.52
particle density	Mg/m3	#2.70	1600	0.376	0.031	0.66
swelling pressure	kPa	N/A	800	0.389	0.012	
P'o to P'o +100 kPa		-				
laboratory temperature	oC	20 ± 2				
method of time fitting		root time				

remarks # denotes particle density has been assigned an assumed value

Specimen swelled on first loading increment.

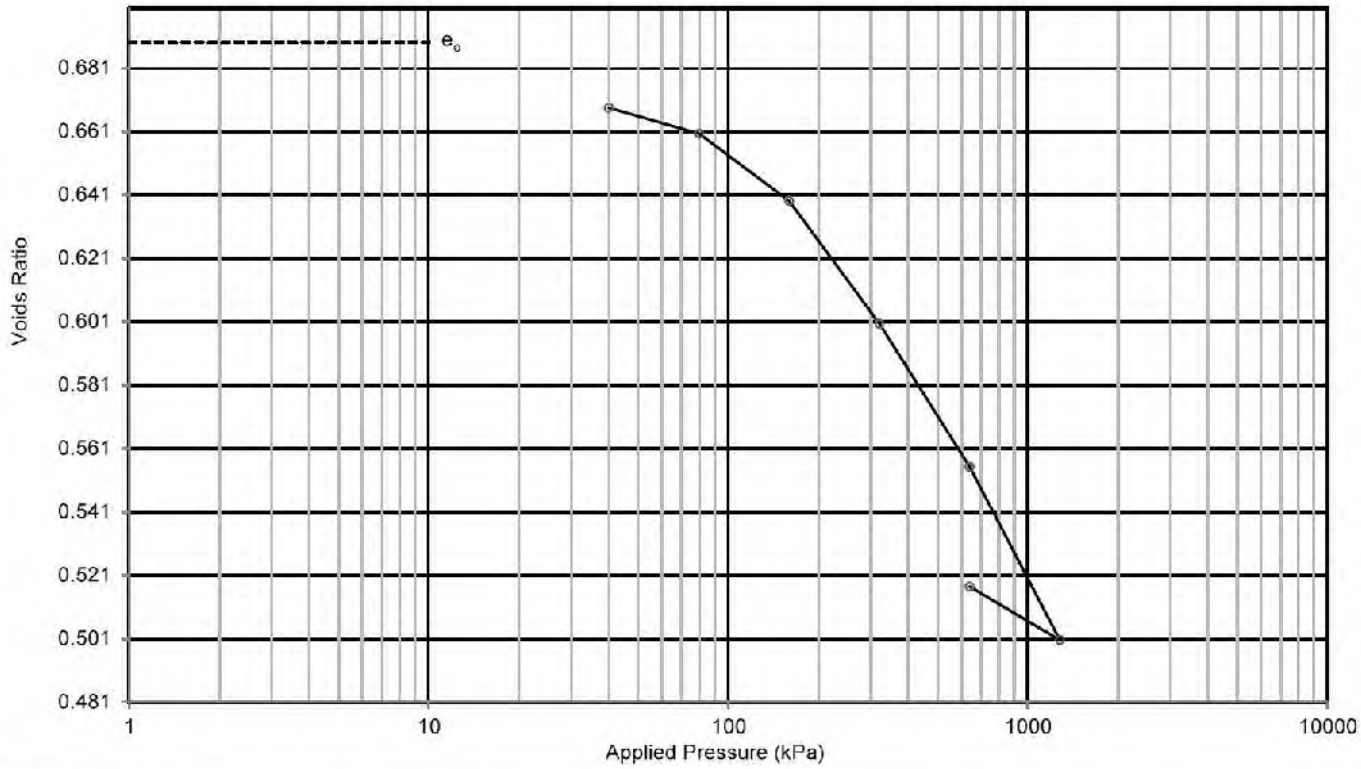
CONTRACT	CHECKED
34023	**EC**

Geotechnical Engineering Limited

DETERMINATION OF ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

BS EN ISO 17892 - 5 : 2017 : 6

CLIENT	ALS ENVIRONMENTAL	BH/TP No.	BH103
SITE	TRADETEAM (DHL), GLOUCESTER	SAMPLE No./TYPE	U
DESCRIPTION	Greenish grey slightly sandy slightly gravelly CLAY	SAMPLE DEPTH (m)	2.00
		SPECIMEN DEPTH (m)	2.40



test and sample details			test results			
			pressure stage (kPa)	voids ratio	laboratory coefficients of compressibility mv (m2/MN)	laboratory coefficients of consolidation Cv (m2/yr)
specimen diameter	mm	63.34				
specimen height	mm	18.87				
initial moisture content	%	25.2				
final moisture content	%	22.5				
initial bulk density	Mg/m3	2.00	40	0.668		
initial dry density	Mg/m3	1.60	80	0.660		
initial voids ratio		0.689	160	0.639	0.16	2.4
initial degree of saturation	%	99	320	0.600	0.15	0.45
particle density	Mg/m3	#2.70	640	0.555	0.088	0.35
swelling pressure	kPa	N/A	1280	0.501	0.055	0.37
			640	0.517	0.018	
P'o to P'o +100 kPa		-				
laboratory temperature	oC	20 ± 2				
method of time fitting		root time				

remarks # denotes particle density has been assigned an assumed value

Specimen swelled on first two loading increments.

CONTRACT	CHECKED
34023	**EC**

Geotechnical Engineering Limited

UNDRAINED TRIAXIAL COMPRESSION

BS.1377 : PART 7 : 1990 : 9

CLIENT ALS ENVIRONMENTAL

SITE TRADETEAM (DHL), GLOUCESTER

borehole /trial pit no.	sample no./type	sample depth (m)	specimen depth (m)	code	moisture content initial (%)	moisture content final (%)	dimensions length (mm)	dimensions diameter (mm)	density bulk (Mg/m^3)	density dry (Mg/m^3)	cell pressure (kPa)	rate of strain (%/min)	deviator stress (kPa)	failure strain (%)	failure mode	shear strength* (kPa)	description and remarks
BH102	U	1.50	1.70	UUM100	29.8	29.8	206	105	1.90	1.46	25	4.1	79	5.3	I	40	Brown slightly gravelly slightly sandy CLAY
											50		103	9.7		52	
											100		114	13.6		57	
BH102	U	3.00	3.00	UUM100	23.9	24.9	188	101	2.07	1.67	60	3.8	136	6.9	S	68	Grey slightly sandy CLAY
											120		162	10.1		81	
											240		185	13.3		92	
BH103	U	4.00	4.00	UUM100	22.9	22.7	206	105	1.98	1.61	80	4.1	85	2.4	S	42	Grey slightly sandy CLAY
											160		97	3.9		49	
											320		120	5.8		60	

general remarks:

* shear strength taken as half deviator stress at failure for each stage
membrane correction applied
sample taken vertically (unless otherwise specified)
strain rate 2%/min (unless otherwise specified)

code:

UU - unconsolidated undrained
M - multi stage
S - set of three
R - remoulded

failure mode:

B - barrel (plastic failure)
S - shear (brittle failure)
I - intermediate
O - other (see remarks)

membrane type/thickness:

latex membrane used (unless otherwise specified)
38 - 0.2mm
70 - 0.4mm
100 - 0.4mm

CONTRACT	CHECKED
34023	EC

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as “mixed hydrocarbons”. Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	**Container with Headspace provided for volatiles analysis**
2	**Incorrect container received**
3	**Deviation from method**
4	**Holding time exceeded before sample received**
5	**Samples exceeded holding time before presevation was performed**
§	**Sampled on date not provided**
♦	**Sample holding time exceeded in laboratory**
@	**Sample holding time exceeded due to sampled on date**
&	**Sample Holding Time exceeded - Late arrival of instructions.**

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

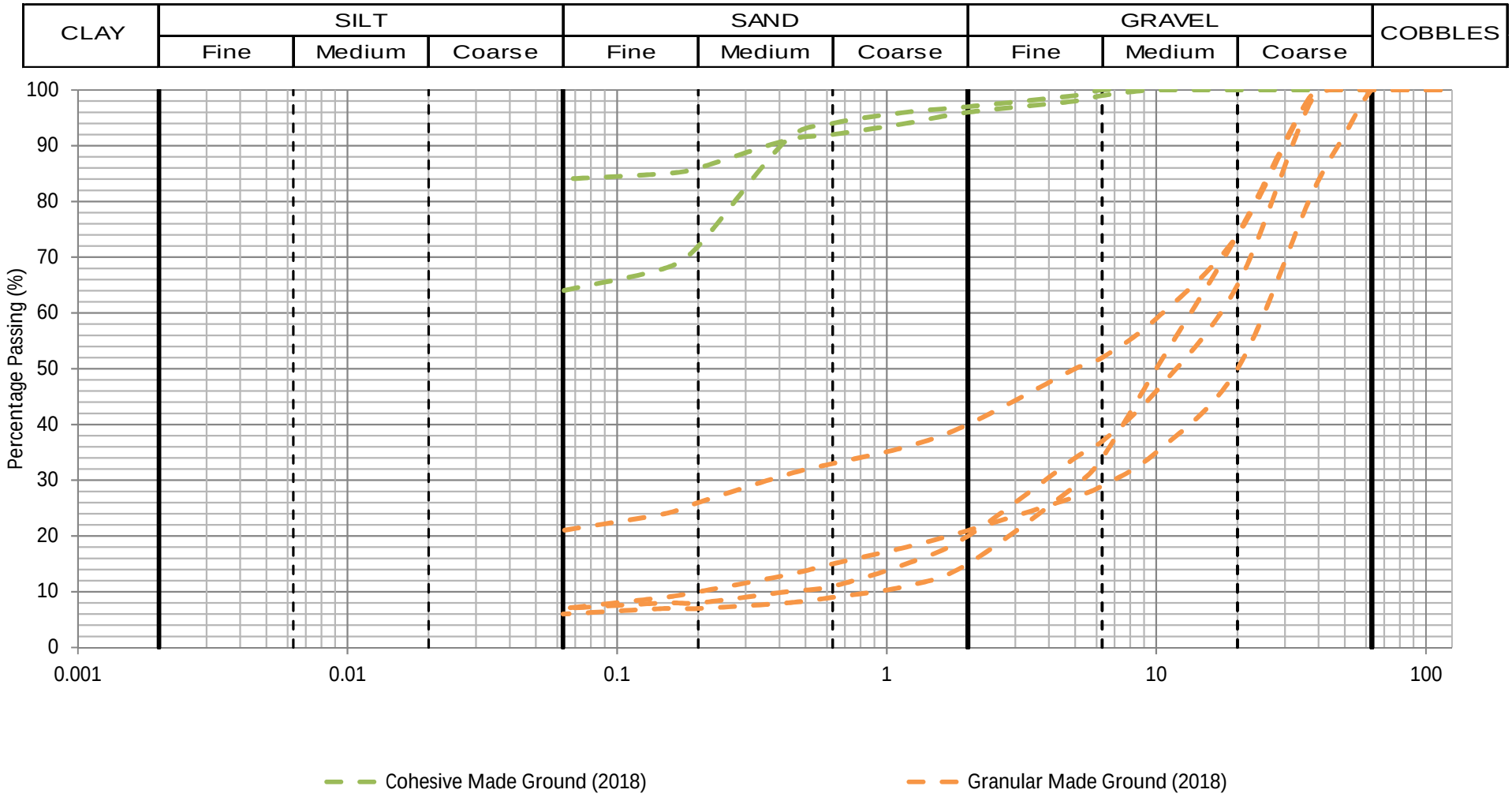
Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

