HESI
Herts & Essex Site Investigations
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Geotechnical Assessments | Environmental Assessments | Desktop Studies | Contamination Analysis

VALIDATION REPORT

Site Address:	Proposed development site at Avondale Drive Flats, Avondale Drive, Hayes, Middlesex. UB3 3PN
Report Date:	May 2025
Project No.:	17712
Prepared for:	Higgins Partnership Ltd
Planning Application	Hillingdon Council – APPLICATION NUMBER - 76551/APP/2021/4502

CONTENTS

TABLES AND FIGURES

APPENDIXES

LIST OF ABBREVIATIONS

BGS	British Geological Society
CIRIA	Construction Industry Research and Information Association
EA	Environment Agency
GL	Ground Level
GW	Groundwater
HESI	Herts & Essex Site Investigations
LAPPC	Local Authority Pollution Prevention and Control
NOS	Not Otherwise Specified (waste material)
NHBC	National House-Building Council
OS	Ordnance Survey
PAH	Poly Aromatic Hydrocarbons
SPZ	Source Protection Zone
TPH	Total Petroleum Hydrocarbons
UFST	Underground Fuel Storage Tanks

DOCUMENT INFORMATION AND CONTROL SHEET

Client

Higgins Partnership PLC
One Langston Road
Loughton
Essex
IG10 3SD

Environmental Consultants:

Herts & Essex Site Investigations.
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Chris Gray, M.Sc

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Chris Gray, M.Sc

Document Status and Approval Schedule

Issue No	*Status*	*Date*	*Prepared by: Rebecca Chamberlain Signature / Date*	*Technical review by: Chris Gray Signature / Date*
1	Final	May 2025		

PHASE 4 – VALIDATION REPORT

1 Context and Objectives of this report

1.1 Introduction

At the request of Higgins Partnership PLC, Herts & Essex Site Investigations have been employed to undertake validation works within the site in order to provide evidence and documentation to support the removal of any risk from the site development as a result of site investigation works undertaken and risk assessments completed as a result of these investigations. This has been completed based on the proposed land use of the site is residential land formed by a multi storey block of flats with associated landscaping..

2 Report Objectives

The main objectives of the remediation works and validation works undertaken are as follows:

- To anticipate regulatory action and provide necessary data to remove risk.
- To assess the site for Part IIA.
- To ensure development is 'suitable for use' status, (status being residential land use).
- To assess the site in other regulatory contexts.
- To inform acquisition, transfer or sale plans.
- To support funding decisions.
- For valuation purposes.
- For insurance purposes

2.1 Limitations

The opinions expressed within this document and the comments and recommendations given, are based on the information gained, to date within a desktop study previously undertaken on the site. The interpretation of the data has been made by Herts & Essex Site Investigations.

Within any site investigation, materials sampled represent only a small proportion of the materials present on site. It is therefore possible that other conditions prevailing at the site which have not been revealed within the scope of this report, have not been considered. Where suspect materials are encountered during any further or future works within the site, additional specialist advice should be sought to assess whether any new information will materially affect the recommendations given within any physical ground investigation.

2.2 Planning Condition

An application is in place with Arun District Council as follows:-

Application No : 76551/APP/2021/4502
Proposal: The scheme for the proposed development comprises the demolition of all existing structures and the construction of a 240-unit housing development. The development will include a mixture of 5- to 10-storey towers with two-storey connecting podiums, as shown in Figure 6.1. The scheme for the proposed development also includes the creation of numerous areas of soft landscaping in and around the proposed structures.
Decision: Permitted

3 Site Location and National Grid Reference

The site is located within a rural area of Hayes, Middlesex, the details of which are summarised in Table 1 with the location plan of the site shown in Appendix 2, Sheet 1.

