



FORMER LANGSTONE TECHNOLOGY PARK,
LANGSTONE ROAD, HAVANT.
WATCHING BRIEF VERIFICATION REPORT

Prepared by:

Envirotreat Solutions Limited
LCP House
The Pensnett Estate
Kingswinford
West Midlands
DY6 7NA

www.envirotreat.com

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ESL/SSF/101	September 2022	Original	Simon Farr	David Slater	Neil McLeod

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EXECUTIVE SUMMARY

Objectives	ADI Group appointed Envirotreast to undertake a Watching Brief during the enabling works, to facilitate soil / resource management and be cognisant of unexpected contamination.
Site Location	The Site is currently occupied by Langstone Technology Park. which comprises mixed commercial and industrial units. A number of new developments are being undertaken on the site.
Scope of work	• Watching brief at key stages of the enabling works. • Soils assessment of made ground prior to reuse back onsite.
Environmental Setting	The site is underlain by a sequence of Made Ground, Alluvium and River Terrace Deposits (Secondary A Aquifer). a limited band of superficial Head deposits in the southern central area of the Site. The bedrock geology is indicated to comprise the Lewes Nodular Chalk Formation, Seaford Chalk Formation. Newhaven Chalk Formation and Culver Chalk Formation (Principal Aquifer). The nearest surface water feature fir the Langstone Mill Channel running north-south adjacent to the eastern boundary of the Site.
Ground model	The ground investigation identified up to 1.70m of Made Ground. The Made Ground was found to comprise 'Topsoil' or Tarmac underlain by granular till type materials or reworked natural materials followed by natural strata comprising River Terrace Deposits or Brickearth to 4 m bgl. This was followed by weathered layers of the chalk bedrock to 6.00 m bgl. This was further underlain by chalk Bedrock. proven to a maximum depth of 19.85 m bgl.
Scope of Works	The scope of works covered by this report relates to identified and previously unidentified contamination associated with the development of the southwest corner of the site. As well as reuse of soils within the development.

This executive summary is to be read in conjunction with the remainder of the report and should not be relied upon in isolation.

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A. INTRODUCTION

1. Terms of Reference

Envirotreast Solutions Ltd (hereinafter referred to as Envirotreast) was appointed by ADI Group (hereinafter referred to as 'the client') to undertake a watching brief and prepare a materials management plan for the reuse of soils onsite, associated with the development of the former Langstone Technology Park, Havant ('the site').

2. Aims and Objectives

The aim of this verification report is to summarise the findings of the works undertaken.

3. Previous Reports

Envirotreast has been provide with the following previous reports pertaining to the site:

- Applied Geology – Geotechnical Report on Ground Investigation at Langstone Technology Park – August 2021

Envirotreast has downloaded from the Planning Portal the following Site Investigation Report (some reports relate to the whole site):

- Delta Simons – Phase 1 Environmental Assessment – November 2020 – this included several appended historical site investigation reports
- Delta Simons – Preliminary Geo-Environmental Risk Assessment – July 2019
- Clancy - Remediation Strategy Report Langstone Technology Park, Havant – November 2020

This report should be read in conjunction with the above reports.

4. Regulatory Liaison

4.1 Planning Conditions

Planning condition 9 states:-

Prior to the commencement of any specific phase of development approved by this planning permission (other than demolition, site clearance, or any other date or stage in development as may be agreed in writing with the Local Planning Authority), an assessment of the nature and extent of contamination at the relevant part of the site, whether originating from within or outside the curtilage, shall be submitted to and approved in writing by the Local Planning Authority. The assessment may comprise separate reports as appropriate, but shall be undertaken by competent persons and unless specifically excluded in writing by the Local Planning Authority, shall include;

1. An intrusive site investigation based on the proposals outlined within the Preliminary Geo-Environmental Risk Assessment Re'-19-0687.01 (section 6.0); to provide sufficient data and information to adequately identify & characterise any physical contamination on or affecting the site, and to inform an appropriate assessment of the risks to all identified receptors.

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2. The results of an appropriate risk assessment based upon (1), and where unacceptable risks are identified, a Remediation Strategy that includes; appropriately considered remedial objectives, an appraisal of remedial &/or risk mitigation options, having due regard to sustainability, and; · clearly defined proposals for mitigation of the identified risks, and;
3. A verification plan providing details of the data that will be collected in order to demonstrate that the works set out in any Remediation Strategy required under (2) are complete, identifying any requirements for longer-term monitoring of pollutant linkages, maintenance of engineered mitigation measures, and arrangements for contingency action.

All elements shall be adhered to unless agreed in writing by the Local Planning Authority. Reason: Having due regard to policies CS11 and DM10 of the Havant Borough Adopted Core Strategy (2011) and DM17 of the Havant Borough Local Plan (Allocations) (2014) and the National Planning Framework, Contamination may be present at the site as a result of previous land uses (& / or activities) on site and in the vicinity, that could pose a risk groundwater & local surface waters (ecology), to the proposed buildings, and future occupiers of the site.