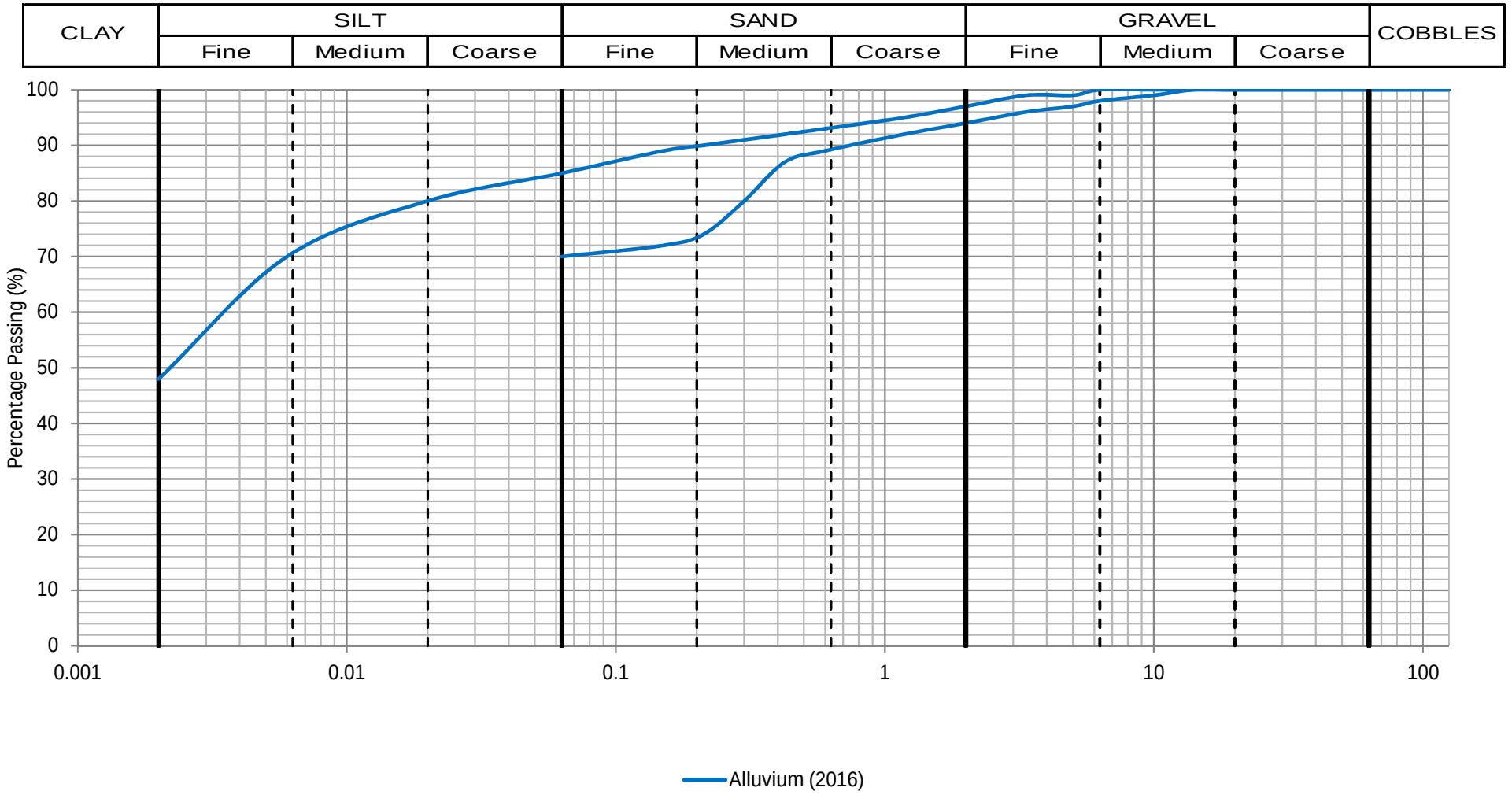
Appendix I

GEOTECHNICAL DATA PLOTS

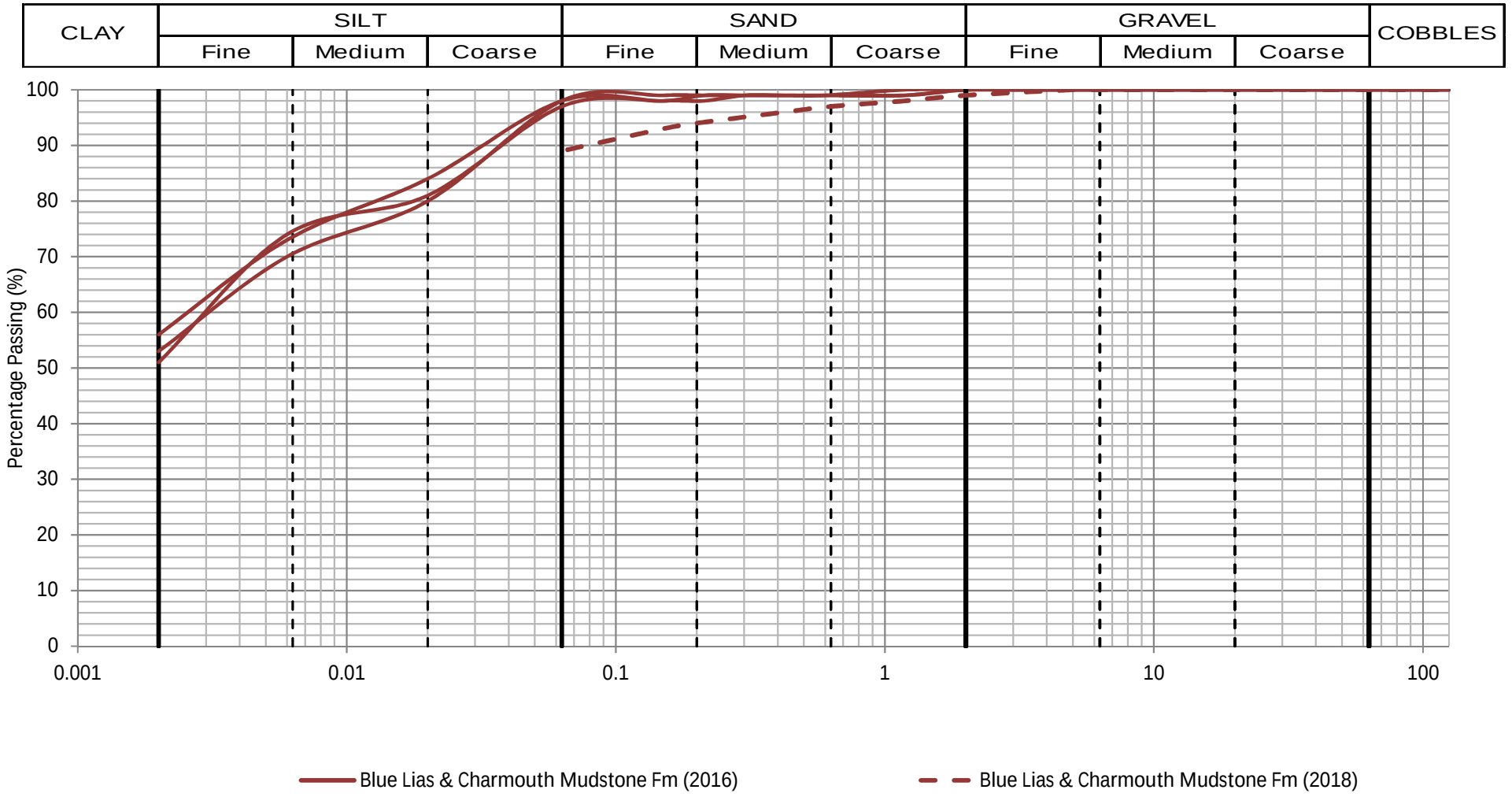
PSD - Made Ground

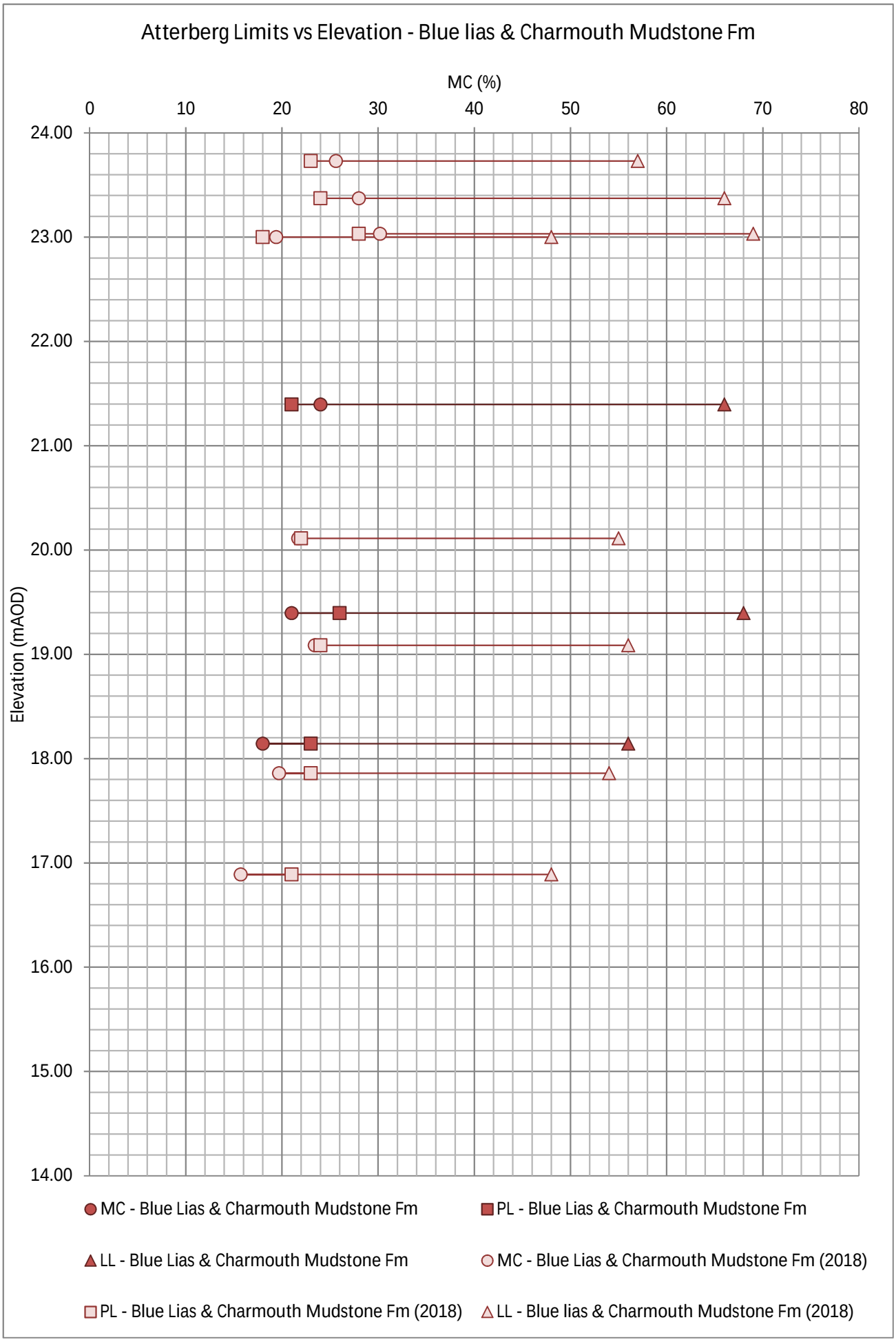


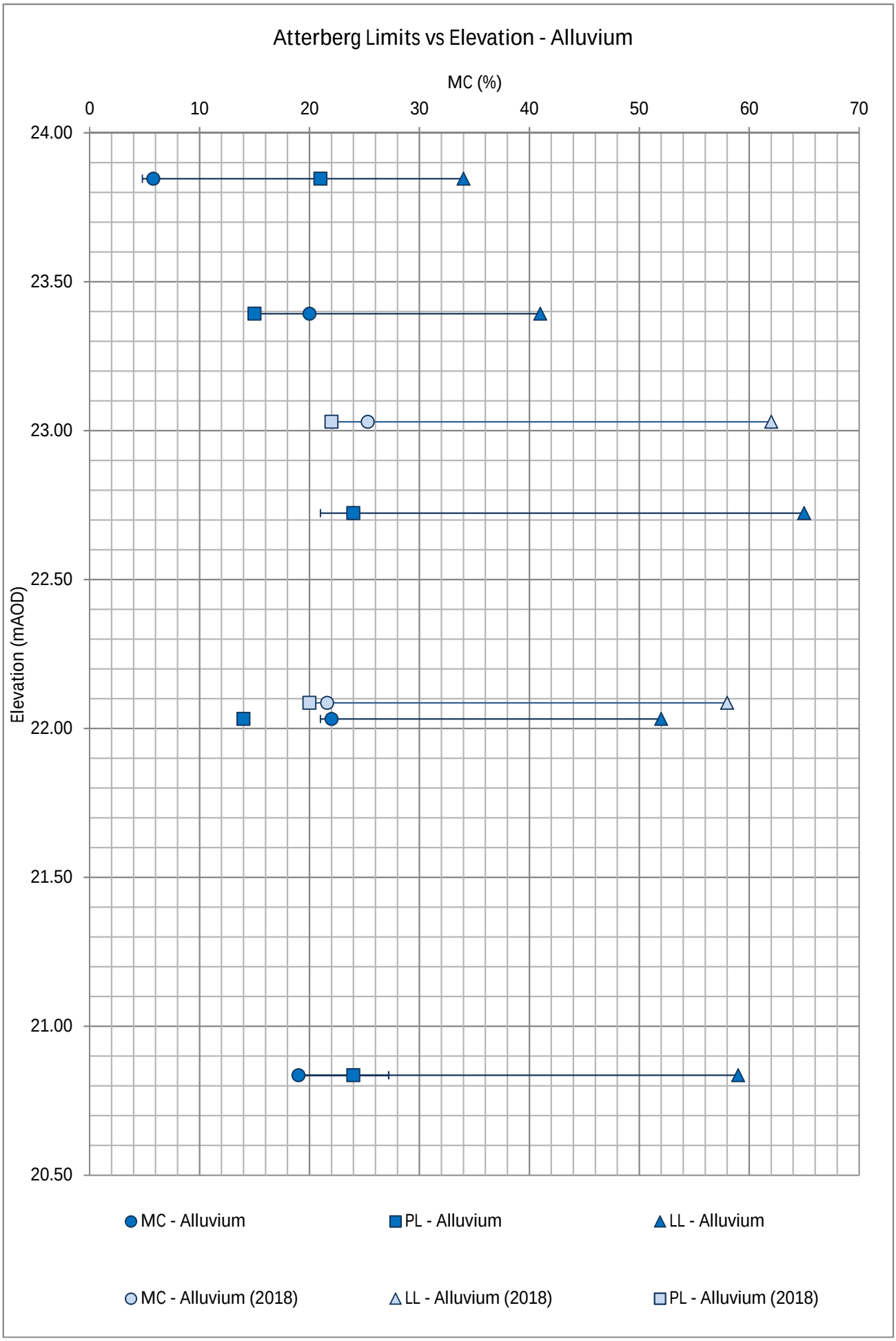
PSD - Alluvium

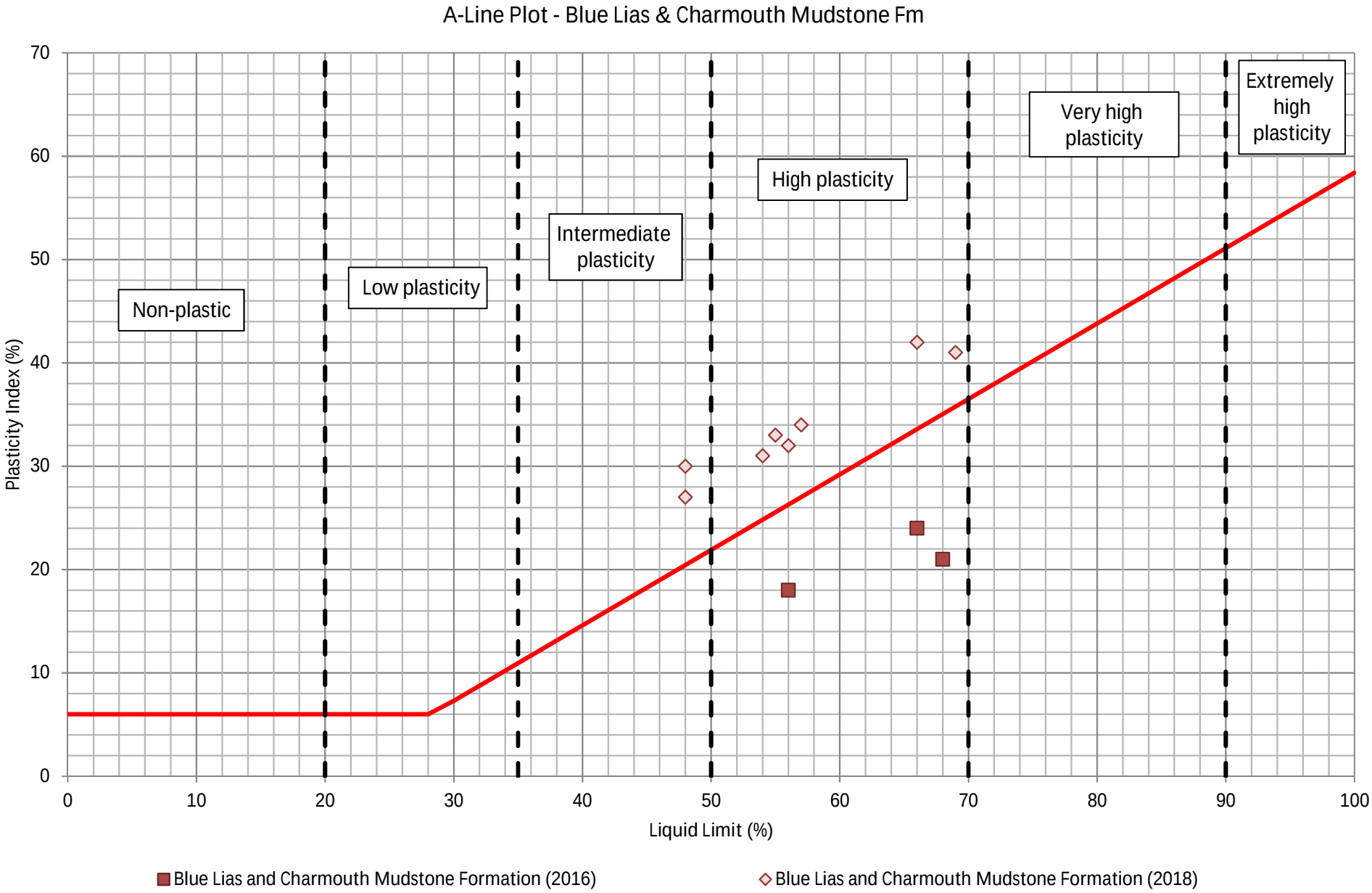


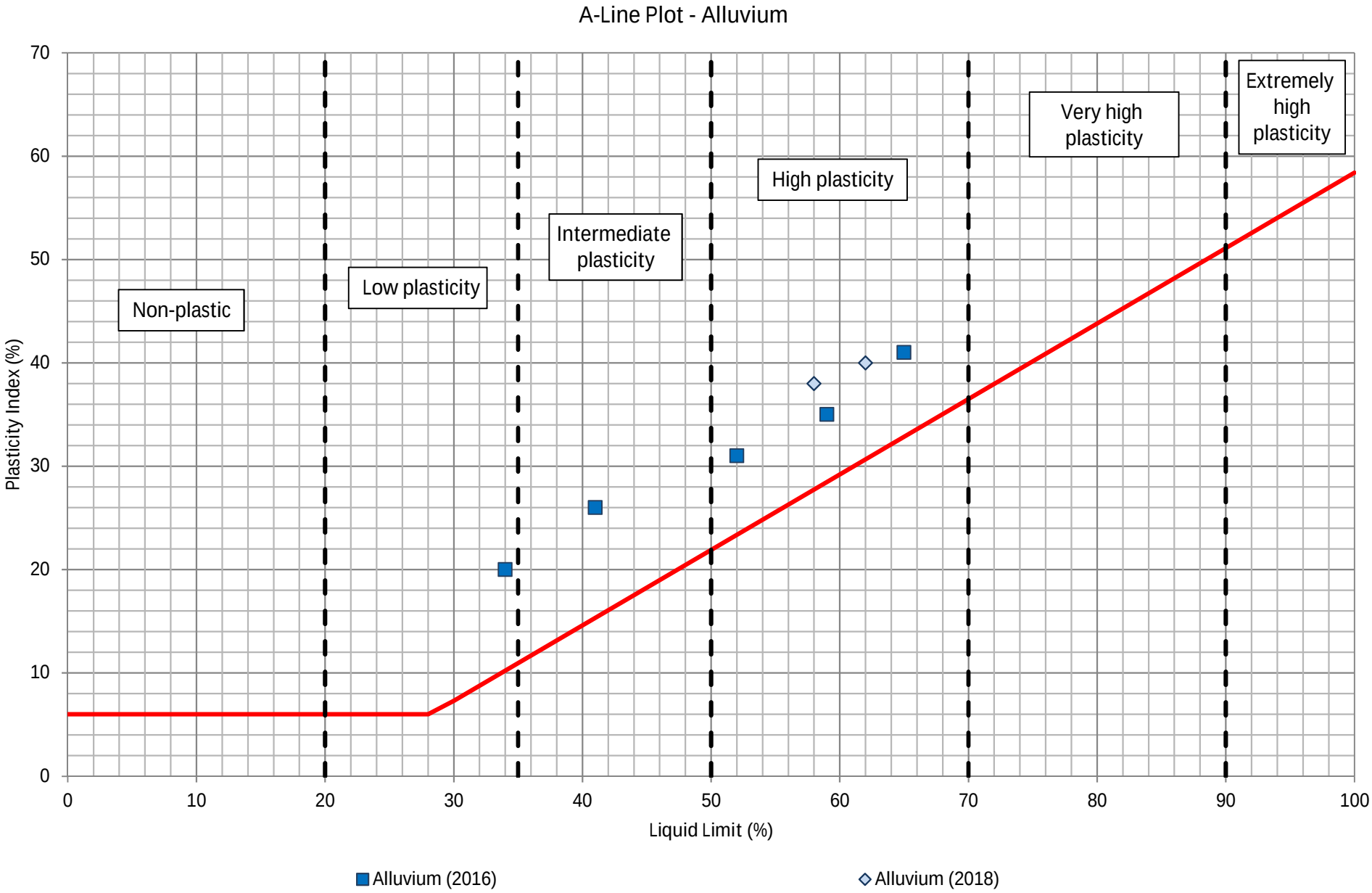
PSD - Blue Lias & Charmouth Mudstone Fm

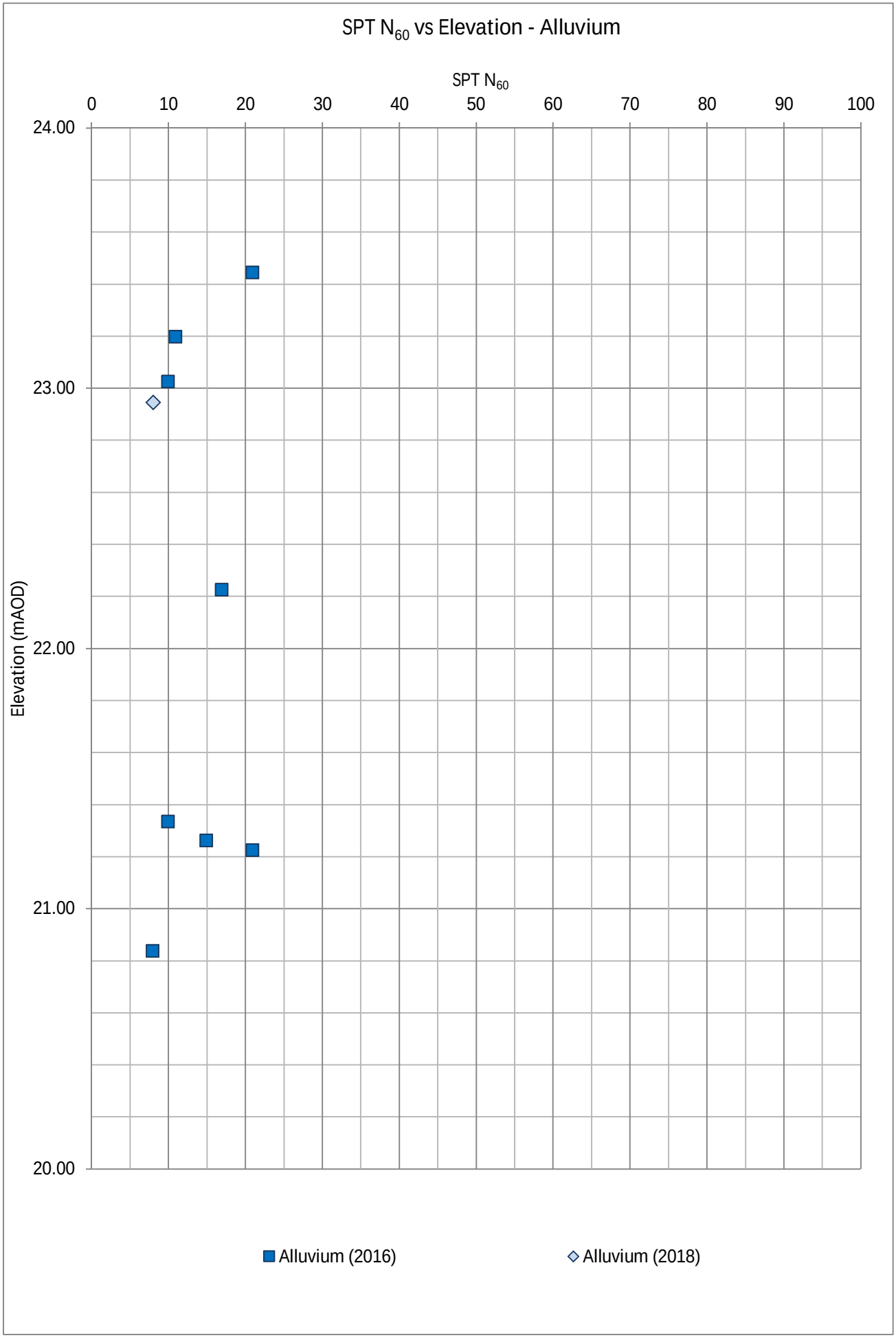


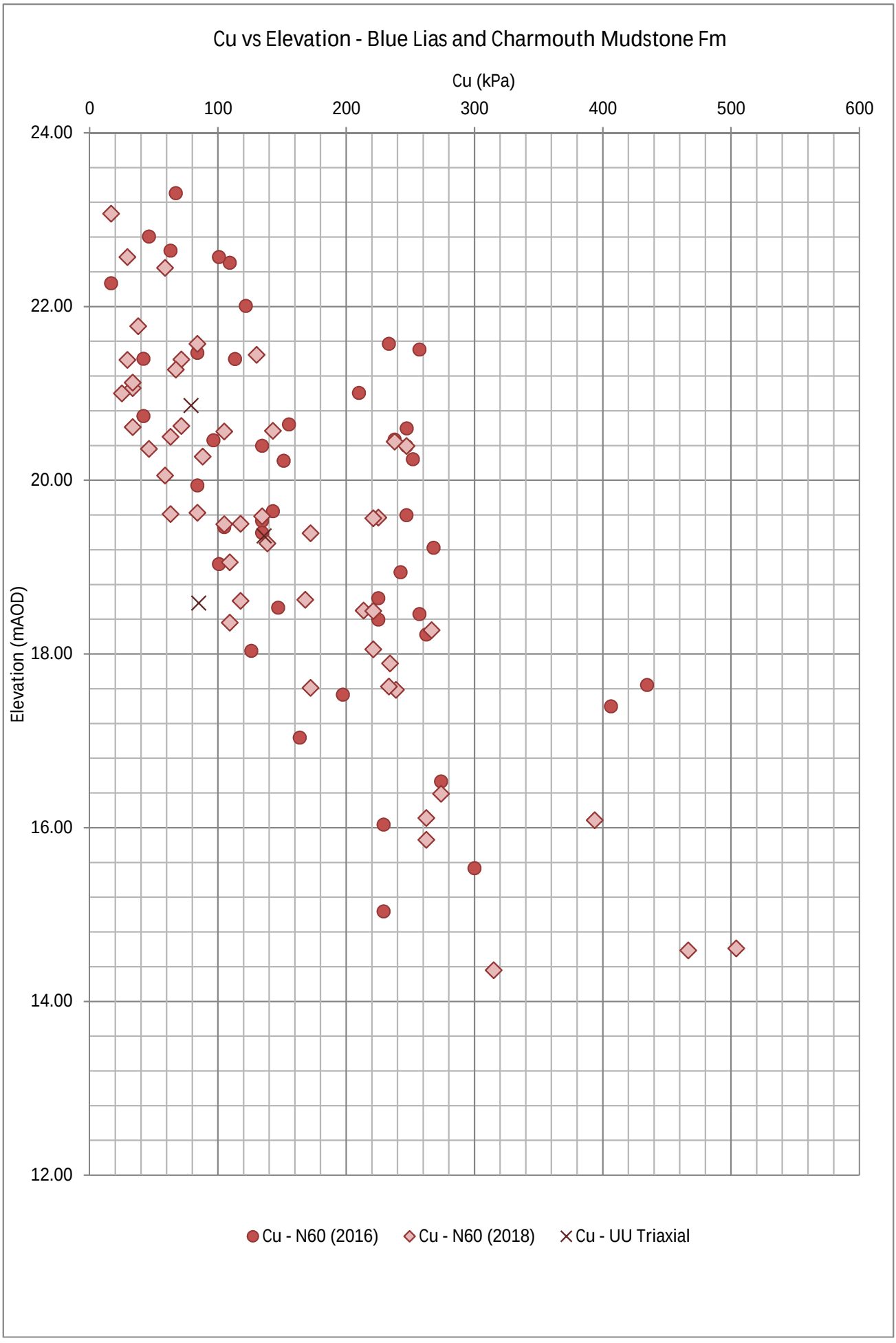

Atterberg Limits vs Elevation - Blue lias & Charmouth Mudstone Fm
MC (%)
0
10
20
30
40
50
60
70
80
Elevation (mAOD)
24.00
23.00
22.00
21.00
20.00
19.00
18.00
17.00
16.00
15.00
14.00
MC - Blue Lias & Charmouth Mudstone Fm
PL - Blue Lias & Charmouth Mudstone Fm
LL - Blue Lias & Charmouth Mudstone Fm
MC - Blue Lias & Charmouth Mudstone Fm (2018)
PL - Blue Lias & Charmouth Mudstone Fm (2018)
LL - Blue lias & Charmouth Mudstone Fm (2018)

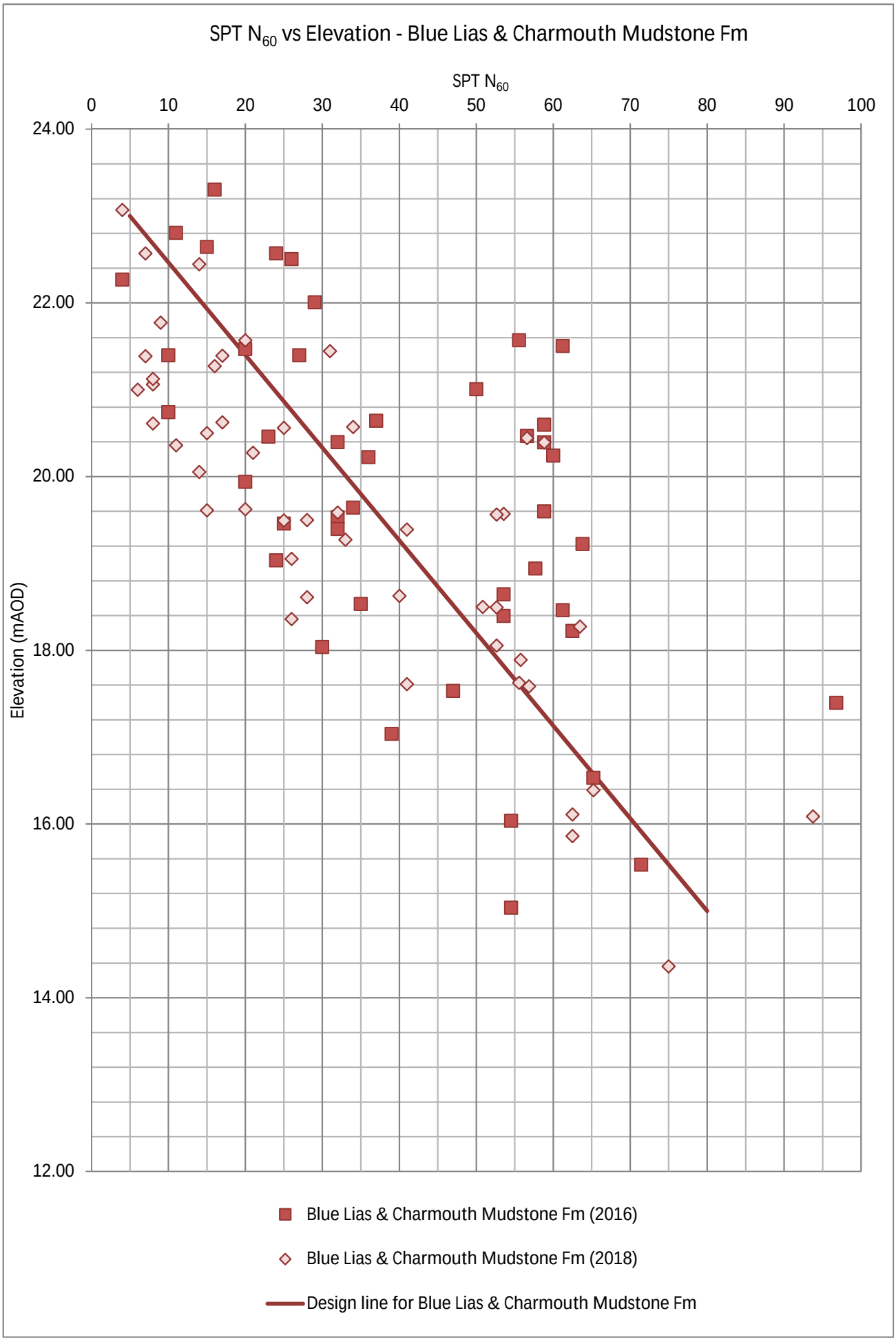

Atterberg Limits vs Elevation - Alluvium
MC (%)
0
10
20
30
40
50
60
70
24.00
23.50
23.00
22.50
22.00
21.50
21.00
20.50
Elevation (mAOD)
MC - Alluvium
PL - Alluvium
LL - Alluvium
MC - Alluvium (2018)
LL - Alluvium (2018)
PL - Alluvium (2018)


A-Line Plot - Blue Lias & Charmouth Mudstone Fm
Plasticity Index (%)
Liquid Limit (%)
0
10
20
30
40
50
60
70
80
90
100
Non-plastic
Low plasticity
Intermediate plasticity
High plasticity
Very high plasticity
Extremely high plasticity
Blue Lias and Charmouth Mudstone Formation (2016)
Blue Lias and Charmouth Mudstone Formation (2018)


A-Line Plot - Alluvium
Plasticity Index (%)
Liquid Limit (%)
Non-plastic
Low plasticity
Intermediate plasticity
High plasticity