Table 1 Site Detail

Site Address:	Proposed development site at Avondale Drive Flats, Avondale Drive, Hayes, Middlesex. UB3 3PN
Site assessed under	Site Owners Request – Aid as part of planning and warranties
Current use of land:	Private vehicle garage laid to hard landscaping
Previous use of site, (if known)	As above
Grid Reference	TQ 10766 80249
Site Area	0.12 Hectares
Local Authority	Hillingdon Council – Planning Application Number – 76551/APP/2021/4502
Gradient of the site	The site forms a level area of land. No variations in ground level have been recorded.
Proximity of Controlled Waters, (if known)	The nearest surface water feature to the site is listed as a small stream/drain (33m northeast) which runs through Hitherbroom Park to the north of the site. This stream runs east towards the River Crane and Yielding Brook approximately 80m and 110m east of the site, respectively, given the anticipated shallow groundwater flow direction (southeast) these surface waters may be considered a potential controlled waters receptor with respect to potential on site sources of contamination

4 Review of Previous Reports or Documents Relating to the Site

4.1 Reports

The extent of former report which has been undertaken relating to the site is confirmed as follows :-

Table 2 Report Details

Report	***Developed by with Reference***	***Date***	***Submitted to Local Authority***	***Approved by Local Authority***
Planning Application Number : 76551/APP/2021/4502				
Desktop Study	Squared Studio Ltd	November 2021	Yes	
Environmental Report	HESI - 17712	November 2022	Yes	76551/APP/2023/468
Remediation Report	HESI - 17712	November 2022	Yes	76551/APP/2023/468

In order to gain a full understanding of the site and site history, a review of these documents should be made.

4.2 Review of DTS

4.2.1 Site Description

- The site is recorded as an existing block of private vehicle garages. This includes to single storey blocks of garages which have concrete surround for parking and access.
- The geology map also shows the spatial distribution of the superficial (drift) deposits underlying the site. The geology map indicates that the site is underlain by superficial deposits of the Langley Silt and Lynch Hill Gravel formations. Below the superficial deposits, the London Clay, Lambeth Group and Chalk bedrock formations are anticipated.
- The Lynch Hill Gravel Member underlying the site is classed as a Principal Aquifer. This designation is assigned to strata which comprise layers of rock or drift deposits that have high intergranular and/or fracture permeability, meaning they usually provide a high level of water storage, and may support water supply and/or river base flow on a strategic scale.
- The London Clay Formation underlying the superficial deposits is classified as an Unproductive Strata. Unproductive Strata are low permeability strata which are not considered to retain significant quantities of groundwater. If groundwater is present within Unproductive Strata, for example within more permeable lenses or small fissures, it is typically discontinuous, of low value and very low sensitivity.
- The nearest surface water feature to the site is listed as a small stream/drain (33m northeast) which runs through Hitherbroom Park to the north of the site. This stream runs east towards the River Crane and Yielding Brook approximately 80m and 110m east of the site, respectively, given the anticipated shallow groundwater flow direction (southeast) these surface waters may be considered a potential controlled waters receptor with respect to potential on site sources of contamination. However it should be noted that the section of the River Crane within proximity to the site may be lined, as indicated by a review of historic mapping and other online sources. If the River Crane is lined it is unlikely that it will be a potential controlled waters receptor.
- Groundwater has been abstracted form a borehole at Apexes Works 850m south of the site on a single occasion dated 1996. Groundwater has also been abstracted from a different borehole at Apexes Works 900m southeast of the site on two occasions for industrial/commercial/public services purposes. No further groundwater or surface water abstractions are listed within 1km of the site.
- The site has formed undeveloped land since the earliest map record in 1864 until 1934 when an Orchard and Coldharbour Farm fields are recorded in place. In 1863, a tower block is recorded in place across the area of the whole estate, (not specifically the main site but with the phases to the East.
- Surrounding the site, a ditch and / or stream is located 30 metres to the north of the site from 1864 to present day. Coldharbour Farm is located 290 metres to the north east of the site from 1864 to 1965. Brookside Brick Words is located 250 metres to the east and north east of the site from 1919 to 1960. Hayes and Harlington UDC Sewage Works is located 300 metres to the south of the site from 1919 to 1948. Allotments are identified in place some 80 metres to the south of the site from 1935 to 1938. Minet Primary school is located 30 metres to the west of the site from 1960 to present with Minet Clinic located 200 metres to the west from 1960 to present day. Further allotments are in place some 200 metres to the south of the site from 1961 to present day. Electric Sub Stations have been identified 120m, West, 240m, Northwest and 106m, South. These are from 1963 to 1987, 1963 to 1991 and 1970 to 1973 respectively. Finally a car breakers yard / tip is located 150 metres to the East / Southeast in 1999 only.