Planning condition 16 states:-

Prior to the occupation of any relevant phase of the permitted development, any verification report for that phase required in accordance with condition 9 shall be submitted to and approved in writing by the Local Planning Authority. The report shall include results of sampling and monitoring carried out in accordance with the approved verification plan and must demonstrate that site remediation criteria have been met. Where longer-term monitoring of pollutant linkages is identified as being necessary, the report shall clearly set out plans for monitoring, provision for maintenance, relevant triggers and contingency actions (a "long-term monitoring and maintenance plan"). The long-term monitoring and maintenance plan shall be implemented as approved. Reason: Having due regard to policies CS11 and DM10 of the Havant Borough Adopted Core Strategy (2011) and DM17 of the Havant Borough Local Plan (Allocations) (2014), Contamination may be present at the site as a result of previous land uses (&/or activities) on site and in the vicinity, that could pose a risk groundwater & local surface waters (ecology), to the proposed buildings, and future occupiers of the site.

B. BACKGROUND INFORMATION

5. Basic Site Details

5.1 Site Location

The Langstone Technology Park comprises a roughly rectangular parcel of land occupying an area of approximately 16Ha. The site is located toward the southern periphery of Havant, 600m south of the town centre and 1.5km south-east of Junction 5 of the A3(M).

The site comprises a series of large buildings subdivided into leased units of mixed uses. Occupying the centre of the site are a series of buildings including two plant buildings ('Building 2000 and 3000'), offices and amenity complex with associated courtyards ('Building 4000'), a large data and distribution centre ('Building 5000') with a waste storage area to the west, along with three-storey office buildings ('Building 6000 and 7000').

A small nursery is present to the south of Building 5000.

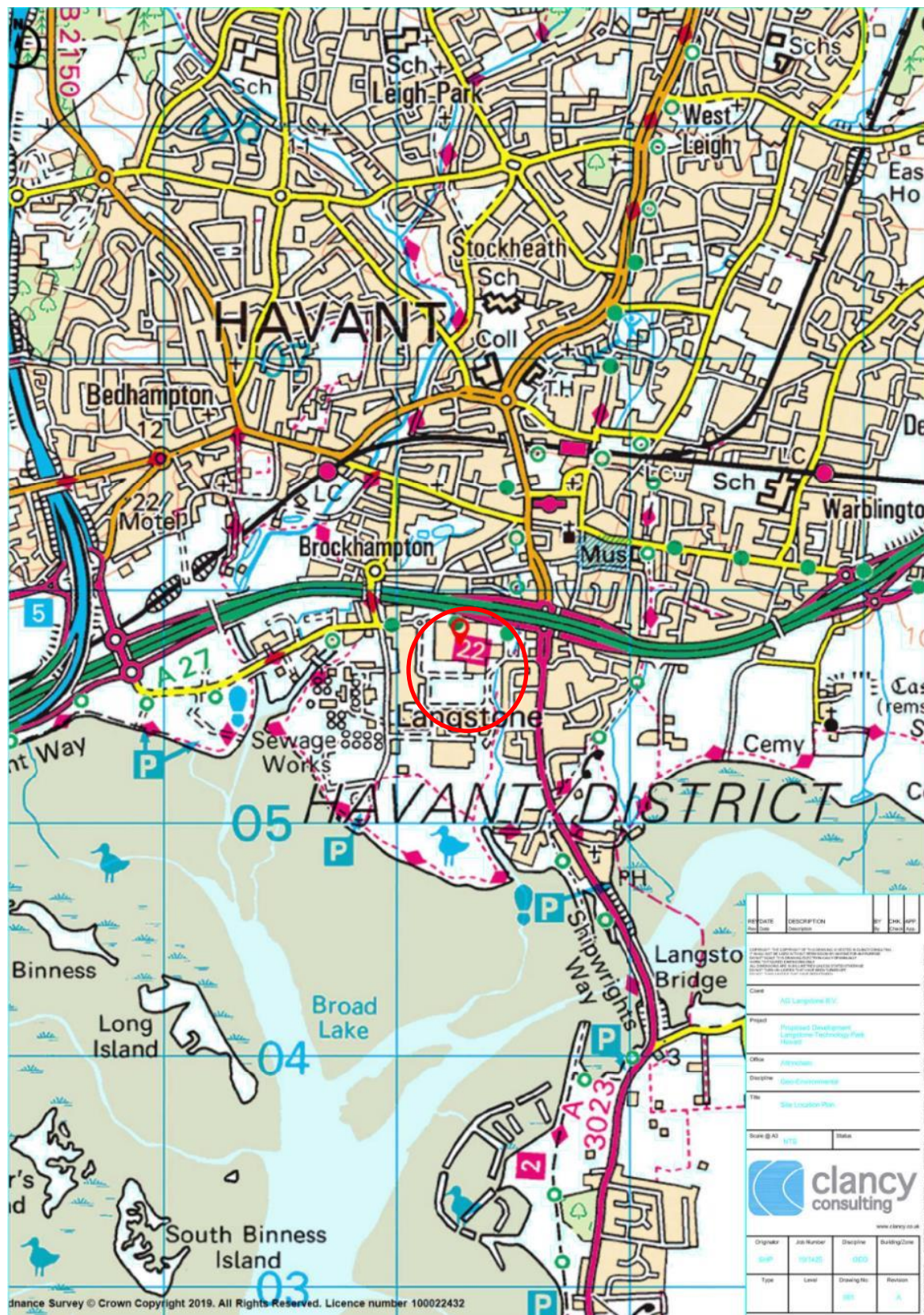
Located in the north of the site is 'Building 1000', a single storey structure built on top of a man-made embankment and understood to contain a number of offices, manufacturing and laboratory units with access tunnels running from the car park to the north to beneath the building.