Very high plasticity
Extremely high plasticity
Alluvium (2016)
Alluvium (2018)


SPT N60 vs Elevation - Alluvium
SPT N60
0
10
20
30
40
50
60
70
80
90
100
24.00
23.00
22.00
21.00
20.00
Elevation (mAOD)
Alluvium (2016)
Alluvium (2018)


Cu vs Elevation - Blue Lias and Charmouth Mudstone Fm
Cu (kPa)
0
100
200
300
400
500
600
Elevation (mAOD)
24.00
22.00
20.00
18.00
16.00
14.00
12.00
Cu - N60 (2016)
Cu - N60 (2018)
Cu - UU Triaxial


SPT N_{60} vs Elevation - Blue Lias & Charmouth Mudstone Fm
SPT N_{60}
0
10
20
30
40
50
60
70
80
90
100
24.00
22.00
20.00
18.00
16.00
14.00
12.00
Elevation (mAOD)
Blue Lias & Charmouth Mudstone Fm (2016)
Blue Lias & Charmouth Mudstone Fm (2018)
Design line for Blue Lias & Charmouth Mudstone Fm

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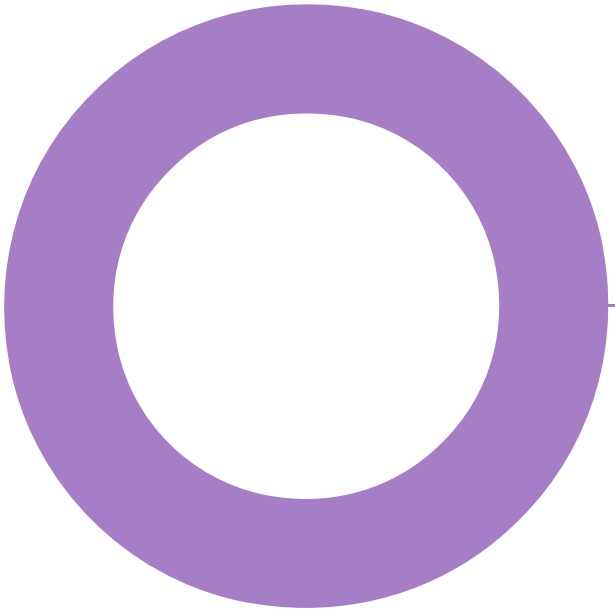

Audit sheet.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed	Authorised
00	09/12/2021	First Draft	BC	CS	KW
01	07/01/2022	Second Draft	BC	CS/LB	KW
02	27/01/2022	First Issue	BC	LB	KW

This document has been prepared for Canmoor only and solely for the purposes expressly defined herein. We owe no duty of care to any third parties in respect of its content. Therefore, unless expressly agreed by us in signed writing, we hereby exclude all liability to third parties, including liability for negligence, save only for liabilities that cannot be so excluded by operation of applicable law. The consequences of climate change and the effects of future changes in climatic conditions cannot be accurately predicted. This report has been based solely on the specific design assumptions and criteria stated herein.

