Report prepared at
3 Aldred Road
London
NW6 1AN

On behalf of
Private Client of
Pawlik + Wiedmer

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Prepared by
Aviron Associates Limited

Report Quality Management

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Client	Private Client on behalf of Pawlik + Wiedmer		
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1.0 PROJECT AND SITE INFORMATION

1.1 APPOINTMENT

Aviron Associates Limited (Aviron) was retained by Pawlik + Wiedmer on behalf of their Private Client on behalf of to report on a Ground Investigation at the following premises:

3 Aldred Road, London, NW6 1AN (hereafter referred to as the "site").

The purpose of this assessment is to report on a ground investigation in order to evaluate risks identified within our previously issued Phase I Desk Study Report to further refine and establish ground related risks and liabilities associated with the site's proposed residential refurbishment works involving the lowering of the existing lower ground floor (LGF) to create single storey of accommodation of improved head room. Current proposals suggest the lowering of the LGF by approximately 1315mm.

1.2 THE SITE

Table 1.2 provides a summary of site details and surrounding area.

Table 1.2 - Site Details

Site Location	The site is located on the western side of Aldred Road in West Hampstead approximately 500m to the west of the A41 (Finchley Road) and 200m to the south of Hampstead Cemetery. The site is surrounded by no. 2 Eldred Road to the south, 4 Eldred Road to the north, the pavement of Eldred Road to the east and the rear garden of Orestes Mews to the west.
Current Land Use	Four-storey, including roof space and lower ground floor, mid-terrace private home with small frontage and rear courtyard garden. **Figure 1** presents the Existing Lower Ground Floor Plan and Ground Floor Plan, which also serves as a Borehole Location Plan. **Figure 2** presents as an Existing Section of the Property.
Proposed Land Use	It is proposed to refurbish the house and lower the existing LGF by approximately 1315mm within the footprint of the existing LFG and also extending beyond the front elevation occupying space beneath the existing frontage. The existing LGF is located approximately 1.60m below the level of the front garden, therefore assuming lowering of the LGF by 1.315m plus 0.50m to account for floor slab thickness, services and general 'make-up', the formation level is expected to be approximately 3.50m bgl (relative to the front garden). **Figure 3** presents the Proposed Lower Ground Floor Plan and Ground Floor Plan **Figure 4** presents as a Proposed Section of the Property.

1.3 PREVIOUS REPORTS

Prior to reviewing this report the following preceding report, which has been prepared by Aviron, should be reviewed;

- Aviron Associates Limited, Phase I Desk Study Report, reference 15-190.01, dated May 2015.

1.3.1 Contaminative

Based on the 'Phase I' report the following provides a summary of the site's geo-environmental setting;

- The site is currently given to 3 Aldred Road, a mid-terraced residential home. No evidence of land contamination was identified during our site inspection.
- Historical mapping indicates the site has been developed in its current residential form for at least 119 years.
- Historical potentially contaminative land uses have been identified in the form of a warehouse to the rear (south-west) of the site which has since been residentially developed. It is not expected the warehouse will have significantly impacted the site given the brick wall boundary and subsequent residential re-development. Works and foundry at 150m and 250m from the site are not considered to have impacted the site due the distance and infrastructure separating the site and potential source.
- The site is underlain by the solid geology of the London Clay Formation, comprising unproductive strata. The site is not located within a source protection zone (SPZ).
- No water courses are located within 500m of the site. Lost river of London, the River Westbourne located approximately 200m south-south-east of the site.
- The site is not located in an area at risk of flooding from rivers.
- No historical landfills located within 500m of the site.

1.3.2 Geotechnical

Based on the 'Phase I' the following provides a conclusion of the site's geo-technical considerations;

- The consistency and competency of the solid geology should be assessed to determine allowable bearing pressures (ABP) for the site to enable foundation design.

- Groundwater standing level monitoring should be completed given the proposed development comprising the lowering of the existing lower ground floor.

1.4 INVESTIGATION OBJECTIVE

The purpose of the site investigation is to confirm the findings of the Phase I GERA as accurate in terms of;

- Evaluation of soil contamination, principally within the overlying soils.
- Evaluation of ground conditions to provide recommendations for foundation design.
- Complete groundwater monitoring within the borehole monitoring well installation to enable an understanding of standing groundwater levels for the purpose of foundation design and de-watering.

2.0 INVESTIGATION WORK

2.1 METHOD STATEMENT AND SITE INVESTIGATION APPROACH

A method statement detailing how the site investigation was to be conducted was produced in accordance with current statuary guidance, best practices and the Client's instructions.

A health and safety plan was completed before site work commenced. Site investigation staff were briefed on the potential contaminants likely to be encountered, and the appropriate personal protective equipment (PPE) to be adopted for this type of investigation.

The site investigation was conducted in accordance with British Standards; BS5930:1999 including amendment 2 'Code of Practice for site Investigation' and BS1377:1990 'Method of test for soils for Civil Engineering Purposes.

The investigation focused on the following objectives as set out in Section 1.4 and was completed on 1 June 2015 with return monitoring being completed on 8 June 2015.

2.2 SITE INVESTIGATION METHODS

Window sample drilling using a dismantleable modular rig and dynamic probing was employed in order to assess ground conditions beneath the site.

Figure 1 is enclosed as a Borehole Location Plan.

2.2.1 Window Sampling

In order to complete ground investigation works a dismantleable 'modular' window sample drilling rig was constructed in the space available for drilling to the front of the property where requested by the Client's structural engineer.

The 'modular' drilling rig is appropriate for the site access and the known ground conditions from the BGS data obtained. The 'modular' rig shall provide reliable sample recovery and shear strength testing and was carried into the small frontage. The benefit of this rig is its accessibility and ability to achieve depth, whilst penetrating dense/stiff strata where alternative lighter hand held methods would fail or large rigs would not gain access.

Given the orientation and limited access to the site it was only possible to complete one borehole. BH1 was drilled within the frontage at pavement level approximately 1.60m above the lower ground floor.

Prior to drilling BH1 a hand pit was dug to 1.2m in order to clear services. BH1 was extended to 3.95m below ground level. Standard Penetration Tests (SPTs) were undertaken at 1.0m intervals within BH1 to a depth of 3.50m in accordance with BS EN ISO 22476-2 "Standard Penetration Test" along with the collection of disturbed samples for material property testing. Sampling was conducted at 1.0m intervals, commencing at 1.0m depth.

BH1 was advanced to 15.0m bgl using Dynamic Probing Super Heavy (DPSH) from 3.95m bgl in order to assess the in-situ soil strength to a depth approximately 11.50m below the proposed LGF formation level. 'Sampling' was terminated at 3.95m due to the thickness of overlying Made Ground (3.0m) and potential for collapse of the borehole. Thus, once the London Clay Formation was proven DPSH was undertaken to determine soil strength with depth.

