

CONTAMINATED LAND REMEDIATION STRATEGY AND VERIFICATION PLAN

Site Address

Land to the Rear of 17 Frognal London NW3 6AR

> Client Nick Sofroniou

Report Reference REM-2023-000005

Prepared by STM Environmental Consultants Ltd

Date 27/04/2023



have 1 Contamplated Land Desk Stoples, Geo-Environmental site Investigations, Environmental Due Oilgence, Hood Risk Assessments, Surface Water Management Strategies (SuDS), Ecology, Noise and Air Quality Assessments, Environmental Management Systems, GIS & Data Management Systems



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2. DOCUMENT CONTROL

CONTAMINATED LAND RISK ASSESSMENT Remediation Strategy and Verification Plan					
Site Address	Land to the Rear of 17 Frognal, London, NW3 6AR				
Site Coordinates	526189, 185070				
Prepared for	Nick Sofroniou				
Version No	3.0				
STM Reference	REM-2023-000005				
Date	27/04/2023				
Report Author	Rima Hassan (BSc) Environmental Consultant				
Report Checked by:	Rebecca Andrew (MSci) Environmental Consultant				
Report Authorised By	Simon Makoni (BSc, MSc Env. Eng.) Director				



3. DISCLAIMER

This report and any information or advice which it contains, is provided by STM Environmental Consultants Ltd (STM) and can only be used and relied upon by Nick Sofroniou (Client).

STM has exercised such professional skill, care and diligence as may reasonably be expected of a properly qualified and competent consultant when undertaking works of this nature. However, STM gives no warranty, representation or assurance as to the accuracy or completeness of any information, assessments or evaluations presented within this report. Furthermore, STM accepts no liability whatsoever for any loss or damage arising from the interpretation or use of the information contained within this report. Any party other than the Client using or placing reliance upon any information contained in this report, do so at their own risk.

Furthermore, STM Environmental accepts no liability whatsoever for any loss or damage arising from the interpretation or use of the information contained within this report. Any party using or placing reliance upon any information contained in this report, do so at their own risk.

It should be noted that this report has been produced for environmental purposes only. It should not in any way be construed to be or used to replace a geotechnical survey, structural survey, asbestos survey, buried services survey, unexploded ordnance survey or Invasive Plant Survey.

This report excludes consideration of potential hazards arising from any activities at the Site other than normal use and occupancy for the intended land uses. Hazards associated with any other activities have not been assessed and must be subject to a specific risk assessment by the parties responsible for those activities.

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4. INTRODUCTION

STM Environmental Consultants Ltd. (STM) were commissioned by Nick Sofroniou (Client) to undertake a prepare a Remediation Strategy and Verification Plan for a site located at Land to the Rear of 17 Frognal, London, NW3 6AR (Site).

This report has been produced to support an application for the discharge of Condition 16(b) of planning permission 2019/2263/P for the "*Erection of detached, single storey, 3-bed dwelling to the rear of No. 17 Frognal*" The decision notice and proposed development plans are available in <u>Appendix 1</u> and <u>Appendix 2</u> respectively.

Condition 16(b) states as follows:

"The results of the investigation and detailed risk assessment referred to in (A) and, based on these, in the event that remediation measures are identified necessary, a remediation strategy shall be submitted giving full details of the remediation measures required and how they are to be undertaken"

This document sets out the Remediation Strategy and Verification Plan for the site. It should be read in combination with the Phase 1 Desk Study Report (Ref: PH1-2022-000094) which was produced for the site by STM in November 2022 and the Phase 2 Site Investigation report (Ref: PH2-2022-000068) produced by STM Environmental in February - April 2023.

5. BACKGROUND

5.1 Summary of Phase 1 Desk Study

A Phase 1 Desk Study was carried out by STM in November 2022. No on site potentially contaminative land uses (PCLUs) were identified. Off site PCLUs include a Builder's Yard (adjacent S), Chemical Works/Works (adjacent S), Car Park (adjacent NW), Small Domestic Garages (adjacent S), Railway Line (30m NW), Works (35m S), North London Air Terminal (40m NW) and an Electricity Substation (45m S).

A conceptual risk site model was constructed and a qualitative risk assessment carried out. This identified potentially significant Potential Pollutant Linkages with respect to human health and property receptors.

The Desk Study recommended that an intrusive site investigation be carried out with the objective of determining the presence and extent of any soil and gaseous contamination at the site.

5.2 Summary of Phase 2 Intrusive Site Investigation

Site investigation works were carried out on the 13th December 2022. A total of 4no. boreholes (BH01 – BH04) were excavated to a maximum depth of 3mbgl using a hand auger.

A total of 6no. soil samples were collected from depths ranging between 0.3 - 1.3mbgl and submitted to a UKAS/MCERTS accredited laboratory for analysis of Heavy Metals, TPH, BTEX, PAHs, SVOCs and Asbestos.

3no. of the boreholes (BH01, BH02 and BH03) were installed as ground gas and vapour monitoring wells to depths up to 3mbgl on the 12th January 2023. 3no. rounds of ground gas monitoring were undertaken over 3-weeks.