Project number: 10/13710
Document reference: REP-1013710-BC-5A-20220127-Access Park-AQA-Rev02

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Executive Summary.

Hoare Lea have been commissioned by Hale Architecture on behalf of Canmoor to undertake an air quality assessment to support the planning application for the proposed industrial warehouse units at the proposed Access Park in Gloucester (the 'Application Site').

The proposed application is for 14 speculative industrial units of flexible E(g)(iii)/B2/B8 uses with ancillary offices, a yard, car parking and associated soft landscaping. The proposals also include 196 car parking spaces.

The baseline assessment shows that the Application Site is not located within an AQMA. At passive diffusion tube monitoring locations within the vicinity of the Application Site there have been no exceedances of the annual mean air quality objective in recent years with available monitoring data and it is not anticipated there has been any exceedances of the 1-hour mean NO_2 air quality objective from the last five years of representative monitoring data.

It is understood that the proposals do not include the fit out of the Proposed Development. Therefore the energy strategy for the Proposed Development is currently unknown and an assessment of the potential impacts on local air quality therefore cannot be undertaken at this time and is not included within this assessment.

The road traffic emissions associated with the operation of the Proposed Development have been modelled for their impact at existing sensitive receptor locations using dispersion modelling. The impact of pollutant concentrations is predicted to be not significant in line with Environmental Protection UK and Institute of Air Quality Management planning guidance at any of the existing sensitive receptor locations considered within the assessment.

The impacts of demolition and construction work on dust soiling and ambient fine particulate matter concentrations have been assessed. This identified that there is a high risk of dust soiling impacts and a low risk of increases in particulate matter concentrations due to construction activities. The risk of dust causing a loss of local amenity and increased exposure to fine particulate matter concentrations has been used to identify appropriate mitigation measures. Provided these are implemented and included within a dust management plan, for example through a planning condition, the residual impacts are considered to be not significant.

Based on the assessment results, the Application Site is considered suitable for the Proposed Development without the inclusion of mitigation and air quality should not be considered as a constraint to the planning consent. Furthermore, it is considered that the development proposals comply with the National Policy Planning Framework and the Gloucester, Cheltenham and Tewkesbury Joint Core Strategy 2011-2031.

1. Introduction.

Hoare Lea have been commissioned by Hale Architecture on behalf of Canmoor to undertake an Air Quality Assessment to support the planning application for the proposed industrial warehouse units at the proposed Access Park in Gloucester (hereafter referred to as the 'Application Site').

1.1 Proposed Development.

The Proposed Development comprises 14 speculative industrial units of flexible E(g)(iii)/B2/B8 uses with ancillary offices, a yard, car parking and associated soft landscaping. The proposals also include 196 car parking spaces.

It is understood that the proposals do not include the fit out of the Proposed Development. Therefore, the energy strategy for the Proposed Development is currently unknown and an assessment of the potential impacts on local air quality therefore cannot be undertaken at this time and is not included within this assessment.

1.2 Application Site Description and Location.

The Application Site is located within Gloucester City Council (GCC) administrative area at the approximate National Grid Reference (NGR): X 384935 Y 217909.

The Application Site is located adjacent to Eastern Avenue and has been cleared of any structures associated with the previous use, so currently comprises the existing hardstanding only. The approximate Application Site boundary is illustrated in Figure 1.

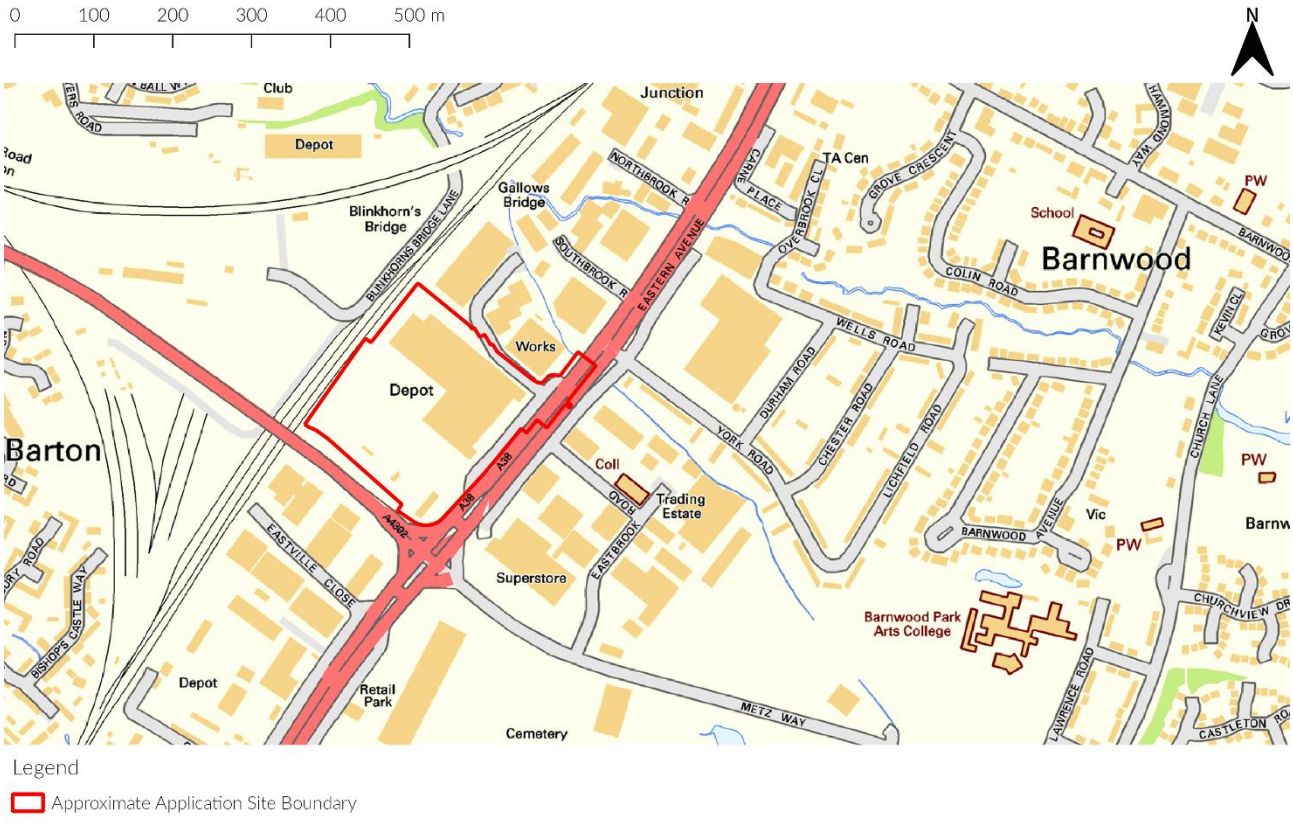

Figure 1: Approximate Application Site Boundary. Contains OS Data © Crown Copyright and Database rights 2022.

1.3 Scope of Assessment.

An email detailing the proposed methodology for the Air Quality Assessment was provided to GCC on the 22nd of December 2021. At time of writing, a response had not been received from GCC. A copy of the correspondence with GCC has been included in Appendix 1.

A summary of the scope of the assessment includes:

- Determination of baseline scenario, using GCC monitoring data and Defra predicted background concentrations;
- Assessment of potential air quality impacts during the construction phase;
- Assessment of site suitability of the proposed end use using GCC passive diffusion tube monitoring data;
- Assessment of potential air quality impacts during the operational phase; and
- Identification of mitigation measures (if required).

2. Legislation, Policy and Guidance Documents.

2.1 Air Quality Strategy and Local Air Quality Management.

The Environment Act 1995 (Part IV)[1] requires the Secretary of State to publish an air quality strategy and local authorities to review and assess the quality of air within their boundaries. The latter has become known as Local Air Quality Management (LAQM).

The Air Quality Strategy[2] provides the policy framework for local air quality management and assessment in the UK. It sets out air quality standards and objectives for key air pollutants. These standards and objectives are designed to protect human health and the environment. The Strategy also sets out how the different sectors of industry, transport and local government, can contribute to achieving these air quality objectives (AQOs).

Local authorities are required to identify whether the AQOs have been, or will be, achieved at relevant locations. If the objectives are not achieved, the authority must declare an Air Quality Management Area (AQMA) and should prepare an Air Quality Action Plan (AQAP) within 12 months. The action plan must identify appropriate measures and policies that can be introduced to help achieve the AQO(s).

The AQOs set out the extent to which the Government expects the standards to be achieved by a certain date. They take account of economic efficiency, practicability, technical feasibility and timescale. The objectives for use by local authorities are prescribed within the Air Quality (England) Regulations 2000[3], and the Air Quality (England) (Amendment) Regulations 2002[4].

The AQOs for nitrogen dioxide (NO_2) and fine particulate matter (PM_{10} and $PM_{2.5}$) are given in Table 1. The target dates for meeting the NO_2 and PM_{10} objectives were 2005 and 2004, respectively. It should be noted that local authorities in England have a flexible role in working towards reducing emissions and concentrations of $PM_{2.5}$.

Table 1: Air Quality Objectives for NO_2, PM_{10} and $PM_{2.5}$

Pollutant	Time Period	Objective
Nitrogen Dioxide (NO_2)	1-hour Mean	200 µg/m^3 Not to be exceeded more than 18 times a year
	Annual Mean	40 µg/m^3
Fine Particulate Matter (PM_{10})†	24-hour Mean	50 µg/m^3 Not to be exceeded more than 35 times a year
	Annual Mean	40 µg/m^3
Fine Particulate Matter ($PM_{2.5}$) †*	Annual Mean	25 µg/m^3
Notes: †Measured gravimetrically.		

The AQOs apply at locations where members of the public are likely to be regularly present and exposed over the averaging period of the objective. Examples of where the annual mean objectives should apply are provided in LAQM.TG16[5] and include building facades of residential properties, schools, hospitals. The annual mean objectives are not relevant for the building facades of offices or other places of work where members of the public do not have regular access, nor kerbsides nor gardens.

The 24-hour AQO for PM_{10} is considered to apply at the same locations as the annual mean AQO, as well as in gardens of residential properties and at hotels.

The 1-hour AQO for NO_2 also applies wherever members of the public might regularly spend 1-hour or more, including outdoor eating locations, pavements of busy shopping streets, carparks and bus stations which are not fully enclosed. The 1-hour AQO does not apply at kerbside sites where the public do not have regular access.

2.2 EU Limit Values.

The European Union has also set limit values for NO_2, PM_{10} and $PM_{2.5}$; these are legally binding and have been implemented into English legislation by The Air Quality Standards Regulations 2010[6] and The Air Quality Standards (Amendment) Regulations 2016[7].

The limit values for NO_2, PM_{10} and $PM_{2.5}$ are the same as the English objectives (given in Table 1), but applied from 2010 for NO_2, 2005 for PM_{10} and 2015 for $PM_{2.5}$. The limit values apply at all locations (apart from where the public does not have access, where health and safety at work provisions apply and on the road carriageway).

2.3 General Nuisance Legislation.

Part III of the Environmental Protection Act (EPA) 1990 (as amended) contains the main legislation on Statutory Nuisance and allows local authorities and individuals to take action to prevent a statutory nuisance. Section 79 of the EPA defines, amongst other things, smoke, fumes, dust and smells emitted from industrial, trade or business premises so as to be prejudicial to health or a nuisance, as a potential Statutory Nuisance.

Fractions of dust greater than 10 μm in diameter (i.e. greater than PM_{10}) typically relate to nuisance effects as opposed to potential health effects and therefore are not covered within the Air Quality Strategy. In legislation there are currently no numerical limits in terms of what level of dust deposition constitutes a nuisance.

2.4 UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations.

The UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations[8] was published in 2017. This sets out roles and responsibilities and measures for bringing NO_2 levels within the mandatory limit values in the shortest possible time. Under the UK Plan, local authorities with roadside concentrations of NO_2 forecast by the Defra as exceeding legal limits are identified; the local authority GCC has been identified as one of these.

2.5 Clean Air Strategy.

The Clean Air Strategy (CAS)[9], published in 2019, sets out the Government's proposals aimed at delivering cleaner air in England, and also indicates how devolved administrations intend to make emissions reductions. It sets out the comprehensive action that is required from across all parts of government and society to deliver clean air.

2.6 Planning Policy.

2.6.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF) 2021[10] sets out planning policy for England. It includes advice on when air quality should be a material consideration in development control decisions. Relevant sections are set out below:

Paragraph 55: "Local planning authorities should consider whether otherwise unacceptable development could be made acceptable through the use of conditions or planning obligations. Planning obligations should only be used where it is not possible to address unacceptable impacts through a planning condition."

Paragraph 174: "Planning policies and decisions should contribute to and enhance the natural and local environment by: preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality."

Paragraph 185: "Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development."

Paragraph 186: "Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and

green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."

Paragraph 188: "The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities."

The NPPF is supported by Planning Practice Guidance (PPG)[11].

The PPG states that:

Paragraph 001 (Reference ID: 32-001-20191101): "Defra carries out an annual national assessment of air quality using modelling and monitoring to determine compliance relevant Limit Values. It is important that the potential impact of new development on air quality is taken into account in planning where the national assessment indicates that relevant limits have been exceeded or are near the limit or where the need for emissions reductions has been identified."

Paragraph 002 (Reference ID: 32-002-20191101): Plans may need to consider ways in which the development could be made appropriate in locations where air quality is or is likely to be a concern, and not give rise to unacceptable risks from pollution. This could, for example entail identifying measures for offsetting the impact on air quality arising from new development including supporting measures in an air quality action plan or low emissions strategy where applicable".

Paragraph 005 (Reference ID: 32-005-20191101): "Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to have an adverse effect on air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and / or breach legal obligations (including those relating to the conversation of habitats and species). Air quality may also be a material consideration if the proposed development would be particularly sensitive to poor air quality in its vicinity.

The PPG also sets out the information that may be required in an air quality assessment, stating that:

Paragraph 007 (Reference ID: 32-007-20191101): "Assessments need to be proportional to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this are likely to be locationally specific. The scope and content of supporting information is best discussed and agreed between the local planning authority and applicant before it is commissioned".

It also provides guidance on options for mitigating air quality impacts, and makes clear that:

Paragraph 008 (Reference ID: 32-008-20191101): "Mitigation options will need to be locationally specific, will depend on the proposed development and need to be proportionate to the likely impact."

2.7 Local Policy.

2.7.1 The Gloucester, Cheltenham and Tewkesbury Joint Core Strategy 2011-2031

The Gloucester, Cheltenham and Tewkesbury Joint Core Strategy 2011-2031[12] was adopted in December 2017. It sets out the combined vision and strategy of the GCC, Cheltenham Borough Council (CBC) and the Tewkesbury Borough Council (TBC) using a set of defined objectives and policies.