Toward the south-western corner of the site is a small gymnasium, vehicle washing area (with associated subsurface drainage), a storage area and a number of circular historic tank bases. All demolished prior to previous remediation works

Access infrastructure and soft landscaping covers the rest of the site, which include a number of engineered slopes. The remainder of the site is currently occupied by car parking areas (including the majority of the south of the site) – see figures 1, 2 and 3 overleaf.

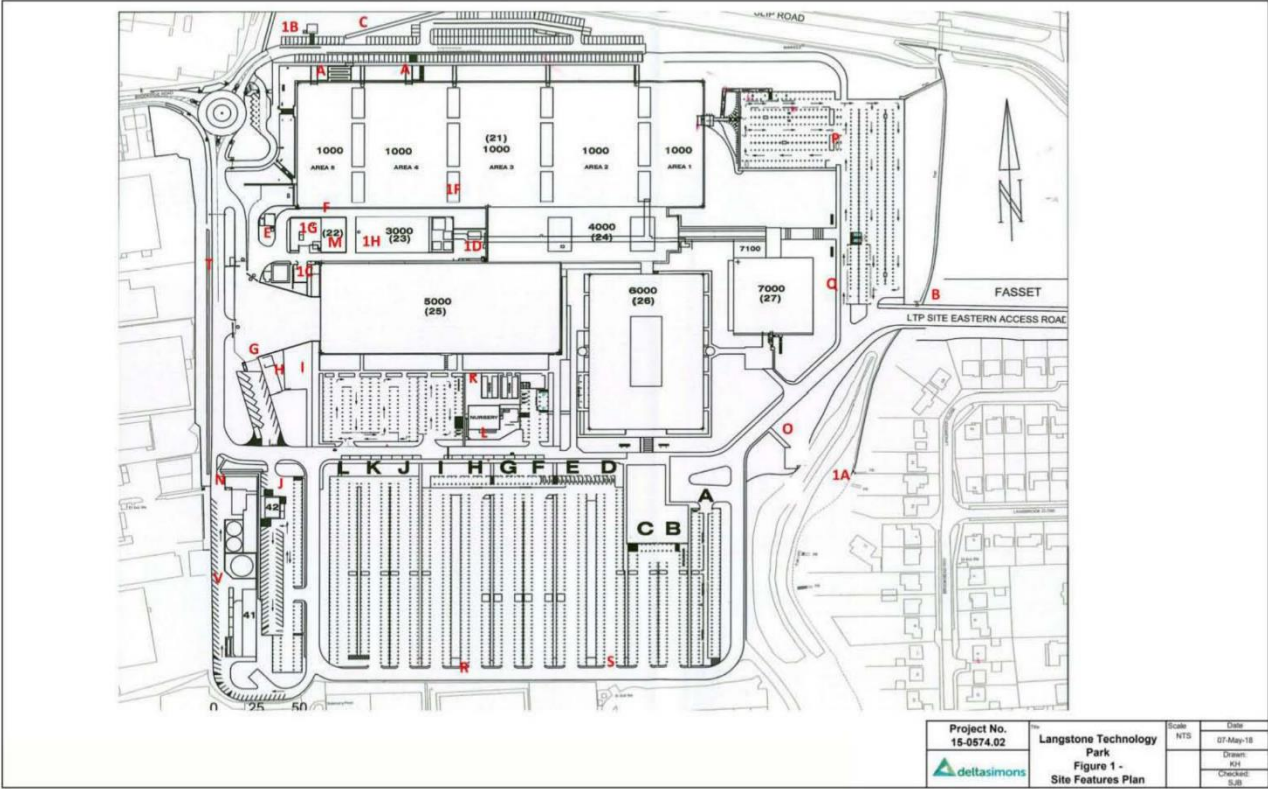
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Figure 1– Site Location (circled)