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Made Ground comprising clayey Silt was encountered to a maximum depth of 1mbgl. This was underlain by greyish Clay to a maximum depth of 3mbgl, the base of the boreholes. Visual indications of contamination of the Made Ground were observed (i.e. rare concrete materials, brick and glass fragments) generally across the site. No significant PID readings were recorded during the investigation.

A Generic Quantitative Risk Assessment was carried out where the results of the soil sample analysis were compared to Generic Assessment Criteria (GAC) for a residential housing with home-grown produce land use scenario.

Results of the soil sample analyses identified concentrations above the chosen GAC for Lead in soils from all 4no. borehole locations. Asbestos was not identified in any of the samples screened.

A summary of the gas monitoring results undertaken between the 12th to 26th January 2023is presented in Table 3 below. The readings include measurements during rising atmospheric pressure conditions.

Borehole	Barometric Pressure	Flow I/hr	CH₄ %	CO₂ %	O₂ %	H₂S ppm	CO ppm	VOCs ppm
BH01	995-1023	2.3-4.5	0.3	4.2- 9.9	16.5- 19.9	0.0	1.0- 2.0	0.1-0.5
BH02	995-1023	1.8-10.4	0.3	7.2- 9.8	16.4- 17.0	0.0	1.0- 2.0	0.4-1.9
BH03	995-1023	0.1-7.1	0.3	2.9- 3.8	14.3- 18.9	0.0	0.0- 1.0	0.0-1.7

Table 1: Summary of initial (3no. rounds) ground gas monitoring results

Following comments from Camden's Contaminated Land Officer, an additional 3no. rounds of ground gas monitoring was undertaken using the same monitoring locations between the 16th March to 31st March 2023 in order to ensure that measurements were undertaken during both rising and falling atmospheric pressure conditions. A summary of the results from all 6no. monitoring rounds is presented in Table 2 below.

Borehole	Barometric Pressure	Flow I/hr	CH₄ %	CO₂ %	O₂ %	H₂S ppm	CO ppm	VOCs ppm
BH01	978-1023	2.3-5.2	0.0-0.3	4.2-9.9	15.1- 19.9	0.0	0.0-2.0	0.1-2.1
BH02	978-1023	1.8-10.4	0.0-0.3	7.2-12.0	13.4-17.2	0.0	0.0-2.0	0.2-1.9
BH03	978-1023	0.1-7.1	0.0-0.3	2.9-5.6	2.3 <mark>-18.9</mark>	0.0	0.0-1.0	0.0-1.7

Table 2: Summary of results from all 6no. rounds of gas monitoring

Maximum Carbon Dioxide and Methane concentrations of 12.0% and 0.3% respectively were recorded by volume in air (v/v). A maximum flow rate of 10.4 l/hr were recorded. A maximum PID reading of 2.1 ppm was observed.

In accordance with CIRIA C665, the Gas Screening Value (GSV) for Carbon Dioxide was calculated as follows:



GSV = (12.0/100) * 10.4 = 1.25 l/hr

A GSV of 1.25I/hr indicates that the site should be classified as Wilson and Card "Characteristic Situation 3 (CS3) – Moderate Risk" meaning that standard ground gas protection measures are considered to be required.

Based on the typical maximum concentration of Carbon Dioxide being between 10-30% v/v, the site is considered to be Amber 2 (i.e. high-level ground gas protection measures are required) under the <u>NHBC classification system</u>.

5.2.1 Reassessment of Potential Pollutant Linkages

The Potential Pollutant Linkages (PPLs) identified as being plausible in Phase 1 were as follows:

- Risk of direct contact (ingestion and absorption) with and inhalation of contaminants to on-site human health receptors (PPL1a)
- Risk of injury/death of on-site human health receptors as a result of explosion due to accumulation of ground gas from on and off-site sources in confined spaces within onsite dwellings (PPL1b)
- Risk of direct contact with (ingestion and absorption) and inhalation of contaminants to off-site human health receptors as a result of on-site contaminants migrating off-site (PPL2a)
- Risk of injury/death to off-site human health receptors as a result of explosion due to migration of on-site ground gas and subsequent accumulation in confined spaces in off-site buildings. (PPL2b)
- Risk of derogation of groundwater quality resulting from the migration of on-site contaminants into the underlying aquifer (PPL3)
- Risk of derogation of surface water quality resulting from the migration and entry of onsite contaminants into the surface water receptor (PPL4)
- Risk of derogation of ecological quality resulting from the migration and entry of onsite contaminants to the ecological receptor during development and after completion (PPL5)
- Risk of damage to buildings and services from on-site contaminants (PPL6a)
- Risk of damage to property as a result of explosion due to accumulation of ground gas from on and off-site sources in confined spaces within buildings (PPL6b)

Of these, the Desk Study concluded that PPL1a, PPL1b, PPL6a and PPL6b had the potential to be significant.

The Conceptual Risk Model formulated in Phase 1 Desk Study was reviewed taking into account the results of the Phase 2 investigation. The table below presents the results of the re-assessment.

Due to the elevated concentrations of contaminants, ground gases and vapours identified at the site, it was considered that future occupiers could be exposed to contaminants within the proposed gardens and buildings via the direct contact and inhalation pathways. Therefore, the Phase 2 recommended that remedial measures were required in order to render the site suitable for its intended use.

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CRITERIA	POTENTIAL POLLUTANT LINKAGES											
	PPL1a	PPL1b	PPL1c	PPL1d	PPL2a	PPL2b	PPL3	PPL4	PPL5	PPL6a	PPL6b	
POTENTIAL PATHWAY/ RECEPTOR	Contact/ Inhalation - Human Health (Future Occupiers)	Explosion - Human Health (Future Occupiers)	Contact/ Inhalation - Human Health (Construction Workers)	Explosion - Human Health (Constructio n Workers)	Contact/ Inhalation - Offsite Human Health Receptors	Explosion - Human Health Receptors	Contact - Groundwater	Contact - Surface Water	Contact - Ecology	Contact - On & Off- Site Property	Explosion - On & Off- Site Property	
SEVERITY	Major (4)	Major (4)	Major (4)	Major (4)	Major (4)	Major (4)	Moderate (3)	Moderate (3)	Moderate (3)	Moderate (3)	Moderate (3)	
LIKELIHOOD	Possible (3)	Possible (3)	Improbable (1)	Improbable (1)	Improbable (1)	Improbable (1)	Improbable (1)	Improbable (1)	Improbable (1)	Improbable (1)	Possible (3)	
RISK	Moderate (12)	Moderate (12)	Low (4)	Low (4)	Low (4)	Low (4)	Very Low (3)	Very Low (3)	Very Low (3)	Very Low (3)	Low to Moderate (9)	
POTENTIALLY SIGNIFCANT?	YES	YES	NO	NO	NO	NO	NO	NO	NO	NO	YES	



6. REMEDIATION STRATEGY

This section outlines the remedial strategy that will be implemented as part of the development.

6.1 Objectives

The Remediation Strategy and Verification Plan sets out the proposed remedial works to be undertaken at the Site to support its future development for a proposed residential with private gardens end use.

The objective of the Remediation Strategy is to break the identified PPLs thus ensuring that the site is suitable for the proposed end use.

In order for land to be considered contaminated, there must be a contaminant (or source), a receptor and a pathway (via which the contaminant can reach the receptor) present at the site. When these three components are identified at a site, a *pollutant linkage* is said to exist.

Pollutant Linkage (PL) = Contaminant -> Pathway -> Receptor

The PPL can be broken through either the removal of the Source, the Pathway or the Receptor. As the receptor cannot be removed in this scenario (the site is proposed for use as residential dwellings), either the Source or the Pathway will need to be removed.

6.2 Remedial Options Appraisal

An appraisal of the potential remedial options available to severe the PPLs identified with respect to end users was carried out. The results are summarised in table below.

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Table 4: Remedial Options Appraisal

PPL	Pathway	Remedial Option No.	Description	Feasible?	Recommended?	Comments
PPL1a		1	Excavation and removal of all contaminated soils from the site	Not Feasible	No	Too expensive and time consuming.
	Direct Contact in private gardens and other areas of soft landscaping Direct Contact pathway	2	Encapsulation of contaminated areas under hardstanding (i.e. driveways, car parks and buildings)	Feasible	Yes	This will be possible in some areas but not across the entire site as it may compromise the surface water drainage strategy for the site due to the resulting increase in run-off rates.
	involves exposure to contaminants via direct ingestion of soil and dust; consumption of home- grown produce and dermal contact	3	Installation of a clean cover system	Feasible	No	Raising the ground levels by the required amounts would likely be impracticable for the development. Also, most of the contamination would be left in-situ resulting in little or no reduction of the potential impact on groundwater and surface water receptors.
	Inhalation of dust (indoor and outdoor)	4	Installation of an engineered capping system - excavation and removal of 600mm of the contaminated Made Ground and replacement with clean fill.	Feasible	Yes	Feasible in gardens and areas of soft landscaping. Removal of 600mm of Made Ground would result in a reduction of the contaminated soil load at the site and therefore the potential impact on human health receptors.
		5	Onsite remediation of contaminated soils	Feasible	No	Although it is feasible, and the most sustainable of the available options, it would be time consuming and would likely not be completed within the timescales of the project.
	Inhalation of Vapours indoors	6	Installation of ground gas and vapour protection measures	Feasible	Yes	Combined damp proof, gas and vapour membrane is recommended.



6.3 **Proposed Remedial Options**

The proposed remedial measures will comprise both of the following:

- Remedial Option 2 encapsulation of contaminated areas under hardstanding or buildings;
- Remedial Option 4 installation of an engineered capping system;
- Remedial Option 6 installation of ground gas and vapour protection measures.

6.4 Remediation Methodology

6.4.1 Encapsulation of Contaminated Areas Under Buildings and Driveway/Car Parking area

Some of the site will comprise driveways/car parking and the building footprint, and as such will encapsulated much of the contaminated made ground at the site. This means that it cannot be accessed via the direct contact pathway. This is shown in the proposed plans in <u>Appendix</u> <u>2</u>.

6.4.2 Installation of Engineered Capping Layer in Impacted Soft-landscaped Areas

Made Ground in areas of the site intended for use as private gardens will be excavated to a maximum depth 600mm. Where the Made Ground is less than maximum depth, validation inspections and soil testing will be required at the base and sides of the excavation to demonstrate that all the Made Ground has been removed.

The Made Ground will be removed and taken to a licenced disposal facility by a licenced waste transport carrier. The soils removed from the excavated areas will be replaced with clean, imported, verified fill materials underlain by a "no dig" geotextile membrane. The clean fill will consist of a 200mm thick sub-base (i.e. MOT Type 1 or 2) layer and 400mm topsoil in the areas of proposed private gardens.



Figure 1: Cross-section of engineered capping layer in Private Garden

6.4.3 Installation of Gas Protection Measures

A gas protection membrane will be installed by appropriately certified and experienced installers and will be verified by an independent verifier.

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Gas protection measures will be incorporated into the buildings in order to mitigate potential ground gas and vapour risks. The proposed buildings are classified as building type B meaning that a minimum gas protection score of 4 must be achieved in order to satisfy the requirements of a Characteristic Gas Situation 3 as outlined in BS8485.

In order to meet a score of 4, a combination of a structural barrier, ventilation and a gas resistant membrane will be used as gas protection measures. The gas protection membrane will have a minimum thickness of 0.4mm and shall have documentation to show that it is sufficiently impervious to gases. The membrane will be laid across the internal footprint of the building with all laps sealed. The membrane will then be sealed to the perimeter external walls.

The specific measures that will be implemented using a Suspended beam and block floor construction as summarised in the table below.

Datasheets for the membrane and drawings showing how it will be installed are available in <u>Appendix 3</u>.

Element	BS8485 Solution Score	Туре
Suspended beam and block flooring	0	Structural barrier
Ventilated void with very good performance	2.5	Ventilation
Gas and Vapour resistant membrane	2	Gas Membrane in accordance with BS8485
TOTAL SCORE ACHIEVED	4.5	

Table 5: Suspended beam and block flooring

6.4.4 Use of chemical resistant materials for building and services

All services, and in particular potable water, will be supplied using materials that are resistant to attack and degradation to chemical attack.

The Statutory Water Undertaker for the area will be contacted in relation to new services that are to be installed as part of the proposed development in order to determine their specification for the type of pipework/conduits that should be used on this site.

6.5 Health and Safety

The following measures will be undertaken as a minimum for the protection of the health and safety of site workers:

- Provision of appropriate Personal Protective Equipment (PPE) including protective clothing, footwear, gloves and dust masks to all groundworkers on-site. These should not be removed from site, and advice should be given on when and how they are to be used;
- Minimising the amount of dust and mud generated on-site;
- Good practices relating to personal hygiene (i.e. washing and changing procedures) should be adhered to on-site, i.e. food and drink should only be consumed within designated areas on the site and smoking should be prohibited in all working areas.
- Provision of welfare facilities on the site;
- Health and Safety Inductions and daily briefings.

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All site works will be carried out in accordance with Health and Safety Executive regulations and guidelines and the Contractor's Construction Health and Safety Plan. Particular should be made to the Health and Safety Executive (HSE) document "Protection of Workers and the General Public during the Development of Contaminated Land".

6.6 Watching Brief and Discovery Strategy

It is recommended that a "watching brief" is kept at all times during the development. Should any unexpected contamination be encountered then the discovery strategy outlined below should be followed.

- Works should be halted if any suspicious ground conditions are identified by groundworkers;
- The Contractor should assess the need for any immediate health and safety or environmental management control measures. If control measures are considered to be required, they should be implemented;
- The Contractor should notify the Client's Environmental Consultant and the Local Planning Authority;
- The Environmental Consultant should attend the site to record the extent of 'contamination' and if necessary, to collect samples.
- If remedial action is considered necessary then the proposed works should be agreed with the Local Planning Authority prior to implementation;
- Once remediation is complete, the Environmental Consultant should collate evidence of work carried out for inclusion in a Remediation Verification Report which should be submitted to the Local Planning Authority.

6.7 Waste Management

6.7.1 Waste Disposal

Groundworks at the site are likely to give rise to waste soils which will require classification before removal from site. The Environment Agency's Hazardous Waste Technical Guidance document (WM3) outlines the methodology for classifying wastes. Once classified the waste can be removed to an appropriately licensed facility for treatment or final disposal. The contractor will need to keep a full documentary record of these works in line with Duty of Care requirements. The record will include waste transfer notes and details of the receiving site. Copies of all relevant documents should be provided to the Client's Environmental Consultant for inclusion in the remediation verification report.

6.7.2 Materials Reuse

As laid out in the CL:AIRE The Definition of Waste: Development Industry Code of Practice (DoWCoP) materials are only considered waste if "they are discarded, intended to be discarded or required to be discarded by the holder". The DoWCoP allows excavated materials to be reused where there is a need for materials and where the risk is acceptable. The following criteria need to be met in order to allow for soils to be reused at a site.

- Pollution of the environment and harm to human health is prevented in reusing the excavated materials;
- The materials are suitable for use without further processing
- There is certainty of use; and
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The quantity that is absolutely necessary (and no more) is used.

A Materials Management Plan (MMP) that confirms the above criteria are met would be required to be submitted to a "Qualified Person" for approval and issuance of an DoWCoP Declaration to the Environment Agency.

Should materials be reused under a DoWCoP declaration, the reuse of the material will need to be fully documented within the final Remediation Verification Report for the site.

7. VERIFICATION STRATEGY

A Remediation Verification Report written by a competent environmental consultant will be submitted and will provide a complete record of the works that have been carried out on the site. The verification reports will as a minimum contain the following:

- Plans showing locations of remediated (i.e. excavated) areas and photographic evidence (e.g. excavations with thickness measurements, filling of imported soils, finished levels etc) of the works undertaken.
- Soil certificates confirming the source of the imported material and that it is suitable for use on a residential site;
- Imported Soil Laboratory Test Certificates for full suite of potential contaminants (i.e. heavy metals, PAH, asbestos etc..) at a density of either 1 sample per garden in private gardens or 1 sample per 50m³;
- Waste Transfer Notes and Soil Importation Certificates including volume of soil transported in each truck;
- Details, including photographic evidence of the installation of gas protection measures including a detailed specification of membranes installed and copies of receipts and certification of installers. The photographic evidence shall include photographs of both sides of membrane, upper surface and lower to identify the type, quality of seals/joints between rolls of membrane to ensure a 150mm overlap, presence of double-sided butyl tape and girth jointing tape;
- Details, including photographic evidence of the installation of surface water drainage system together;
- An updated risk assessment for the site, taking into account the works that have been implemented and any uncertainties and limitations that were encountered.

8. CONCLUSIONS

It is considered that the proposed remedial measures will be sufficient to break the identified PPLs and render the site suitable for the proposed use.

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9. APPENDICES

Appendix 1 – Planning Permission Decision Notice 9.1

- Site: Land to the Rear of 17 Frognal, London, NW3 6AR Report Reference: REM-2023-000005 Date: April 23 Ν.

Ν.

Application ref: 2019/2263/P Contact: Adam Greenhalgh Tel: 020 7974 6341 Email: Adam.Greenhalgh@camden.gov.uk Date: 1 December 2021

KA Designs 23 Haslemere Aveune Barnet EN4 8EY



Development Management

Regeneration and Planning London Borough of Camden Town Hall Judd Street London WC1H 9JE

Phone: 020 7974 4444

planning@camden.gov.uk www.camden.gov.uk/planning

Dear Sir/Madam

DECISION

Town and Country Planning Act 1990 (as amended)

Full Planning Permission Granted Subject to a Section 106 Legal Agreement

Address: Land to rear of 17 Frognal London NW3 6AR

Proposal:

Erection of detached, single storey, 3-bed dwelling to the rear of No. 17 Frognal Drawing Nos: F12/2020/PRBL Rev C, F12/2018/PP/01 Rev E, F12/2018/PP/02 Rev E, F12/2018/PP/03 Rev C, F12/2018/PP/04 Rev B, F12/2018/PP/06 Rev B, Arboricultural Report, Impact Assessment & Protection Method Statement (Crawshaw Arborcare LTD 10/12/2020), Ecology report (Cherryfield ecology 25/10/2019), Endoscope survey of tree (T6) letter (Cherryfield Ecology 24/10/2019), Energy Assessment/SAP report (Energy Calculations Ltd 14/11/2019), Green Roof & Green Wall Planting & Maintenance Plan (The Plantman - 06/12/2020)

The Council has considered your application and decided to grant permission subject to the following condition(s):

Condition(s) and Reason(s):

1 The development hereby permitted must be begun not later than the end of three years from the date of this permission.

Reason: In order to comply with the provisions of Section 91 of the Town and Country Planning Act 1990 (as amended).

2 The development hereby permitted shall be carried out in accordance with the following approved plans and documents:

F12/2020/PRBL Rev C, F12/2018/PP/01 Rev E, F12/2018/PP/02 Rev E, F12/2018/PP/03 Rev C, F12/2018/PP/04 Rev B, F12/2018/PP/06 Rev B, Arboricultural Report, Impact Assessment & Protection Method Statement (Crawshaw Arborcare LTD 10/12/2020), Ecology report (Cherryfield ecology 25/10/2019), Endoscope survey of tree (T6) letter (Cherryfield Ecology 24/10/2019), Energy Assessment/SAP report (Energy Calculations Ltd 14/11/2019), Green Roof & Green Wall Planting & Maintenance Plan (The Plantman - 06/12/2020)

Reason:

For the avoidance of doubt and in the interest of proper planning.

3 Details of architectural features, materials, boundary treatments, PV/solar panels:

Before the relevant part of the work is begun, detailed drawings, or samples of materials as appropriate, in respect of the following, shall be submitted to and approved in writing by the local planning authority:

a) Details of all windows, ventilation grills, external doors and gates;

b) Manufacturer's specification details of all facing materials (to be submitted to the Local Planning Authority) and samples of those materials (to be provided on site).

- c) Details of all boundary treatments
- d) Details of PV/solar panels on roof

The relevant part of the works shall be carried out in accordance with the details thus approved and all approved samples shall be retained on site during the course of the works.

Reason: To safeguard the appearance of the premises and the character of the immediate area, and the sustainability of the development, in accordance with the requirements of policies D1, D2, CC1 and CC2 of the London Borough of Camden Local Plan 2017.

4 The proposed dwellinghouse, hereby approved shall be designed and constructed in accordance with Building Regulations Part M4 (2), evidence demonstrating compliance should be submitted to and approved by the Local Planning Authority prior to occupation.

Reason: To ensure that the internal layout of the building provides flexibility for the accessibility of future occupiers and their changing needs over time, in accordance with the requirements of policy C6 of the London Borough of Camden Local Plan 2017.

5 Notwithstanding the provisions of Article 3 of the Town and Country Planning (General Permitted Development) Order 1995 as amended by the (No. 2) (England) Order 2008 or any Order revoking and re-enacting that Order, no development within Part 1 (Classes A-H) [and Part 2 (Classes A-C)] of Schedule 2 of that Order shall be carried out without the grant of planning permission having first been obtained from the local planning authority.

Reason: To safeguard the visual amenities of the area and to prevent over development of the site by controlling proposed extensions and alterations in order to ensure compliance with the requirements of policies G1, D1, D2(if in CA) and A1 of London Borough of Camden Local Plan 2017.

6 Prior to first occupation of the development a plan showing details of small mammal connectivity, bird and bat box locations and types, and indication of species to be accommodated shall be submitted to and approved in writing by the local planning authority. The boxes and other measures shall be installed in accordance with the approved plans prior to the occupation of the development and thereafter retained.

Reason: In order to secure appropriate features to conserve and enhance wildlife habitats and biodiversity measures within the development, in accordance with the requirements of the London Plan (2016), the London Plan intend to publish (2019) and Policies A3 and CC2 of the London Borough of Camden Local Plan 2017.

7 The development hereby approved shall achieve a maximum internal water use of 110litres/person/day. The dwelling/s shall not be occupied until the Building Regulation optional requirement has been complied with.

Reason: To ensure the development contributes to minimising the need for further water infrastructure in an area of water stress in accordance with Policies CC1, CC2, CC3 of the London Borough of Camden Local Plan 2017.

8 Before the development commences, details of secure and covered cycle storage area for 2no. cycles shall be submitted to and approved by the local planning authority. The approved facility shall thereafter be provided in its entirety prior to the first occupation of any of the new units, and permanently retained thereafter.

Reason: To ensure the development provides adequate cycle parking facilities in accordance with the requirements of policy T1 of the London Borough of Camden Local Plan 2017.

9 Before the development commences, details of the location, design and method of waste storage and removal including recycled materials, shall be submitted to and approved by the local planning authority in writing. The facility as approved shall be provided prior to the first occupation of any of the new units and permanently retained thereafter.

Reason: To ensure that sufficient provision for the storage and collection of waste has been made in accordance with the requirements of policy CC5, A1 and A4 of the London Borough of Camden Local Plan 2017.

- 10 Prior to commencement of development, full details in respect of the green roof in the area indicated on the proposed roof plan and the green wall on the east elevation shall be submitted to and approved by the local planning authority. The details shall include
 - i. a detailed scheme of maintenance

ii. sections at a scale of 1:20 with manufacturers details demonstrating the construction and materials used

iii. full details of planting species and density

The green roof and green wall shall be fully provided in accordance with the approved details prior to first occupation and thereafter retained and maintained in accordance with the approved scheme.

Reason: In order to ensure the development undertakes reasonable measures to take account of biodiversity and the water environment in accordance with policies G1, CC1, CC2, CC3, D1, D2 and A3 of the London Borough of Camden Local Plan 2017.

11 Prior to the end of the next available planting season, landscaping including replacement tree planting shall be carried out in accordance with the arboricultural report by Central London Tree Surveys Arboricultural Consultants dated 10th December 2020 entitled "Arboricultural Report, Impact Assessment & Protection Method Statement". The trees shall be planted and maintained in accordance with BS8545:2014 - Trees from the nursery to independence in the landscape and the approved landscape maintenance plan.

Reason: To ensure that the development achieves a high quality of landscaping which contributes to the visual amenity and character of the area, in accordance with the requirements of policies A2 and A3 and D1 and D2 of the London Borough of Camden Local Plan 2017.

12 All hard and soft landscaping works shall be carried out in accordance with the approved landscape details [by not later than the end of the planting season following completion of the development or any phase of the development] [prior to the occupation for the permitted use of the development or any phase of the development], whichever is the sooner. Any trees or areas of planting (including trees existing at the outset of the development other than those indicated to be removed) which, within a period of 5 years from the completion of the development, die, are removed or become seriously damaged or diseased, shall be replaced as soon as is reasonably possible and, in any case, by not later than the end of the following planting season, with others of similar size and species, unless the local planning authority gives written consent to any variation.

Reason: To ensure that the landscaping is carried out within a reasonable period and to maintain a high quality of visual amenity in the scheme in accordance with the requirements of policies A2, A3, D1 and D2 of the London Borough of Camden Local Plan 2017.

13 Prior to the commencement of works on site, tree protection measures shall be installed and working practices adopted in accordance with the arboricultural

report by Central London Tree Surveys Arboricultural Consultants dated 10th December 2020 entitled "Arboricultural Report, Impact Assessment & Protection Method Statement". All trees on the site, or parts of trees growing from adjoining sites, unless shown on the permitted drawings as being removed, shall be retained and protected from damage in accordance with BS5837:2012 and with the approved protection details. The works shall be undertaken under the supervision and monitoring of the retained project arboriculturalist as detailed in the approved arboricultural report and the findings of supervision visits shall be sent to the Council's Tree and Landscape officer after each visit.

Reason: To ensure that the development will not have an adverse effect on existing trees and in order to maintain the character and amenity of the area in accordance with the requirements of policies A2 and A3 of the Camden Local Plan.

14 Prior to commencement of any works on site, details of the design of building foundations and the layout, with dimensions and levels, of service trenches and other excavations on site in so far as these items may affect trees on or adjoining the site, shall be submitted to and approved in writing by the local planning authority. The relevant part of the works shall not be carried out otherwise than in accordance with the details thus approved.

Reason: To ensure that the development will not have an adverse effect on existing trees and in order to maintain the character and amenities of the area in accordance with the requirements of policies A2 and A3 of the London Borough of Camden Local Plan 2017.

15 Prior to commencement of development details of a sustainable urban drainage system shall be submitted to and approved in writing by the local planning authority. Such system shall be based on a 1:100 year event with 30% provision for climate change demonstrating greenfield levels of runoff. The system shall be implemented as part of the development and thereafter retained and maintained.

Reason: To reduce the rate of surface water run-off from the buildings and limit the impact on the storm-water drainage system in accordance with Policies CC1, CC2, CC3 of the London Borough of Camden Local Plan 2017.

16 Prior to the commencement of work for each section of the development or such other date, or stage in the development as may be agreed in writing by the Local Planning Authority (LPA) a scheme including the following components to address the risk associated with site contamination shall be submitted to and approved in writing by the LPA.

A) A ground investigation based on the Phase 1 Desk Study to provide information for a detailed assessment of the risk to all receptors that may be affected, including those off site;

B) The results of the investigation and detailed risk assessment referred to in (A) and, based on these, in the event that remediation measures are identified necessary, a remediation strategy shall be submitted giving full

details of the remediation measures required and how they are to be undertaken;

C) A verification report providing details of the data that will be collected in order to demonstrate that the works set out in the remediation strategy in (b) are complete.

Each section of the development shall be carried out strictly in accordance with the relevant risk assessment, site investigation, remediation strategy and verification plan so approved, and no change therefrom shall take place without prior written consent from the LPA.

Any investigation and risk assessment must be undertaken in accordance with the requirements of the Environment Agency's Model Procedures for the Management of Contamination (CLR11). In the event that additional significant contamination is found at any time when carrying out the approved development it must be reported immediately to the LPA.

For the avoidance of doubt, this condition can be discharged on a section by section basis.

Reason: To ensure the risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors, in accordance with policies G1, D1, A1, and DM1 of the London Borough of Camden Local Plan 2017.

17 Prior to commencement of development details of a sustainable urban drainage system shall be submitted to and approved in writing by the local planning authority. Such system shall be based on a 1:100 year event with 30% provision for climate change, demonstrating greenfield levels of run-off. The system shall be implemented as part of the development and thereafter retained and maintained.

Reason: To reduce the rate of surface water run-off from the buildings and limit the impact on the storm-water drainage system in accordance with Policies CC1, CC2, CC3 of the London Borough of Camden Local Plan 2017.

Informative(s):

- 1 If possible, access to the site during construction should be achieved from the adjoining car park to the north. This should provide safe and convenient access to the site without any detriment to highway safety.
- 2 Your proposals may be subject to control under the Building Regulations and/or the London Buildings Acts that cover aspects including fire and emergency escape, access and facilities for people with disabilities and sound insulation between dwellings. You are advised to consult the Council's Building Control Service, Camden Town Hall, Judd St, Kings Cross, London NW1 2QS (tel: 020-7974 6941).

- 3 This approval does not authorise the use of the public highway. Any requirement to use the public highway, such as for hoardings, temporary road closures and suspension of parking bays, will be subject to approval of relevant licence from the Council's Streetworks Authorisations & Compliance Team London Borough of Camden 5 Pancras Square c/o Town Hall, Judd Street London WC1H 9JE (Tel. No 020 7974 4444). Licences and authorisations need to be sought in advance of proposed works. Where development is subject to a Construction Management Plan (through a requirement in a S106 agreement), no licence or authorisation will be granted until the Construction Management Plan is approved by the Council. Access to the site during the course of construction could potentially be secured form the adjoining car park. This would need to be agreed with the landowner accordingly.
- 4 Noise from demolition and construction works is subject to control under the Control of Pollution Act 1974. You must carry out any building works that can be heard at the boundary of the site only between 08.00 and 18.00 hours Monday to Friday and 08.00 to 13.00 on Saturday and not at all on Sundays and Public Holidays. You are advised to consult the Council's Noise and Licensing Enforcement Team, Camden Town Hall, Judd St, Kings Cross, London NW1 2QS (Tel. No. 020 7974 4444 or search for 'environmental health' on the Camden website or seek prior approval under Section 61 of the Act if you anticipate any difficulty in carrying out construction other than within the hours stated above.
- 5 All works should be conducted in accordance with the Camden Minimum Requirements - a copy is available on the Council's website at https://beta.camden.gov.uk/documents/20142/1269042/Camden+Minimum+Re quirements+%281%29.pdf/bb2cd0a2-88b1-aa6d-61f9-525ca0f71319 or contact the Council's Noise and Licensing Enforcement Team, 5 Pancras Square c/o Town Hall, Judd Street London WC1H 9JE (Tel. No. 020 7974 4444)

Noise from demolition and construction works is subject to control under the Control of Pollution Act 1974. You must carry out any building works that can be heard at the boundary of the site only between 08.00 and 18.00 hours Monday to Friday and 08.00 to 13.00 on Saturday and not at all on Sundays and Public Holidays. You must secure the approval of the Council's Noise and Licensing Enforcement Team prior to undertaking such activities outside these hours.

- 6 The correct street number or number and name must be displayed permanently on the premises in accordance with regulations made under Section 12 of the London Building (Amendments) Act 1939.
- 7 This proposal may be liable for the Mayor of London's Community Infrastructure Levy (CIL) and the Camden CIL. Both CILs are collected by Camden Council after a liable scheme has started, and could be subject to surcharges for failure to assume liability or submit a commencement notice PRIOR to commencement. We issue formal CIL liability notices setting out how much you may have to pay once a liable party has been established. CIL payments will be subject to indexation in line with construction costs index. You

can visit our planning website at www.camden.gov.uk/cil for more information, including guidance on your liability, charges, how to pay and who to contact for more advice.

In dealing with the application, the Council has sought to work with the applicant in a positive and proactive way in accordance with paragraph 38 of the National Planning Policy Framework 2021.

You can find advice about your rights of appeal at: http://www.planningportal.gov.uk/planning/appeals/guidance/guidancecontent

Yours faithfully

Daniel Pope Chief Planning Officer



9.2 **Appendix 2 - Proposed Development Plans**

Site: Land to the Rear of 17 Frognal, London, NW3 6AR Report Reference: REM-2023-000005 Date: April 23 Ν.

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NOTES: It is the owners responsibility to ensure that all relevant	The contractor is to check all dimensions on site prior	Project Title:	Dwg Title	PROPOSED BLOCK PLAN	
notices are issued in accordance with the Party Wall Act 1996.	to the commencement of works.	NEW DWELLING	Scale @ A3	1:500	Client: N.
The contractor is to take all necessary precautions to ensure the safety of the building and its stabilityduring	admixtures to complywith the currentbuilding Building Regulations, relevant British Standards, Codes	Project Address: REAR OF 17 FROGNAL	Date	DECEMBER 2020	
all stages of the proposed works.	of Practice and Manutacturers recommendations etc		Drwg No.	F12/2020/PRBL	Rev: C

Client: N. SOFRONIOU





NOTES:

It is the owners responsibility to ensure that all relevant notices are issued in accordance with the Party Wall Act 1996.

The contractor is to take all necessary precautions to ensure the safety of the building and its stability during all stages of the proposed works.

The contractor is to check all dimensions on site prior to the commencement of works.

All designs, connections, workamnship, fixings or admixtures to comply with the current building Building Regulations, relevant British Standards, Codes of Practice and Manutacturers recommendations etc

Project Title:	Dwg Title	PROPOSED SITE PLAN
NEW DWELLING	Scale @ A3	1:200 CI
Project Address:	Date	DECEMBER 2020
REAR OF 17 FROGNAL	Drwg No.	F12/2018/PP/01

KEY



EXISTING TREES TO BE REMOVED see aborcultural report for specific species



PLANTING AREAS



GRASSED LAWN



PERMEABLE STONE PAVERS using ground products as recommended in the Arboricultural Report, Tree Constraints Plan & Impact Assessment by Arbocare Ltd



Rev: E



Appendix 3 - Proposed Gas & Vapour Protection Membrane Options 9.3

Site: Land to the Rear of 17 Frognal, London, NW3 6AR Report Reference: REM-2023-000005 Date: April 23 Ν.

Ν.



- Do not scale from drawing, use dimensions provided

A. Cordek Tri-Gas Membrane

B. Cordek Gas Resistant DPC

D. VCL / Floor finishes by others E. DPC / Cavity tray by others

C. Cordek Double Sided Jointing Tape

- All laps and junctions must be fully sealed with appropriate welding techniques or jointing system

- The intended construction sequence should be considered prior to selection of the appropriate Cordek standard detail to ensure that installation is practical and achievable

- In accordance with BS8102:2009, should hydrostatic water pressure be a risk, additional waterproofing methods should be considered

Tel : 01403 799600

Email : techsupport@cordek.com

Drg. Title: Cordek Methane / CO2 Protection System Typical Edge Detail - Beam & Block Floor Detail

Drawn: SP

Date: 14.06.19 Scale: NTS

Drg. No. ENG/GP/MEM/TRIG/08 Rev: B