- Historic landfills have been identified 66 metres to the East, 226 metres to the west and 202 metres to the east. This may suggest ground gas risk is in place.

On Site

- Made Ground (from construction associated with the existing on-site development) – Heavy metals and metalloids, acids / alkalis, PAHs, asbestos, elevated sulphate and ground gases.
- Worked ground on-site – Heavy metals and metalloids, acids / alkalis, PAHs, TPHs, asbestos, elevated sulphate and ground gases.
- Office equipment manufacturers and distributors – Heavy metals and metalloids, acids / alkalis, PAHs, TPHs, asbestos and VOCs.
- Former brick field – Heavy metals and metalloids, acids / alkalis, PAHs, TPHs, asbestos, elevated sulphate and ground gases.
- Three electrical sub stations – Heavy metals and metalloids, acids / alkalis, PAHs, TPHs and PCBs.
- Former Orchard & Coldharbour Farm fields – Heavy metals and metalloids, acids / alkalis and pesticides.

Off Site

- Electrical substations 120 m west and 240 m north-west – Heavy metals and metalloids, acids / alkalis, PAHs, TPHs and PCBs.
- Landfill and other filled ground 66m and 202 m east and 226m west of the site – Heavy metals and metalloids, acids / alkalis, PAHs, TPHs, elevated sulphate and ground gases.
- A pollution incident to controlled water consisting of unknown oil (126m north-west) – Heavy metals and metalloids, acids / alkalis, PAHs and TPHs

Pathways

Potential pathways in place within the site area recorded as: -

- Dermal Contact.
- Inhalation of dust and fibres.
- Ingestion of dust and fibres
- Ingestion of contaminated water through water main pipework.
- Inhalation of vapours from soils.
- Inhalation of vapours from Groundwater.
- Inhalation Asbestos dust and fibres (from asbestos within the soil).

Receptors

Potential receptors in place within the site area recorded as: -

- Human Health, (Site Development Personnel).
- Human Health, (Residents or staff).
- Adjoining Land Owners, (unlikely)
- Groundwater
- Surface water features

4.3 Review of Environmental Report

4.3.1 Site Investigation Works Completed

The focus of the investigation was to confirm risks from the site which are detailed as follows: -

- Assessment of possible Asbestos in soils across the site area.
- Spatial sampling around the remainder of the site to provide a general assessment.

Initial Investigation – September & October 2022

- 4 No Competitor Rig Windowless Sampler borehole sunk to a maximum depth of between 1.40-1.70 meters – Date of Works – October 2022.
- 1 No Shell & Auger borehole sunk to a maximum depth of 30 metres to assess soils profile for piling parameters.
- Installation of 3 No standpipes to a depth of between 3.0 and 6.00 meters for the purpose of ground water and Land Gas assessments.
- Excavation of 2 No hand dug trial pits to expose the existing foundations.
- Chemical Sampling and Testing recovered from samples and sent to analytical chemist, (report date 27/09/2022).

4.3.2 Historic Investigation

Prior to our involvement in the development of the site, no historic investigations are known to us.

4.3.3 Description of Site Works and on/off Site Observations

Based on the investigation completed by HESI the site has been reviewed and we can confirm that the geology within the site is as follows :-

Table 3 Geological Profile

Stratum	Description	Depth, Range (m)	Thickness, Range (m)
MADE GROUND	Concrete	0.20m	0.20m
	Loose brown sandy claybound FILL with flints	0.50m	0.30m
SUPERFICIAL DEPOSITS	Firm grey slightly silty sandy CLAY	0.90m	0.40m
LANGLEY SILT MEMBER	Firm to stiff brown silty sandy very gravelly CLAY	1.10-1.40m	0.20-1.00m
LYNCH HILL GRAVEL	Dense orange brown very sandy flint GRAVEL	6.50m	5.40m
LONDON CLAY	Stiff light brown slightly silty CLAY	15.95m	9.45m
	Stiff grey slightly silty CLAY	30.00m+	14.05m+
Ground Water	Groundwater has been monitored during the ground gas assessments and confirms that the groundwater elevation is recorded as at between 1.19-1.41 metres within the shallow borehole standpipes and at between 2.45 and 3.60 metres within the deeper standpipe. This was recorded over six monitoring inspections.		