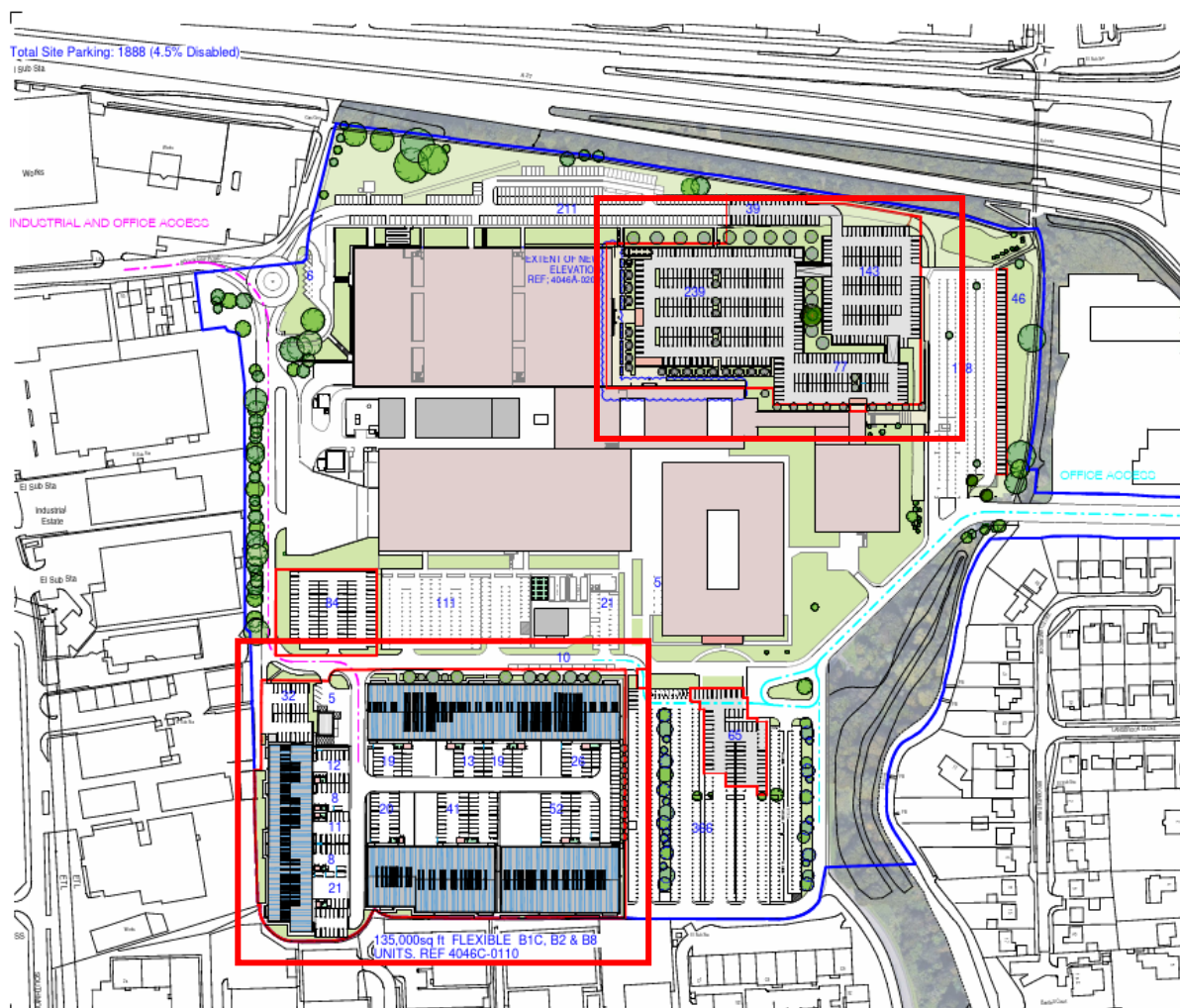
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Figure 2 – Site Location existing



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Figure 3 – Site Location (development area) showing Southwest and Northeast development areas



5.2 Overall Objectives

Delta Simons and Clancy Consulting identified potential contaminant linkages relating to the historic use of the site and (receptors).

The following scope of works is proposed to address the remediation requirements:

- Provision of a “watching brief” during enabling works during the development of the Southwest corner
- Provision of a “Discovery Strategy” during the development of the Southwest corner
- Provision of a comprehensive Validation and Verification Report (this report) detailing the works undertaken, supporting documentation and photographic record.

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5.3 Summary of Environmental Setting

Historic Site Uses

Historical OS maps of the area indicate the site was undeveloped until the early 1900s, when a large sewage works, and engine house occupied the north-eastern section of the site. During the subsequent decades this facility underwent significant expansion. In the mid-1950s, an allotment garden occupied the centre of the site.