Multiple objectives have been set out in the Joint Core Strategy, one of which is relevant to air quality:

> *"Strategic Objective 9 – Promoting healthy communities*
>
> *[…]*
>
> *Promote development that contributes to a healthy population by:*
>
> - *Ensuring that environmental quality and air quality is protected.*
>
> *[…]"*

Furthermore, the following policies detailed in the Joint Core Strategy are directly related to air quality:

> *"Policy SD14: Health and Environmental Quality*
>
> *[…]*
>
> *1. High-quality development should protect and seek to improve environmental quality. Development should not create or exacerbate conditions that could impact on human health or cause health inequality."*
>
> *[…]*
>
> *And;*
>
> *"Policy INF1: Transport Network*
>
> *[…]*
>
> *3. Developers will be required to assess the impact of proposals on the transport network through a Transport Assessment. The assessment will demonstrate the impact, including cumulative impacts, of the prospective development on:*
>
> *iii. Noise and / or atmospheric pollution within the zone of influence of the development;*
>
> *[…]"*

2.8 Local Air Quality Management in Gloucester.

A review of the GCC 2021 ASR[19] established that three AQMAs have been declared within the GCC area of administration. These have been designated "Painswick Road AQMA", "Barton Street AQMA" and "Priory Road AQMA". The closest AQMA to the Application Site is the Barton Street AQMA which is located approximately 0.7km west of the Application Site.

GCC prepared an AQAP[13] in 2008 that was reviewed and updated in 2011. Multiple measures have been outlined in this AQAP to decrease pollutant concentrations of NO_2 within the designated AQMAs. These measures have been given below:

- To reduce through traffic;
- To reduce emissions from traffic;
- To encourage local trips by non-car nodes;
- To reduce traffic flows; and
- To reduce the reception of pollutants.

2.9 Assessment Guidance.

The primary guidance documents consulted in undertaking this assessment are detailed below.

2.9.1 Defra Local Air Quality Management Technical Guidance

Defra Local Air Quality Management Technical Guidance (LAQM.TG(16))[5] was published for use by local authorities in their LAQM review and assessment work. The document provides key guidance in aspects of air quality assessment, including screening, use of monitoring data, and use of background data that are applicable to all air quality assessments.

2.9.2 EPUK-IAQM 'Air Quality Guidance for Planning'

Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) have published guidance[14] to help ensure that air quality is properly accounted for in the development control process. It clarifies when an air quality assessment should be undertaken, what it should contain, and how impacts should be described and assessed including guidelines for assessing the significance of impacts.

2.9.3 IAQM 'Construction and Demolition Dust Guidance'

Guidance on the assessment of dust from demolition and construction has been published by the IAQM[15]. The guidance provides a methodology to determine the dust emission magnitude and provides a series of matrices to determine the risk magnitude of potential dust sources associated with construction activities. This allows for the identification of appropriate mitigation measures that are defined within further IAQM guidance.

3. Assessment Methodology.

3.1 Consultation.

The approach to the assessment, as described in section 1.3, was provided to the GCC for review on the 22nd of December 2021. At time of writing a response had not been received.

3.2 Existing Air Quality in the Study Area.

A baseline air quality review was undertaken to determine the existing air quality in the vicinity of the Application Site. This desk-top study was undertaken using the following sources:

- Air quality data for GCC, including a review of the GCC air quality reports and local monitoring data;
- Background pollution maps taken from Defra's Local Air Quality Management (LAQM) website[16];
- Pollution Inventory from the Environment Agency[17];
- The UK Ambient Air Quality Interactive Map[18]; and
- Ordnance Survey data and aerial photography from Google Maps.

3.3 Construction Phase Impacts.

3.3.1 Construction Dust Assessment

The assessment of construction dust impacts has been undertaken in line with the IAQM methodology. It has been confirmed by Hale Architecture that the existing hardstanding present within the Application Site will not be removed and that buildings within the Application Site have already been demolished as part of Application 18/01444/FUL. Accordingly, demolition has been screened out of this assessment and activities on the proposed construction site have been divided into three types to reflect their different potential impacts. These are:

- Earthworks;
- Construction; and
- Trackout

The risk of dust emissions will be assessed for each activity with respect to:

- Potential loss of amenity due to dust soiling; and
- The risk of health effects due to a significant increase in exposure to PM_{10}.

The first stage of the assessment involves screening to determine whether there are any sensitive receptors within the threshold distances defined by the IAQM guidance. A detailed assessment of the impact of dust from construction sites will be required where:

- A 'human receptor' is located within 350 m of the boundary of the Site or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the Site entrance;
- An 'ecological receptor' is located within 50 m of the boundary of the Site or within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the Site entrance.

The magnitude of dust emission for each activity is determined on the basis of the guidance, indicative thresholds, information available relating to the project and expert judgement. The risk of dust effects arising is based upon the relationship between the dust emission magnitude and the sensitivity of the area. The risk of impact is then used to determine the mitigation requirements.

Descriptors for magnitude of impact and impact significance used in this assessment of construction phase dust are given in the guidance[15] available online.

3.3.2 Construction Traffic

3.3.2.1 Construction Traffic Emissions Screening

A screening assessment will be undertaken with reference to the following EPUK and IAQM guidance indicative criteria:

– a change of Light Duty Vehicle (LDV) flows of more than 500 Annual Average Daily Traffic (AADT) (outside an AQMA); and
– a change of Heavy Duty Vehicle (HDV) flows of more than 100 AADT (outside an AQMA).

3.3.2.2 NRMM Emissions Screening

Non-Road Mobile Machinery (NRMM) refers to mobile machines, transportable industrial equipment or vehicles which are fitted with an internal combustion engine and not intended for transporting goods or passengers on roads. NRMM emissions have been screened following the guidance in Defra's LAQM.TG(16).

3.4 Operational Phase Impacts.

This section provides a summary of the dispersion modelling methodology with further information, including the traffic data and model verification provided in Appendix 2. The assessment has been undertaken in line with guidance documents outlined in Section 2.

3.4.1 Road Traffic Impacts

3.4.1.1 Road Modelling

The impacts of emissions (NO_2, PM_{10} and $PM_{2.5}$) from vehicles generated by the Proposed Development on existing receptors has been modelled using the dispersion model ADMS Roads (version 5.0.0.1). This model has been extensively validated and is widely used by regulators, government departments, consultancies and industry. Emission factors have been used from EFT v11.0 which is embedded within the ADMS-Roads model. The NO_X to NO_2 calculator v8.1 has been used to convert the total NO_X concentrations to NO_2 concentrations.

Defra background concentrations have been used for the baseline year of 2019 and kept constant in the future year as a precautionary approach. Emissions are expected to reduce in the future, but there are inherent uncertainties when predicting future emissions, therefore keeping the emission factors constant at the baseline year (2019) is considered a reasonable worst-case.

The model has been run using meteorological data from Pershore in the verification year of 2019.

Full model inputs are provided in Appendix 2.

3.4.1.2 Traffic Data

Traffic data has been provided by the project's transport consultants, DTA Transport Planning Consultants. Annual Average Daily Traffic (AADT) flows were provided in addition to the % of HDVs on each flow.

The following scenarios have been modelled:

– Base 2019 – baseline traffic flows for model verification;
– Do Minimum – baseline traffic flows for the opening year without the Proposed Development (DM 2023 – with 2019 emissions factors and background concentrations; and
– Do Something – baseline traffic flows for the opening year with the Proposed Development (DS 2023 with 2019 emissions factors and background concentrations.

3.4.1.3 Existing Receptors

Table 2 provides details of the existing receptors included in the assessment and the locations of the existing receptors are illustrated in Figure 2. Existing receptors have been identified along roads where the EPUK/IAQM criteria (>500 LDVs / >100 HDVs outside an AQMA) is predicted to be exceeded at locations representative of worst-case human exposure and were modelled at breathing height (1.5m above ground).

Table 2: Existing Receptors

Existing Receptor ID	Description	Easting	Northing	Heights (m)
R1	Residence adjacent to Walls Roundabout	385408	218351	1.5
R2	Residence on Eastern Avenue	385382	218289	1.5
R3	Residence on Eastern Avenue	385307	218170	1.5
R4	Twin Gables Day Nursery	384670	217286	1.5
R5	Residence on Eastern Avenue	384628	217146	1.5
R6	Residence on Eastern Avenue	384586	217183	1.5
R7	Residence on Eastern Avenue	384629	217330	1.5

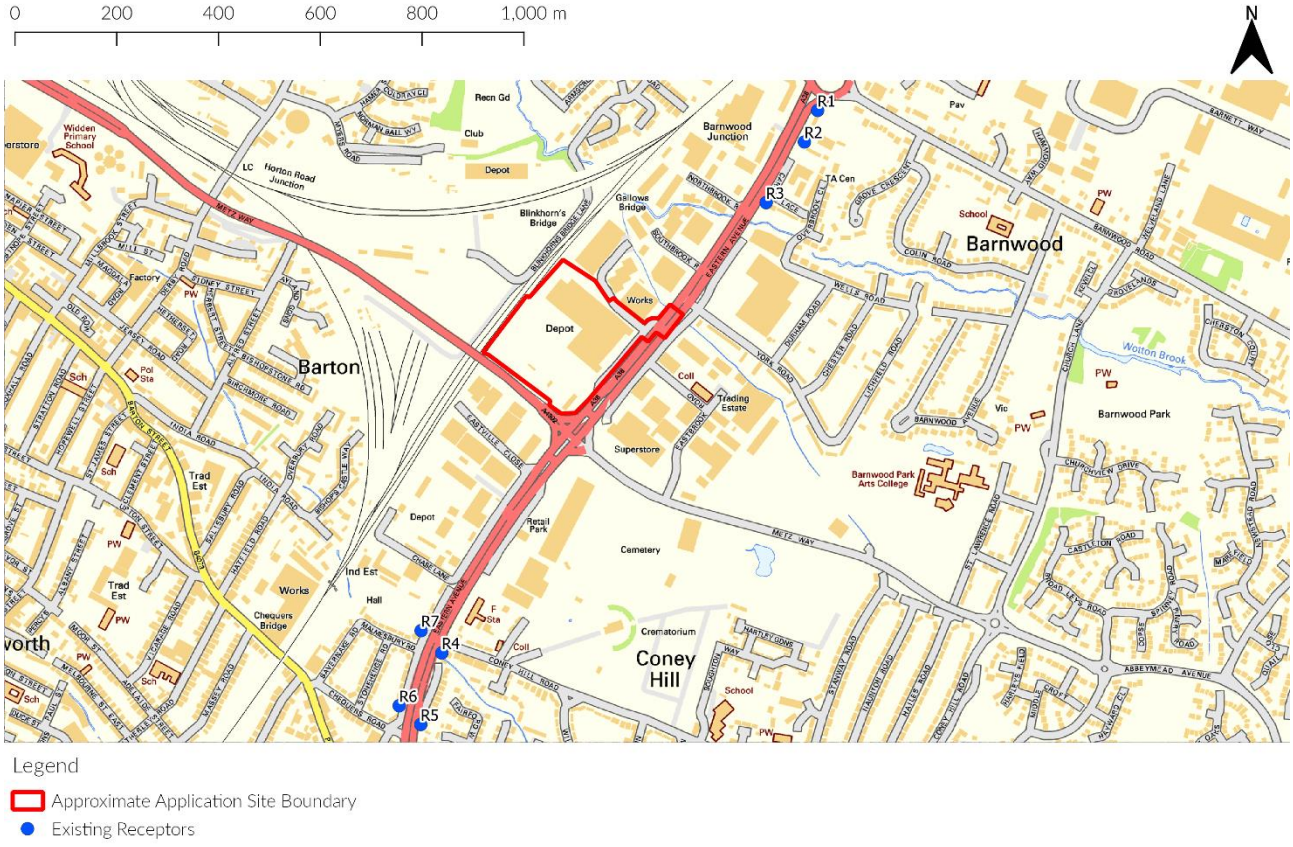

Figure 2: Existing Receptors in the vicinity of the Application Site. Contains Ordnance Survey Data © Crown Copyright 2022.

It should be noted that the existing receptors identified above are considered to be worst-case locations in terms of sensitivity to poor air quality. However, this is not an exhaustive list and there may be other locations within the vicinity of the Application Site which may experience air quality impacts as a result of traffic generated by the Proposed Development that have not been individually assessed. The existing receptors assessed are located along roads which are predicted to experience the largest increase in traffic flows as a result of the Proposed

Development and would therefore be expected to experience the greatest change in pollutant concentration as a result of the operation of the Proposed Development.

3.4.2 Site Suitability Assessment

A qualitative 'site suitability' assessment has been undertaken to consider the exposure of future occupants, introduced by the Proposed Development, to current air quality. As the Proposed Development is for industrial use only, the annual mean and 24-hour mean objectives do not apply however the 1-hour mean NO_2 AQO does apply.

Site suitability has been assessed qualitatively using monitoring data from GCC passive diffusion tube monitoring locations within the vicinity of the Application Site.

3.5 Assessment of Significance.

3.5.1 Construction Phase Impacts

The IAQM guidance[15] on the assessment of dust from demolition and construction states that the primary aim of the risk assessment is to identify site specific mitigation that, once implemented, should ensure that there will be no significant effect. Therefore, the assessment will be used to determine an appropriate level of mitigation for the construction phase.

The determination of which mitigation measures are recommended include elements of professional judgement and the professional experience of the consultants preparing this report is set out in Appendix 3.

3.5.2 Operational Phase Impacts

The air quality impacts at individual existing receptors have been described by determining the percentage change in concentrations relative to the air quality assessment level (AQAL) and comparing this with the total average concentration (road traffic+ background), as set out in Table 3.

Table 3: EPUK / IAQM Impact Descriptors for Individual Existing Receptors

Long term average concentration at receptor in assessment year	% Change in concentration relative to Air Quality Assessment Level (AQAL)			
	1	2-5	6-10	>10
75% or less of AQAL	Negligible	Negligible	Slight	Moderate
76-94% of AQAL	Negligible	Slight	Moderate	Moderate
95-102% of AQAL	Slight	Moderate	Moderate	Substantial
103-109% of AQAL	Moderate	Moderate	Substantial	Substantial
110% of more of AQAL	Moderate	Substantial	Substantial	Substantial

The criteria shown in Table 3 has been taken from the EPUK/IAQM guidance[14] with sensitivity descriptors included to allow comparisons of various air quality impacts. It should be noted that changes of 0%, i.e. less than 0.5%, will be described as negligible in accordance with the EPUK/IAQM guidance[14].

Where significant impacts are predicted, mitigation measures are recommended to reduce the impact.

The determination of the significance of impacts includes elements of professional judgement and the professional experience of the consultants preparing the report is set out in Appendix 3.

The overall significance of the air quality impacts is judged as either significant or not significant taking account of:

- The existing and future air quality in the absence of the Proposed Development;
- The extent of current and future population exposure to the impacts; and

– The influence and validity of any assumptions adopted when undertaking the prediction of impacts.

These factors were considered, and an overall significance determined for the impact of operational phase road traffic emissions. It should be noted that the determination of significance relies on professional judgement and reasoning should be provided as far as practicable. This has been considered throughout the assessment when defining predicted impacts.

3.5.3 Site Suitability

To determine the significance of predicted air quality impacts based upon a site suitability assessment, the EPUK/IAQM guidance states:

"Where the air quality is such that an air quality objective at the building façade is not met, the effect on residents or occupants will be judged as significant, unless provision is made to reduce their exposure by some means."

4. Baseline Environment.

This section sets out the available information on air quality in the vicinity of the Application Site.

4.1 Site Setting.

The Application Site is located within GCC area of administration at approximate NGR: X 384935 Y 217909. The Application Site is located adjacent to Metz Way and Eastern Avenue to the south west and east respectively. A railway line borders the Application Site to the east. The Application Site is surrounded by commercial properties in all directions.

The Application Site currently comprises brownfield land.

4.2 Local Air Quality Management Review and Assessment.

A review of the GCC 2021 ASR[19] established that three AQMAs have been declared within the GCC area of administration. These have been designated "Painswick Road AQMA", "Barton Street AQMA" and "Priory Road AQMA". The Application Site is not located within any of these AQMAs. The closest AQMA to the Application Site is the Barton Street AQMA which is located approximately 0.7km west of the Application Site.

Within the Painswick Road AQMA and the Barton Street AQMA pollutant concentrations of NO_2 continue to exceed the annual mean AQO. Within the Priory Road AQMA there have been no exceedances of the NO_2 annual mean AQO in the last five years of monitoring data and a review of the boundary of this AQMA is scheduled to be completed as part of the AQAP update. Outside of the AQMAs, NO_2 concentrations continue to decrease and demonstrate continued compliance with the annual mean AQO. There is currently no monitoring of PM_{10} or $PM_{2.5}$ within the GCC area of administration.

In GCC's 2021 ASR[19] during the onset of the COVID-19 pandemic, average reductions in pollutant concentrations of NO_2, PM_{10} and $PM_{2.5}$ were monitored throughout the UK. The reductions in pollutant concentrations during 2020 are directly attributable to reduced traffic levels as a result of Government implemented lockdowns. As such, the pollutant concentrations recorded at passive diffusion tube monitoring locations in 2020 are not considered to be representative of "normal" air quality conditions. Whilst it is expected that as a result of the COVID-19 pandemic that behaviours will change in the future, the impact of this on air quality long-term is currently unknown and therefore the use of 2020 data has been omitted from this assessment however has been included for information.

4.3 Local Air Quality Monitoring.

No automatic monitoring stations are currently operated by GCC within the GCC area of administration.

GCC passive diffusion tubes to monitor NO_2 concentrations. A review of the most recent monitoring data available indicated that there are 12 passive diffusion tube monitoring locations within the vicinity of the Application Site. Recent monitoring results are shown in Table 4 and the passive diffusion tube locations are illustrated in Figure 3.

Figure 3: Passive Diffusion Tube Monitoring Locations within the vicinity of the Application Site. Contains OS Data © Crown Copyright and Database rights 2022.

Table 4 details the monitoring results for passive diffusion tube monitoring locations within 1 km of the Application Site for the most recent years available.

Table 4: Passive Diffusion Tube Monitoring Results

Site ID	Site Type	Site Name	Distance (km) from site (approx.)	Annual Mean NO_2 Concentration (µg/m^3)					
				2015	2016	2017	2018	2019	2020
10	Roadside	301 Barton St	0.7	23.3	25.7	24.0	21.5	23.2	N/A
11	Roadside	Opp 250 Barton St	0.7	25.1	31.4	27.8	26.8	28.5	N/A
12	Roadside	219A Barton St (post)	0.8	35.8	40.1	36.5	36.8	36.2	27.8
15	Roadside	196 Barton St (Lamppost)	0.8	38.3	42.9	39.3	38.4	39.7	30.1

Site ID	Site Type	Site Name	Distance (km) from site (approx.)	Annual Mean NO_2 Concentration (µg/m^3)					
				2015	2016	2017	2018	2019	2020
16	Roadside	240 Barton Street	0.7	32.5	35.1	33.0	32.1	31.2	21.6
17	Roadside	316 Barton St	0.7	35.8	38.0	35.2	32.7	35.5	26.1
18	Roadside	79 Millbrook Road	0.6	29.2	31.3	30.2	29.1	29.4	21.8
19	Roadside	61 Barnwood Rd	0.6	33.7	37.2	34.1	35.4	34.1	25.8
20	Roadside	53 Barnwood Rd	0.6	35.0	36.5	36.5	33.0	34.7	24.8
31	Roadside	94 Barnwood Rd	0.5	-	34.4	28.9	30.7	29.7	N/A
33	Roadside	45 Eastern Avenue	0.5	-	-	34.5	33.1	34.3	N/A
34	Roadside	102 Eastern Avenue	0.5	-	-	38.7	37.1	33.3	N/A

NOTE: The passive diffusion tube monitoring locations 10, 11, 31, 33 and 34 were decommissioned in 2020. These have been represented as N/A in Table 4.

As shown in Table 4 there have been no exceedances of the annual mean NO_2 AQO in the last three years of representative monitoring data at passive diffusion tube monitoring locations within the vicinity of the Application Site. In 2019, the most recent year of available representative monitoring data, the highest record annual mean concentration of NO_2 was recorded at passive diffusion tube monitoring location 15 as 39.7 µg/m^3 which is 99.3% of the AQO.

An annual mean concentration of 60 µg/m^3 or above is often used to indicate a possible exceedance of the 1-hour mean NO_2 AQO. None of the passive diffusion tube monitoring locations within the vicinity of the Application Site have recorded a concentration greater than 60 µg/m^3 in the last five years of monitoring data indicating no likely exceedance of the 1-hour mean NO_2 AQO.

4.4 Industrial Pollution.

A desk-based review of potential industrial sources using the UK Environment Agency Pollution Inventory identified two sources of industrial air pollution within the vicinity of the Application Site. However, each of these sources have an environmental permit from the Environmental Agency (EA) which ensures that emissions from these sources are controlled and the impact on air quality is therefore not significant. This is detailed in Table 5.

Table 5: Sources of Industrial Pollution in the Vicinity of the Application Site

Facility	EA Permit ID	Activity at Facility	Distance from Application Site (km)
Hydro Components UK Ltd	CP3733EH	Surface treating metals and plastics; electrolytic/chemical >30m^3	2.9
Enovert South Limited	NP3235SU	Waste landfilling; >10 t/d with capacity >25,000t excluding inert waste	3.7

4.5 Defra Predicted Concentrations.

The background concentrations have been obtained from the national maps published by Defra[16]. These estimated concentrations are produced on a 1 km by 1 km grid basis for the whole of the UK. The Application Site falls into grid square X 384500 Y 217500 and the predicted concentrations for this grid square for NO_2, PM_{10} and $PM_{2.5}$ are provided in Table 6 for 2019, the most recent year with available representative monitoring data, 2021, the current year and for 2023, the anticipated opening year for the Proposed Development.

Table 6: Predicted Background Concentrations

Year	Predicted Background Concentration (µg/m^3)		
	NO_2	PM_{10}	$PM_{2.5}$
2019	14.1	15.2	10.6
2021	13.0	14.7	10.2
2023	12.3	14.5	10.0

As shown in Table 6, background concentrations are below the relevant AQOs for all pollutants.

4.6 Summary of Background Data.

The Application Site is not located within or adjacent to an AQMA.

No monitoring of PM_{10} or $PM_{2.5}$ is undertaken within the GCC area of administration.

There have been no exceedances of the annual mean NO_2 AQO in recent years with available representative monitoring data and no likely indication of an exceedance of the 1-hour mean NO_2 AQO in the last five years of monitoring data at any of the passive diffusion tube monitoring locations within the vicinity of the Application Site.

The identified sources of industrial air pollution in the vicinity of the Application Site have been determined to have no significant effect on local air quality as each contain an Environmental Permit ensuring the release of controlled emissions and no significant impact to air quality.

The Defra predicted background concentrations are below the relevant AQOs for the pollutants NO_2, PM_{10} and $PM_{2.5}$.

5. Construction Phase Assessment.

The potential for air quality impacts during the construction of the Proposed Development are assessed in this section.

5.1 Construction Phase Dust Assessment.

The risk of dust impacts is based on the potential dust emissions magnitude and the sensitivity of the area. These two factors are then combined to determine the risk of dust impacts with no mitigation applied. In the absence of any site-specific information, a higher risk category has been applied to represent a worst-case scenario.

5.1.1 Assessment Screening

There are 'human receptors' within 350 m of the Application Site but no designated habitat sites within 50 m of the Application Site boundary or within 50 m of the route(s) likely to be used by construction vehicles on the public highway, up to 500 m from the Application Site entrance.

The closest ecological receptor to the Application Site is located 0.8 km north east from the Application Site boundary. This ecological receptor is designated "Barnwood Arboretum" and classed as a Local Nature Reserve.

Therefore, an assessment of construction dust on ecological receptors can be screened out from this assessment but an assessment of construction dust at human receptors is required.

5.1.2 Potential Dust Emission Magnitude

The potential magnitude of dust emissions from earthworks, construction and trackout have been assessed, as identified in Table 7. Demolition has not been included in this assessment as previously discussed in Section 3.3.1.

Table 7: Predicted Magnitude of Dust Emissions

Activity	Magnitude	Justification
Earthworks	Large	The total site area for earthworks has been confirmed by Hale Architecture to be 53,142 m^2. The soil type at the Application Site has been classed using the application Soilscape[20] as "clayey, some loamey" which is a high dust producing type.
Construction	Medium	The total construction volume has been confirmed by Hale Architecture to be approximately 286,268 m^3. The construction material will involve built-up profiled metal cladding to walls and roofs and double glazed aluminium windows to the office elements which are not dusty construction material.
Trackout	Large	Outward trips of HDVs during the construction phase were not available at time of writing this report. A desk-based review of the Application Site using photos provided by Hale Architecture confirm significant amounts of material stockpile which could lead to a high potential of wind-blown dust within the Application Site. The soil type at the Application Site has been previously classed using the application Soilscape as "clayey, some loamey" which is a high dust producing type.

5.1.3 Sensitivity of the Study Area

The sensitivity of the area takes into account the following factors:

– The specific sensitivities of receptors in the area;
– The proximity and number of those receptors;
– In the case of PM_{10}, the local background concentration; and
– Site-specific factors, such as whether there are natural shelters, such as trees or other vegetation, to reduce the risk of wind-blown dust.

The sensitivity of the area and the factors considered are detailed in Table 8. The construction dust band criteria (20m, 50m, 100m and 350m) have been displayed in Figure 4.

Table 8: Sensitivity of the Area

Sensitivity Type	Factors	Sensitivity of Area	
		On – Site Activity	Trackout
Dust Soiling	For construction activities there are 10-100 car parking spaces which are classed as high sensitivity receptors within 20 m of the Application Site boundary. There are 1-10 commercial properties which are classed as medium sensitivity receptors within 20 m of the Application Site boundary. There is a single residential dwelling which is classed as a high sensitivity receptor located within 50m of the Application Site boundary. For trackout there are greater than 100 car parking spaces and 1-10 residential properties which are both classed as high sensitivity receptors within 50 m of the route used by construction vehicles up to 500 m from the Application Site boundary.	High	High
Human Health	The Defra predicted background PM_{10} concentration is below 24 µg/m^3 from 2019-2023 as shown in Table 6. For construction activities there are 1-10 commercial properties which are classed as medium sensitivity receptors within 20 m of the Application Site boundary. There is a single residential dwelling which is classed as a high sensitivity receptor located within 50 m of the Application Site boundary. For trackout there is 1 residential dwelling which is classed as a high sensitivity receptor within 50 m of the route used by construction vehicles up to 500 m from the Application Site boundary. There are 1-10 commercial properties which are classed as medium sensitivity receptors within 50 m of the route used by construction vehicles up to 500 m from the Application Site boundary.	Low	Low

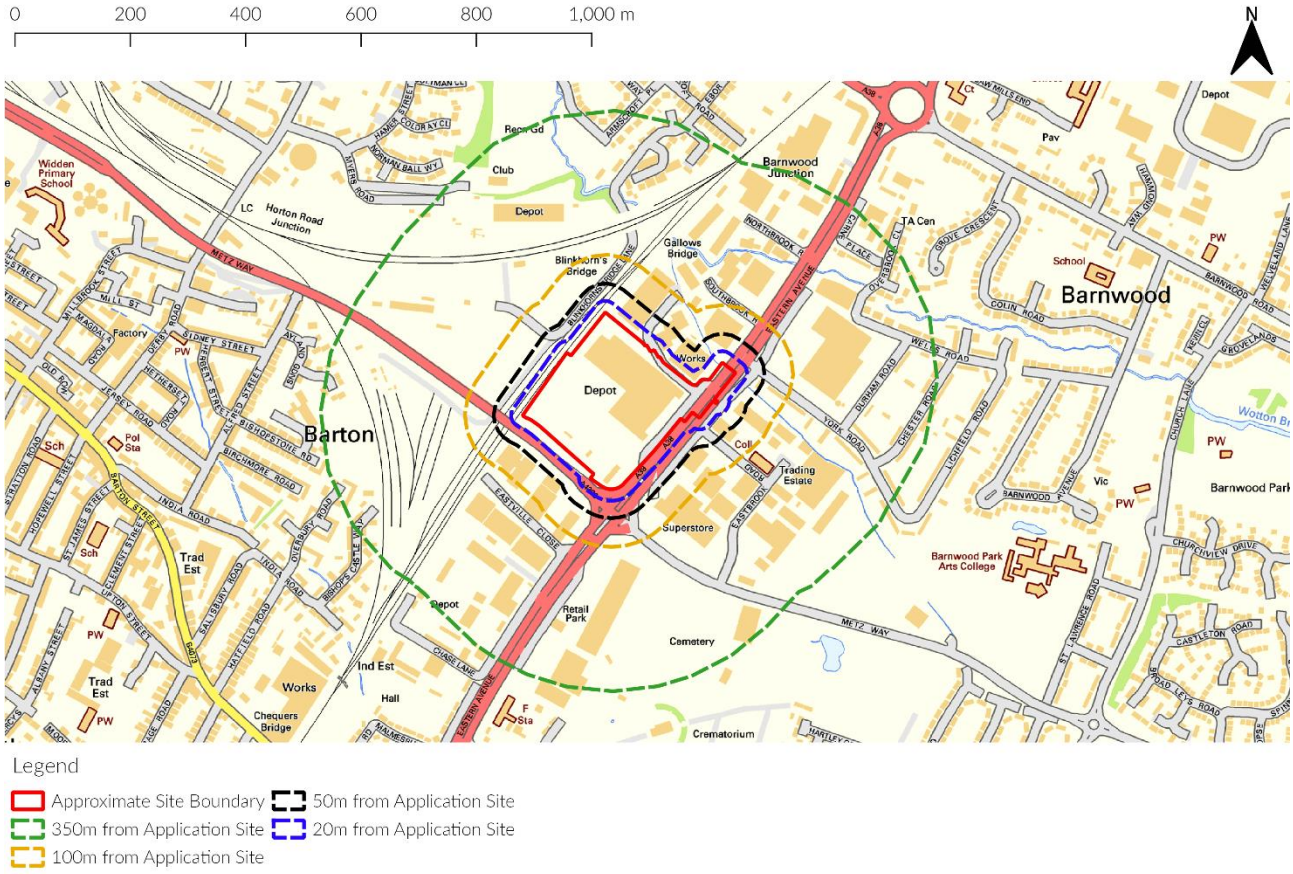

Figure 4: Construction Dust Band Criteria (20m, 50m, 100m, 350m). Contains OS Data © Crown Copyright and Database rights 2022.

5.1.4 Risk of Dust Impacts

The outcomes of the assessments of potential magnitude of dust emissions and the sensitivity of the area are combined to determine the risk of impact. This risk is then used to inform the selection of appropriate mitigation. Table 9 details the risk of dust impacts for earthworks, construction and trackout activities.

Table 9: Summary of Potential Unmitigated Dust Risks

Potential Impact	Sensitivity – Onsite Activity	Sensitivity - Trackout	Earthworks	Construction	Trackout
Magnitude			Large	Medium	Large
Dust Soiling Impacts	High	High	High Risk	Medium Risk	High Risk
Human Health Impacts	Low	Low	Low Risk	Low Risk	Low Risk

5.2 Construction Phase – Vehicular Pollutants.

The Proposed Development is not located within or adjacent to an AQMA and therefore the higher screening criterion (i.e. 500 LDV and 100 HDV) would apply.

Information on traffic movements anticipated during construction works was unavailable for the completion of the Air Quality Assessment. However, the development quantum is not anticipated to result in a significant increase in movements above the EPUK and IAQM criterion. The duration of movements will be short-term in nature and are not considered further within the context of this assessment. Therefore, in accordance with the

criterion presented within EPUK and IAQM guidance, additional road vehicle trips during the construction phase of the Proposed Development "can be considered to have insignificant effects" on air quality.

5.3 Construction Phase – Non-Road Mobile Machinery.

Exhaust emissions of NO_X and fine particulate matter (PM_{10} and $PM_{2.5}$) from Non-Road Mobile Machinery (NRMM), associated with construction sites, may have a significant effect on local air quality. Typically, NRMM is and, therefore there is a potential for NRMM emissions to adversely affect local air quality as a result of the Proposed Development.