4.3.4 Human Health Source Conclusions

Risk based on assessments of the site confirm that risk is in place as follows: -

Table 4 **Human Health Source Conclusions**

Risk Factor	Risks in place	Remediation
Targeted Risks	None	
Spatial Risks	None	
Land Gas Risks	None	
Vapour Risk	None	

4.3.5 Ground and Surface Water Source

Based on the absence of any significant levels of contamination in place, minimal made ground on site, risk to groundwater is considered low.

4.3.6 Land gas risks

Based on the land gas reading and assessment completed, we would suggest gas generation within the site area is minimal and would return a Characteristic Situation in line with CIRIA C665, CLR11 and BS8485:2015 of CS=1 and no mitigation measures required

4.4 General Source Risk Conclusions

Zone 1 - The Site

Risk Factor	Risks in place	Remediation
Targeted Risks	None	
Spatial Risks	None	
Land Gas Risks	***Low risk***	
Vapour Risk	None	
Groundwater Risk	None	
Water Main Risk	None	
Concrete Mix Risk	None	

5 Risk Assessment Based on Source Risk

Considering the presence of contamination which has been identified above, we confirm the following outlines the assessment of the site completed and way forward for the site.

Table 5 Risk Assessment A

Source	Receptors	Pathway	Mitigation / Discussion
No Contamination	Site Users, (current and future); Construction Workers; Adjacent Site Users, Fauna.	Direct contact	NO ACTION REQUIRED
		Ingestion dust and soil	
		Ingestion of soils attached to vegetation	
		Inhalation of vapours, (gas and organic)	
		Ingestion of contaminated water through water main pipework	
		Inhalation of vapours through contaminated ground waters	
		Direct contact with contaminated ground waters	
	Surface Water.	Lateral migration of shallow groundwater to a target receptor.	
	Ground Water. Abstraction Well.	Migration through fissures / cracks which may migrate to a groundwater receptor.	
	Plants. Vegetation.	Plant uptake. Direct contact.	
	Buildings. Construction Materials.	Direct contact with contaminated soils;	
		Direct contact with contaminated groundwater	

5.1 Collection of Additional Data

- No additional works are required at this time.
- Based on the information gained, we can confirm that the site investigation works completed have appropriately defined the site risks.
- NO RISK HAS BEEN RECORDED AT THE SITE.

6 Validation

6.1 Validation Works Completed

Based on the identified of no risk is in place a watching brief as noted in the remediation report was required. This was maintained throughout the development as documented the within the signed statement by the contract manager that completed the works, in the appendix of this report.

6.2 Imported soils

HESI were asked to test the imported topsoil for a suite of metal and semi metals, PAHs, Asbestos and TPH. A copy of the testing is recorded within the appendix of this report and when these results are compared to the current SGVs for residential land with home grown produce as set out in the remediation report there are no elevated levels recorded in place and therefore fit for use within this development.

7 Conclusions

The site did not record any contamination in place within the original investigation above a residential land use standard and as such, risk was not identified in place.

With no contamination in place, a watching brief was maintained through the scope of the development works to confirm that no other contamination was identified during excavation of works within the site.

Clean topsoil has been imported to the site area.

This forms the extent of validation works completed at the site.

CERTIFICATE OF COMPLETION

Development: Avondale Drive Flats, Avondale Drive, Hayes, Middlesex. UB3 3PN

Planning Application Ref: Hillingdon Council 76551/APP/2021/4502.

