



Angel Meadow, Plot 5 Remediation Verification Report

For DEX Construction Group Limited

Date: 31 May 2022

Doc ref: 22868-HYD-XX-RP-GE-0001-S2-P01

DOCUMENT CONTROL SHEET

Issued by	Hydrock Consultants Limited Northern Assurance Buildings 9-21 Princess Street Manchester M2 4DN	Tel: 0161 804 5550 www.hydrock.com
Client	DEX Construction Group Limited	
Project name	Angel Meadow, Plot 5	
Title	Remediation Verification Report	
Doc ref	22868-HYD-XX-RP-GE-0001-S2-P01	
Hydrock Project no.	22868	
Status	S2	
Date	31/05/2022	

Document Production Record		
Issue Number	P01	Name
Prepared by	Jason Bradley BSc (Hons) MSc FGS	
Checked by	Adam Cheers BSc (Hons) CSci MEnvSc FGS	
Approved by	Lauren Mollart BSc (Hons) CGeol RoGEP FGS	

Document Revision Record			
Issue Number	Status	Date	Revision Details
P01	S2	31/05/2022	First Issue

Hydrock Consultants Limited has prepared this report in accordance with the instructions of the above-named client for their sole and specific use. Any third parties who may use the information contained herein do so at their own risk.

CONTENTS

1.	INTRODUCTION.....	1
1.1	Background and Terms of Reference.....	1
1.2	Objectives	2
1.3	List of Previous Reports	2
1.4	Parties Involved in Remedial Works.....	2
2.	REMEDICATION STRATEGY.....	3
2.1	Background.....	3
2.2	Proposed Remedial Activities.....	3
3.	REMEDICATION WORKS UNDERTAKEN	4
3.1	Introduction of Simple Cover System	4
3.2	Installation of Ground Gas Protection Measures	4
4.	CONCLUSION	7

Appendices

Appendix A	Drawings
Appendix B	Planning Decision Notice & Pre-commencement Condition Discharge
Appendix C	Photographs
Appendix D	Chemical Analysis and Assessment
Appendix E	Marked-up Gas Monitoring Data

1. INTRODUCTION

1.1 Background and Terms of Reference

In March 2022, Hydrock Consultants Limited (Hydrock) was commissioned by DEX Construction Limited (the client) to prepare a Remediation Verification Report (RVR) for a site known as Angel Meadow, Plot 5 located at Old Mount Street, Manchester, M4 4HA. Preparation of this RVR follows completion of a ground investigation, remediation strategy and remedial works carried out by others at the site between 2017 and 2021.

This report pertains to Plot 5 only at Angel Meadow, which is rectangular in shape and covers an area of approximately 0.2 hectares.

Construction works have been completed at the site and the finished development comprises a high-rise apartment building consisting of linked ten and twelve storey structures for predominantly residential use, with an associated car park at ground level under the eastern portion of the building. External areas have been developed into pedestrianised areas comprising hardstanding with small strips of soft landscaping.

A site location plan, and a 'remediation issues plan' (produced by E3P), and the final ground floor general arrangement layout (produced by Exterior Architecture) are presented in Appendix A.

Planning permission Ref. 116366/FO/2017 (included in Appendix B) has been issued by Manchester City Council (MCC). Contamination is covered by condition 7a, as follows:

'The following information has been submitted in respect of this planning condition:

- *Exploratory Hole Location plan 004*
- *Depth made ground 005*
- *Remediation issue plan 006*
- *Enabling works MDW-SHD-00-F1-DR-S-0002*
- *Piling Risk assessment prepared by e3p*

The above are stamped as received by the City Council, as Local Planning Authority, on the 10 October 2018.

- *Ground investigation report*

The above are stamped as received by the City Council, as Local Planning Authority, on the 2 November 2018

- *Remediation and enabling works strategy*
- *Gas certificate*
- *Final inspection certificate*

The above are stamped as received by the City Council, as Local Planning Authority, on the 18 January 2019.

The above information has been considered. The ground conditions at the development shall be carried out in accordance with the above information. Condition 7a is now formally discharged in respect of plot 5 only. In order to discharge this condition in full a verification report shall be submitted in line with part (b) of this condition prior to the first occupation of plot 5.'

1.2 Objectives

This verification report is the final report of a series required to discharge planning conditions relating to ground contamination and is based on the tasks set out in the Remediation Strategy prepared by E3P in September 2018. The overall objective is to demonstrate that the agreed remediation strategy has been complied with and that the site has been rendered Suitable for Use.

1.3 List of Previous Reports

The site has been the subject of a number of environmental investigations and assessments. In preparing the verification report, the following documents were consulted and should be read in conjunction with this report:

- WSP, May 2017, Phase 1 Preliminary Risk Assessment, ref. REPORT NO 70020194-EV2/10687(1), Issue 5.
- WSP, August 2017, Ground Investigation Report, ref: 70020194_20170418_ANGEL MEADOW PLOT 5 GIR (2), Issue 3.
- E3P, September 2018, Remediation and Enabling Works Strategy, ref. 12-928-r1.

1.4 Parties Involved in Remedial Works

The contractors involved during the remediation, enablement and construction phase were:

- Main Contractors - Scott Hughes Design and Bardsley Construction Ltd, and later DEX Construction Limited); and
- Remediation / Enabling Works Contractor Cidon Construction Limited.

It is understood that Bardsley Construction Limited went into administration in late 2019, and were replaced by DEX Construction Limited as the Main Contractor on the project.

DEX have advised that there was very limited information exchanged from Bardsley to DEX relating to enabling and remediation works at the point of takeover. As such, Hydrock aims to demonstrate that the main remediation tasks have been completed to a suitable standard in order to gain approval from MCC.

Hydrock was engaged to undertake this verification report following completion of the construction phase once structures and external areas had been built..

2. REMEDIATION STRATEGY

2.1 Background

The WSP Ground Investigation Report and the E3P Remediation Strategy summarised the key risk drivers onsite requiring remediation as the following:

- Asbestos (Amosite) fibres in the Made Ground at one location at a concentration of <0.001%;
- Elevated concentrations of lead in the Made Ground at three locations (between 340mg/kg and 1900mg/kg); and
- Ground Gas (carbon dioxide) generated from the Made Ground and the Sherwood Sandstone at concentrations elevated above 5%.

The above reports were submitted to the local authority and were deemed sufficient to obtain discharge of the pre-commencement condition requiring an approved remediation strategy. The remediation strategy, if implemented, would render the site suitable for its proposed end use.

Full details of the remedial requirements are provided in the remediation strategy with a summary of the proposed works presented in Section 2.2.

2.2 Proposed Remedial Activities

Based on the Remediation Options Appraisal completed by E3P (2018), the following methodologies were selected for implementation to break the pollution linkages and result in the site being suitable for its proposed end use.

Table 2.1: Remedial approaches

Pollution Linkage	Proposed Remedial Approach
Asbestos and lead contamination present within the Made Ground soils at the site.	Provision of a simple 300mm cover system using certified material with appropriate validation within proposed garden areas. To comprise: 150mm subsoil (potentially site won natural drift deposits) overlain by 150mm topsoil.
Ground Gas (carbon dioxide).	Installation of ground gas protection measures commensurate with CS2 conditions.

The remediation works were designed to maximise the re-use of soils on site and minimise off-site disposal whilst recognising the end goals of the various specifications. The remedial activities were undertaken to deliver the site Suitable for Use (SFU) for the defined residential without plant uptake end use.

3. REMEDIATION WORKS UNDERTAKEN

3.1 Introduction of Simple Cover System

As previously alluded to, DEX has advised Hydrock that there is no information available relating to the import of subsoil and topsoil material for the build-up of the simple cover system in soft landscaped areas.

In order to verify that the cover system had been installed in soft landscaping areas in accordance with the proposed strategy, Hydrock attended site to complete 6no. hand dug pits to confirm thickness, inspect the material and collect samples of the upper 300mm of soil for chemical analysis.

Hydrock attended site on 28/04/22 to excavate six hand dug pits (HP01 – HP06) to depths between 0.30 and 0.50m below ground level (bgl) as shown on Hydrock marked up location plan sketch in Appendix A, and hand pit photographs in Appendix C.

Hydrock can confirm that the simple cover system has been installed to the specified minimum 300mm thickness as defined in the Remediation Strategy. The 'subsoil' and 'topsoil' material appear to be a single material type natural in origin consisting of brown slightly gravelly sandy clay, however some rare brick and plastic fragments were noted, however this is not believed to be indicative of Made Ground and is likely to have been introduced to the material incidentally at the time of placement.

A total of six soil samples were collected (one from each hand pit location) which were dispatched to a UKAS accredited laboratory on 29/04/22. In accordance with the approved E3P Remediation Strategy, Table 3.2 (Specification of Chemical Validation Laboratory Analysis) each soil sample was scheduled for the following chemical analysis:

- Asbestos Screen & ID, As, Be, B, Cd, Cr(vi), Cr(III), Cu, Pb, Hg, Ni, Se, V, Zn, free cyanide, total phenols (monohydric), pH, PAH - Speciated (EPA 16), and FOC; and
- TPH Level 2 suite comprising carbon banding with aliphatic/aromatic split plus BTEX and MTBE.

The chemical analysis results have been screened against a CLEA Public Open Space (residential) end use scenario as agreed between Hydrock and Manchester City Council. The Assessment of Chemicals of Potential Concern to Human Health has found that no determinands are in exceedance of the Generic Assessment Criteria (GAC) and the soils used in the cover system are suitable for use and in accordance with the approved (E3P) Remediation Strategy.

The laboratory analysis certificates and the Hydrock assessment sheet are provided in Appendix D.

3.2 Installation of Ground Gas Protection Measures

No information relating to the installation of gas protection measures was made available to DEX from Bardsley, and it is unknown at this stage if the installation of the membrane and other measures were validated at the time of installation.

Hydrock visited site in March 2022 to inspect at ground floor level too ascertain if any protection measures were visible - none could be identified. However, in most instances it would be difficult/unlikely to identify the CS2 protection measures from ground floor level.

it should be noted that the eastern portion of the development comprises a well-ventilated car park at ground level which could potentially go some way to acting as a barrier to the migration of ground gas into the building.

3.2.1 Review of Original Site Investigation Data

Hydrock have revisited the WSP ground investigation report to understand the basis for determining that CS2 protection measures would be required for the new building. The following sections have been reproduced from the WSP Ground Investigation report:

Context and monitoring (WSP)

'The results of six ground gas monitoring visits have been provided to WSP for visits completed on 5 May, 17 May, 31 May, 13 June, 28 June and 20 July 2017 and used in this gas risk assessment.

Shallow monitoring well response zones for BH301 to BH302 and WS102 to WS103 were installed within the Made Ground and Glacial Till deposits across the site. Deeper monitoring standpipes were also installed in BH301 and BH302 within the Sherwood Sandstone bedrock.

Gas monitoring was completed for BH301 and BH302 (shallow and deep) on six occasions. Only one gas monitoring visit could be completed for WS102 and WS103 (5 May 2017) due to the presence of cars over the monitoring well. It is therefore considered the gas data recorded from BH301 and BH302 is representative of ground gas conditions beneath the site.'

Assessment (WSP)

A maximum recorded flow rate of 0.6 l/hr was recorded in BH301-shallow during the 28 June 2017 monitoring visit, therefore a flow rate of 0.6l/hr has therefore been assumed for this risk assessment.

No elevated methane concentrations have been recorded and the maximum recorded carbon dioxide concentration is 10.0% v/v (BH301-deep). Whilst the calculated GSV for carbon dioxide is 0.06l/hr and below the threshold of 0.07l/hr for determination as CS1, the presence of carbon dioxide at 10%v/v requires further consideration to be given to classifying the site as CS2. In this case the further consideration will reflect upon:

- *The magnitude of the exceedance being double the 5%v/v threshold. In addition, carbon dioxide greater than 5%v/v was recorded within BH301 deep on three occasions indicating this is likely to be representative of ground gas conditions.*
- *The results from elsewhere within the plot report elevated concentrations of carbon dioxide which exceed the 5%v/v threshold (BH302 shallow and deep). It is considered the carbon dioxide concentrations reported are representative of ground gas conditions within both shallow superficial deposits and deeper bedrock.*

3.2.2 Hydrock's Interpretation of the Raw Data

Following interrogation of the ground gas monitoring data for BH301 and BH302 (shallow and deep), Hydrock believe that the requirement for CS2 protection measures can be negated on the following basis:

- No significant source of ground gas generation was identified in the desk study or ground investigation.
- No elevated concentrations of methane were recorded during the six monitoring rounds, the concentrations were consistently less than detection.
- The calculated GSV for carbon dioxide is 0.06l/hr which is below the CS2 threshold of 0.07l/hr.

- The WSP calculated GSV is based on peak carbon dioxide concentrations and peak flow readings rather than steady concentrations and flow. Hydrock considers that using peak gas concentrations and peak flow is not deemed to be representative of the sites actual ground gas regime. Peak readings are likely to be indicative of gas trapped within the well head at the point of opening the gas tap, as such peak readings are unlikely to reflect as-built conditions.
- Steady carbon dioxide concentrations were only detected above 5% on one out of the six visits (28 June 2017) in: BH301 (deep) at 6.9%; BH302 (deep) at 6.6%; and BH302 (shallow) at 5.7%. Carbon dioxide was detected below the 5% threshold on all other visits (refer to marked up monitoring data sheets in Appendix E).
- Steady carbon dioxide is recorded at concentrations marginally above the 5% threshold.
- Steady flow was detected marginally above the limit of detection on only one occasion at 0.2l/hr in BH302 (shallow), the flow rate was consistently less than detection.
- The elevated concentrations of carbon dioxide in BH301 (deep) at 6.9%, BH302 (deep) at 6.6% were recorded from response zones within the Sherwood Sandstone bedrock. A layer of Glacial Till 12.6m to 12.8m in thickness separates ground level from the Sherwood Sandstone bedrock, as such the impermeable nature of this cohesive strata would be expected to restrict the migration of carbon dioxide to the surface.

On the basis that slightly elevated carbon dioxide was detected on one occasion in three boreholes with negligible flow, and that two of the exceedances were recorded within the sandstone strata at >12m bgl, this data would be indicative of Characteristic Situation (CS) 1 conditions.

Hydrock recommends that the proposed pre requisite conditions for CS2 ground gas protection measures detailed by WSP and E3P are rendered unnecessary and that the ground gas classification of the development be reduced to CS1.

As previously cited, at this stage of the development there is no practical way of demonstrating that CS2 conditions were installed to the development. However, following Hydrock's interpretation of the raw data, CS2 ground gas protection measures are not considered necessary. Consequently, subject to approval by the local authority re-classification of the development to CS1 conditions would serve to discharge the "contamination" planning conditions, rendering the site Suitable for Use.

4. CONCLUSION

As stated above, Hydrock did not have a supervision or watching brief role on the project and the information passed to DEX was limited.

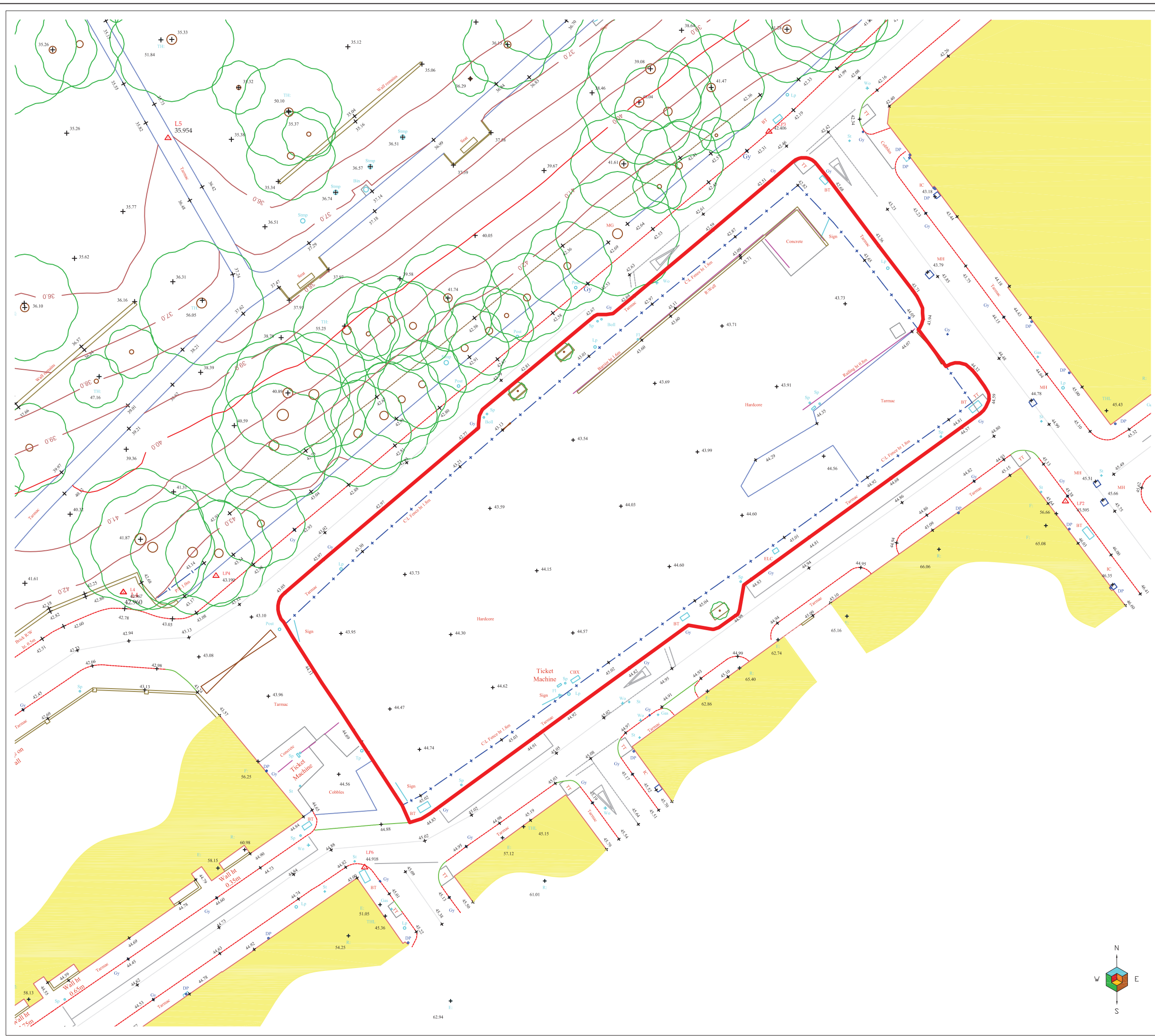
In order to break the pathway from contaminated Made Ground to the end users of the site, it was proposed to install a simple clean cover system (300mm) to all landscaped areas in the external public realm. Hydrock can confirm this remediation task has been completed in accordance with the remediation strategy.

CS2 gas protection measures to the building were proposed and detailed in the E3P remediation strategy. However, based on a detailed scrutiny of the raw data and Hydrock's assessment, it is considered that the installation of protection measures in accordance with CS2 conditions is unnecessary. Consequently, the ground gas classification of the development could in fact be reduced to CS1 and no protection measures are required. Furthermore, it is expected that the presence of a well-ventilated car park at ground level across part of the building footprint will go some way to act as a barrier between ground gas migration into the new building.

The contaminant linkages identified in the WSP ground investigation report and the E3P remediation strategy have been severed via the introduction of a validated clean cover system and the re-assessment of ground gas monitoring data, and therefore, the completed development is considered Suitable for Use.

Appendix A

Drawings



Key:

Notes:

P1	-	26.09.2018	DRAFT	HM	MD
Phase	Revision	Date	Issue	Drawn	Authorised
Client: 					



Environmental Engineering Partnerships Ltd
City Heliport & Business Centre
Eccles, Manchester, M30 7RU
Tel: 0161 707 9612
E-mail: info@e3p.co.uk
Website: www.e3p.co.uk

The client must not amend any drawing, design or other intellectual property produced by E3P Ltd without permission in writing from E3P Ltd in advance of any amendments being made. In the event that such written permission is not obtained in advance of the amendments being made, E3P Ltd shall not be liable for any damage and/or losses occurring as a result of the amended drawing, design or intellectual property.



REVISIONS

A	03/10/18	JB	SJ
FENESTRATION UPDATED & SITE BOUNDARY AMENDED			
B	10/10/18	AS	SJ
DRAWING STATUS AMENDED			
C	22/10/18	JB	SJ
GENERAL LAYOUT AMENDED			
D	11/01/19	JB	SJ
AMENDED TO REFLECT ELEVATIONS AND GENERAL LAYOUT AMENDMENTS			
E	11/03/19	JB	SJ
AMENDED TO REFLECT ELEVATIONS AND GENERAL LAYOUT AMENDMENTS			
F	08/04/19	JB	SJ
UPDATED TO REFLECT ELEVATIONS AND GA LAYOUT AMENDMENTS			
G	30/08/19	JB	AS
LANDSCAPING LAYOUT AMENDED TO SUIT ORIGINAL PLANNING DRAWING			
H	20/09/19	JB	AS
LANDSCAPING LAYOUT AMENDED TO SUIT PLANT DRAWING "PL1891-ANGEL MEADOWS MASTERPLAN"			
J	23/09/19	JB	AS
RED LINE BOUNDARY AMENDED TO SUIT PLANT DRAWING "PL1891-ANGEL MEADOWS MASTERPLAN"			
K	07/10/19	JB	AS
EXTERNAL STAIR DETAIL REMOVED			

AMENITY SPACES

REC	RECEPTION
MO	MANAGEMENT OFFICE
MO ST	MANAGEMENT OFFICE STORE
PST	POST STORE
PR	PARCEL ROOM
PD	PRIVATE DINING ROOM
GYM	GYM
CIN	CINEMA
COM	COMMERCIAL SPACE
ST	STORE
PT	PRIVATE TERRACE

PLANTROOMS

PH1	DOMESTIC WATER
PH2	RESIDENTIAL SPRINKLER
PH3	WET RISER PLANTROOM
E1	MAIN INCOMING COMMS
E2	DNO SUB-STATION
E3	MAIN SWITCH/METER ROOM
E4	GENERATOR ROOM
E5	GENERATOR SWITCH ROOM
M1	MECHANICAL PLANTROOM
CC	COMMERCIAL SERVICE CORRIDOR
COMP	COMMERCIAL PLANTROOM
CST	CYCLE STORE
RST	REFUSE STORE
SV	SMOKE VENT
DR	DISABLED REFUGE

Subject to the following:
This drawing has been based upon a superimposed Ordnance Survey image supplied by others, with the permission of Her Majesty's Stationary Office (c) Crown Copyright Licence No. 100020449. Do not scale from this drawing or consider any dimension or room position as accurate.
North point shown approximately only.
In the event of any discrepancy being found, these should be brought to the attention of the Architect for further instruction.
If in doubt ask!
The proposed layouts are subject to the following, although not exhaustive:
1. Discussions with Local Planning Authority
2. Accurate definition and setting out of legal ownership boundaries
3.Client approval/sign-off
4.Structural Engineer Requirements.
5.Mechanical and Electrical Engineers Requirements.
6.Drainage Engineer Requirement.
7.Landscape Architect Requirements.
8.Highway Engineer Requirements.
9.Local Authority Planning/Tree officer/Highways/Building Control dept. and Fire Officer vetting notes and Approvals and agreements.
10. Approvals and agreements of all statutory authorities and undertakers necessary for all supplies, way leaves and diversions.
Read in conjunction with:
DLA drawing no's. 2018-086/ SERIES
The design information on this drawing is also subject to the approvals of a client appointed Principal Design who will have overall responsibility for the coordination of the Construction (Design and Management)

For Planning
ARCHITECTURE

No.86 | King Street | Manchester | M2 4WQ
0161 834 4550 www.dla-design.co.uk

PROJECT
MEADOWSIDE
MANCHESTER

TITLE
GA LAYOUT
GROUND FLOOR

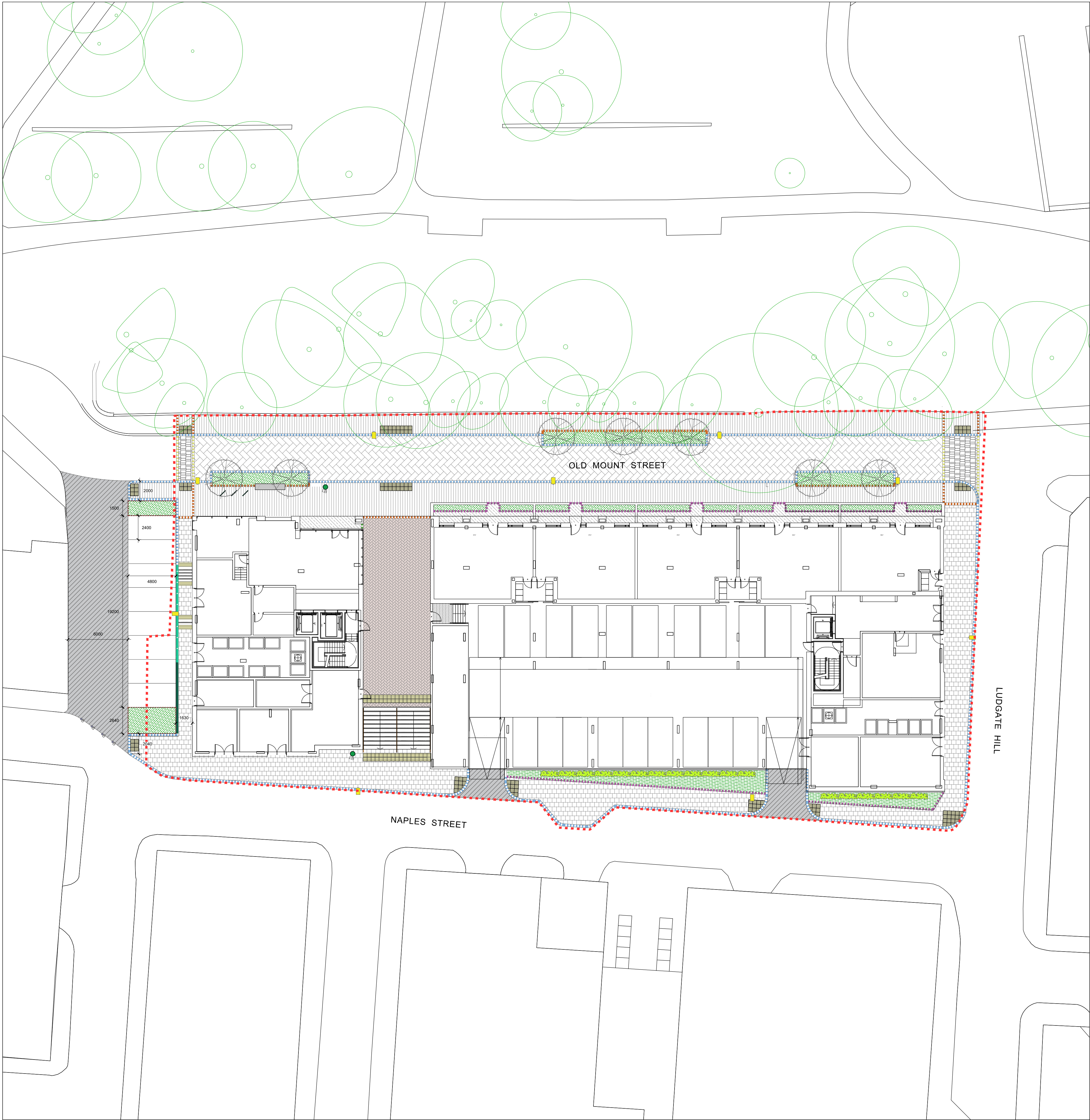
SCALE	DATE
1:200 @ A1	06/08/18
DRAWN	REVIEWED
JB	SJ

DLA REF	NUMBER	REVISION
2018-086/101		K

FILE PATH
T:\2018\2018-086\CAD\05-Autocad\Drawgs\101

STATUS

C:\USERS\KENNY\FUJONEDRIVE - EXTERIOR ARCHITECTURE LTD\2039 PLOT 5 MEADOWSIDE\01 CAD\02 SHEET LAYOUT\STAGE 5\2039-EXA-00-XX-DR-L-103.DWG



SITE BOUNDARY

ASPHALT TO ROADS
HOT ROLLED ASPHALT WITH PRE-COATED BROWN AND BEIGE COLOUR STONE CHIPPINGS TO ENGINEER'S SPECIFICATION

CLAY PAVING 01 - PEDESTIAN
NELAND CLAY PAVING IN A STRETCHER BOND PATTERN TO MCC STANDARD DETAIL F4.
SIZE: 48 X 200 X 85MM, COLOUR/FINISH: 80% AURATON / 20% OLIVA, FINISH: WATERSTRUCK/SANDED, SUPPLIER: HARDSCAPE OR SIMILAR APPROVED

CLAY PAVING 02 - PEDESTRIAN
NELAND CLAY PAVING IN A HERRINGBONE PATTERN TO MCC STANDARD DETAIL F4.
SIZE: 48 X 200 X 85MM, COLOUR/FINISH: 80% AURATON / 20% OLIVA, FINISH: WATERSTRUCK/SANDED, SUPPLIER: HARDSCAPE OR SIMILAR APPROVED

CLAY PAVING - VEHICULAR
NELAND CLAY PAVING IN A HERRINGBONE PATTERN TO MCC STANDARD DETAIL C6.
SIZE: 48 X 200 X 85MM, COLOUR/FINISH: 80% AURATON / 20% OLIVA, FINISH: WATERSTRUCK/SANDED, SUPPLIER: HARDSCAPE OR SIMILAR APPROVED

NATURAL STONE PAVING TO FOOTPATH
YORKSTONE (WHITWORTH) PAVING IN A RANDOM STRETCHER BOND PATTERN TO MCC HIGHWAY STANDARD CONSTRUCTION. SIZE: 600 X RL(600-900MM) X 63MM. FINISH: DIAMOND SAWN ALL SIDES, COLOUR: WHITWORTH

NATURAL STONE PAVING TO HOUSE FRONTAGE
YORKSTONE (WHITWORTH) PAVING IN A STRETCHER BOND PATTERN TO MCC STANDARD DETAIL F9. SIZE: 48 X 200 X 75MM, FINISH: PICKED, SAWN SIDES AND BOTTOM, COLOUR: WHITWORTH

RECLAIMED MASONRY SETTS
EXISTING SETTS/COBBLER PAVING (TO ASPIN LANE) TO BE CAREFULLY LIFTED, CLEANED AND RE-LAID TO MCC STANDARD DETAIL C4

BLISTER TACTILE STANDARD
SIZE: 400 X 400 X 50MM, COLOUR: NATURAL
SUPPLIER: MARSHALLS OR SIMILAR APPROVED

TACTILE HAZARD WARNING PAVING
SIZE: 400 X 400 X 50MM, COLOUR: NATURAL
SUPPLIER: MARSHALLS OR SIMILAR APPROVED

CONSERVATION KERB (RAISED)
WITH 100MM UPSTAND AND INCLUDES DROP KERBS TO TACTILE CROSSING POINTS
SIZE: 145 X 255 X 915MM, COLOUR: CREAM, SUPPLIER: MARSHALLS OR SIMILAR APPROVED

CONSERVATION PIN KERB (FLUSH)
CONSERVATION EDGING LAID FLUSH
SIZE: 63 X 150 X 915MM, COLOUR: CREAM, SUPPLIER: MARSHALLS OR SIMILAR APPROVED

NATURAL STONE EDGING ON FOOTPATH (FLUSH)
YORKSTONE LAID FLUSH.
SIZE: 200 X 600 X 150MM, FINISH: PICKED, SAWN SIDES AND BOTTOM, COLOUR: WHITWORTH, SUPPLIER: HARDSCAPE OR SIMILAR APPROVED

NATURAL STONE EDGING ON ROAD (FLUSH)
YORKSTONE LAID FLUSH.
SIZE: 200 X 600 X 150MM, FINISH: PICKED, SAWN SIDES AND BOTTOM, COLOUR: WHITWORTH, SUPPLIER: HARDSCAPE OR SIMILAR APPROVED

RETAINING WALL WITH RAILINGS
YORKSTONE WALL WITH RAILINGS TO MATCH ARCHITECTURAL DETAILS. COLOUR: WHITWORTH, FINISH: DIAMOND SAWN, SUPPLIER: HARDSCAPE OR SIMILAR APPROVED. REFER TO 2039-EXA-00-XX-DR-L-605 FOR MORE DETAILS

RETAINING WALL
YORKSTONE WALL, COLOUR: WHITWORTH, FINISH: DIAMOND SAWN, SUPPLIER: HARDSCAPE OR SIMILAR APPROVED. REFER TO 2039-EXA-00-XX-DR-L-605 FOR MORE DETAILS

NATURAL STONE STEP UNITS
SOLID YORKSTONE STEP UNITS WITH CONTRASTING NOSING (HARDSCAPE MIDNIGHT BLACK) IN STRETCHER BOND PATTERN. RISER: 155MM TREAD: 400MM (REFER TO 2039-EXA-00-XX-DR-L-604 / 605 FOR INDIVIDUAL UNIT DETAILS). COLOUR: WHITWORTH, FINISH: DIAMOND SAWN, SUPPLIER: HARDSCAPE OR SIMILAR APPROVED

HANDRAIL TO STEPS
REFER TO ARCHITECTS FOR HANDRAIL DETAILS.

BESPOKE GRANITE SEATING
GRANITE PLINTH AND TIMBER AND STEEL SEATING TOP ON A CONCRETE BASE. SIZE: 450 X 600 X 300MM, COLOUR: KOBRA GREEN, SUPPLIER: GRANITE BY HARDSCAPE AND TIMBER FRAME BY GOOSE FOOT STREET FURNITURE OR SIMILAR APPROVED. SEE 2039-EXA-00-XX-DR-L-602 FOR FURTHER DETAILS

CYCLE STAND
BESPOKE 6MM CORTEN STEEL FLAT BAR. SIZE: 900 X 500 X 180MM, SUPPLIER: GOOSE FOOT STREET FURNITURE OR SIMILAR APPROVED. SEE 2039-EXA-00-XX-DR-L-602 FOR FURTHER DETAILS

RAISED PLANTER
3MM FOLDED STEEL PANEL SYSTEM
SIZE: 1740 X 4800 X 750MM, FINISH: CORTEN STEEL, SUPPLIER: KINLEY OR SIMILAR APPROVED

LITTER BIN
DERBY EROS LITTER BIN.
SIZE: 1100/1200MM X 450/550MM, FINISH: GALVANISED AND POWDER COATED ZINTEC STEEL, SUPPLIER: BROXAP OR SIMILAR APPROVED

LIGHTING COLUMN
PHILLIPS LUMA FITTING.
HEIGHT: 1100/1200MM X 450/550MM, FINISH: GALVANISED AND POWDER COATED ZINTEC STEEL, SUPPLIER: BROXAP OR SIMILAR APPROVED

EXISTING TREE
TO BE RETAINED

PROPOSED TREE
REFER TO 2039-EXA-00-XX-DR-L-200 PLANTING PLAN FOR DETAILS

PROPOSED PLEACHED TREE
REFER TO 2039-EXA-00-XX-DR-L-200 PLANTING PLAN FOR DETAILS

ORNAMENTAL PLANTING
REFER TO 2039-EXA-00-XX-DR-L-200 PLANTING PLAN FOR DETAILS

No dimensions are to be scaled from this drawing.
All dimensions are to be checked on site.
Area measurements for indicative purposes only.

This drawing is the property of Exterior Architecture Ltd.
No part of the drawing may be reproduced in any manner
without permission from Exterior Architecture Ltd.

Client
FEC AND THE
CO-OP

Note: All works to be aligned with BS
5837_2012. Any excavations within RPA to
be supervised by an Arboriculturalist and to
be hand dug only.

----	----	----
----	----	----
----	----	----
----	----	----
----	----	----
----	----	----
----	----	----
----	----	----
----	----	----
B	COORDINATION	24.03.2021
A	COORDINATION	18.11.2020
-	DRAFT ISSUE	21.10.2020
Rev	Description	Date

EXTERIOR
ARCHITECTURE

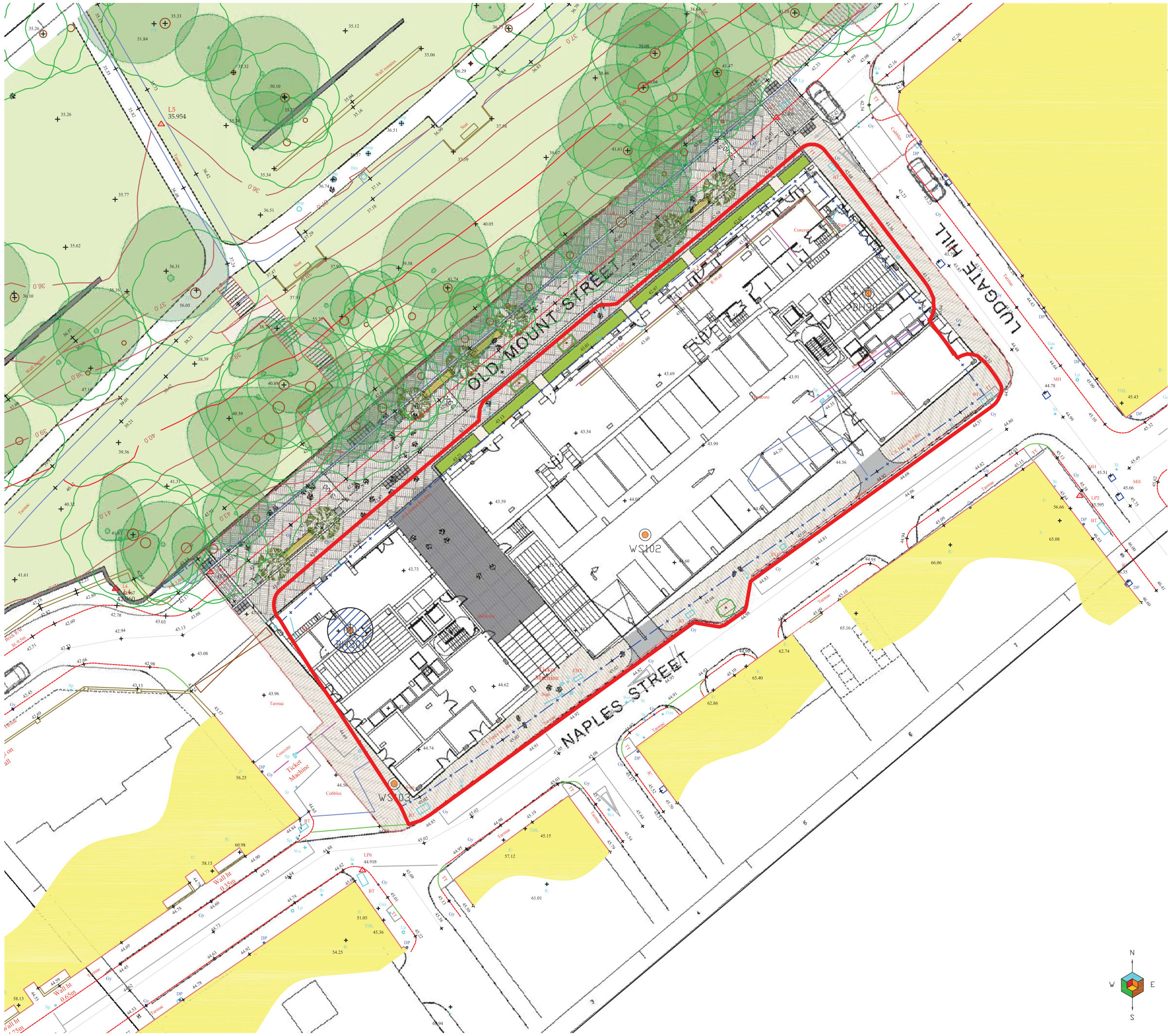
LONDON
Unit 17.1, The Leather Market, 11-13 Weston Street, London, SE1 3ER
MANCHESTER
Studio 537, The Royal Exchange, St Anns Square, Manchester, M2 7DH
E-MAIL office@exteriorarchitecture.com
WEB www.exteriorarchitecture.com

Project title
PLOT 5 MEADOWSIDE

Drawing title
GROUND FLOOR GENERAL
ARRANGEMENT INCLUDING PARKING
PROPOSALS

Issued By	Manchester	T: 0161 850 8101
Scale	1:200 @ A1	Drawn ExA
Status	STAGE 4	Checked SPL
Date	21.06.2020	Approved JM

Drawing number 2039-EXA-00-XX-DR-L-103	Revision B
---	---------------



- Key:
- Location Symbols
- WS101 Approximate Window Sample Probepole Location (WSP)
 - BH101 Approximate Cable Percussive Borehole Location (WSP)
 - Asbestos Impact 0.25m (Amosite 0.001% Mass). To Be Placed At >1.00m Under An Area Of Hardstanding

Notes:

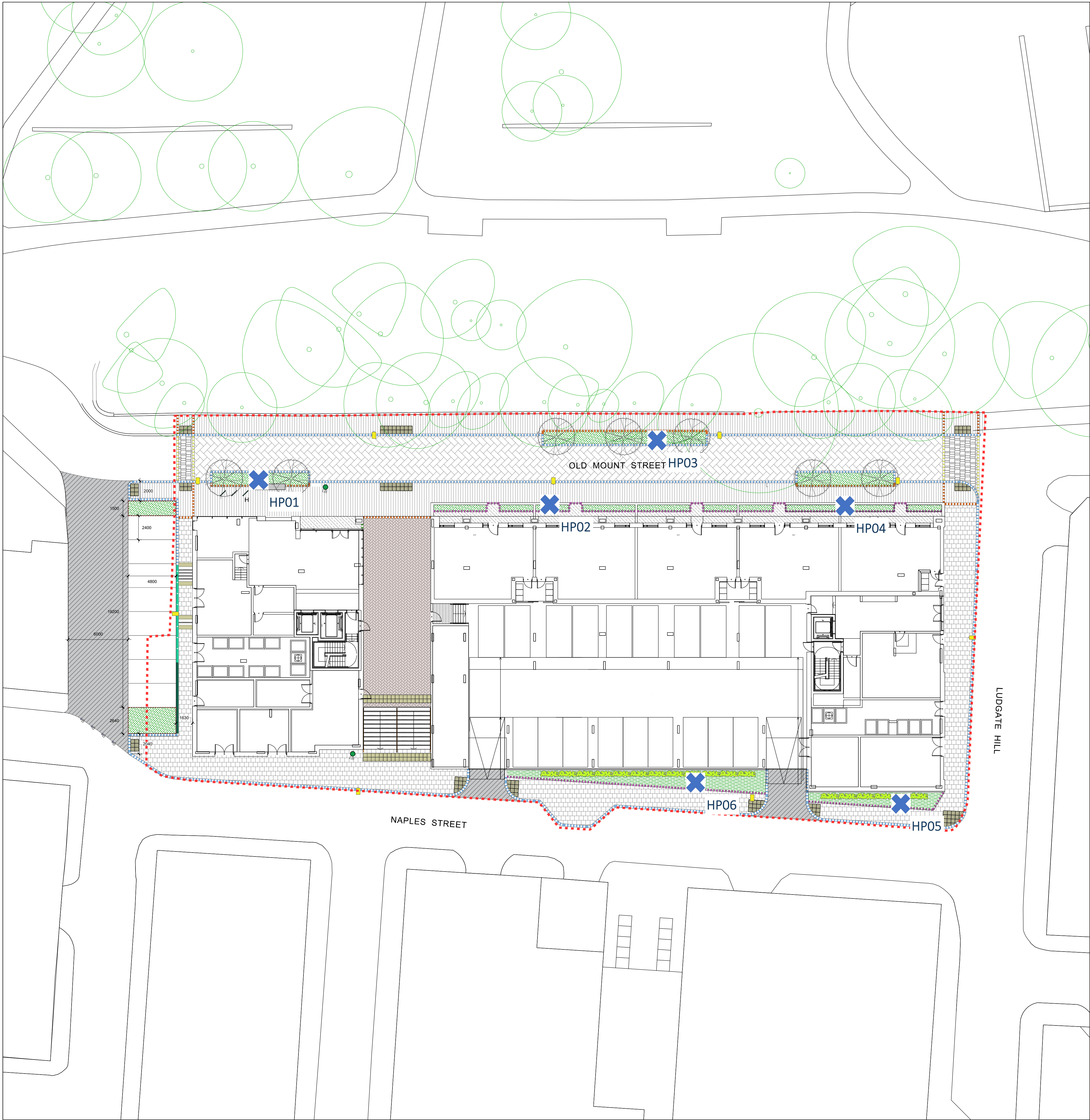
P1	-	26.09.2018	DRAFT	HM	MD
Phase	Revision	Date	Issue	Drawn	Authorised
Client:			Job No:	Date:	
Scott Hughes Design			12-928	26.09.2018	
			Drawing No:	Scale:	
			006	NTS	
Job Title:			Drawing Title:		
Angel Meadows			Remediation Issues PLAN		



Environmental Engineering Partnerships Ltd
City Hellport & Business Centre
Eccles, Manchester, M30 7RU
Tel: 0161 707 9612
E-mail: info@e3p.co.uk
Website: www.e3p.co.uk

The client must not amend any drawing, design or other intellectual property produced by E3P Ltd without permission in writing from E3P Ltd in advance of any amendments being made. In the event that such written permission is not obtained in advance of the amendments being made, E3P Ltd shall not be liable for any damage and/or losses occurring as a result of the amended drawing, design or intellectual property.

C:\USERS\KENNY\FUONEDRIVE - EXTERIOR ARCHITECTURE LTD\2039 PLOT 5 MEADOWSIDE\01 CAD\02 SHEET LAYOUT\STAGE 5\2039-EXA-00-XX-DR-L-103.DWG



SITE BOUNDARY

ASPHALT TO ROADS

HOT ROLLED ASPHALT WITH PRE-COATED BROWN AND BEIGE COLOUR STONE CHIPPINGS TO ENGINEER'S SPECIFICATION

CLAY PAVING 01 - PEDESTIAN

NELAND CLAY PAVING IN A STRETCHER BOND PATTERN TO MCC STANDARD DETAIL F4. SIZE: 48 X 200 X 85MM. COLOUR/FINISH: 80% AURATON / 20% OLIVA. FINISH: WATERSTRUCK/SANDED. SUPPLIER: HARDSCAPE OR SIMILAR APPROVED

CLAY PAVING 02 - PEDESTIAN

NELAND CLAY PAVING IN A HERRINGBONE PATTERN TO MCC STANDARD DETAIL F4. SIZE: 48 X 200 X 85MM. COLOUR/FINISH: 80% AURATON / 20% OLIVA. FINISH: WATERSTRUCK/SANDED. SUPPLIER: HARDSCAPE OR SIMILAR APPROVED

CLAY PAVING - VEHICULAR

NELAND CLAY PAVING IN A HERRINGBONE PATTERN TO MCC STANDARD DETAIL C6. SIZE: 48 X 200 X 85MM. COLOUR/FINISH: 80% AURATON / 20% OLIVA. FINISH: WATERSTRUCK/SANDED. SUPPLIER: HARDSCAPE OR SIMILAR APPROVED

NATURAL STONE PAVING TO FOOTPATH

YORKSTONE (WHITWORTH) PAVING IN A RANDOM STRETCHER BOND PATTERN TO MCC HIGHWAY STANDARD CONSTRUCTION. SIZE: 600 X RL(600-900MM) X 63MM. FINISH: DIAMOND SAWN ALL SIDES. COLOUR: WHITWORTH

NATURAL STONE PAVING TO HOUSE FRONTAGE

YORKSTONE (WHITWORTH) PAVING IN A STRETCHER BOND PATTERN TO MCC STANDARD DETAIL F8. SIZE: 48 X 200 X 75MM. FINISH: PICKED. SAWN SIDES AND BOTTOM. COLOUR: WHITWORTH

RECLAIMED MASONRY SETTS

EXISTING SETTS/COBBLIES PAVING (TO ASPIN LANE) TO BE CAREFULLY LIFTED, CLEANED AND RE-LAID TO MCC STANDARD DETAIL C4

BLISTER TACTILE STANDARD

SIZE: 400 X 400 X 50MM. COLOUR: NATURAL. SUPPLIER: MARSHALLS OR SIMILAR APPROVED

TACTILE HAZARD WARNING PAVING

SIZE: 400 X 400 X 50MM. COLOUR: NATURAL. SUPPLIER: MARSHALLS OR SIMILAR APPROVED

CONSERVATION KERB (RAISED)

WITH 100MM UPSTAND AND INCLUDES DROP KERBS TO TACTILE CROSSING POINTS. SIZE: 145 X 255 X 915MM. COLOUR: CREAM. SUPPLIER: MARSHALLS OR SIMILAR APPROVED

CONSERVATION PIN KERB (FLUSH)

CONSERVATION EDGING LAID FLUSH. SIZE: 63 X 150 X 915MM. COLOUR: CREAM. SUPPLIER: MARSHALLS OR SIMILAR APPROVED

NATURAL STONE EDGING ON FOOTPATH (FLUSH)

YORKSTONE LAID FLUSH. SIZE: 200 X 600 X 150MM. FINISH: PICKED. SAWN SIDES AND BOTTOM. COLOUR: WHITWORTH. SUPPLIER: HARDSCAPE OR SIMILAR APPROVED

NATURAL STONE EDGING ON ROAD (FLUSH)

YORKSTONE LAID FLUSH. SIZE: 200 X 600 X 150MM. FINISH: PICKED. SAWN SIDES AND BOTTOM. COLOUR: WHITWORTH. SUPPLIER: HARDSCAPE OR SIMILAR APPROVED

RETAINING WALL WITH RAILINGS

YORKSTONE WALL WITH RAILINGS TO MATCH ARCHITECTURAL DETAILS. COLOUR: WHITWORTH. FINISH: DIAMOND SAWN. SUPPLIER: HARDSCAPE OR SIMILAR APPROVED. REFER TO 2039-EXA-00-XX-DR-L-605 FOR MORE DETAILS

RETAINING WALL

YORKSTONE WALL. COLOUR: WHITWORTH. FINISH: DIAMOND SAWN. SUPPLIER: HARDSCAPE OR SIMILAR APPROVED. REFER TO 2039-EXA-00-XX-DR-L-605 FOR MORE DETAILS

NATURAL STONE STEP UNITS

SOLID YORKSTONE STEP UNITS WITH CONTRASTING NOSING (HARDSCAPE MIDNIGHT BLACK) IN STRETCHER BOND PATTERN. RISER: 155MM TREAD: 400MM (REFER TO 2039-EXA-00-XX-DR-L-604 / 605 FOR INDIVIDUAL UNIT DETAILS). COLOUR: WHITWORTH. FINISH: DIAMOND SAWN. SUPPLIER: HARDSCAPE OR SIMILAR APPROVED

HANDRAIL TO STEPS

REFER TO ARCHITECTS FOR HANDRAIL DETAILS.

BESPOKE GRANITE SEATING

GRANITE PLINTH AND TIMBER AND STEEL SEATING TOP ON A CONCRETE BASE. SIZE: 450 X 600 X 3000MM. COLOUR: KOBRA GREEN. SUPPLIER: GRANITE BY HARDSCAPE AND TIMBER FRAME BY GOOSE FOOT STREET FURNITURE OR SIMILAR APPROVED. SEE 2039-EXA-00-XX-DR-L-602 FOR FURTHER DETAILS

CYCLE STAND

BESPOKE 6MM CORTEN STEEL FLAT BAR. SIZE: 800 X 500 X 180MM. SUPPLIER: GOOSE FOOT STREET FURNITURE OR SIMILAR APPROVED. SEE 2039-EXA-00-XX-DR-L-602 FOR FURTHER DETAILS

RAISED PLANTER

3MM FOLDED STEEL PANEL SYSTEM. SIZE: 1740 X 4800 X 750MM. FINISH: CORTEN STEEL. SUPPLIER: KINLEY OR SIMILAR APPROVED

LITTER BIN

DERBY EROS LITTER BIN. SIZE: 1100/1200MM X 450/550MM. FINISH: GALVANISED AND POWDER COATED ZINTEC STEEL. SUPPLIER: BROXAP OR SIMILAR APPROVED

LIGHTING COLUMN

PHILLIPS LUMA FITTING. HEIGHT: 1100/1200MM X 450/550MM. FINISH: GALVANISED AND POWDER COATED ZINTEC STEEL. SUPPLIER: BROXAP OR SIMILAR APPROVED

EXISTING TREE

TO BE RETAINED

PROPOSED TREE

REFER TO 2039-EXA-00-XX-DR-L-200 PLANTING PLAN FOR DETAILS

PROPOSED PLEACHED TREE

REFER TO 2039-EXA-00-XX-DR-L-200 PLANTING PLAN FOR DETAILS

ORNAMENTAL PLANTING

REFER TO 2039-EXA-00-XX-DR-L-200 PLANTING PLAN FOR DETAILS

010m

0

10m

No dimensions are to be scaled from this drawing. All dimensions are to be checked on site. Area measurements for indicative purposes only.

This drawing is the property of Exterior Architecture Ltd. No part of the drawing may be reproduced in any manner without permission from Exterior Architecture Ltd.

Client

FEC AND THE CO-OP

Note: All works to be aligned with BS 5837_2012. Any excavations within RPA to be supervised by an Arboriculturalist and to be hand dug only.

Hydrock Marked up plan - Hand-dug pit location Plan, 23/05/2022, JB, ref. 22868-HYD-XX-SK-GE-0001-S2-P01

B

A

-

Rev

COORDINATION

COORDINATION

DRAFT ISSUE

Description

24.03.2021

18.11.2020

21.10.2020

Date

EXTERIOR ARCHITECTURE

LONDON

Unit 17.1, The Leather Market, 11-13 Weston Street, London, SE1 3ER

MANCHESTER

Studio 537, The Royal Exchange, St Anns Square, Manchester, M2 7DH

E-MAIL office@exteriorarchitecture.com

WEB www.exteriorarchitecture.com

Project title

PLOT 5 MEADOWSIDE

Drawing title

GROUND FLOOR GENERAL ARRANGEMENT INCLUDING PARKING PROPOSALS

Issued By Manchester

Scale 1:200 @ A1

Status STAGE 4

Date 21.06.2020

T: 0161 850 8101

Drawn ExA

Checked SPL

Approved JM

Drawing number

2039-EXA-00-XX-DR-L-103

Revision

B

Appendix B

Planning Decision Notice & Pre-commencement Condition Discharge

Town & Country Planning Act 1990 (as amended)
Planning (Listed Building & Conservation Area) Act 1990 (as amended)

Approval of details reserved by condition

Applicant

Far East Consortium (UK) Ltd
C/o Agent

Agent (if used)

Mr Paul Nellist
GVA HOW Planning
Norfolk House
7 Norfolk Street
Manchester
M2 1DW

Part 1 – Particulars of the application/development

Proposal: Discharge of conditions 4 (piling), 6 a (drainage), 7 a (ground conditions), 9 (cmp), 10 a (materials) and 43 a (local labour) attached to planning permission referenced 116366/FO/2017

Location: Plot 5 Meadowside , Land Bounded By Dantzic Street, Aspin Lane, Gould Street & Old Mount Street, Manchester

Date of application: 10 October 2018

Application number: CDN/18/0754

Part 2 – Particulars of decision

Manchester City Council gives notice that the detail(s) referred to in Part 1 are **Approved** in accordance with the information set out below.

condition 4 piling

The following information has been submitted in respect of this planning condition:

- Exploratory Hole Location plan 004
- Depth made ground 005
- Remediation issue plan 006
- Enabling works MDW-SHD-00-F1-DR-S-0002
- Piling Risk assessment prepared by e3p

The above are stamped as received by the City Council, as Local Planning Authority, on the 10 October 2018

- Ground investigation report

The above are stamped as received by the City Council, as Local Planning Authority, on the 2 November 2018

- Remediation and enabling works strategy
- Gas certificate
- Final inspection certificate

The above are stamped as received by the City Council, as Local Planning Authority, on the 18 January 2019

The above information has been considered. The piling at the development shall be carried out in accordance with the above information. Condition 4 is now formally discharged in respect of plot 5 only.

condition 6 a drainage

The following information has been submitted in respect of this planning condition:

- Report to discharge the drainage condition prepared by Scott Hughes stamped as received by the City Council, as Local Planning Authority, on the 10 October 2018
- Email from Paul Nellist dated 2 November 2018

The above information has been considered and is acceptable. In line with part (b) of this planning condition, the works shall now be implemented in accordance with the above information in respect of plot 5. This condition is formally discharged in respect of part (a) for plot 5 only.

In order to discharge this condition in full, part (d) requires that prior to the first occupation of a phase a verification report for that phase shall be submitted, including relevant photographic evidence, that the scheme has been implemented in accordance with the previously approved details.

Condition 7 a ground conditions

The following information has been submitted in respect of this planning condition:

- Exploratory Hole Location plan 004
- Depth made ground 005
- Remediation issue plan 006
- Enabling works MDW-SHD-00-F1-DR-S-0002
- Piling Risk assessment prepared by e3p

The above are stamped as received by the City Council, as Local Planning Authority, on the 10 October 2018

- Ground investigation report

The above are stamped as received by the City Council, as Local Planning Authority, on the 2 November 2018

- Remediation and enabling works strategy
- Gas certificate
- Final inspection certificate

The above are stamped as received by the City Council, as Local Planning Authority, on the 18 January 2019

The above information has been considered. The ground conditions at the development shall be carried out in accordance with the above information. Condition 7 a is now formally discharged in respect of plot 5 only. In order to discharge this condition in full a verification report shall be submitted in line with part (b) of this condition prior to the first occupation of plot 5.

condition 9 cmp

The following information has been submitted in respect of this planning condition:

- Construction method statement stamped as received by the City Council, as Local Planning Authority, on the 10 October 2018
- Further information from Bardsley dated 9 January 2019

The above information has been considered and is acceptable. The development shall be carried out in accordance with the above construction management details. Condition 9 is now formally discharge in respect of plot 5 only.

condition 10 a materials

The above information has been submitted in respect of this planning condition:

- Covering letter from Bardsley dated 17 September 2018

The above letter indicate that a materials panel will be made available on the 1 April 2019.

This is considered to be acceptable in respect of part (a) of this planning condition in respect of plot 5. In order to discharge part (b) of this condition in respect of plot 5, the samples and specifications must be agreed.

condition 43 a local labour

The following information has been submitted in respect of this planning condition:

- Local labour agreement stamped as received by the City Council, as Local Planning Authority, on the 10 October 2018
- Statement of Intent stamped as received by the City Council, as Local Planning Authority, on the 21 December 2018
- Local Labour Agreement indicative targets stamped as received by the City Council, as Local Planning Authority, on the 9 January 2019

The above information has been considered and is acceptable in order to discharge part (a) of this planning condition in respect of plot 5 only. In order to discharge this condition in full, and comply with part (b), The above approved documents shall be implemented as part of the construction and occupation phases of the development. Within six months of the first occupation of each phase details of the results of the scheme for that phase shall be submitted for consideration.

Date: 24 January 2019

Signed: 

Julie Roscoe
Head of Planning, Building Control & Licensing

Manchester City Council, P O Box 532, Town Hall, Manchester M60 2LA

Notes

1. This permission refers only to that required under the Town and Country Planning Act 1990 (as amended) or Planning (Listed Building & Conservation Area) Act 1990 (as amended) does not include any consent or approval under any other enactment, byelaw, order or regulation.

2 If the applicant is aggrieved by the decision of the local planning authority to refuse permission or approval for the proposed development, or to grant permission or approval subject to conditions, they may appeal to the Secretary of State in accordance with Section 78(1) of the Town and Country Planning Act 1990 or sections 20 and 21 of the Planning (Listed Building & Conservation Area) Act 1990 within six months of the date of the notice of the decision.

The Planning Inspectorate have introduced an online appeals service that can be used to make appeals online. This service is available through the gov.uk website – www.gov.uk/appeal-planning-inspectorate. The Inspectorate will publish details of your appeal on the internet.

Alternatively, appeals can be made on a form which is obtainable from Planning Inspectorate, Customer Support Unit, Room 3/15, Eagle Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol BS1 or by telephone 0117 372 6372.

The Secretary of State has power to allow a longer period for the giving of a notice of appeal but they will not normally be prepared to exercise this power unless there are special circumstances that excuse the delay in giving notice of appeal.

3. The statutory requirements are those set out in Section 79(6) of the Town and Country Planning Act 1990, namely Sections 70(1) and 72(1) of the Act.

4. If either the local planning authority or the Secretary of State refuses permission to develop land or grants it subject to conditions, the owner may claim that they can neither put the land to a reasonably beneficial use in its existing state nor render the land capable of a reasonably beneficial use by the carrying out of any development which has been or would be permitted.

In these circumstances, the owner may serve a purchase notice on the Council in whose area the land is situated. This notice will require the Council to purchase his interest in the land in accordance with the provisions of Part VI of the Town and Country Planning Act 1990

5. In certain circumstances, a claim may be made against the local planning authority for compensation, where permission is refused or granted subject to conditions by the Secretary of State on appeal or on a reference of the application to them. The circumstances in which such compensation is payable are set out in Section 114 of the Town and Country Planning Act 1990.

Appendix C

Photographs

Hand-pit Photographs

Site Investigation Photograph 1	
Date: 28/04/22	
Direction Photograph Taken: n/a.	
Description: HP01 hand pit to 0.40m.	

Site Investigation Photograph 2	
Date: 28/04/22	
Direction Photograph Taken: n/a.	
Description: HP01 soil arisings.	

Site Investigation Photograph 3	
Date: 28/04/22	
Direction Photograph Taken: n/a.	
Description: HP02 hand pit to 0.30m.	

Site Investigation Photograph 4	
Date: 28/04/22	
Direction Photograph Taken: n/a.	
Description: HP02 soil arisings.	

Site Investigation Photograph 5	
Date: 28/04/22	
Direction Photograph Taken: n/a.	
Description: HP02 hand pit to 0.30m.	

Site Investigation Photograph 6	
Date: 28/04/22	
Direction Photograph Taken: n/a.	
Description: HP03 arisings.	

Site Investigation Photograph 7	
Date: 28/04/22	
Direction Photograph Taken: n/a.	
Description: HP04 hand pit to 0.50m.	

Site Investigation Photograph 8	
Date: 28/04/22	
Direction Photograph Taken: n/a.	
Description: HP04 soil and arisings.	

Site Investigation Photograph 9	
Date: 28/04/22	
Direction Photograph Taken: n/a.	
Description: HP05 hand pit to 0.30m.	

Site Investigation Photograph 10	
Date: 28/04/22	
Direction Photograph Taken: n/a.	
Description: HP05 arisings.	

Site Investigation Photograph 11	
Date: 28/04/22	
Direction Photograph Taken: n/a.	
Description: HP06 hand pit to 0.40m.	

Site Investigation Photograph 12	
Date: 28/04/22	
Direction Photograph Taken: n/a.	
Description: HP06 arisings.	

Appendix D

Chemical Analysis and Assessment

Jason Bradley
Hydrock Consultants Ltd
4 Lakeside
Festival Park
Stoke on Trent
ST1 5RY

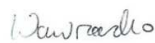
t: 01782 261919
f: 01782 262020
e: JasonBradley@hydrock.com

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

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

Analytical Report Number : 22-55575

Project / Site name:	Angel Meadows Plot 5	Samples received on:	29/04/2022
Your job number:	C-22858-C	Samples instructed on/ Analysis started on:	29/04/2022
Your order number:	PO16406	Analysis completed by:	09/05/2022
Report Issue Number:	1	Report issued on:	09/05/2022
Samples Analysed:	6 soil samples		


Signed:

Joanna Wawrzeczko
Reporting Specialist
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

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

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: 22-55575
Project / Site name: Angel Meadows Plot 5

Lab Sample Number				2260213	2260214	2260215	2260216	2260217
Sample Reference				HP01	HP02	HP03	HP04	HP05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.20	0.10	0.30	0.10
Date Sampled				28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	18	20	26	28	16
Total mass of sample received	kg	0.001	NONE	0.8	0.8	0.8	0.8	0.8

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SSZ	SSZ	SSZ	SSZ	SSZ

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.6	8.2	8.1	8.4	7.9
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.061	0.033	0.029	0.048	0.02
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.029	0.032	0.035	0.042	0.034

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
----------------------------	-------	---	--------	-------	-------	-------	-------	-------

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.22	0.3	0.48	< 0.05	0.81
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.17	< 0.05	0.23
Fluoranthene	mg/kg	0.05	MCERTS	0.47	0.71	0.58	0.39	1.2
Pyrene	mg/kg	0.05	MCERTS	0.43	0.73	0.55	0.39	1.2
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.31	0.52	0.37	0.25	0.75
Chrysene	mg/kg	0.05	MCERTS	0.27	0.44	0.26	0.24	0.59
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.32	0.41	0.3	0.24	0.73
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.15	0.3	0.18	0.17	0.31
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.29	0.43	0.33	0.25	0.7
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.26	< 0.05	< 0.05	0.33
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.33	< 0.05	< 0.05	0.41

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	2.46	4.43	3.22	1.93	7.19
-----------------------------	-------	-----	--------	------	------	------	------	------

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	21	4.7	5.5	4.9	5.4
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.55	0.42	0.49	0.37	0.48
Boron (water soluble)	mg/kg	0.2	MCERTS	0.9	1.5	1.3	2.4	1.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	18	7.7	9.6	8.3	9.4
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	18	7.8	9.6	8.5	9.6
Copper (aqua regia extractable)	mg/kg	1	MCERTS	34	20	24	24	23
Lead (aqua regia extractable)	mg/kg	1	MCERTS	46	38	46	37	42
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.4	< 0.3	0.4	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	16	8.1	9.9	8.4	9.4
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	20	10	13	9.5	12
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	63	56	69	56	65

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
---------	-------	---	--------	-------	-------	-------	-------	-------

Analytical Report Number: 22-55575
Project / Site name: Angel Meadows Plot 5

Lab Sample Number				2260213	2260214	2260215	2260216	2260217
Sample Reference				HP01	HP02	HP03	HP04	HP05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.10	0.20	0.10	0.30	0.10
Date Sampled				28/04/2022	28/04/2022	28/04/2022	28/04/2022	28/04/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 HS 1D AL	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 HS 1D AL	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 HS 1D AL	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 EH CU 1D AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 EH CU 1D AL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 EH CU 1D AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 EH CU 1D AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC16 - EC35 EH CU 1D AL	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic > EC35 - EC44 EH CU 1D AL	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35) EH CU+HS 1D AL	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (EC5 - EC44) EH CU+HS 1D AL	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7 HS 1D AR	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 HS 1D AR	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 HS 1D AR	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 EH CU 1D AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 EH CU 1D AR	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 EH CU 1D AR	mg/kg	10	MCERTS	10	< 10	< 10	< 10	11
TPH-CWG - Aromatic >EC21 - EC35 EH CU 1D AR	mg/kg	10	MCERTS	19	< 10	< 10	< 10	24
TPH-CWG - Aromatic > EC35 - EC44 EH CU 1D AR	mg/kg	8.4	NONE	< 8.4	< 8.4	< 8.4	< 8.4	< 8.4
TPH-CWG - Aromatic (EC5 - EC35) EH CU+HS 1D AR	mg/kg	10	MCERTS	29	< 10	< 10	< 10	35
TPH-CWG - Aromatic (EC5 - EC44) EH CU+HS 1D AR	mg/kg	10	NONE	29	< 10	< 10	< 10	35

TPH Total C5 - C44 EH CU+HS 1D TOTAL	mg/kg	10	NONE	29	< 10	< 10	< 10	35
--------------------------------------	-------	----	------	----	------	------	------	----

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-55575
Project / Site name: Angel Meadows Plot 5

Lab Sample Number					2260218
Sample Reference					HP06
Sample Number					None Supplied
Depth (m)					0.30
Date Sampled					28/04/2022
Time Taken					None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE		47
Moisture Content	%	0.01	NONE		18
Total mass of sample received	kg	0.001	NONE		0.8

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SSZ

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.7
Free Cyanide	mg/kg	1	MCERTS	< 1.0
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.019
Fraction Organic Carbon (FOC) Automated	N/A	0.001	MCERTS	0.056

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	0.55
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	1.4
Pyrene	mg/kg	0.05	MCERTS	1.2
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.99
Chrysene	mg/kg	0.05	MCERTS	0.64
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.98
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.44
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.91
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.49
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.52

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	8.14
-----------------------------	-------	-----	--------	------

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	16
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.86
Boron (water soluble)	mg/kg	0.2	MCERTS	0.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.2	NONE	< 1.2
Chromium (III)	mg/kg	1	NONE	16
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16
Copper (aqua regia extractable)	mg/kg	1	MCERTS	49
Lead (aqua regia extractable)	mg/kg	1	MCERTS	74
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	13
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	25
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	72

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0
---------	-------	---	--------	-------

Analytical Report Number: 22-55575
Project / Site name: Angel Meadows Plot 5

Lab Sample Number					2260218
Sample Reference					HP06
Sample Number					None Supplied
Depth (m)					0.30
Date Sampled					28/04/2022
Time Taken					None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Toluene	µg/kg	1	MCERTS	< 1.0	
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	
p & m-xylene	µg/kg	1	MCERTS	< 1.0	
o-xylene	µg/kg	1	MCERTS	< 1.0	
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.001	MCERTS	< 0.001	
TPH-CWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.001	MCERTS	< 0.001	
TPH-CWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.001	MCERTS	< 0.001	
TPH-CWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	
TPH-CWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	
TPH-CWG - Aliphatic >EC16 - EC21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	
TPH-CWG - Aliphatic >EC21 - EC35 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	
TPH-CWG - Aliphatic >EC16 - EC35 EH_CU_1D_AL	mg/kg	10	MCERTS	< 10	
TPH-CWG - Aliphatic > EC35 - EC44 EH_CU_1D_AL	mg/kg	8.4	NONE	< 8.4	
TPH-CWG - Aliphatic (EC5 - EC35) EH_CU+HS_1D_AL	mg/kg	10	MCERTS	< 10	
TPH-CWG - Aliphatic (EC5 - EC44) EH_CU+HS_1D_AL	mg/kg	10	NONE	< 10	

TPH-CWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.001	MCERTS	< 0.001	
TPH-CWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.001	MCERTS	< 0.001	
TPH-CWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.001	MCERTS	< 0.001	
TPH-CWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	
TPH-CWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0	
TPH-CWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	14	
TPH-CWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	27	
TPH-CWG - Aromatic > EC35 - EC44 EH_CU_1D_AR	mg/kg	8.4	NONE	< 8.4	
TPH-CWG - Aromatic (EC5 - EC35) EH_CU+HS_1D_AR	mg/kg	10	MCERTS	40	
TPH-CWG - Aromatic (EC5 - EC44) EH_CU+HS_1D_AR	mg/kg	10	NONE	40	

TPH Total C5 - C44 EH_CU+HS_1D_TOTAL	mg/kg	10	NONE	40	
--------------------------------------	-------	----	------	----	--

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-55575

Project / Site name: Angel Meadows Plot 5

* 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 *
2260213	HP01	None Supplied	0.1	Brown clay and loam with gravel and vegetation.
2260214	HP02	None Supplied	0.2	Brown clay and loam with gravel and vegetation.
2260215	HP03	None Supplied	0.1	Brown clay and loam with gravel and vegetation.
2260216	HP04	None Supplied	0.3	Brown clay and loam with gravel and vegetation.
2260217	HP05	None Supplied	0.1	Brown clay and loam with gravel and vegetation.
2260218	HP06	None Supplied	0.3	Grey clay and loam with stones and vegetation.

Analytical Report Number : 22-55575

Project / Site name: Angel Meadows Plot 5

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
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
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L0738-PL	W	MCERTS
TPH Chromatogram in Soil	TPH Chromatogram in Soil.	In-house method	L064-PL	D	NONE
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Fraction Organic Carbon FOC Automated	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method	L009	D	MCERTS
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE

Analytical Report Number : 22-55575

Project / Site name: Angel Meadows Plot 5

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
----------------------	-------------------------------	-----------------------------	---------------	--------------------	----------------------

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

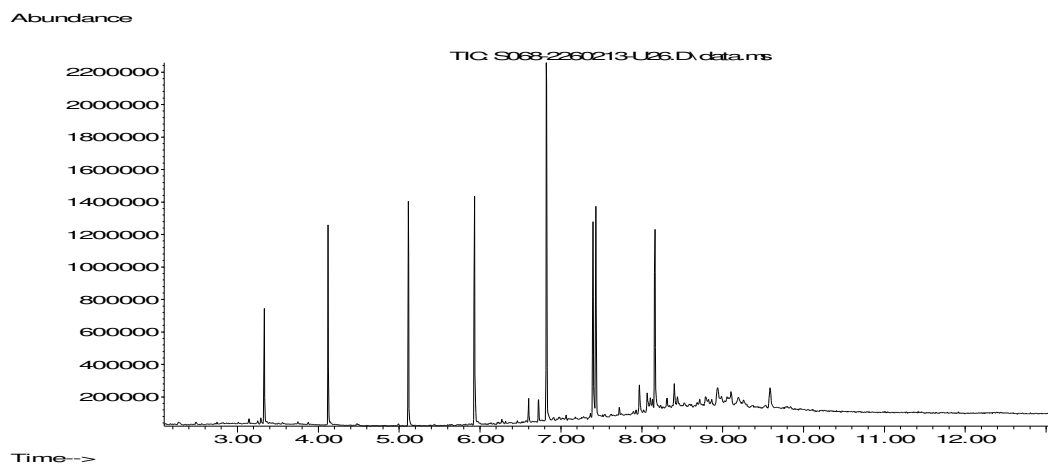
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

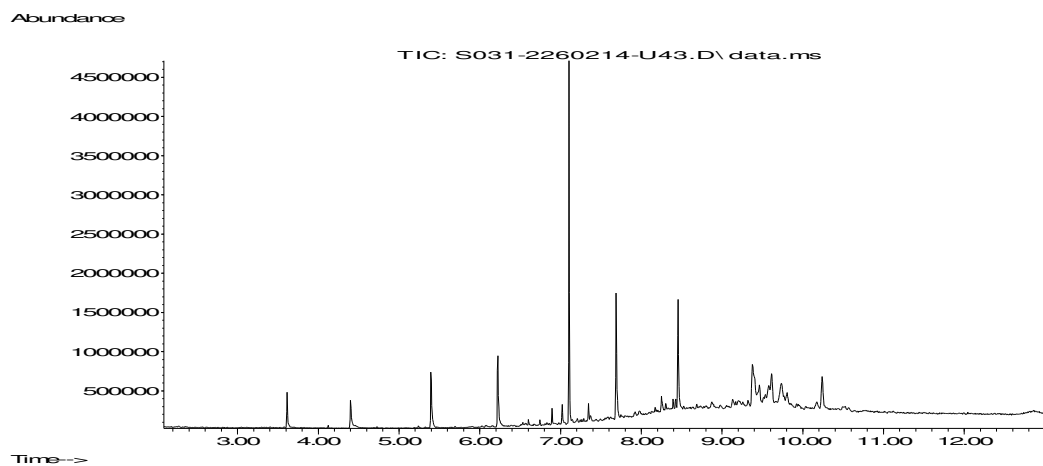
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

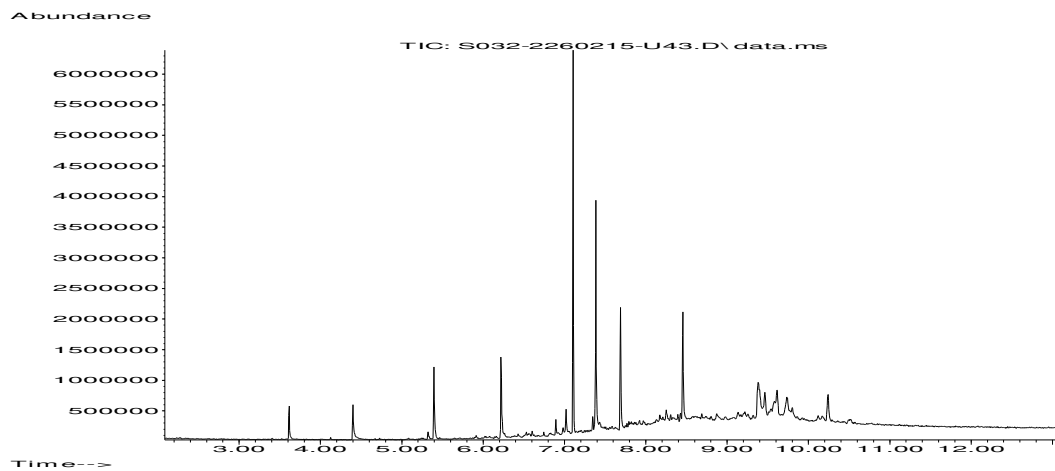
Information in Support of Analytical Results

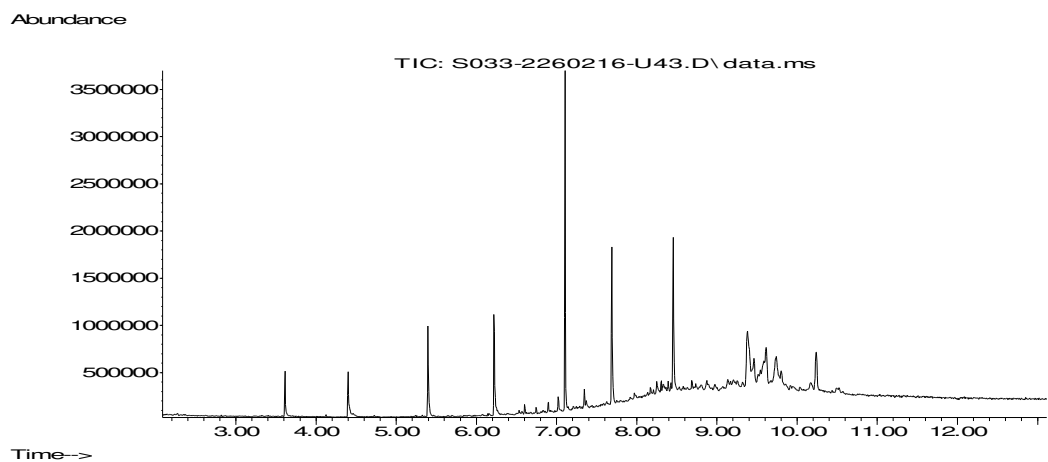
List of HWOL Acronyms and Operators

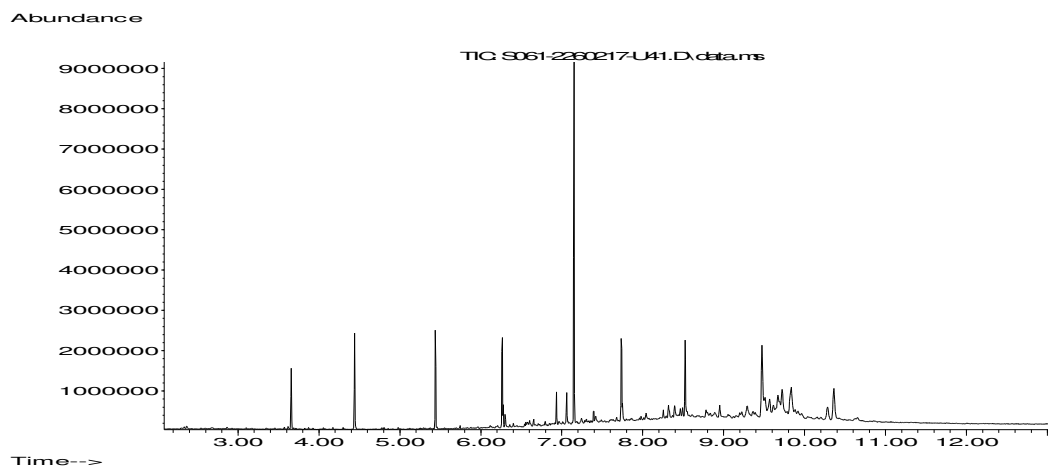
Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

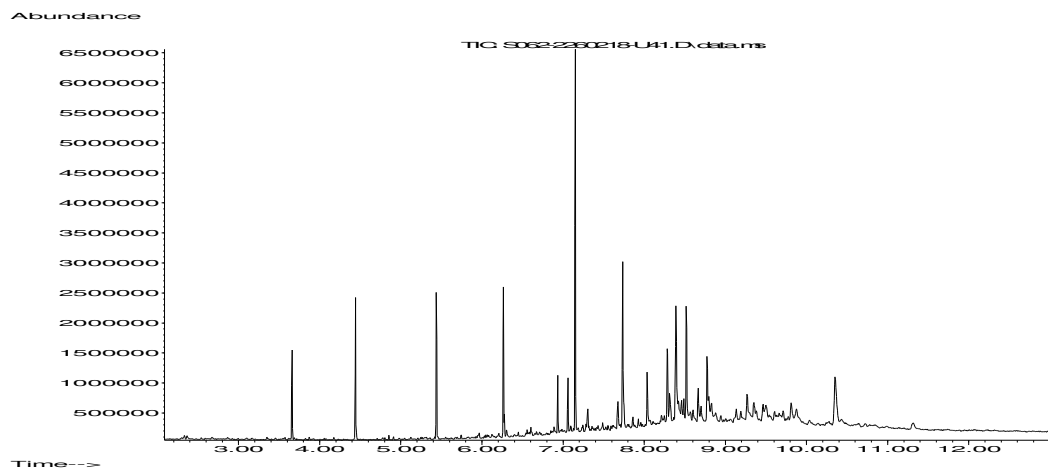












Assessment of Chemicals of Potential Concern to Human Health

All values in mg/kg unless otherwise stated							Location & Depth		HP01	HP02	HP03	HP04	HP05	HP06				
Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC			0.10	0.20	0.10	0.30	0.10	0.30				
Arsenic	1	6	4.7	21	0	79			21	4.7	5.5	4.9	5.4	16				
Beryllium	0.06	6	0.37	0.86	0	92			0.55	0.42	0.49	0.37	0.48	0.86				
Boron	0.2	6	0.8	2.4	0	21000			0.9	1.5	1.3	2.4	1.2	0.8				
Cadmium	0.2	6	0.2	0.2	0	120			0.2	0.2	0.2	0.2	0.2	0.2				
Chromium (III)	1	6	7.7	18	0	1500			18	7.7	9.6	8.3	9.4	16				
Chromium (VI)	1.2	6	1.2	1.2	0	7.7			1.2	1.2	1.2	1.2	1.2	1.2				
Copper	1	6	20	49	0	12000			34	20	24	24	23	49				
Lead	2	6	37	74	0	630			46	38	46	37	42	74				
Mercury, inorganic	0.3	6	0.3	0.4	0	470			0.3	0.4	0.3	0.4	0.3	0.3				
Nickel	2	6	8.1	16	0	290			16	8.1	9.9	8.4	9.4	13				
Selenium	1	6	1	1	0	1400			1	1	1	1	1	1				
Vanadium	1	6	9.5	25	0	2000			20	10	13	9.5	12	25				
Zinc	2	6	56	72	0	81000			63	56	69	56	65	72				
Cyanide (free)	1	6	1	1	0	1600			1	1	1	1	1	1				
Phenol (total)	2	6	1	1	0	3200			1	1	1	1	1	1				
Acenaphthene	0.05	6	0.05	0.05	0	15000			0.05	0.05	0.05	0.05	0.05	0.05				
Acenaphthylene	0.05	6	0.05	0.05	0	15000			0.05	0.05	0.05	0.05	0.05	0.05				
Anthracene	0.05	6	0.05	0.23	0	74000			0.05	0.05	0.17	0.05	0.23	0.05				
Benz(a)anthracene	0.05	6	0.25	0.99	0	18			0.31	0.52	0.37	0.25	0.75	0.99				
Benzo(a)pyrene	0.05	6	0.25	0.91	0	2.6			0.29	0.43	0.33	0.25	0.7	0.91				
Benzo(b)fluoranthene	0.05	6	0.24	0.98	0	18			0.32	0.41	0.3	0.24	0.73	0.98				
Benzo(ghi)perylene	0.05	6	0.05	0.52	0	120			0.05	0.33	0.05	0.05	0.41	0.52				
Benzo(k)fluoranthene	0.05	6	0.15	0.44	0	26			0.15	0.3	0.18	0.17	0.31	0.44				
Chrysene	0.05	6	0.24	0.64	0	26			0.27	0.44	0.26	0.24	0.59	0.64				
Dibenz(a,h)anthracene	0.05	6	0.05	0.05	0	2.32			0.05	0.05	0.05	0.05	0.05	0.05				
Fluoranthene	0.05	6	0.39	1.4	0	3100			0.47	0.71	0.58	0.39	1.2	1.4				
Fluorene	0.05	6	0.05	0.05	0	9900			0.05	0.05	0.05	0.05	0.05	0.05				
Indeno(1,2,3,cd)pyrene	0.05	6	0.05	0.49	0	11			0.05	0.26	0.05	0.05	0.33	0.49				
Naphthalene	0.05	6	0.05	0.05	0	4200			0.05	0.05	0.05	0.05	0.05	0.05				
Phenanthrene	0.05	6	0.05	0.81	0	3100			0.22	0.3	0.48	0.05	0.81	0.55				
Pyrene	0.05	6	0.39	1.2	0	7400			0.43	0.73	0.55	0.39	1.2	1.2				
Asbestos identified	Y/N								N	N	N	N	N	N				
FOC (dimensionless)	0.038	(mean)							0.029	0.032	0.035	0.042	0.034	0.056				
SOM (calculated)	6.55%	(mean)							5.00%	5.52%	6.03%	7.24%	5.86%	9.65%				
pH (su)	8.0	(mean)							7.6	8.2	8.1	8.4	7.9	7.7				

Risk parameter: Human health - POS resi (6%SOM)

Data set: Environmental data

Client: DEX Construction Limited

Site: Angel Meadow Plot 5

Job no.: 22868

Lab. report no(s): 22-55575

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate. Values in red are equal to, or greater than, the generic assessment criterion (GAC).

Appendix E

Marked-up Gas Monitoring data

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project ANGEL MEADOW, MANCHESTER

Project No

PN173622

Borehole

BH301

(P1)

Client FAR EAST CONSORTIUM INTERNATIONAL LTD

Sheet No.

1 (2 of 5)

Installation Details

Installation Type	Standpipe	Diameter	50mm
Depth to Base	18.00m	Cover Type	Flush lockable protective cover
Filter Zone	14.00 - 18.00m	Ground Level	43.89 m OD
Date Installed	4 April 2017		

Date	Time	Methane (Peak) CH4 (% LEL)	Methane (Steady) CH4 (% LEL)	Carbon Dioxide (Peak) (% VOL)	Carbon Dioxide CO2 (% VOL)	Carbon Dioxide (Steady) (% VOL)	Oxygen (Peak) (% VOL)	Oxygen O2 (% VOL)	Remarks
5-May-2017					10.0			10.2	
17-May-2017					5.5			14.7	
31-May-2017		0.0	0.0	0.0		0.0	20.7		
13-Jun-2017		0.0	0.0	0.1		0.0	22.9		
28-Jun-2017		0.0	0.0	7.0		6.9	17.0		
20-Jul-2017		0.0	0.0	5.7		4.2	15.1		

SLIGHT
EXCEEDANCE

Remarks

geotechnics

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project ANGEL MEADOW, MANCHESTER

Project No

PN173622

Borehole

BH302

(P2)

Client FAR EAST CONSORTIUM INTERNATIONAL LTD

Sheet No.

1 (2 of 5)

Installation Details

Installation Type	Standpipe	Diameter	50mm
Depth to Base	3.10m	Cover Type	Flush lockable protective cover
Filter Zone	1.00 - 3.10m	Ground Level	43.78 m OD
Date Installed	31 March 2017		

Date	Time	Methane (Peak) CH4 (% LEL)	Methane (Steady) CH4 (% LEL)	Carbon Dioxide (Peak) (% VOL)	Carbon Dioxide CO2 (% VOL)	Carbon Dioxide (Steady) (% VOL)	Oxygen (Peak) (% VOL)	Oxygen O2 (% VOL)	Remarks
5-May-2017					0.5			20.6	
17-May-2017					2.3			19.4	
31-May-2017		0.0	0.0	0.0		0.0	20.8		
13-Jun-2017		0.0	0.0	1.2		0.3	22.8		
28-Jun-2017		0.0	0.0	6.7		5.7	20.2		
20-Jul-2017		0.0	0.0	0.8		0.7	19.8		

SIGHT
EXCEEDANCE

Remarks

geotechnics

Form 003/1

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project ANGEL MEADOW, MANCHESTER

Project No

PN173622

Borehole

BH302

(P1)

Client FAR EAST CONSORTIUM INTERNATIONAL LTD

Sheet No.

1 (2 of 5)

Installation Details									
Installation Type		Standpipe			Diameter		50mm		
Depth to Base		25.80m			Cover Type		Flush lockable protective cover		
Filter Zone		17.00 - 25.80m			Ground Level		43.78 m OD		
Date Installed		31 March 2017							
Date	Time	Methane (Peak) CH4 (% LEL)	Methane (Steady) CH4 (% LEL)	Carbon Dioxide (Peak) (% VOL)	Carbon Dioxide CO2 (% VOL)	Carbon Dioxide (Steady) (% VOL)	Oxygen (Peak) (% VOL)	Oxygen O2 (% VOL)	Remarks
5-May-2017					0.2			20.8	
17-May-2017					0.0			20.7	
31-May-2017		0.0	0.0	0.0		0.0	20.9		
13-Jun-2017		0.0	0.0	0.0		0.0	23.0		
28-Jun-2017		0.0	0.0	6.8		6.6	13.4		
20-Jul-2017		0.0	0.0	0.0		0.0	20.6		
SLIGHT EXCEEDANCE									
Remarks									

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project ANGEL MEADOW, MANCHESTER

Project No

PN173622

Borehole

BH301

(P2)

Client FAR EAST CONSORTIUM INTERNATIONAL LTD

Sheet No.

1 (2 of 5)

Installation Details

Installation Type	Standpipe	Diameter	50mm
Depth to Base	1.00m	Cover Type	Flush lockable protective cover
Filter Zone	0.50 - 1.00m	Ground Level	43.89 m OD
Date Installed	5 April 2017		

Date	Time	Methane (Peak) CH4 (% LEL)	Methane (Steady) CH4 (% LEL)	Carbon Dioxide (Peak) (% VOL)	Carbon Dioxide CO2 (% VOL)	Carbon Dioxide (Steady) (% VOL)	Oxygen (Peak) (% VOL)	Oxygen O2 (% VOL)	Remarks
5-May-2017					2.6			19.1	
17-May-2017					0.0			20.5	
31-May-2017		0.0	0.0	3.7		3.7	17.0		
13-Jun-2017		0.0	0.0	2.4		2.3	19.1		
28-Jun-2017		0.0	0.0	4.2		4.2	15.6		
20-Jul-2017		0.0	0.0	1.8		1.8	17.4		
NONE EXCEED									

Remarks

geotechnics

Form 003/1

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project ANGEL MEADOW, MANCHESTER

Project No

PN173622

Borehole

BH301

(P1)

Client FAR EAST CONSORTIUM INTERNATIONAL LTD

Sheet No.

1 (4 of 5)

Installation Details

Installation Type	Standpipe	Diameter	50mm
Depth to Base	18.00m	Cover Type	Flush lockable protective cover
Filter Zone	14.00 - 18.00m	Ground Level	43.89 m OD
Date Installed	4 April 2017		

Date	Time	Flow Rate (Peak) (l/hr)	Flow Rate (Steady) (l/hr)	PID Reading (ppm)	Wind	Cloud	Rain	Equipment Used	Remarks
5-May-2017		0.0	0.0	0.0	Moderate	Slight	Dry	Gas Data	
17-May-2017		0.0	0.0	0.0	Still	Cloudy	Dry	Gas Data	
31-May-2017		0.0	0.0		Light	Slight	Dry	Gas Data	
13-Jun-2017		-0.1	0.0		Light	Cloudy	Dry	GA5000	
28-Jun-2017		0.5	0		Light	Overcast	Moderate	GA5000	
20-Jul-2017		0.0	0.0		Light	Cloudy	Moderate	Gas Data	

Remarks

geotechnics

Form 003/1

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project ANGEL MEADOW, MANCHESTER

Project No

PN173622

Borehole

BH301

(P2)

Client FAR EAST CONSORTIUM INTERNATIONAL LTD

Sheet No.

1 (4 of 5)

Installation Details									
Installation Type		Standpipe			Diameter		50mm		
Depth to Base		1.00m			Cover Type		Flush lockable protective cover		
Filter Zone		0.50 - 1.00m			Ground Level		43.89 m OD		
Date Installed		5 April 2017							
Date	Time	Flow Rate (Peak) (l/hr)	Flow Rate (Steady) (l/hr)	PID Reading (ppm)	Wind ()	Cloud ()	Rain ()	Equipment Used ()	Remarks
5-May-2017		0.0	0.0	0.0	Moderate	Slight	Dry	Gas Data	
17-May-2017		0.0	0.0	0.0	Still	Cloudy	Dry	Gas Data	
31-May-2017		0.0	0.0		Light	Slight	Dry	Gas Data	
13-Jun-2017		-0.1	0.0		Light	Cloudy	Dry	GA5000	
28-Jun-2017		0.6	0.0		Light	Overcast	Moderate	GA5000	
20-Jul-2017		0.0	0.0		Light	Cloudy	Moderate	Gas Data	
Remarks									

FIELDWORK - Insitu Gas Monitoring - Instrument Record

Project ANGEL MEADOW, MANCHESTER

Project No

PN173622

Borehole

BH302

(P1)

Client FAR EAST CONSORTIUM INTERNATIONAL LTD

Sheet No.

1 (4 of 5)

Installation Details									
Installation Type		Standpipe			Diameter		50mm		
Depth to Base		25.80m			Cover Type		Flush lockable protective cover		
Filter Zone		17.00 - 25.80m			Ground Level		43.78 m OD		
Date Installed		31 March 2017							
Date	Time	Flow Rate (Peak) (l/hr)	Flow Rate (Steady) (l/hr)	PID Reading (ppm)	Wind ()	Cloud ()	Rain ()	Equipment Used ()	Remarks
5-May-2017		0.0	0.0	0.0	Moderate	Slight	Dry	Gas Data	
17-May-2017		0.2	0.2	0.0	Still	Cloudy	Dry	Gas Data	
31-May-2017		0.0	0.0		Light	Slight	Dry	Gas Data	
13-Jun-2017		0.0	0.0		Light	Cloudy	Dry	GA5000	
28-Jun-2017		0.3	0.0		Light	Overcast	Moderate	GA5000	
20-Jul-2017		0.0	0.0		Light	Cloudy	Moderate	Gas Data	
Remarks									