2.3 GROUND CONDITIONS

Detailed strata descriptions are shown on the borehole log (BH1) though in general ground conditions comprise;

- Pavers and sub-base to depths of up to 0.5m bgl.
- MADE GROUND comprising soft to firm and very soft sandy re-worked Clay with fragments of brick and clay tile/pipe to a depth of 3.00m bgl.
- Firm and firm to stiff CLAY of the London Clay Formation to 3.95m bgl during window sample drilling.
- Review of the DPSH results suggests that the London Clay Formation comprises stiff CLAY to a depth of approximately 8.00m bgl above very stiff CLAY to the termination depth of drilling at 15.00m bgl.

2.3.1 Field Observations

No significant roots or rootlets were observed within the borehole.

Softened ground noted below 1.00m bgl and clay tile gravel fragments in the Made Ground is indicative of potentially compromised drainage which due to historical leakage/repair is likely to have softened underlying soils.

The borehole log and dynamic probe results are enclosed as **Appendix I**.

2.4 GROUNDWATER AND MONITORING WELL INSTALLATIONS

Groundwater was not encountered on the day of drilling to a depth of 15.0m bgl. BH1 was converted to a monitoring well by installing 3.0m of 63mm slotted pipe with pea shingle screen overlain with 2.00m of plain pipe with a bentonite seal. The installation was finished at ground level with a flush fitting steel cover. The installation was extended to a depth corresponding to 1.50m below the proposed formation level for the LGF.

Water was noted during the monitoring in BH1 which was dipped at 2.60m bgl on 8 June 2015 following a period of rainfall during the week following drilling works. The water in the borehole was purged to the base of the installation and subsequent water recharge noted to a depth of 2.80m bgl. As discussed previously, the water and softened strata within the Made Ground is indicative of potentially compromised drainage. It is also likely the overlying bentonite seal within the upper 3.0m of the installation may not have been fully effective in sealing off any ingress of water held within the overlying Made Ground.

The water recorded in the monitoring well may have originated from the London Clay, but in this case it will not be representative of a laterally continuous groundwater (aquifer) unit but of the pore water where discrete micro-fissures and/or more granular horizons are present within the London Clay. The London Clay Formation is listed as a non-aquifer and given the absence of water during drilling works it is not considered a continuous body of water exist beneath the site. (Rev B addition).

2.4.1 Groundwater Monitoring December 2015 (Rev B addition)

As previously stated it was not considered the presence of groundwater within the monitoring well installation represented laterally continuous groundwater (aquifer). It is know the London Clay Formation is a non-aquifer (unproductive strata) and it was suspected the presence of groundwater was a result of locally perched groundwater breaching the bentonite seal of the monitoring well and thus migrating into the well.

In order to test the hypothesis as to whether or not groundwater (previously) encountered within the well is locally perched or represents an aquifer/laterally continuous groundwater a simple purge and recharge test can be completed. This involves using a groundwater bailer to remove water from the monitoring well, any recharge of groundwater is monitored over time and interpretation of the results are made.

To isolate the influence of perched groundwater the purge test is best completed following a period of low rainfall. In this instance the migration of surface water into overlying units of artificial geology (Made Ground) is limited and thus the presence perched groundwater within the overlying units of soil is also limited. In such a case once the monitoring well has been purged, little or no re-charge of groundwater

should be measured given the limited water available for well recharge. Conversely, should water beneath the site comprise an aquifer and freely mobile body of water (or be completed during a period of heavy rain) notable recharge within the monitoring well would be observed.

A purge and recharge test was completed on 4 December 2015 following an evening of light rainfall and a relatively low early winter week of rainfall. It was considered preceding weather conditions were suitable to complete the purge and recharge test and isolate as influence of perched groundwater as previously discussed.

Groundwater was initially 'dipped' within BH1 at 3.4m bgl and the base of the well was measured at 3.66m bgl. The initial indication is that the groundwater encountered represents a perched body of water as levels have dropped from 2.6m bgl following the rainy period of monitoring on 8 June 2015.

A groundwater bailer was used to remove the 0.24m head of water within BH1 and this was completed over a period of 15 minutes to ensure any locally held water within the surrounding pea shingle annulus of the monitoring well was removed along with the water within the monitoring well.

Following purging the a 'dip' was taking after 1 minute and the well was effectively dry, registering water at 3.66m bgl which is considered to be saturated fines in the base of the well. Following 5 minutes no groundwater rise was measured and a 3.66m bgl dip was recorded. Measurements remained constant until 30 minutes when groundwater was measured at 3.65m bgl. It is considered the 30 minutes measurement represents locally held groundwater migrating from the surrounding Made Ground. After 1 hour groundwater was 'dipped' at 3.63m bgl.

The low recharge rate within the monitoring well where 30mm of water recharged over a period of 1 hour indicates the presence of groundwater beneath the site is a result of perched water held within the overlying unit of Made Ground which has been recorded within the monitoring well due to a breach of the 3m bentonite site.

For the purposes of this assessment it is assumed that the water encountered is locally perched in the overlying Made Ground and will not impact the proposed development. Nonetheless the new lower ground floor should be suitably water proofed and local de-watering (of perched groundwater) may be necessary. (Rev B addition).

2.5 SOIL GEOTECHNICAL TESTING

The following soil samples were collected on 1 June 2015 and submitted for geotechnical soil classification tests;

- Four samples were submitted for Atterberg limits testing

  The purpose of this analysis is to determine volume change potential of fine grained soils

Soil samples for geotechnical testing were sent to K4 Soils Laboratory.

Laboratory testing was undertaken in accordance with the relevant part and clause of BS1377: 1990 and to UKAS accredited methods.

2.6 SOIL GEOCHEMICAL TESTING

The following soil samples were collected on 1 June 2015 and submitted for geochemical laboratory tests;

- Two soil samples were submitted for our 'Suite 1' of contamination analysis.

  Completed to assess commonly encountered soil contaminants to determine potential environmental risk and assist waste soil classification

- Three soil samples were submitted for pH, total sulphur, total sulphate and water soluble sulphate (2:1) analysis (two of which included in the Suite 1 analysis)

  Completed to determine concrete classification

Soil samples for geochemical testing were sent to i2 Analytical Limited.

Laboratory testing was undertaken in accordance with UKAS and MCERTS accredited procedures.

3.0 GEOTECHNICAL ASSESSMENT

This section provides a geotechnical assessment in connection with the proposed development works described within this report.

As previously discussed the proposed development works comprise the lowering of the lower ground floor by 1.315m and extending into the frontage of the property. The formation level for the proposed works is expected to be approximately 3.50m bgl relative to BH1, which was located in the front garden at pavement level.

The locations of any underground services or engineering works and former foundations are unknown and therefore have not been taken into account in the following assessment. It has been assumed that any such works will not compromise foundations and ground stability.

The assessment of the stability of any slopes or retaining structures across or adjacent the site, the requirement for additional retaining structures that may be required to facilitate construction is outside the scope of this report.

The following assessment includes allowable bearing pressures assuming conventional construction only and no allowances have been made for interaction between existing adjacent foundations and proposed foundations.