Undertaken Between the Dates of: November 2021 and May 2025

PHASE 1 - Desktop Study

Confirmation that an acceptable Phase I Assessment has been undertaken for the above development, detailed in the Phase I report(s):

Title:	Ref:	Author:	Date:
Desktop Study	GEA	Bryan O'Gorman	May 2021

PHASE 2 - Intrusive Investigation

Confirmation that an acceptable Phase II Assessment has been undertaken for the above development, detailed in the Phase II report(s):

Title:	Ref:	Author:	Date:
Environmental Report	CSG / 17712	HESI - C.S.Gray, M.Sc	November 2022

PHASE 3 - Remediation Proposals

Confirmation that acceptable remediation measures to afford protection from identified risks have been proposed for the above development, detailed in the report(s):

Title:	Ref:	Author:	Date:
Remediation Report	CSG / 17712	HESI - C.S.Gray, M.Sc	November 2022

PHASE 4 - Implementation of Remediation

Confirmation that proposed remedial measures were satisfactorily implemented, as per the agreed report(s), & detailed in the Validation Documentation:

Title:	Ref:	Author:	Date:
Validation Report	CSG / 17712	HESI - C.S.Gray, M.Sc	May 2025

IMPORTED TOPSOIL CLARIFICATION

Confirmation that Topsoil has been imported into the site.

Title:	Ref:	Author:	Date:
Validation Report	CSG / 17712	HESI - C.S.Gray, M.Sc	May 2025

DECLARATION

SIGNED

CHRIS GRAY, M.Sc.

Date: May 2025

IS THE SITE FIT FOR PURPOSE ?

YES.

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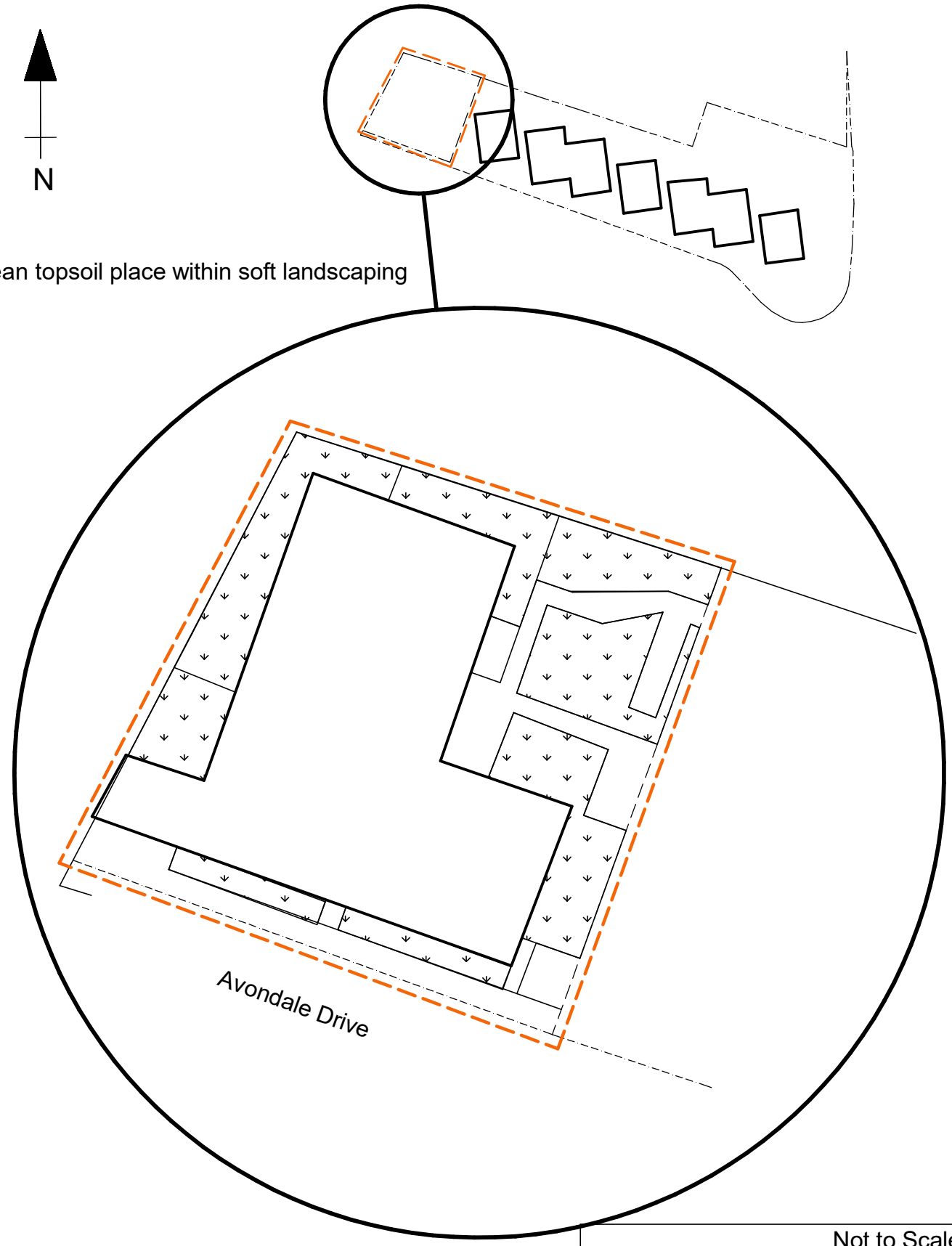
Appendix No	1
Sheet No	1
Job No	17712
Date	May 2025

