



Practical, sustainable solutions to complex environmental problems

Phase 2a Site Investigation and GQRA

at

**277a Gray's Inn Road
London
WC1X 8QF**

(Ref. TJ2824AR1v1.0)

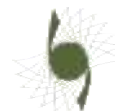
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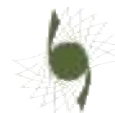
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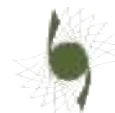
APPENDICES

Appendix A	Planning Permission.
Appendix B	TGEN Protocol.
Appendix C	Exploratory Hole Logs.
Appendix D	Laboratory Test Reports (Soils).
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Appendix F	Statistical Summary Tables.



LIST OF ABBREVIATIONS

ACM	Asbestos Containing Material	PAH	Polyaromatic Hydrocarbon(s)
Agency	Environment Agency	PCB	Polychlorinated Biphenyl(s)
Al	Aluminium	PCoC	Potential Contaminants of Concern
AONB	Area of Outstanding Natural Beauty	PE	Polyethylene
AoPC	Area(s) of Potential Concern	PID	Photo Ionisation Detector
BaA	Benzo(a)anthracene	POS	Parks and Open Spaces
BaP	Benzo(a)pyrene	PPE	Personal Protective Equipment
BbF	Benzo(b)fluoranthene	PRA	Preliminary Risk Assessment
BGS	British Geological Survey	PVC	Polyvinyl Chloride
BH	Borehole	QTSE	QTS Environmental Limited
BTEX	Benzene, Toluene, Ethylbenzene & Xylene	RBMP	River Basin Management Plan
CAT	Cable Avoidance Tool	RMS	Risk Management Strategy
C4SL	Category 4 Screening Levels	RWL	Resting Water Level
Chy	Chrysene	S	South
CLEA	Contaminated Lane Exposure Assessment	S4UL	Suitable 4 Use Levels
CSM	Conceptual Site Model	SAC	Special Area of Conservation
CWG	California Working Group	SGV	Soil Guideline Value
DEFRA	Dept for Environment, Food & Rural Affairs	SPA	Special Protection Area
DQRA	Detailed Quantitative Risk Assessment	SPL	Significant Pollutant Linkage
E	East	SPR	Source-Pathway-Receptor
FRA	Flood Risk Assessment	SPZ	Source Protection Zone
Ha	Hectare(s)	SSAC	Site Specific Assessment Criteria
IcdP	Indeno(123-cd)pyrene	SSSI	Site of Special Scientific Interest
GAC	Generic Assessment Criteria	SVOC	Semi Volatile Organic Compounds
GQA	General Quality Assessment	TGEN	Terragen Environmental Consultants Ltd
GQRA	Generic Quantitative Risk Assessment	TP	Trial Pit
LLTC	Low level of toxicological concern'	TPH	Total Petroleum Hydrocarbon(s)
LNR	Local Nature Reserve	UCL ₉₅	95% Upper Confidence Limit
m	Metre(s)	UK	United Kingdom
mAOD	Metres Above Ordnance Datum	UKAS	UK Accreditation Service
mbgl	Metres Below Ground Level	USEPA	United States Environmental Protection Agency
MTBE	Methyl Tert-Butyl Ether	VOC	Volatile Organic Compounds
MCERTS	The Agency's Monitoring Certification Scheme	W	West
N	North	WAC	Waste Assessment Criteria
NGR	National Grid Reference	WFD	Water Framework Directive
NNR	National Nature Reserve	WS	Window Sampler
NP	National Park		
NVZ	Nitrate Vulnerable Zone		



planning permission is presented in Appendix A, which is subject to a number of conditions, one of which (condition 9) relates to the investigation and remediation of potential contamination.

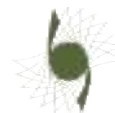
The proposed development will involve the demolition of the existing building and removal of all the existing hardstanding areas and underground services found within the confines of the site. The redeveloped site will provide three readily identifiable structural blocks, which rise up from an upper ground floor level of 18.95m AOD. The three blocks will include the low level residential "Eastern Block", the high level residential "Western Block" and the high level multi-purpose "Southern Block". A central courtyard is proposed between the three proposed blocks, which when considered together will form a continuous structural floor plate across upper ground floor level. The central communal areas between the eastern and western blocks will be dropped by 1.35m to a level of 17.60mAOD to form a split level upper ground floor.

Below the upper ground floor level, the site will maintain the split level characteristic of the proposed development with a split level lower ground floor to be identified separately as lower ground floor (to the raised levels below each of the residential blocks along the east and west boundaries) and basement level (to the central courtyard area and the full footprint of the southern block). The lower ground floor will be formed at a level of 16.1mAOD (i.e. circa 3m below the existing ground floor level) with the lower basement levels adopting a level of 14.3mAOD (i.e. circa 4.8m existing ground floor level).

As such, the redeveloped site will contain a single storey basement (typically 3.50m deep) across 60% of the site with a storey-and-a-half basement (typically 5.50m deep) over the remaining 40% of the site. When complete the site will be fully lined with RC facing walls in front of a combination of concrete underpins and contiguous piled walls.

The plans presented in Figure 2 show the extent of the upper ground floor, lower ground floor and the basement. A reduced level excavation of circa 3m across the entire site will be required with a deeper section, predominantly in the middle, circa 4.8m deep.

As the proposed development will result in the entire site being under permanent hardstanding, the landscape scheme is primarily hard materials. The soft landscaping will comprise a series of raised planters with grasses and herbaceous perennials and multistem trees helping 'green' the volume between the buildings. The raised planters will also provide seating opportunities as well as areas for visitor cycle parking, etc.



All of the made ground is however to be removed in order to accommodate the basement structure and it is therefore unlikely that water supply pipes will come into contact with made ground on the site. We would recommend that the local water supply company be consulted to determine the suitability of standard pipe materials or the need for some form of PVC or PE-Al-PE barrier pipe (e.g. Protectaline or similar).

4.4.3 Volatile Organic Compounds

The made ground and underlying natural ground encountered during the Phase 2a site investigation was found to be free from significant visual and/or olfactory indicators of volatile organic contamination, which was corroborated by in-situ VOC monitoring at each location and the organic hydrocarbon analysis undertaken. Furthermore, the sample of water recovered from the standpipe in the S of the site returned concentrations of TPH, PAH, VOC and semi VOC that were all below detection limits. As such, together with the fact that all of the made ground is to be removed to accommodate the basement structure the VOC SPL would be considered inactive.



Figure 1 Site Location Plan.



Figure 2 Proposed Development Plans.



Figure 3 Exploratory Hole Location Plan.