In the early to mid-1970s, the site had undergone large-scale redevelopment, resulting in the construction of many of the existing commercial / industrial units. A large building and an electrical sub-station occupied the southern section of the site, within the existing car-parking area. By the early 1990s the building / electricity substation across the south of the site had been replaced by the existing car park and the site is understood to have been in its current configuration. The surrounding area has comprised a mix of undeveloped, and industrial land uses including mills, sewage works, works and industrial units and a retail park with associated infrastructure.

Ground Conditions

Clancy Consulting recorded the following ground conditions:

Ground conditions encountered in exploratory holes comprised up to 3.10m thickness of Made Ground, underlain by River Terrace Deposits to depths of up to approximately 6.00m bgl. The White Chalk Subgroup was recorded beneath the River Terrace Deposits and proven to a maximum depth of approximately 25.00m bgl.

Groundwater was recorded in the River Terrace Deposits from depths of approximately 2.00m bgl.

Groundwater in the superficial deposits is considered to be in hydraulic conductivity within groundwater in the underlying White Chalk Subgroup Principal Aquifer. Hydrogeology and Hydrology

The nearest surface water feature is the Langstone Mill Channel running north to south adjacent to the eastern boundary of the Site.

5.4 Development Proposal

Development Team

The site will be redeveloped for commercial end use with associated parking, access and landscaped areas.

The development will be carried out by:

ADI Group

66 Melchett Rd,

Kings Norton Business Centre,

Birmingham

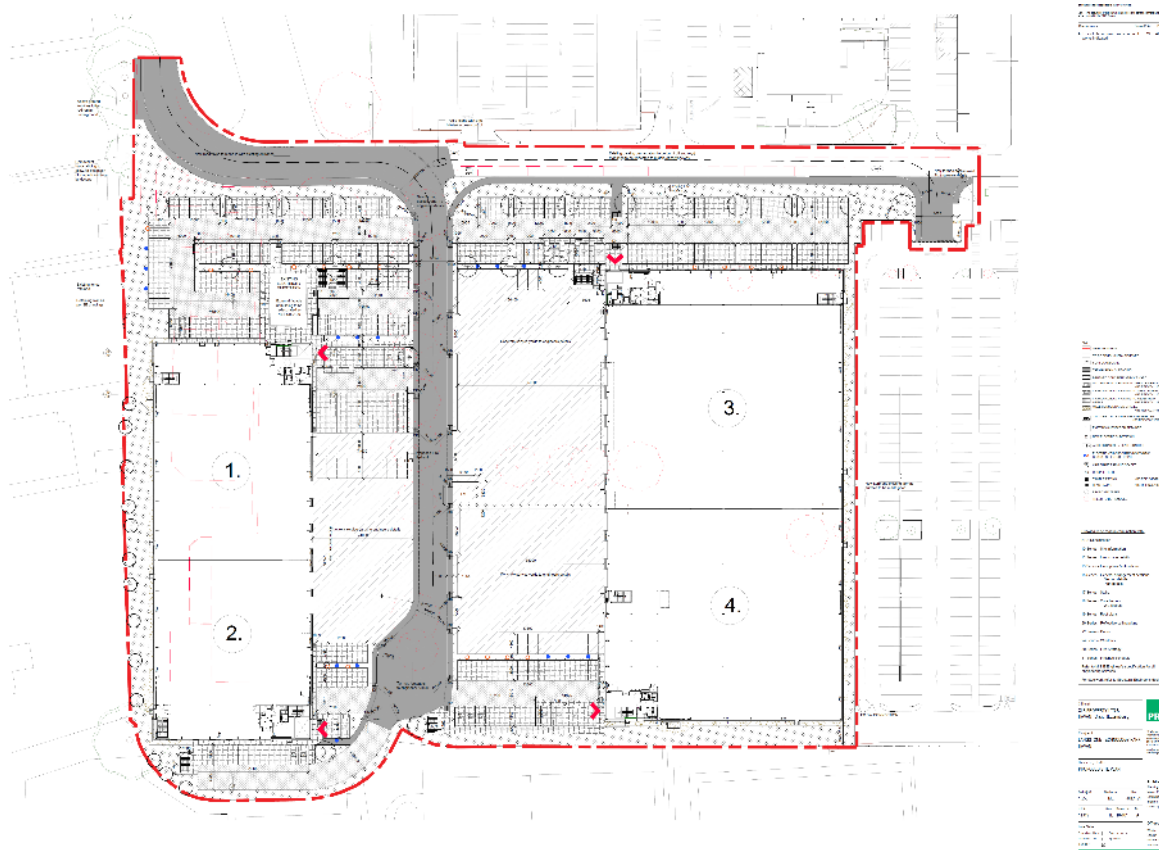
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Proposed Development

The Proposed development for the Southwest corner of the site is shown in Figure 4 below.

Figure 4 - Proposed Development (Southwest corner)



5.5 Previously identified contamination.

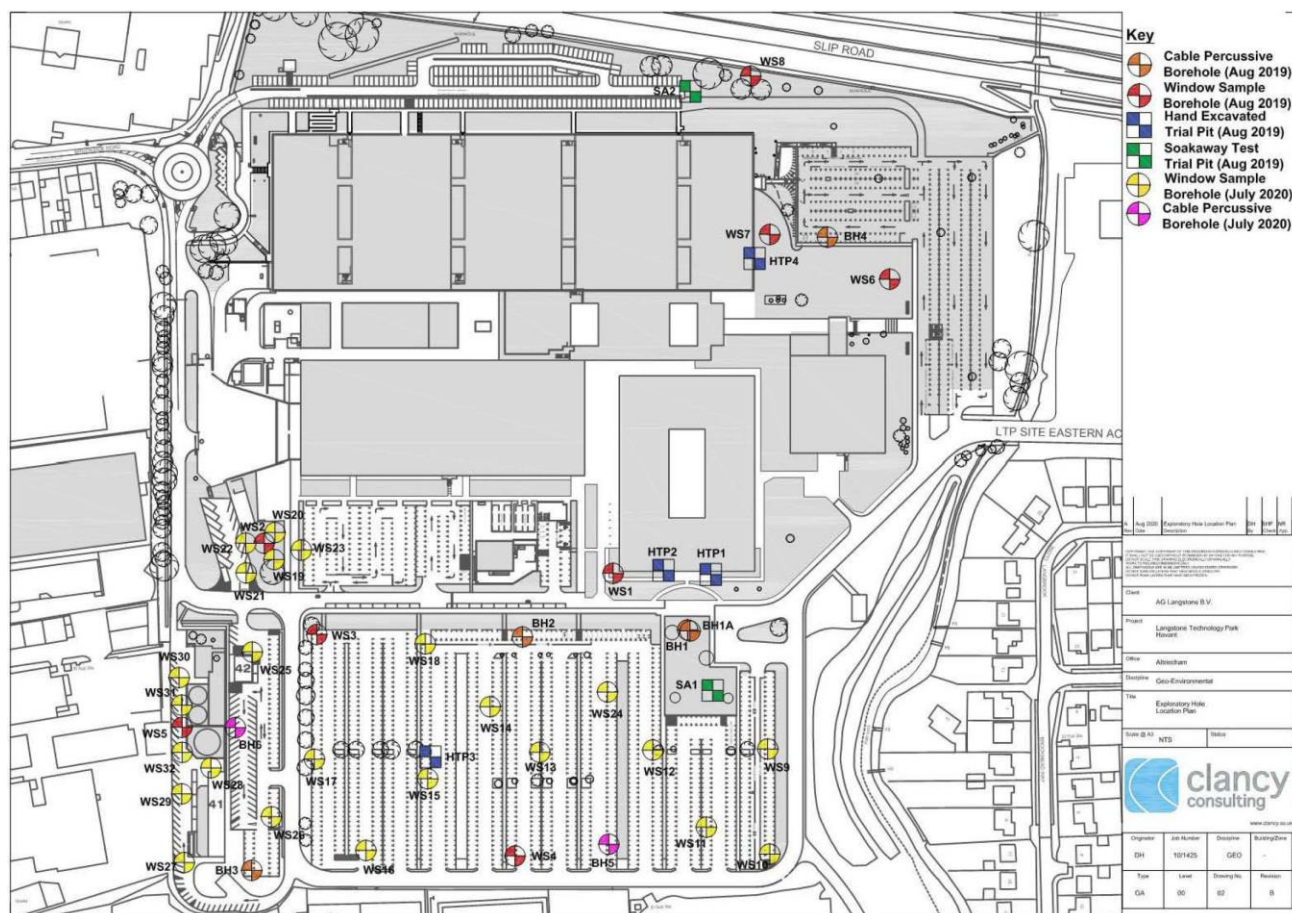
In addition to the contamination in and around WS5, further potential soil contamination was noted around WS2, see figure 5 for respective locations.

Clancy noted strong olfactory evidence between 1.0m and 1.6m bgl, this was supported by laboratory testing of soils from 1.1m bgl. See figure 6 for borehole log and table 1 for summary of laboratory testing.

Clancy returned to site and drilled several further windowless boreholes WS19 to WS 23 inclusive, to delineate the contamination noted within WS2, the laboratory testing is also summarised in table 1 below.

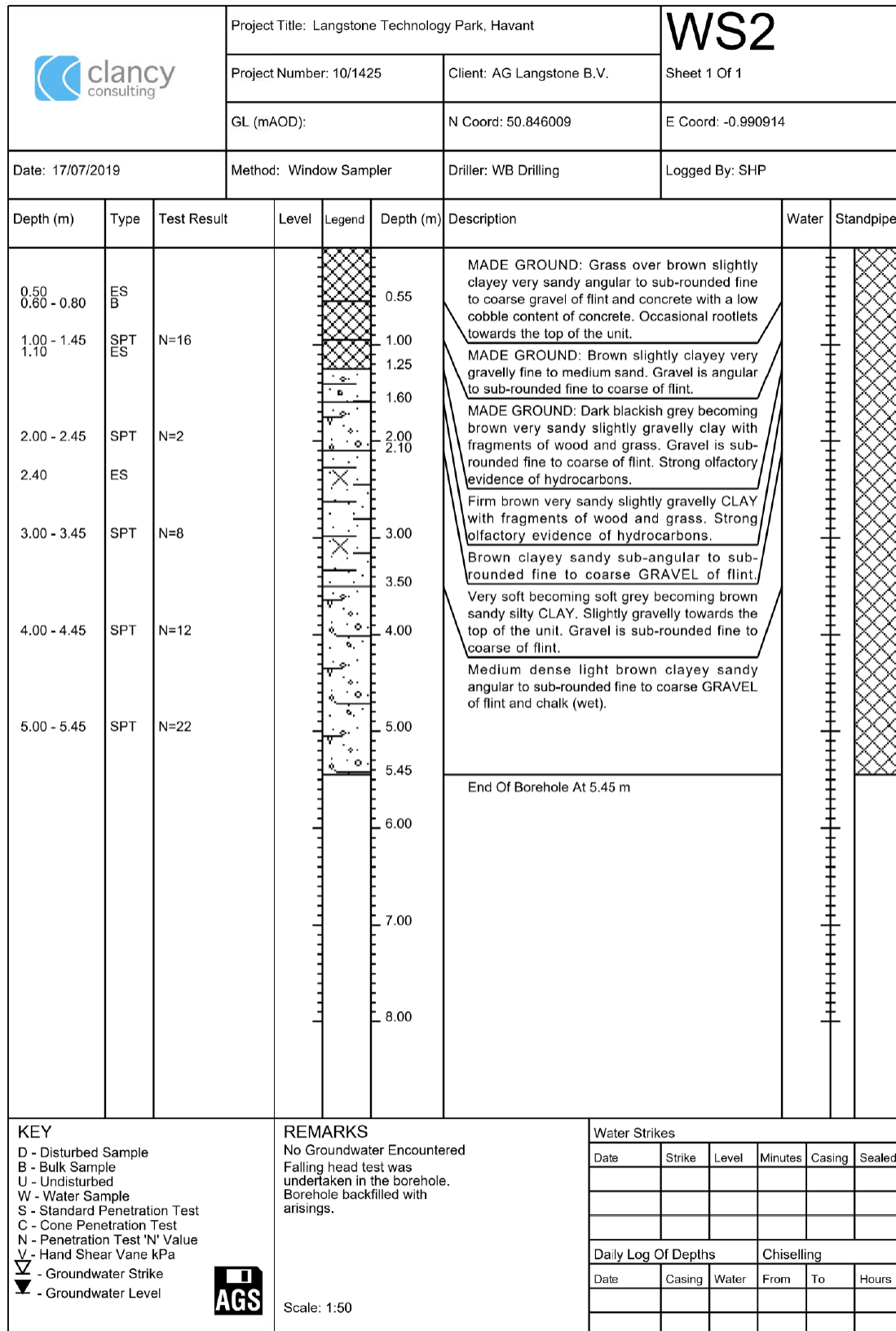
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Figure 5 – SI locations.



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Figure 6 – Borehole Log WS2



Printed By GeoLogs (www.GeoLogs.com)

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Table 1 – Summary of Delineation testing WS2

Sample Reference	Sample Depth	PAH (mg/kg)	TPH (C5-35) (mg/kg)	Benzene (mg/kg)
WS2	1.1	40.1	9,200	< 0.01
WS2	2.4	< 0.08	< 0.01	< 0.01
WS19	NT	NT	NT	NT
WS20	0.4	< 0.08	< 0.01	< 0.01
WS20	0.9	< 0.08	< 0.01	< 0.01
WS20	1.9	< 0.08	< 0.01	< 0.01
WS21	1.3	< 0.08	< 0.01	< 0.01
WS21	2.7	0.09	< 0.01	< 0.01
WS22	NT	NT	NT	NT
WS23	1.0	3.05	< 0.01	< 0.01

NT – not tested.

None of the additional borehole installations indicated any significant hydrocarbon contamination, indicating that any contamination located at WS2 as being small in volume and isolated. In addition, the laboratory testing of WS2 indicated the absence of short chain (mobile) contaminants. Therefore, presenting a low risk to groundwater.

C. WATCHING BRIEF

6. Introduction

Envirotreat was in attendance during the main enabling works and at key stages of the site development.

7. Soils Reuse

To facilitate the design, a cut and fill was undertaken by the ADI approved subcontractor (JA Burke).

Arisings from the cut and fill (and subsequent drainage and services works) were segregated and stockpiled in accordance of

- Tarmac (reuse / offsite disposal)
- Concrete and materials suitable for crushing (relocated to Northeast of site for processing and reuse for new car parking)
- Made ground (assessed and reused within Southwest development by Envirotreat) and
- Natural soils (relocated to Northeast of site for reuse)

These works are shown in the following figures

Figure 7 – Southwest development platform - Hardstanding and topsoil removed



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Figure 8 – Segregation of soils (made ground to be reused in SW and concrete for crushing in NE)



Figure 9 – Attenuation tanks (resulting in mostly natural soils)



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Figure 10 – Oversize and concrete for crushing (NE)



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Figure 11 – Use of made ground and imported aggregate to create formation levels and subbase for building slab



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Figure 12 – Stockpiling (suitable) made ground to raise levels to formation



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Figure 13 – Stockpiled drainage arisings



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Figure 14 – Ongoing drainage works



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8. Soils Testing

Made ground stockpiled for reuse in trimming levels to formation / backfilling / etc was sampled and tested for suitability, the results of these samples are summarised in tables and 3 below. Certificates of Analysis appended accordingly.

Table 2 – Summary of Delineation Trial Sample Analysis Summary #1

Lab Sample Number		2229955	2229956	2229957	2229958
Sample Reference		Sample 1	Sample 2	Sample 3	Sample 4
Depth (m)		Not Applicable	Not Applicable	Not Applicable	Not Applicable
Date Sampled		04/04/2022	04/04/2022	04/04/2022	04/04/2022
Analytical Parameter (Soil Analysis)	Units				
General Inorganics					
pH - Automated	pH Units	7.5	7.1	7.9	7.9
Total PAH					
Speciated Total EPA-16 PAHs	mg/kg	< 0.80	< 0.80	< 0.80	< 0.80
Heavy Metals / Metalloids					
Arsenic (aqua regia extractable)	mg/kg	6.1	4	6	5.3
Boron (water soluble)	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Cadmium (aqua regia extractable)	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	44	45	45	34
Copper (aqua regia extractable)	mg/kg	15	16	16	12
Lead (aqua regia extractable)	mg/kg	15	12	16	13
Mercury (aqua regia extractable)	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	40	43	41	30
Selenium (aqua regia extractable)	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	57	56	69	48
Monoaromatics & Oxygenates					
Benzene	µg/kg	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons					
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	< 10	< 10	< 10	< 10

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Table 3 – Summary of Delineation Trial Sample Analysis Summary #2

Lab Sample Number		2269717	2269718
Sample Reference		S5	S6
Depth (m)		Not applicable	Not applicable
Date Sampled		04/05/22	04/05/22
Time Taken		None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units		
General Inorganics			
pH - Automated	pH Units	8.5	8.1
Total PAH			
Speciated Total EPA-16 PAHs	mg/kg	< 0.80	< 0.80
Heavy Metals / Metalloids			
Arsenic (aqua regia extractable)	mg/kg	5.8	7.1
Boron (water soluble)	mg/kg	< 0.2	0.5
Cadmium (aqua regia extractable)	mg/kg	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	40	50
Copper (aqua regia extractable)	mg/kg	13	16
Lead (aqua regia extractable)	mg/kg	16	19
Mercury (aqua regia extractable)	mg/kg	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	36	37
Selenium (aqua regia extractable)	mg/kg	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	58	74
Monoaromatics & Oxygenates			
Benzene	µg/kg	< 1.0	< 1.0
Petroleum Hydrocarbons			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	< 10	< 10

The above testing shows the suitability of the made ground for reuse on the Southwest development. No unsuitable soils were observed during the enabling works.

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9.WS2

Previous site investigation had highlighted potential hydrocarbon contamination around the borehole WS2.

Envirotreat attended site for the duration of drainage works in and around WS2, all excavated soils and the sides / base of all excavations were assessed by visual, olfactory and headspace analysis (by PID).

No contamination was observed, and the excavated soils were reused to reinstate the excavations.

Figure 15 – Drainage work in and around WS2



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Figure 16 – Drainage work in and around WS2



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Figure 17 – Drainage arising from around WS2



Figure 18 – Drainage work in and around WS2



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Figure 19 – Drainage work in and around WS2



D. CONCLUSIONS AND RECOMMENDATIONS

10. Conclusions

Envirotreast has completed the Watching Brief at the former Langstone Technology Park, Havant in accordance with the requirements of Planning Conditions and the agreed Remediation Strategy.

The watching brief works carried out clearly show that any contamination risks have been managed and no risk to human health or groundwater has arisen during / as a consequence of the enabling works.