Wellings House, 236, Avondale Drive, Hayes, UB3 3PN

Proposed Site Plan



Not to Scale

Sketch No. : VAL / 17712 / 01 / 01

MODEBEST
GROUNDWORKS | RC FRAMES | CIVIL ENGINEERING

MODEBEST BUILDERS LIMITED
| Moy House | 69 Belvue Road | Northolt
| Middlesex | UB5 5XS | T 020 8900 1981

info@modebest.co.uk | www.modebest.co.uk

Higgins Partnership PLC
One Langston Road
Loughton
Essex
IG10 3SD

Site Ref - Phase 1, Avondale Drive Flats, Avondale Drive, Hayes, UB3 3PN

MBL Ref - 01211 Avondale Drive Estate

Ref -

I, Raymond Carty, am a Contracts Manager at Modebest Builders Ltd, Moy House, 69 Belvue Road, Northolt UB5 5XS & overseen all our works at Avondale Drive Estate Phase 1 site.

We undertook the Groundworks package & Reinforced Concrete Frame package on site between 12th February 2024 & 4th October 2024.

I can confirm that during the course of our works at Avondale Drive Estate Phase 1, we observed no contaminated ground during our excavation works, nor seen any potential contamination on site. All materials were sampled & tested prior to their removal. All materials were removed from site as clean inert material.

If you have any questions or concerns regarding the above, please don't hesitate to contact us.

Regards,

Raymond Carty
Contracts Manager
Modebest Builders Ltd

MODEBEST
BUILDERS LIMITED
Moy
House | 69 Belvue Road | Northolt | Middlesex | UB5 5XS
T 020 89001981
www.modebest.co.uk

METHOD STATEMENT – WATCHING BRIEF

Task / Activity		Method Statement No.	
Enabling Works & Reduce Level Dig			01211/MBL/HTC / 010 Rev A
Task Location	**Start Date**	**Author**	
Avondale Drive Estate (Phase 1), Avondale Drive, Hayes, UB3 3PP (c/o Higgins Partnership)	12-02-2024	Ray Carty	

RESOURCES

Personnel

Position: (Supervisor, engineer etc.)	Name	Contact No. (Supervisor only)
Manager	Ray Carty	07946 505032
Supervisor	Arjan Lika	07384 217126
Machine Drivers	TBC	
Banksman	TBC	

Equipment	Materials
20t Excavator 13t Excavator 9t Dumper	Concrete/Clay/Ballast/Soil & Stones

TEMPORARY WORKS

N/A

ACCESS / EGRESS

Access for all deliveries/Collections is off Avondale Drive from 08:00 to 16:30.

MODEBEST
BUILDERS LIMITED
Moy
House | 69 Belvue Road | Northolt | Middlesex | UB5 5XS
T 020 89001981
www.modebest.co.uk

METHOD

- Majority of existing site surface consists of hardstanding RC concrete (old car park). Material will be broken out using excavator, segregated & removed from site for recycling.
- Trial Holes showing made ground & clean inert material
- This method statement is to confirm that only natural occurring inert material will be disposed of, from site.
- Where possible, ballast that is located during excavation works will be segregated & offered to disposal facility for recycling & reuse.
- Existing hardstanding area on site consists of 6F2 crush material & concrete.
- A watching brief will be maintained during excavating & loading of all material to insure only inert is sent to relevant waste disposal facility.
- Should any suspected contaminated soils be located during watching brief, during future excavation of material, these will be selectively excavated, segregated and stockpiled in a designated area on site. Soils will be tested to determine its future disposal facility.