Please note that to be compliant with EN 1997 Eurocode 7: Geotechnical Design (and the UK National Annex to Eurocode 7), and to consider the GEO Limit State: failure or excessive deformation of the ground, additional information from the client's structural engineer will be required. Information regarding the permanent actions and variable actions (making up the 'characteristic action') applied to the foundations will be required along with confirmation of the foundation type and foundation dimensions.

3.1 EXCAVATION CONDITIONS

Excavation of the materials encountered during the ground investigation should be achieved using conventional hydraulic excavation techniques.

From the ground investigation undertaken excavations beneath the site may remain stable in the short term due to the generally 'Clay' nature of soils. However due to the requirement for the proposed construction, care should be taken to ensure that instability of excavations does not affect existing structures and services (e.g. foundations, roads, boundary walls or buildings) both on and off-site, and temporary support is expected to be required in order to achieve this. Further advice should therefore be

sought from the appointed structural engineer and specialist contractor regarding temporary works.

Care should also be taken to ensure that falls from excavation faces do not adversely affect the integrity of foundation concrete.

Although water was noted during the monitoring undertaken in BH1 on 8 June 2015, it is assumed for the purposes of this assessment that the water is perched and *provision for local de-watering of excavations should be made. (Rev B addition).*

All excavations on site should be in accordance with HSE guidelines and stability should be practically maintained at all times.

3.2 EXISTING SERVICES/SUBSTRUCTURES

Due to the development of the site and the built up nature of the site environs, existing services or sub-structures should be anticipated. Where foundations or obstructions are encountered during excavations for the proposed foundations, all new foundations should be extended downwards to fully penetrate all redundant former construction.

3.3 BEARING STRATA

It is assumed that the foundations beneath the proposed LGF will be extended to a depth of approximately 3.50m below ground level, relative to BH1.

Observations, in-situ and laboratory testing indicate that the likely founding strata of firm to stiff CLAY at formation level of 3.50m bgl, may provide sufficient bearing resistance to support the proposed redevelopment works, and an allowable bearing pressure is provided below (pending the required loadings, foundation depth, foundation width and tolerable settlement).

3.3.1 Atterberg Limits and Material Properties (Design Parameters)

Atterberg limits tests were conducted on the overlying clay strata sampled from BH1 at depths of between 1.00m and 3.50m bgl. The results of the Atterberg limits tests indicate that the fine grained soils tested comprise inorganic clays of very high plasticity (CV). The modified plasticity index of the strata is shown to be 46-58% and for the purposes of this assessment and in accordance with NHBC Standards Chapter 4.2, Building Near Trees, the strata are therefore classified as being of high volume change potential.

In the absence of reliable laboratory triaxial test data an estimated critical state angle of shearing resistance (ϕ'_{crit}) of 20^{o} may be used for the overlying CLAY strata of the London Clay Formation using the results of

Atterberg limits testing and Table 2 of BS8002:1994, Earth Retaining Structures, September 2001. It is assumed that the drained shear strength c' is zero.

Please note that when using this data for design purposes, the effects of eccentric loading are taken into account, and that the bearing pressure is limited to account for maximum tolerable settlement beneath the structure and adjacent properties.

3.4 TREE INFLUENCE ON FOUNDATIONS

When considering the influence of trees on foundations, the material properties of the strata beneath the site and the distance and species of the trees to the foundations are the determining factors.

For the purposes of this assessment the founding strata at a depth of 3.50m bgl are classified as being of high volume change potential (London Clay Formation) and an adjustment to foundation depths in accordance with NHBC Chapter 4.2 Building Near Trees is therefore required in this regard.

3.5 FOUNDATION TYPE, DEPTH AND BEARING CAPACITY

3.5.1 Strip Foundations

Should the construction of strip foundations (underpins) be feasible beneath the redevelopment works, a *'net'* allowable bearing pressure of 115kN/m^2 would apply to foundations 1.00m wide constructed at formation level of 3.50m bgl (relative to BH1) on natural firm to stiff strata of the London Clay Formation. Total settlement of 25mm is expected to occur. Approximately half of the settlement is expected to occur during the construction process.

Please note that increasing foundation widths to accommodate increased line loads will result in an increase in the total settlement anticipated.

Notwithstanding the above it is recommended that the formation beneath each section of the proposed re-development works is inspected to assess the competency of the bearing strata prior to pouring of foundation concrete.

It should be noted that the structural loads and design layout/dimensions of the proposed works have not been supplied and the above bearing pressures account for conventional construction only, therefore the moments resulting in eccentricity of loadings, and the settlement, sliding and overturning and the requirements for propping would need to be considered in the design of any retaining structures.

It is assumed for the purposes of this assessment that the water monitored in BH1 at 2.60m bgl on 8 June 2015 represents perched water held within the overlying Made Ground and that a mobile body groundwater does not exist nor rise above formation level of the lower ground floor at 3.50m bgl.

3.5.2 Piled Foundations and Temporary Works

Should the allowable bearing pressure provided above be insufficient to provide the necessary support to the proposed redevelopment works, or settlement deemed to be beyond tolerable limits, consideration may need to be given to a piled foundation solution.

Notwithstanding the above, to provide the necessary structural integrity during the proposed redevelopment works and to enable excavation and construction for the basement in coarse grained strata it is expected that temporary support will be required. These temporary works are likely to comprise a contiguous pile wall possibly forming an integral component in the overall foundation solution beneath the redevelopment works.

The advice of a temporary works and piling specialist should therefore be sought to determine the likely requirements when considering the ground conditions encountered and the health and safety requirements and constraints of working within the confines of the site and adjacent neighbouring properties.

Consideration may also be given to supporting the proposed works on a rigid raft foundation, where no appreciable settlement is likely to occur if the proposed loads do not exceed the overburden pressure released following excavation.

Mitigation measures to accommodate differential movement between loaded and unloaded sections of the basement should be incorporated into the structural design of the development building.

It should be noted that the above recommendations have been made using data obtained from BH1 only.

3.6 FLOOR SLABS

Following the excavation or removal of approximately 1.315m (LGF) and 2.915m (extension into front garden) of soil to create the lower ground floor void, heave forces will occur following the release of overburden. If the heave forces are not counterbalanced by the imposed loads of the development building then heave will result and should be accommodated within the structural design.

Should the ground be allowed to heave freely without any counterbalance, it is anticipated that heave of approximately 15mm and 30mm will occur below the lower ground floor and the extension into the front

garden (effective heave force equivalent to 23kN/m^2 and 51kN/m^2 respectively) where groundwater is assumed to be below formation level (3.50m bgl at the location of BH1).

Approximately 50% of the upwards movement is expected to occur immediately following excavation, with the heave force remaining constant throughout the heaving process.

Should the imposed loads be insufficient to counterbalance the heave forces, particularly where the basement extends laterally beyond the above ground structure, consideration may need to be given to a tension pile solution.

3.7 CONCRETE CLASSIFICATION

In accordance with Building Research Establishment (BRE) Special Digest 1: 2005 - Concrete in Aggressive Ground, the following laboratory test data has been used to derive classifications for buried concrete (Table C1, natural ground locations) beneath the site:

- Soluble Sulphate (2:1 extract) – 0.026g/l to 2.80g/l
- Total Sulphate – 0.0056% to 1.40%
- Total Sulphur – 0.021% to 0.56%
- Total Potential Sulphate – 0.063% to 1.68%
- Oxidisable Sulphate – <0.3%
- pH – 6.9 to 7.2

"*BRE guidance suggests that 'if significant number of determination of oxidisable sulphates is above 0.3%, then use the results of total potential sulphate to determine the concrete class*".

Oxidisable sulphate has been calculated below 0.3% SO_4 and therefore does not exceed the threshold where the concrete classification is based on oxidisable sulphate and total potential sulphate.

Based on the results for samples obtained within the upper 3.5m of strata (from pavement level) the Design Sulphate Class for the concrete to depths of circa 3.5m is DS-3. Assuming static groundwater to this depth the Aggressive Chemical Environment for Concrete (ACEC) Class is AC-2s.

It should be noted that additional considerations for the determination of concrete class and appropriate aggregate use are set out in BRE Special Digest 1. These are considerations specific to the soil type, the

proposed development and the type of concrete foundations to be used at the site.

Laboratory results for the pH and sulphate testing are included within **Appendix III**.

3.8 SOIL CONTAMINANTS

Two soil samples were collected, one from the overlying Made Ground at BH1 at 0.4m and the second from the natural strata in BH1 at 3.5m. Both of these samples are considered indicative of the in-situ soils encountered during the investigation.

A Suite 1 of laboratory contamination analysis was completed on these samples which can be used to enable waste classification and disposal and also potential risks to human health.

Laboratory results are included within **Appendix III**.

The assessment of concentrations has been made against current Contaminated Land Exposure Assessment (CLEA) Soil Guidance Values (SGVs). For chemical determinants where there are no available SGV, Aviron have applied;

- "The LQM/CIEH S4ULs for Human Health Risk Assessment" published December 2014. LQM acknowledgement for use of S4ULs. ***"Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3275. All rights reserved".***
- Category 4 Screening Levels (C4SLs) published September 2014 by CL:AIRE.

3.8.1 Summary of Laboratory Results

Made Ground

The results of the laboratory testing completed on the Made Ground indicate a marginally elevated concentration of lead at 350mg/kg. Aviron have adopted the C4SL as the most conservative published value as the recommendation and requirement of the National House Building Council (NHBC). However, some consultancies are still using the withdrawn (2009) CLEA SGV of 450mg/kg and some major multi-national consultancies deem a value of 300mg/kg to be suitable.

The presence of lead is quite typical in Central London properties and may be attributed to the discharge and run-off of rainwater (surface water) via historical lead pipework or painting and sanding down surface from lead based paints.

Natural Strata

The result of the laboratory testing completed on the natural strata indicates acceptable concentrations of all determinants analysed.

Waste Disposal

It is expected the Made Ground can be disposed of under a non-hazardous waste classification, however, depending on the landfill site it could be received as inert waste. The laboratory results should be passed to the receiving landfill site to classify the material.

Generally natural soils (Clay) are exempt from WAC testing under European Waste Category (EWC) Code 17 05 04 and are automatically classified as inert waste. These must be disposed of at a suitably licensed inert waste landfill or a site that has a valid exemption from the Environmental Permitting (England and Wales) Regulations 2010 registered with the Environment Agency.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The ground investigation has provided an assessment of ground conditions and comprised the drilling of one window sample borehole to 3.95m bgl (BH1) taking SPTs at 1.0m intervals and continuation of the borehole using DPSH to 15m bgl.

4.1 ENVIRONMENTAL

The site inspection and limited soil sampling and analysis undertaken as part of this exercise did not identify any sources of land contamination on-site.

Two contamination tests were undertaken on the overlying Made Ground and underlying natural strata. The sample collected from the Made Ground recorded an elevated concentration of lead at 300mg/kg which exceeds the C4SL of 200mg/kg. No elevated concentrations of determinants were recorded within the sample obtained from the natural strata.

It is not considered the lead elevation/contamination identified shall present as risk to human health given the mass excavation planned to frontage providing source removal and subsequent encapsulation of the contaminant and also the margin at which the elevated concentration was detected.

On the basis of the site inspection, visual and olfactory evidence, soil analysis and the residential site setting a **LOW** risk classification is assigned to the site.

Ground gas protection is not recommended given the absence of a definable source of risk.

The site is not considered to present a risk to controlled waters on the basis of the natural ground conditions encountered.

4.2 GEOTECHNICAL

The site is considered geo-technically suitable for re-development in line with the recommendations made within section 3.0.

Water proofing of the new sub-structure should be considered to ensure any locally held perched groundwater or migrated surface water does not penetrate into habitable space.

Should excavation works be completed during period of high rainfall de-watering of perched groundwater within the overlying Made Ground may be necessary and should be achieved by conventional sump pumping.

5.0 PROJECT INSTRUCTION AND LIMITATIONS

5.1 SCOPE OF WORKS

The following scope of work was undertaken to the proposed methods within our proposal letter of 12 May 2015 and involves the following;

- Complete one window sample boreholes to 5m bgl extending the borehole to 15m bgl by dynamic probing DPSH. Install the borehole with a 5m standpipe and include one return visit for groundwater monitoring.
- Submit disturbed and undisturbed soil samples, as necessary, for geotechnical material property tests.
- Submit disturbed soil samples, as necessary, for geochemical laboratory tests to include a "Suite 1" of contamination, pH, sulphates and sulphur.
- Soil samples shall be collected in accordance with the instruction and ground conditions and submitted to UKAS/MCERTS accredited laboratories for testing.
- Prepare an interpretative Ground Investigation and Geotechnical Assessment report to interpret ground conditions to provide recommendations for foundation design.

Aviron has relied upon information received from the Client and their agents as accurate, unless contradicted by written documentation or site observations.

5.2 LIMITATIONS

Aviron's scope of work has been designed to meet the timeframe and budgets. As such it may follow that further work would be prudent upon evaluation of the ground conditions. The scope of work provided shall provide a view of site conditions and understanding of potential geo-environmental risks and possible mitigation procedures.

The information used in this report has been derived from the site investigation, which in turn were based on known current and historical land uses identified at the site and surrounding area, available to Aviron at the time of the investigation.

Intrusive points chosen relate to the data collected and the risk assessment will rely on these points only. It therefore follows that some areas of the site will not be examined. It is always possible that some areas not investigated may contain conditions which would be impossible to determine due to lack of evidence or time and budget restrictions.

This report provides recommendations for foundation design based upon the ground conditions encountered and where possible makes predictions for possible variations in ground conditions. However, it is always possible that not all variations in ground conditions can be accounted for and shall also be dependent upon design loadings and foundation construction techniques used. Our recommendations should therefore not supersede the project's Consulting Structural and Civil Engineers design.

Groundwater sampling and testing was not undertaken as part of this instruction.

Should changes in legislation, statutory requirements or industry practices occurred following issue of this report, this report should be viewed in light of these changes.

Should a notable time period elapse between the date issue of this report and the date of application of this report changes to site dynamics may occur and in particular the site inspection notes may no longer be applicable should any change of use occur to the site in the interim.

6.0 REFERENCES AND OTHER SOURCES OF INFORMATION

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LQM/CIEH: Paul Nathanail, Caroline McCaffrey, Andy Gillett, Richard Ogden and Judith Nathanail. 2014. The LQM/CIEH S4ULs for Human Health Risk Assessment. Land Quality Press, Nottingham. ISBN 978-0-9931084-0-2. "Copyright Land Quality Management Limited reproduced with permission; Publication number S4UL3275. All rights reserved"

SP1010 - Development of Category 4 Screening Levels for Land Affected by Contamination. Final Project Report (Revision 2). Contaminated Land : Applications In Real Environmental (CL:AIRE). September 2014.

SR2: Human health toxicological assessment of contaminants in soil, Science Report SC050021/SR2, Environment Agency, August 2008.

SR7: Compilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values, Science Report SC050021/SR7, Environment Agency, November 2008.

Figures

Aviron Associates Limited - Head Office
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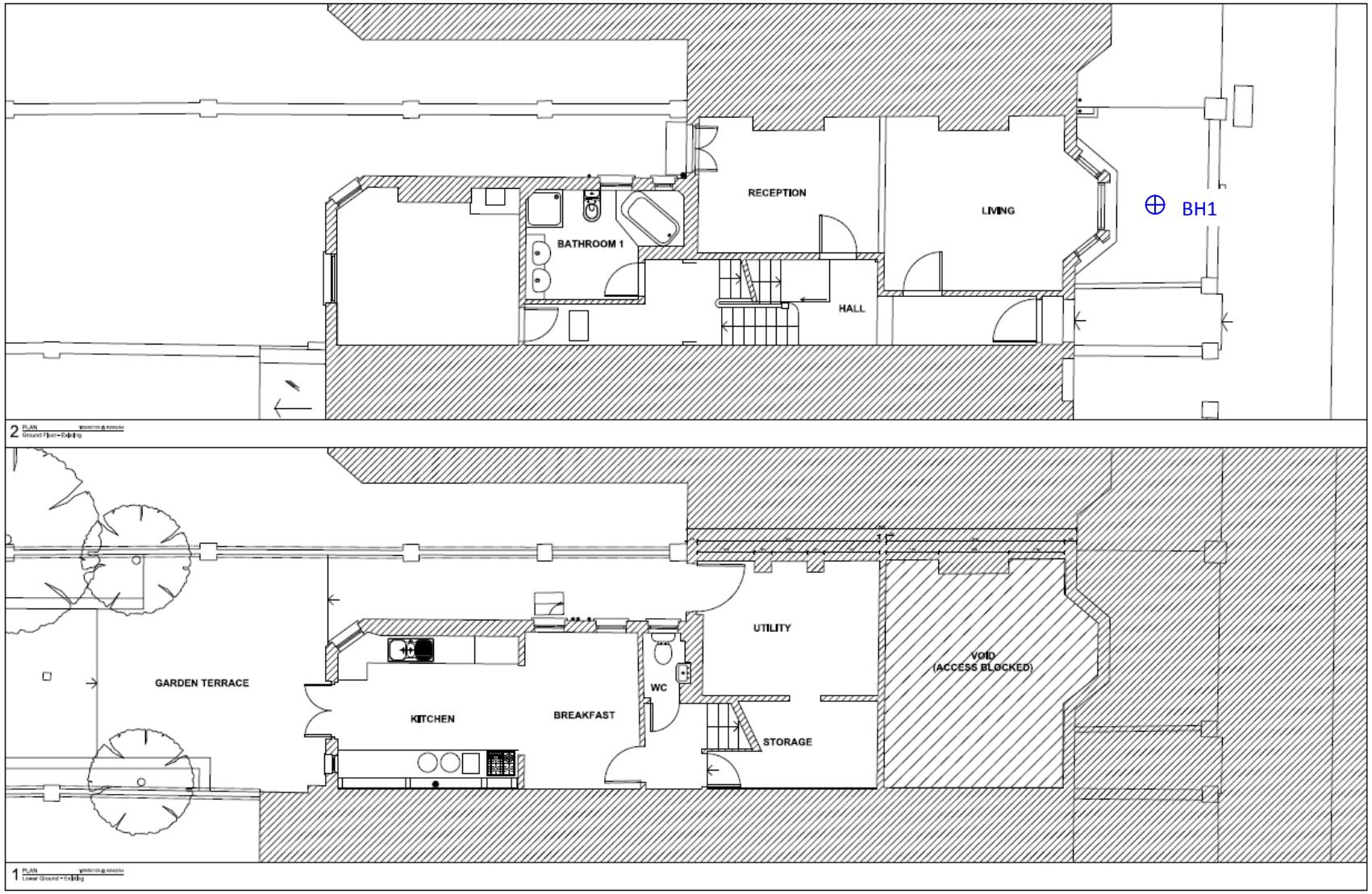

Legend

⊕ Window Sample Borehole Location

Notes

Plan provided to Aviron by P+W

Figure 1

Drawing Title	Existing Lower Ground Floor, Ground Floor and Borehole Location Plan
Project Number	15-190.02
Project Title	3 Aldred Road, London, NW6 1AN
Drawn by	JB
Checked by	OB
Scale	NTS

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Legend

Notes

Plan provided to Aviron by P+W

Figure 2

Drawing Title

Existing Section of Property

Project Number	15-190.02

Project Title

3 Aldred Road, London, NW6 1AN

Drawn by	JB
Checked by	OB
Scale	NTS

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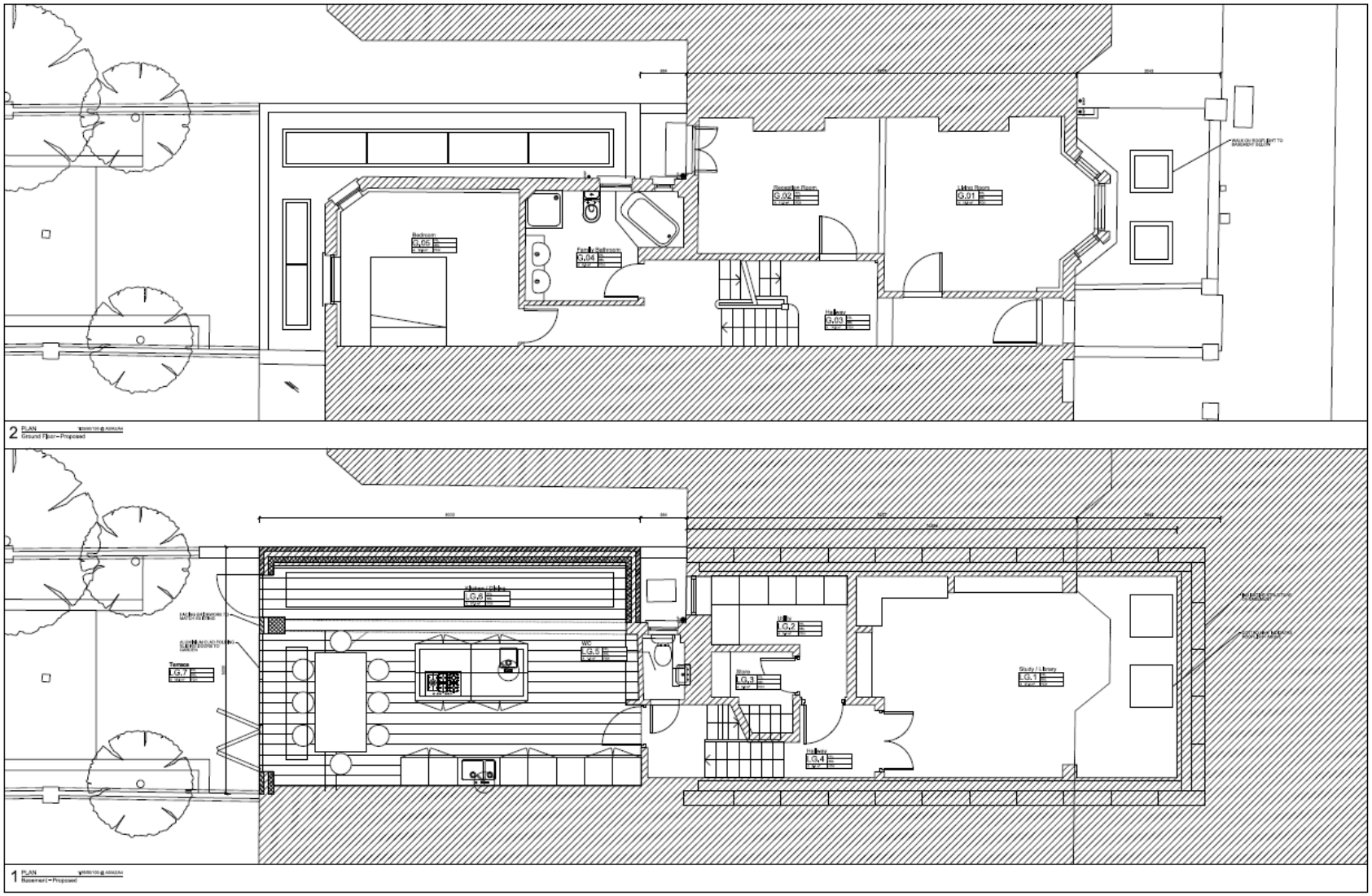

Legend

Notes

Plan provided to Aviron by P+W

Figure 3

Drawing Title

Proposed Lower Ground Floor and Ground Floor Plan

Project Number	15-190.02
Project Title	3 Aldred Road, London, NW6 1AN
Drawn by	JB
Checked by	OB
Scale	NTS

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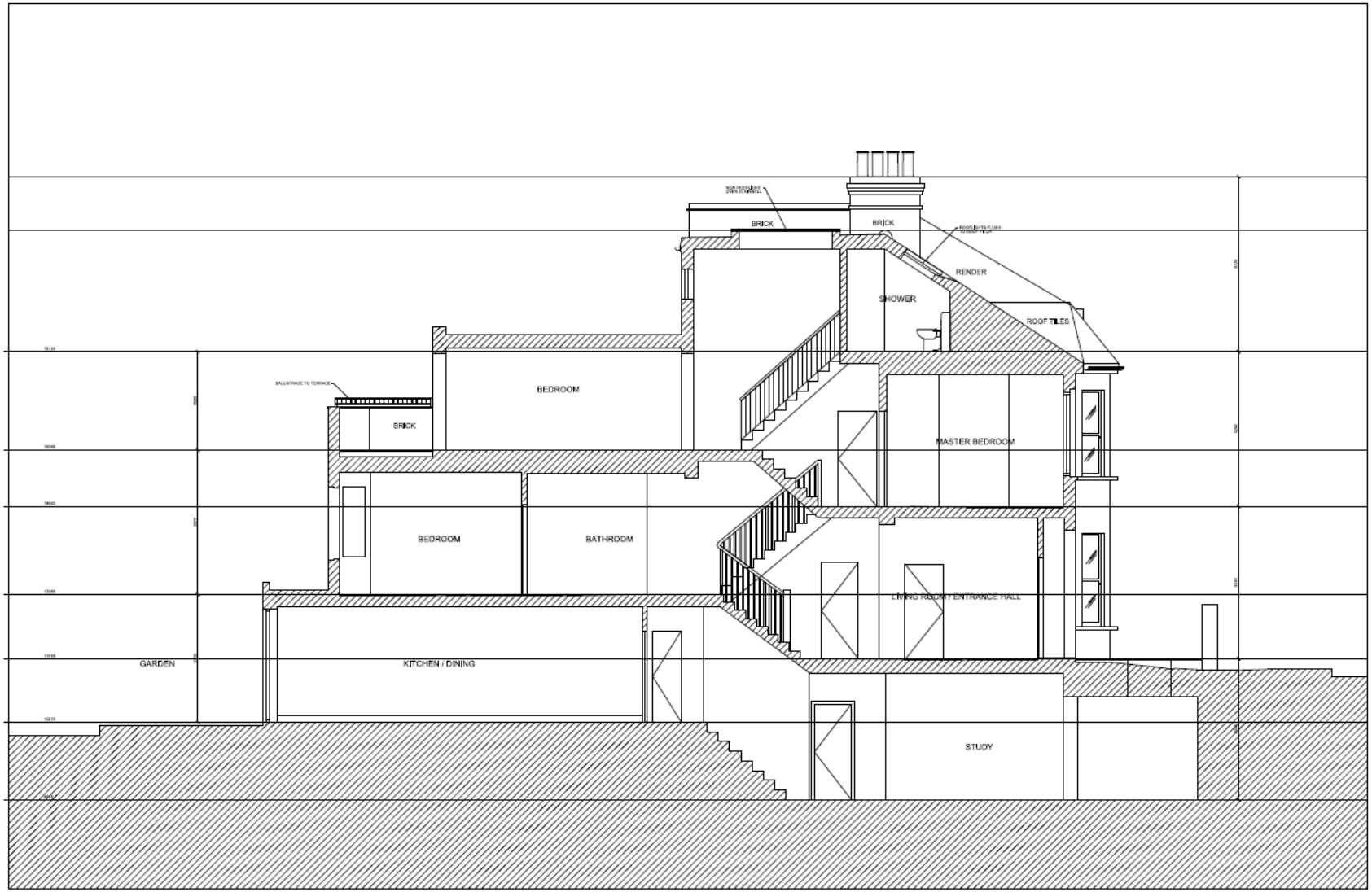

Legend

Notes

Plan provided to Aviron by P+W

Figure 4

Drawing Title

Proposed Section of Property

Project Number	15-190.02

Project Title

3 Aldred Road, London, NW6 1AN

Drawn by	JB
Checked by	OB
Scale	NTS

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Appendices

I Borehole Log

II Geotechnical Laboratory Results

III Geochemical Laboratory Results

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Appendix

I Borehole Log

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BOREHOLE LOG

Project:	Project No.	Borehole:
3 Aldred Road, London, NW6 1AN	15-190.02	BH1
Client:	**Start:**	**End:**	**Sheet:**
Private Client on behalf of Pawlik + Wiedmer	01.06.2015	01.06.2015	1 of 1
Method/Plant Used:	**Co-ordinates:**	**Ground Level:**
Modular WS	NT	NT

Description of Strata	Legend	Depth (m bgl) *(thickness)*	Well Cnstr.	Samples/Tests			SPT Results						N' Value	Laboratory Test Details
				Depth	No	Type	75mm	75mm	75mm	75mm	75mm	75mm		
MADE GROUND; Coarse gravel over membrane (to 0.05m), concrete screed (to 0.10), brown sandy gravelly clay. Gravel is fine to coarse, angular brick and flint.		(0.15) **0.15**												
MADE GROUND: Soft brown sandy slightly gravelly clay. Gravel is fine to coarse, sub-angular to angular brick.				0.40	1	ES								Suite 1
MADE GROUND; Soft to firm becoming very soft brown locally orange brown re-worked Clay with occasional fragments of brick and clay tile/pipe. .				0.70	2	ES								Suite 1
				1.00-1.45	3	D	0	0	1	2	2	3	8	Atterberg limits
				1.90	4	ES								Suite 1
				2.00-2.45	5	D	0	0	0	0	0	0	0	Atterberg limits
		3.00												
Firm brown locally mottled grey silty **CLAY**. (London Clay Formation)		(0.50)		3.00-3.45	6	D	2	3	4	4	4	7	19	Atterberg limits
		3.50		3.50-3.95	7	D	2	2	2	3	4	4	13	Atterberg limits
Firm to stiff locally fissured brown mottled grey silty **CLAY**. Occasional selenite crystals and sand partings. (London Clay Formation)		(0.45)		3.50	8	ES								Suite 1
		3.95												
Borehole Continued using DPSH														

Casing record			Chiselling records			Water level observations (depths in metres below gl)					
Date	Diameter (mm)	Depth (m)	Time	From (m)	To (m)	Date	Water strike	Water level (after 20mins)	Flow	Standing level	Remarks
01.06.15	116	2.00				01.06.15	Dry	Dry	Dry	Dry	*Purged and re-charged to 2.8m.
						08.06.15	n/a	n/a	n/a	2.6 - 2.8	

Remarks		By	Date	
Standpipe installed to 5.0m with steel cover. Ground level to 2.0m Plain pipe. 2.0m to 5.0m Slotted pipe. *Water at 2.60m bgl was purged to base of installation and water recharged to 2.80m bgl.	Logged	PL	01.06.15	
	Checked	OB	17.06.15	Scale 01:25

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DP LOG

Project:	Project No.	Borehole:
3 Aldred Road, London, NW6 1AN	15-190.02	BH1

Client:	Start:	End:	Sheet:
Private Client on behalf of Pawlik + Wiedmer	01.06.2015	01.06.2015	1 of 3

Method/Plant Used:	Ground Level:	Ground Level:
Modular WS	NT	NT

Strata Description (Assumed)	Legend	Depth (m) bgl	Blow Counts (per 100mm penetration) 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
		0.00 - 0.10	
		0.10 - 0.20	
		0.20 - 0.30	
		0.30 - 0.40	
		0.40 - 0.50	
		0.50 - 0.60	
		0.60 - 0.70	
		0.70 - 0.80	
		0.80 - 0.90	
		0.90 - 1.00	
		1.00 - 1.10	
		1.10 - 1.20	
		1.20 - 1.30	
		1.30 - 1.40	
		1.40 - 1.50	
		1.50 - 1.60	
		1.60 - 1.70	
		1.70 - 1.80	
		1.80 - 1.90	
		1.90 - 2.00	
		2.00 - 2.10	
		2.10 - 2.20	
		2.20 - 2.30	
		2.30 - 2.40	
		2.40 - 2.50	
		2.50 - 2.60	
		2.60 - 2.70	
		2.70 - 2.80	
		2.80 - 2.90	
		2.90 - 3.00	
		3.00 - 3.10	
		3.10 - 3.20	
		3.20 - 3.30	
		3.30 - 3.40	
		3.40 - 3.50	
		3.50 - 3.60	
		3.60 - 3.70	
		3.70 - 3.80	
		3.80 - 3.90	
(Firm to stiff CLAY. (London Clay Formation))		3.90 - 4.00	
		4.00 - 4.10	
		4.10 - 4.20	
		4.20 - 4.30	
		4.30 - 4.40	
		4.40 - 4.50	
		4.50 - 4.60	
		4.60 - 4.70	
		4.70 - 4.80	
		4.80 - 4.90	
		4.90 - 5.00	
Borehole Continued...			

Remarks:

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DP LOG

Project:	Project No.	Borehole:
3 Aldred Road, London, NW6 1AN	15-190.02	BH1

Client:	Start:	End:	Sheet:
Private Client on behalf of Pawlik + Wiedmer	01.06.2015	01.06.2015	2 of 3

Method/Plant Used:	Ground Level:	Ground Level:
Modular WS	NT	NT

Strata Description (Assumed)	Legend	Depth (m) bgl	Blow Counts (per 100mm penetration)
(Stiff becoming very stiff (at 8.00m) **CLAY**. (London Clay Formation))		5.00 - 5.10	4
		5.10 - 5.20	4
		5.20 - 5.30	4
		5.30 - 5.40	4
		5.40 - 5.50	5
		5.50 - 5.60	6
		5.60 - 5.70	5
		5.70 - 5.80	5
		5.80 - 5.90	5
		5.90 - 6.00	6
		6.00 - 6.10	6
		6.10 - 6.20	6
		6.20 - 6.30	6
		6.30 - 6.40	6
		6.40 - 6.50	6
		6.50 - 6.60	7
		6.60 - 6.70	7
		6.70 - 6.80	7
		6.80 - 6.90	6
		6.90 - 7.00	6
		7.00 - 7.10	7
		7.10 - 7.20	7
		7.20 - 7.30	7
		7.30 - 7.40	7
		7.40 - 7.50	8
		7.50 - 7.60	8
		7.60 - 7.70	8
		7.70 - 7.80	7
		7.80 - 7.90	8
		7.90 - 8.00	8
		8.00 - 8.10	8
		8.10 - 8.20	9
		8.20 - 8.30	9
		8.30 - 8.40	11 12
		8.40 - 8.50	11
		8.50 - 8.60	11
		8.60 - 8.70	11
		8.70 - 8.80	11
		8.80 - 8.90	11
		8.90 - 9.00	11
		9.00 - 9.10	11 12
		9.10 - 9.20	11
		9.20 - 9.30	11 12
		9.30 - 9.40	11 12
		9.40 - 9.50	12 13
		9.50 - 9.60	12 13
		9.60 - 9.70	11
		9.70 - 9.80	11 12
		9.80 - 9.90	11 12
		9.90 - 10.00	11

Remarks:

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DP LOG

Project:	Project No.	Borehole:
3 Aldred Road, London, NW6 1AN	15-190.02	BH1

Client:	Start:	End:	Sheet:
Private Client on behalf of Pawlik + Wiedmer	01.06.2015	01.06.2015	3 of 3

Method/Plant Used:	Ground Level:	Ground Level:
Modular WS	NT	NT

Strata Description (Assumed)	Legend	Depth (m) bgl	Blow Counts (per 100mm penetration)
(Very stiff **CLAY**. (London Clay Formation))		10.00 - 10.10	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
		10.10 - 10.20	
		10.20 - 10.30	
		10.30 - 10.40	
		10.40 - 10.50	
		10.50 - 10.60	
		10.60 - 10.70	
		10.70 - 10.80	
		10.80 - 10.90	
		10.90 - 11.00	
		11.00 - 11.10	
		11.10 - 11.20	
		11.20 - 11.30	
		11.30 - 11.40	
		11.40 - 11.50	
		11.50 - 11.60	
		11.60 - 11.70	
		11.70 - 11.80	
		11.80 - 11.90	
		11.90 - 12.00	
		12.00 - 12.10	
		12.10 - 12.20	
		12.20 - 12.30	
		12.30 - 12.40	
		12.40 - 12.50	
		12.50 - 12.60	
		12.60 - 12.70	
		12.70 - 12.80	
		12.80 - 12.90	
		12.90 - 13.00	
		13.00 - 13.10	
		13.10 - 13.20	
		13.20 - 13.30	
		13.30 - 13.40	
		13.40 - 13.50	
		13.50 - 13.60	
		13.60 - 13.70	
		13.70 - 13.80	
		13.80 - 13.90	
		13.90 - 14.00	
		14.00 - 14.10	
		14.10 - 14.20	
		14.20 - 14.30	
		14.30 - 14.40	
		14.40 - 14.50	
		14.50 - 14.60	
		14.60 - 14.70	
		14.70 - 14.80	
		14.80 - 14.90	
		14.90 - 15.00	
Borehole Complete at 15.0m			

Remarks:

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Appendix

II Geotechnical Laboratory Results

Aviron Associates Limited - Head Office
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Summary of Classification Test Results

Job No.	Project Name	Programme	
18979	Aldred Road	Samples received	05/06/2015
		Schedule received	05/06/2015
Project No.	Client	Project started	08/06/2015
-	AVIRON	Testing Started	10/06/2015

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top	Base	Type		%	%	%	%	%	
BH1		1.00		D	Brown slightly silty CLAY	39	100	86	28	58	
BH1		2.00		D	Brown slightly gravelly slightly silty CLAY with occasional fine brick fragments (gravel is fine and sub-angular)	38	97	74	26	48	
BH1		3.00		D	Brown and occasional blue grey and orange slightly silty CLAY with occaional selenite crystals	30	100	72	25	47	
BH1		3.50		D	Brown and occasional orange and blue grey slightly silty CLAY with occasional selenite crystals	30	100	73	27	46	

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3 and 5.0

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU

Tel: 01923 711 288
Email: James@k4soils.com

Checked and Approved

Initials **J.P**

Date: 16/06/2015

Appendix

III Geochemical Laboratory Results

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Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 15-72770

Project / Site name:	Aldred Rd, London NW6	**Samples received on:**	01/06/2015
Your job number:		**Samples instructed on:**	02/06/2015
Your order number:		**Analysis completed by:**	11/06/2015
Report Issue Number:	1	**Report issued on:**	11/06/2015
Samples Analysed:	3 soil samples		

Signed:

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 15-72770

Project / Site name: Aldred Rd, London NW6

Lab Sample Number				450220	450221	450222		
Sample Reference				BH1	BH1	BH1		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.40	1.90	3.50		
Date Sampled				01/06/2015	01/06/2015	01/06/2015		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	12	23	19		
Total mass of sample received	kg	0.001	NONE	0.44	0.42	0.51		
General Inorganics								
pH	pH Units	N/A	MCERTS	7.2	6.9	7.2		
Total Cyanide	mg/kg	1	MCERTS	< 1	-	< 1		
Total Sulphate as SO_4	mg/kg	50	ISO 17025	56	390	14000		
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	0.052	0.064	5.5		
Water Soluble Sulphate as SO_4 (2:1)	mg/kg	2.5	MCERTS	52	64	5500		
Water Soluble SO4 (BRE SD 2:1 Leach Equivalent)	g/l	0.00125	MCERTS	0.026	0.032	2.8		
Total Sulphur	mg/kg	50	NONE	500	210	5600		
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	< 1.0		
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	0.12	-	< 0.05		
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	-	< 0.10		
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	-	< 0.10		
Fluorene	mg/kg	0.1	MCERTS	< 0.10	-	< 0.10		
Phenanthrene	mg/kg	0.1	MCERTS	1.6	-	< 0.10		
Anthracene	mg/kg	0.1	MCERTS	0.30	-	< 0.10		
Fluoranthene	mg/kg	0.1	MCERTS	4.2	-	< 0.10		
Pyrene	mg/kg	0.1	MCERTS	3.7	-	< 0.10		
Benzo(a)anthracene	mg/kg	0.1	MCERTS	2.0	-	< 0.10		
Chrysene	mg/kg	0.05	MCERTS	2.2	-	< 0.05		
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	2.6	-	< 0.10		
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	1.3	-	< 0.10		
Benzo(a)pyrene	mg/kg	0.1	MCERTS	2.0	-	< 0.10		
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	1.3	-	< 0.10		
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	-	< 0.10		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.6	-	< 0.05		
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	22.9	-	< 1.60		
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	22	-	13		
Barium (aqua regia extractable)	mg/kg	1	MCERTS	230	-	41		
Boron (water soluble)	mg/kg	0.2	MCERTS	< 0.2	-	1.1		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	37	-	46		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	64	-	19		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	350	-	19		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.6	-	< 0.3		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	32	-	42		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	490	-	69		

Analytical Report Number : 15-72770

Project / Site name: Aldred Rd, London NW6

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
450220	BH1	None Supplied	0.40	Brown clay and loam with rubble and brick.
450221	BH1	None Supplied	1.90	Light brown clay.
450222	BH1	None Supplied	3.50	Light brown clay.

Analytical Report Number : 15-72770

Project / Site name: Aldred Rd, London NW6

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

AVIRON ASSOCIATES LIMITED

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