LAQM.TG(16) guidance states that, with the application of suitable control measures and site management, exhaust emissions from on-site NRMM are "unlikely to make a significant impact on local air quality. In the vast majority of cases they will not need to be quantitatively assessed".

6. Operational Phase Assessment.

The potential for air quality impacts during the operational phase of the Proposed Development have been assessed in this section.

6.1 Road Traffic Impact Assessment.

Concentrations of NO_2, PM_{10} and $PM_{2.5}$ have been predicted at seven existing receptors taking in to account the existing background concentration and the road traffic contribution. Concentrations both with (DS scenario) and without (DM scenario) the Proposed Development are provided in Table 10 to Table 12. A worst case assessment has been completed with no future improvement in emission factors or background concentrations from the verification year 2019.

6.1.1 NO_2 Annual Mean Impacts

Annual mean NO_2 concentrations were predicted for the 2023 DM and DS scenarios and are summarised in Table 10.

Table 10 Predicted Concentrations of NO_2 at Existing Receptors.

Existing Receptor	Conc. in DM scenario (µg/m^3)	Conc. in DS scenario (µg/m^3)	Difference in conc. (µg/m^3)	Difference expressed as % AQAL	Impact descriptor
R1	39.4	39.9	0.52	1.3%	Slight
R2	28.7	29.0	0.29	0.7%	Negligible
R3	29.0	29.3	0.31	0.8%	Negligible
R4	31.5	31.8	0.27	0.7%	Negligible
R5	27.4	27.6	0.21	0.5%	Negligible
R6	20.6	20.7	0.11	0.3%	Negligible
R7	22.5	22.7	0.16	0.4%	Negligible

As indicated in Table 10 the annual mean NO_2 AQO is not expected to be exceeded at any existing receptor in either the DM and DS scenario (i.e. both with or without traffic associated with the Proposed Development).

The largest air quality impacts are predicted at R1, with an increase of 0.5 µg/m^3, or 1.3% of the AQAL due to its location in close proximity to Eastern Avenue. In line with the EPUK/IAQM criteria the impact is expected to be "Slight Adverse". It should be noted that a number of worst case assumptions have been made in the assessment, including the use of 2019 background concentrations and emissions factors.

The change in NO_2 concentration as a result of traffic associated with the Proposed Development is predicted to be "Negligible" at all other existing receptors.

As such, the overall significance of operational phase road traffic emission impacts on annual mean NO_2 was determined to be not significant in line with IAQM/EPUK guidance[14] and therefore no additional mitigation is required.

6.1.2 PM_{10} Annual Mean Impacts

Annual mean PM_{10} concentrations were predicted for the 2023 DM and DS scenarios and are summarised in Table 11. The impact at all existing receptors is <1% of the AQAL and can therefore be classified as "Negligible" according to the IAQM/EPUK criteria.

Table 11 Predicted Concentrations of PM_{10} at Existing Receptors.

Existing Receptor	Conc. in DM scenario (µg/m^3)	Conc. in DS scenario (µg/m^3)	Difference in conc. (µg/m^3)	Difference expressed as % AQAL	Impact descriptor
R1	18.3	18.4	0.08	0.21%	Negligible
R2	16.8	16.9	0.06	0.14%	Negligible
R3	17.0	17.0	0.06	0.16%	Negligible
R4	18.1	18.2	0.04	0.11%	Negligible
R5	18.1	18.2	0.05	0.12%	Negligible
R6	16.5	16.6	0.02	0.06%	Negligible
R7	16.6	16.6	0.02	0.06%	Negligible

As indicated in Table 11 predicted annual mean PM_{10} concentrations did not exceed the air quality objective at the existing receptors considered in the DM and DS scenario.

The largest increase is predicted to occur at R1 at the access road to the Proposed Development with an increase of 0.08 µg/m^3, or 0.21% of the AQAL. Considering a total 'do something' annual mean PM_{10} concentration of 18.38 µg/m^3 representing 46 % of the AQAL at this location, the impact following IAQM/EPUK guidance can be considered "Negligible".

At all seven existing receptors considered, the magnitude of impact is predicted to be "Negligible". As such, the overall significance of operational phase road traffic emission impacts on annual mean PM_{10} was determined to be not significant in line with IAQM/EPUK guidance[14].

6.1.3 $PM_{2.5}$ Annual Mean Impacts

Annual mean $PM_{2.5}$ concentrations were predicted for the 2023 DM and DS scenarios and are summarised in Table 12. The impact at all existing receptors is <1% of the AQAL and can therefore be classified as "Negligible" according to the IAQM/EPUK criteria.

Table 12 Predicted Concentrations of $PM_{2.5}$ at Existing Receptors.

Existing Receptor	Conc. in DM scenario (µg/m^3)	Conc. in DS scenario (µg/m^3)	Difference in conc. (µg/m^3)	Difference expressed as % AQAL	Impact descriptor
R1	12.2	12.3	0.05	0.20%	Negligible
R2	11.3	11.4	0.03	0.13%	Negligible
R3	11.4	11.5	0.04	0.15%	Negligible
R4	12.3	12.3	0.03	0.10%	Negligible
R5	12.3	12.3	0.03	0.11%	Negligible
R6	11.4	11.4	0.01	0.05%	Negligible
R7	11.4	11.4	0.01	0.06%	Negligible

As indicated in Table 12 predicted annual mean $PM_{2.5}$ concentrations did not exceed the air quality objective at the existing receptors considered in the DM and DS scenario.

The largest increase is predicted to occur at R1 located at the access road to the Proposed Development with an increase of 0.2% of the AQAL. Considering a total 'do something' annual mean NO_2 concentration of 12.29 µg/m^3 representing 49 % of the AQAL at this location, the impact following IAQM/EPUK guidance can be considered "Negligible".

At all seven existing receptors considered, the magnitude of impact is predicted to be negligible. As such, the overall significance of operational phase road traffic emission impacts on annual mean $PM_{2.5}$ was determined to be not significant in line with IAQM/EPUK guidance[14].

6.2 Site Suitability.

This section presents a review of GCC monitoring data in the vicinity of the Application Site, for the purpose of identifying the suitability of the Application Site for industrial use and identify any requirements for potential mitigation to be embedded into the Proposed Development design.

As presented in Section 2 in line with LAQM.TG(16), 1-hour mean AQOs apply to the Proposed Development due to its proposed use as an industrial development. As such, this section considers the predicted 1-hour mean NO_2 concentrations at the Application Site.

6.2.1 NO_2 Concentrations

A review of the annual mean NO_2 concentrations monitored within 1 km of the Application Site has been completed as part of the baseline review with recent monitoring results, presented in Table 4.

An annual mean concentration of 60 µg/m^3 or above is often used to indicate a possible exceedance of the hourly mean NO_2 objective. None of the passive diffusion tube monitoring locations within the vicinity of the Application Site have recorded a concentration greater than 60 µg/m^3 in the last five years of representative monitoring data indicating no likely exceedance of the 1-hour mean NO_2 AQO.

Therefore, NO_2 concentrations in the locale of the Proposed Development are considered to be below the 1-hour mean NO_2 AQO and the Application Site is considered suitable for the proposed industrial use.

6.2.2 Significance of Air Quality Impacts

To determine the significance of predicted air quality impacts based upon a site-suitability assessment, such as that undertaken as part of this assessment, the EPUK & IAQM guidance states:

> "Where the air quality is such that an air quality objective at the building façade is not met, the effect on residents or occupants will be judged as significant, unless provision is made to reduce their exposure by some means."

With regards to the Proposed Development, the unmitigated impact significance associated with the Proposed Development has been predicted in accordance with the stated assessment methodology. The following factors have been considered when providing justification:

– The Proposed Development will not introduce any new receptor into an area of exceedance of the 1-hour mean NO_2 AQO based upon a review of NO_2 monitoring data within the development locale.

As no exceedances of the considered air quality objectives are predicted, mitigation measures are not required for the operational phase of the Proposed Development. As such, the overall effect is considered to be 'not significant'.

7. Mitigation.

7.1 Construction Phase.

To mitigate the potential impacts during the construction phase it is recommended that mitigation measures as detailed in the IAQM guidance are implemented. These mitigation measures have been carefully selected for the Proposed Development and are based upon the dust risk categories outlined in the guidance[15].

It is recommended that the local authority approve a Dust Management Plan (DMP) prior to works commencing on site, and that this is implemented using an appropriately worded planning condition. Table 13 below details the measures that should be incorporated in the DMP. For general mitigation measures, which excludes those specifically targeted towards earthworks, construction and trackout (which are given towards the end of the table), high risk measures have been applied as these represent the highest risk category determined in Table 9. This approach is consistent with the IAQM guidance.

Table 13: Mitigation Measures

Issue	Mitigation Measure
Communications	Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
	Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
	Display the head or regional office contact information.
Dust Management Plan	Develop and implement a Dust Management Plan (DMP), which may include measures to control emissions, approved by the Local Authority. The DMP may include monitoring of dust deposition, dust flux, real-time PM_{10} continuous monitoring and/or visual inspections.
Site Management	Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
	Make the complaints log available to the Local Authority when asked.
	Record any exceptional incidents that cause dust and/or air emissions, either on- or off- site, and the action taken to resolve the situation in the log book.
	Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.
Monitoring	Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the Local Authority when asked. This should include regular dust soiling check of surfaces such as street furniture, cars, window sills within 100 m of the site boundary, with cleaning to be provided if necessary.
	Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the Local Authority when asked.
	Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
	Agree dust deposition, dust flux, or real-time PM_{10} continuous monitoring locations with the Local Authority. Where possible, commence baseline monitoring at least three months before work commences on site or, if it is a large site, before work on a phase commences.

Issue	Mitigation Measure
Preparing and maintaining the site	Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
	Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
	Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
	Avoid site runoff of water or mud.
	Keep site fencing, barriers and scaffolding clean using wet methods.
	Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used cover as described below.
	Cover, seed or fence stockpiles to prevent wind whipping.
Operating vehicles/machinery and sustainable travel	Ensure all vehicles switch off engines when stationary – no idling vehicles.
	Avoid the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where practicable.
	Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the Local Authority, where applicable).
	Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
	Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking and car-sharing)
Operations	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
	Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
	Use enclosed chutes and conveyors and covered skips.
	Minimize drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
	Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
Waste management	Avoid bonfires and burning of waste materials.
Earthworks	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
	Use Hessian, mulches or trackifiers were it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
	Only remove the cover in small areas during work and not all at once.
Construction	Avoid scrabbling (roughening of concrete surfaces) if possible.

Issue	Mitigation Measure
	Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
	Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
Trackout	Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being in continuous use.
	Avoid dry sweeping of large areas.
	Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
	Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
	Record all inspections of haul routes and any subsequent action in a site log book.
	Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
	Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
	Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
	Access gates to be located at least 10 m from receptors where possible.

Potential dust effects during the construction phase are considered to be both temporary and short-term in nature. The impacts are determined to be 'temporary' as they will only potentially occur throughout the construction phase and 'short term' because these will only arise at particular times when certain activities and meteorological conditions combine to create the predicted level. Notwithstanding this, with the application of the above dust control and mitigation measures, it is considered that residual effect at all receptors will be 'not significant' in accordance with the IAQM guidance.

7.1.1 Construction Phase Road Traffic Emissions

The need for further assessment of the potential air quality impacts associated with construction phase road traffic emissions, principally HDV movements, have been screened out as they are considered to have an insignificant effect on air quality and mitigation measures are not required.

7.1.2 Construction Phase NRMM Emissions

In accordance with Part 4 of the IAQM Control of Dust and Emissions guidance, all NRMM would need to adhere to the emissions standards for NO_2 and PM_{10} set out for NRMM. It is therefore considered the likely effects of construction plant on local air quality would be insignificant.

7.2 Operational Phase.

7.2.1 Road Traffic Emissions

In line with EPUK/ IAQM guidance, the dispersion modelling of the impacts of additional road traffic associated with the Proposed Development shows there is no significant impact on local air quality where there is relevant exposure and therefore mitigation measures are not required.

7.2.2 Baseline Site Suitability Review

A review of GCC monitoring data in consideration of the Application Site, and mapped concentrations by Defra in the locale of the Application Site, indicates no likely exceedance of the 1-hour mean NO_2 AQO.

As no exceedances of any considered air quality objective are predicted, this follows the 1st hierarchy principle of the IAQM guidance to 'prevent and avoid' exposure[21]. Therefore, no embedded mitigation into the Proposed Development design (in the form of mechanical ventilation, for example) is required.

8. Summary and Conclusions.

This report details the potential air quality impacts associated with the construction and operation of a proposed industrial development at the proposed Access Park in Gloucester.

The findings of the assessment are as follows:

- A qualitative assessment of the potential dust impacts during the construction of the Proposed Development has been undertaken. Through good practice and implementation of appropriate mitigation measures, it is expected that the release of dust would be effectively controlled and mitigated, with resulting impacts considered to be 'not significant'. All dust impacts are considered to be temporary and short-term in nature;
- A detailed assessment of the impact to air quality at existing receptors has been undertaken. The change in concentrations of NO_2, PM_{10} and $PM_{2.5}$ as a result of traffic associated with the Proposed Development is deemed to be not significant in line with EPUK/ IAQM guidance; and
- A baseline site suitability review has been undertaken to assess the suitability of the Application Site for the proposed industrial use. The site suitability assessment indicated no likely exceedance of the 1-hour mean NO_2 AQO at the Proposed Development. As such the overall impact of existing air quality on the Proposed Development is considered to be not significant and mitigation measures are not required.

Based on the information above, it is considered that air quality should not be viewed as a constraint to planning and the Proposed Development conforms to the principles of National Planning Policy Framework and the Gloucester, Cheltenham and Tewkesbury Joint Core Strategy 2011-2031.

9. Glossary of Terms.

AADT	Annual Average Daily Traffic
AQAL	Air Quality Assessment Level
AQMA	Air Quality Management Area
AQO	Air Quality Objective
CBC	Cheltenham Borough Council
Defra	Department for Environment, Food and Rural Affairs
DMP	Dust Management Plan
EPUK	Environmental Protection UK
GCC	Gloucester City Council
HDV	Heavy Duty Vehicles (> 3.5 tonnes gross vehicle weight)
IAQM	Institute of Air Quality Management
LAQM	Local Air Quality Management
LDV	Light Duty Vehicles (≤3.5 tonnes gross vehicle weight)
µg/m^3	Micrograms per cubic metre
NO_2	Nitrogen dioxide
NO_X	Nitrogen oxides (taken to be NO_2 + NO)
NPPF	National Planning Policy Framework
Objectives	A nationally defined set of health-based concentrations for nine pollutants, seven of which are incorporated in Regulations, setting out the extent to which the standards should be achieved by a defined date. There are also vegetation-based objectives for sulphur dioxide and nitrogen oxides
PM_{10}	Particulate matter with an aerodynamic diameter less than 10 micrometres
$PM_{2.5}$	Particulate matter with an aerodynamic diameter less than 2.5 micrometres
PPG	Planning Practice Guidance
SPG	Supplementary Planning Guidance
Standards	A nationally defined set of concentrations for nine pollutants below which health effects do not occur or are minimal
TBC	Tewkesbury Borough Council
Trackout	The process involving the transport of dust and dirt from the construction / demolition site onto the public road network, where it may be deposited and then re-suspended by vehicles using the network. This arises when heavy duty vehicles (HDVs) leave the construction / demolition site with dusty materials, which may then spill onto the road, and/or when HDVs transfer dust and dirt onto the road having travelled over muddy ground on site

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Appendix 1 – EHO Consultation.

From: Lauren Buchanan <LaurenBuchanan@hoarelea.com>
Sent: 22 December 2021 12:48
To: julie.turner@gloucester.gov.uk
Cc: Charlotte Smith <CharlotteSmith@hoarelea.com>
Subject: Air Quality Assessment - Access Park, Gloucester

Good Afternoon Julie

Hoare Lea have been instructed to undertake an air quality assessment for a proposed industrial development at Access Park, Gloucester (Approximate postcode GL4 3BS). Please see below Application Site boundary for reference.

The Proposed Development comprises 14 industrial units of flexible E(g)(iii)/B2/B8 uses with ancillary offices, a yard, 197 car parking spaces and associated soft landscaping. The Application Site has already been cleared of any structures and no further demolition is expected.

Hoare Lea propose to undertake the assessment using the following methodology:

- A baseline assessment will be undertaken using automatic monitoring station and passive diffusion tube monitoring data from the Gloucester City Council Annual Status Report for 2021. Monitoring data from 2020 is not considered representative of normal conditions due to lockdowns imposed by the UK Government due to COVID-19, and as such will be included in the report for information only.
- DEFRA's background pollution maps will be used to establish background concentrations in the area.
- The traffic generation from the Proposed Development is predicted to be above the EPUK/IAQM criteria of a change of more than 500 AADT LDV and/or 100 HDV AADT on a few roads in the vicinity of the Proposed Development. Therefore, a detailed assessment of the trip generation will be undertaken. ADMS-Roads V5.0 will be used to predict concentrations of NO_2, PM_{10} and $PM_{2.5}$ for a verification year (2019) and the proposed opening year (2023) without and with the Proposed Development in place. Concentrations will be modelled at the facades of existing sensitive receptor locations within the vicinity of the Application Site. It is proposed that EFT 11.0 emissions factors and 2019 meteorological data from Pershore will be used. We will look to use diffusion tubes 31, 33 and 34 for model verification.
- An assessment of site suitability will be undertaken qualitatively with a desk-based review of existing baseline air quality undertaken to inform the exposure of future users of the Proposed Development. Local air quality monitoring will be used to understand concentrations at the Application Site.
- The assessment will be undertaken in line with the EPUK/IAQM document 'Land-Use Planning & Development Control: Planning for Air Quality' January 2017.
- The air quality assessment will also consider impacts during the construction phase of the Proposed Development using the IAQM document 'Assessment of dust from demolition and construction' (June 2016).
- Recommendations for mitigation measures will be provided based on the results of the assessment, if necessary.

I would be grateful if you could please confirm your acceptance of the proposed methodology and provide me with any comments you may have. However, if you would like to discuss further, please do not hesitate to contact me on the number below.

Kind regards,

Lauren

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Senior Air Quality Consultant

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Appendix 2 –Model Input Parameters.

Model Input Parameters

Table 14 Model Input Parameters Summary

Parameter	Description	Input Variable
Surface Roughness	Surface roughness of the modelling domain as a function of land use	A roughness length z_0 of 0.8m was used within the assessment area of this dispersion modelling study. This value is for 'cities' and therefore considered appropriate for the surface roughness of the dispersion modelling assessment area.
Road Source Emissions	Source of the emission factors used	EFT v.11.0
Emission Year	Modelling year used to factor the traffic emissions	2019 for the verification year and future years.
NO_X to NO_2 Conversion	Conversion from NO_X concentrations to NO_2 concentrations	NO_X to NO_2 calculator v8.1. General inputs – 2019, All other urban UK traffic.
Road Type	Road type within the EFT emission database	England (Not London)
Elevation of Road	Height of the road link above ground level	0m no elevation – roads are at ground level
Road Width	Width of the road link	Road width obtained from Google Street View
Road Speed	Road speed in km/h	Variable based on Google Street View and adjustment for road geometry in line with LAQM.TG(16).
Meteorology	Representative hourly sequential meteorological data	Pershore 2019
Background	Background pollutant concentration considered during the modelling	Defra 2018 background maps 1km x 1km grid squares for the verification year (2019).
Output	Output as gridded or specified points	At specified points as detailed in Table 2.
Pollutant Output	Pollutants modelled and averaging time	NO_2, PM_{10} and $PM_{2.5}$ annual mean,

Traffic Data.

Annual Average Daily Traffic (AADT) flows were provided by DTA Transport Planning Consultants, transport consultants for the Proposed Development.

The following scenarios were provided:

- Base 2019 – baseline traffic flows;
- Opening year without the Proposed Development (DM 2023) – baseline traffic flows without the Proposed Development; and

– Opening year with the Proposed Development (DS 2023) – baseline traffic flows with the Proposed Development.

Traffic speeds were estimated using national speed limits and professional experience, with junctions and roundabouts modelled at 20 kph in line with LAQM.TG(16). The traffic data used in this air quality assessment are shown in Table 15.

Table 15 Summary of Traffic Data used in the Assessment.

Road Name	Base 2019 Total AADT	Base 2019 HDV (%)	DM 2023 Total AADT	DM 2023 HDV (%)	DS 2023 Total AADT	DS 2023 HDV (%)	Speed (kph)
Eastern Avenue (South of Metz Way)	34,316	2.6	35,639	2.6	36,130	2.7	64
Eastern Avenue (North of York Road)	38,942	3.1	40,444	3.1	41,280	3.3	64
Barwood Road (West of Eastern Avenue)	28,455	2.9	29,522	2.9	29,738	2.9	48
Corinium Avenue (North of Barnwood Road)	38,140	3.8	39,610	3.8	40,219	3.9	80
Barnwood Road (East of Eastern Avenue)	16,426	2.9	17,059	2.9	17,100	3.0	48
Coney Hill Road	9307	0.4	9666	0.4	9666	0.4	48

Verification

The verification process seeks to minimise uncertainties associated with the air quality model by comparing the model output with locally measured concentrations. The verification methodology is described in subsequent sections.

Background Concentrations

Background concentrations at the Application Site and at monitoring sites used in model verification in the verification year (2019) have been assumed to be the same as published by Defra and are shown in Table 16.

Table 16 Defra Background Concentrations (µg/m^3) for 2019

Grid Square	NO_X	NO_2	PM_{10}	$PM_{2.5}$
385500, 218500	22.2	16.0	14.4	9.9
384500, 217500	19.2	14.1	15.2	10.6

NO_2

Most NO_2 is produced in the atmosphere by reaction of nitric oxide (NO) with ozone. It is therefore most appropriate to verify the model in terms of primary pollutant emissions of nitrogen oxides (NO_X = NO + NO_2).

Diffusion tubes 31, 33 and 34 have been used in model verification due to the location on roads impacted by traffic associated with the Proposed Development.

The model output of road-NO_X has been compared with the 'measured' road-NO_X, calculated from the measured annual mean NO_2 concentrations and the background concentrations using the NO_X from NO_2 calculator v8.1 published by Defra.

The slope of the best-fit line between the 'measured' road-NO_X contribution and the model derived road-NO_X contribution, forced through zero, has been used to determine a primary adjustment factor). This factor has then been applied to the modelled road-NO_X concentration for each existing receptor to provide adjusted modelled road-NO_X concentrations. The NO_X to NO_2 calculator has then been used to determine total NO_2 concentrations from the adjusted modelled road-NO_X concentrations and the background NO_2 concentrations.

The following adjustment factor has been applied to all modelled nitrogen dioxide data:

Primary verification factor: 1.20

The results imply that the model has under-predicted the road-NO_X contribution. This is a common experience with this and most other models.

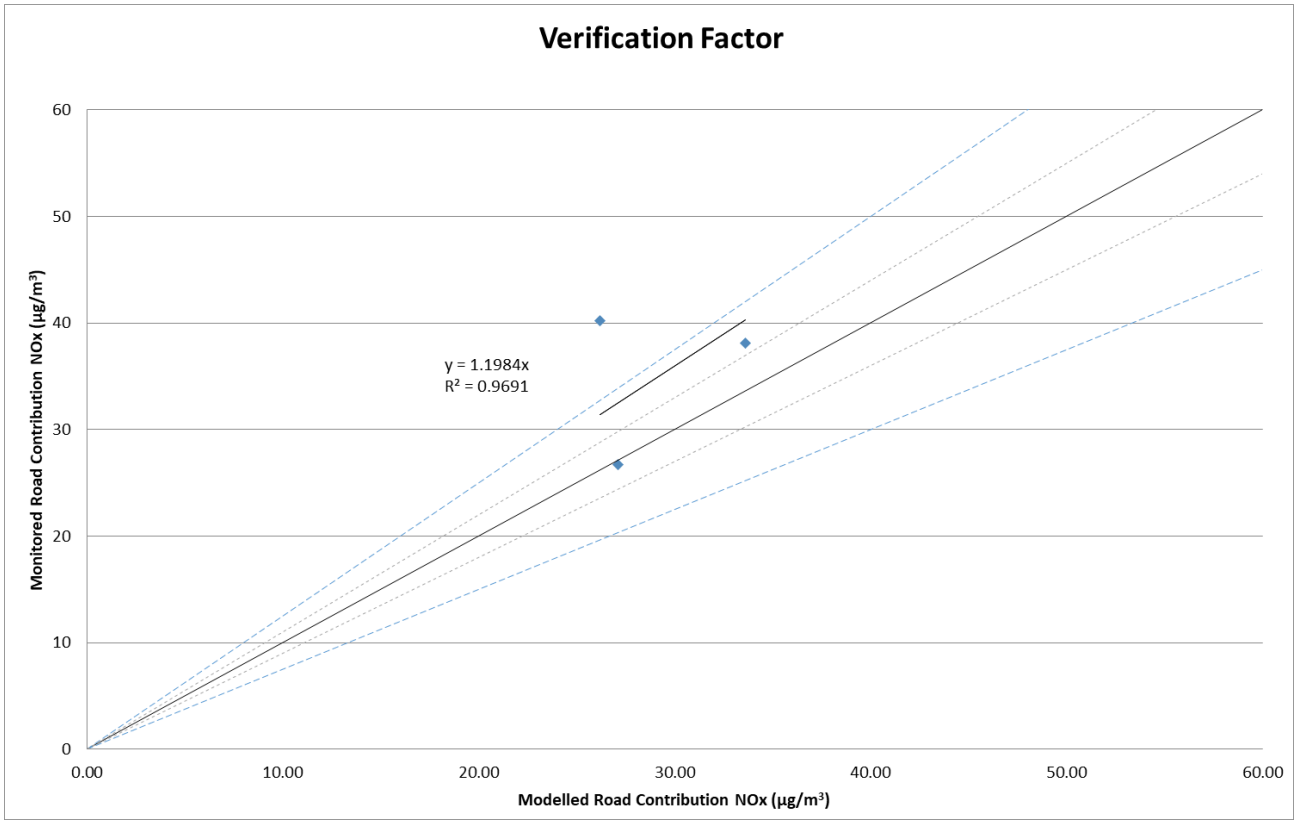

Figure 5 Comparison of Measured Road NO_X to Unadjusted Modelled Road NO_X Concentrations.

Table 17 provides the inputs for the comparison of the adjusted modelled NO_2 and monitored NO_2, which are used to calculate the adjustment factor.

Table 17 Comparison of Modelled and Monitored NO_2 Concentrations.

Monitoring Location	Modelled NO_X Road Contribution ($\mu g/m^3$)	Monitored NO_X Road Contribution ($\mu g/m^3$)	Adjusted Modelled NO_X Road Contribution ($\mu g/m^3$)	Monitored Total NO_2 Concentration ($\mu g/m^3$)	Adjusted Modelled Total NO_2 Concentration ($\mu g/m^3$)	Difference (%)
33	26.2	59.4	31.4	34.4	30.2	-12.1
34	33.6	57.2	40.3	33.3	34.4	3.0
31	27.1	48.9	32.5	29.7	32.5	9.3
Adjustment Factor	1.20					

Statistical Analysis of Model Performance

LAQM.TG (16) recommends three statistical procedures that should be applied to evaluate model performance and assess the overall uncertainty. These are:

- Root mean square error (RMSE) defines the average error or uncertainty of the model. Ideally a RMSE within 10% of the air quality objective which is being assessed would be derived (for the annual mean NO_2 objective the ideal RMSE would be < 4 $\mu g/m^3$). Where the RMSE is greater than 25% of the objective being assessed (i.e. 10 $\mu g/m^3$ for the annual mean NO_2 objective) it is advised to revisit the model parameters and verification;
- Fractional bias identifies whether the model has a tendency to under-predict (positive value) or over-predict (negative value). The ideal value is zero but may range from +2 to -2; and
- Correlation coefficient provides a measure of the linear relationship between modelled and measured data. Values range between zero (no relationship) and 1 (perfect relationship).

The values for each of these methods are provided in Table 18.

Table 18 Statistical analysis of model verification.

Method	Value
RMSE	2.9393
Fractional Bias	0.0036
Correlation Coefficient	-0.2716

PM_{10} and $PM_{2.5}$.

There are no PM_{10} or $PM_{2.5}$ monitors within the study area; therefore, the model outputs of road-PM have been adjusted by applying the primary adjustment factor calculated for road NO_X in line with LAQM.TG(16).

Appendix 3 – Professional Experience

Kathryn Woolley (Hoare Lea), BSc (Hons), AMIEnvSc, MIAQM

Kathryn is an Associate of the Air Quality team with Hoare Lea. She's is an Associate Member of the Institution of Environmental Sciences and a Full Member of the Institute of Air Quality Management.

She has a diverse portfolio of experience and has worked on a range of projects from initial site feasibility, through planning and development to construction and operation. Kathryn's expertise covers planning, and air quality, specifically in relation to residential developments, industrial fixed installations such as district heating networks. Kathryn has completed over 50 EIA in the past 8 years throughout the UK and abroad including; St Johns Masterplan in Manchester (residential led), Leicester City Football club training facility north of Leister (sports use), 1-5 Grosvenor Place, Westminster (mixed use residential, retail and hotel site), and Chestnut Avenue in Eastleigh (residential and community use).

Andy Day (Hoare Lea), BSc (Hons), MSc, AMIEnvSc, AMIAQM

Andy is a Senior Air Quality Consultant with Hoare Lea. He is an Associate Member of the Institute of Environmental Sciences and an Associate Member of the Institute of Air Quality Management. He is a chemistry graduate with a Master's specialising in the catalysed removal of harmful volatile organic compounds (VOCs) often generated from the combustion of fuel in car engines.

Andy has worked on a range of projects of varying size across a number of different sectors. His experience focusses on work up to and through planning for air quality assessments and environmental impact assessments. Andy also has experience in detailed dispersion modelling of road traffic and energy combustion plant, emission mitigation statements, damage cost calculations, indoor and outdoor air quality monitoring and assessing the air quality impact at ecologically sensitive sites.

Andy has a particular interest in reducing emissions for the benefit of human health and the environment through the life cycle of a building.

Charlotte Smith (Hoare Lea), BSc (Hons), AMIEnvSc, MIAQM

Charlotte is a Senior Air Quality Consultant at Hoare Lea. She is an Associate Member of the Institution of Environmental Sciences and a Member of the Institute of Air Quality Management. She has worked on a range of projects across a number of industries including residential, healthcare, educational, commercial and industrial for site feasibility studies, planning applications, air quality monitoring and Environmental Impact Assessments as well as contributing to the design of a building in relation to air quality across the early RIBA stages and undertaking Indoor Air Quality Plans for BREEAM accreditation. She also has experience in qualitative odour studies and has been successfully tested for odour acuity.

Lauren Buchanan (Hoare Lea), MSc, BSc (Hons), AMIEnvSc, MIAQM

Lauren is a Senior Air Quality Consultant at Hoare Lea. She is an Associate Member of the Institution of Environmental Sciences and a Member of the Institute of Air Quality Management. She has worked on a range of projects gaining experience in many different aspects of air quality assessment, including monitoring and detailed dispersion modelling of dust, odour, roads and industrial emissions for a variety of sectors and to fulfil Local Air Quality Management (LAQM) duties on behalf of Local Authorities. Lauren has undertaken air quality assessments for permit requirements and planning applications, including stand-alone reports, Environmental Impact Assessments, Habitats Regulations Assessments and Development Consent Orders.

Bhajan Chatha (Hoare Lea), MEng (Hons), AMIEnvSc, AMIAQM

Bhajan is a Graduate Air Quality Consultant with Hoare Lea. He is a MEng Chemical Engineering Graduate from the University of Aberdeen. During his MEng, Bhajan developed his understanding of air pollution, environmental impacts and sustainability throughout multiple modules. He also studied air pollutants, air pollution control equipment, air pollution monitoring and dispersion modelling during his degree. Within air quality, Bhajan's interests lie in air pollution control equipment and human health impacts.

Bhajan has worked on projects across multiple sectors including residential, commercial and industrial sectors. He has experience preparing air quality screening reports, environmental impact assessments, and indoor air quality plans.

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