EMERGENCY PROCEDURES

N/A

Relevant Risk Assessments	Other Relevant Documents	PPE Requirements
		(Site standard requirements plus)
Signed **Ray Carty**		**Dated** 12/01/2024

MODEBEST
BUILDERS LIMITED
Moy
House | 69 Belvue Road | Northolt | Middlesex | UB5 5XS
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Existing Hardstanding Car Park

Trial Hole: Clean Inert Material

MODEBEST
BUILDERS LIMITED
Moy
House | 69 Belvue Road | Northolt | Middlesex | UB5 5XS
T 020 89001981
www.modebest.co.uk

Trial Hole: Clean Inert Material

Segregated Concrete Stockpile

Herts & Essex Site Investigations☐
The Old Post Office
Wellpond Green
Standon
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SG11 1NJ

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e: rchamberlain@hesi.co.uk☐
csgray@hesi.co.uk☐
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btleak@hesi.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
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e: reception@i2analytical.com

Analytical Report Number : 25-020146

Project / Site name:	1 Wellings House, 236, Avondale Drive, HAYES, UB3 3PN	**Samples received on:**	22/04/2025
Your job number:	17712	**Samples instructed on/ Analysis started on:**	22/04/2025
Your order number:	17712	**Analysis completed by:**	28/04/2025
Report Issue Number:	1	**Report issued on:**	28/04/2025
Samples Analysed:	1 soil sample		

Signed:

Adam Fenwick
Key Account Executive
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

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
air	- once the analysis is complete

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

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 25-020146
Project / Site name: 1 Wellings House, 236, Avondale Drive, HAYES, UB3 3PN
Your Order No: 17712

Lab Sample Number				519902
Sample Reference				TS A
Sample Number				None Supplied
Water Matrix				N/A
Depth (m)				None Supplied
Date Sampled				17/04/2025
Time Taken				0930
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	13
Total mass of sample received	kg	0.1	NONE	2
Asbestos				
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KSZ
Analysis completed	N/A	N/A	N/A	25/04/2025
General Inorganics				
pH (L099)	pH Units	N/A	MCERTS	8.4
Organic Matter (automated)	%	0.1	MCERTS	5.5
Total Phenols				
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0
Speciated PAHs				
Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.08
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.13
Pyrene	mg/kg	0.05	MCERTS	0.12
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.06
Chrysene	mg/kg	0.05	MCERTS	0.06
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.11
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.08
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.07
Total PAH				
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80
Heavy Metals / Metalloids				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	10
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.59
Boron (total)	mg/kg	1	MCERTS	10
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (III)	mg/kg	1	NONE	20
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20
Copper (aqua regia extractable)	mg/kg	1	MCERTS	28
Lead (aqua regia extractable)	mg/kg	1	MCERTS	19
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0

Analytical Report Number: 25-020146
Project / Site name: 1 Wellings House, 236, Avondale Drive, HAYES, UB3 3PN
Your Order No: 17712

Lab Sample Number				519902
Sample Reference				TS A
Sample Number				None Supplied
Water Matrix				N/A
Depth (m)				None Supplied
Date Sampled				17/04/2025
Time Taken				0930
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**	
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	32
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	67

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	1
TPHCWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	2.4
TPHCWG - Aliphatic >EC16 - EC21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 EH_CU_1D_AL	mg/kg	8	MCERTS	18
TPHCWG - Aliphatic >EC5 - EC35 EH_CU+HS_1D_AL	mg/kg	10	NONE	21

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.02	MCERTS	< 0.020
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	< 10

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 25-020146
Project / Site name: 1 Wellings House, 236, Avondale Drive, HAYES, UB3 3PN

* 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 *
519902	TS A	None Supplied	None Supplied	Brown loam with gravel and vegetation

Analytical Report Number : 25-020146
Project / Site name: 1 Wellings House, 236, Avondale Drive, HAYES, UB3 3PN

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
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.	L019B	D	NONE
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	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
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	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' 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.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution