Lidl Great Britain Limited

Validation Report

Lidl, Upper High Street, Epsom

Final

19th December 2021

Client:	Lidl Great Britain Limited
Project:	Lidl, Upper High Street, Epsom
Title:	Validation Report
Report Ref:	18-1015-P-R3-RevB
Status:	Final
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Director

Revision	Date	Comments
-	February 2021	First Issue
A	6th August 2021	Inclusion of information relating to drinking water pipe material selection, topsoil source and partial validation of soft landscaping
B	17th December 2021	Inclusion of completed validation of soft landscaping

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1 Introduction

Obsidian Geo-Consulting Ltd (Obsidian) was commissioned by Lidl Great Britain Limited (the Client) to produce a Preliminary Validation Report for their proposed development site at Upper High Street, Epsom.

Lidl propose to construct a new four-storey structure comprising an undercroft car park, a first floor Lidl store, and 30 residential units on the second and third floors. The provided external works drawing shows that existing site levels on the northern boundary will be maintained in the proposed development and site levels in the southern area of the site will be raised by approximately 0.60m to 1.20m.

The site has been the subject of several previous phases of ground investigation and assessment as detailed in the following reports:

- Delta Simons Phase 1 Environmental Assessment Report Ref. 14-7038.01 dated January 2015.
- Delta Simons Phase 2 Environmental Assessment Report Ref. 14-7038.01-E dated August 2015.
- Opus International Consultants (UK) Ltd Geo-Environmental Investigation Report Ref. BM/J-B1107.00 (R01) dated February 2017.
- Obsidian Geo-Consulting Ltd Supplementary Geo-Environmental Investigation Report Ref. 18-1015-P dated November 2018.
- Obsidian Geo-Consulting Ltd Remediation Method Statement Report Ref 18-1015-P-Revv A dated May 2020.

This document should be read in conjunction with the previous reports.

This Final Validation Report is an updated version of the preliminary reports issued in February and August 2021.

1.1 Objective

The objective of this document is to validate, where possible, the actions undertaken during the site enabling and construction works in accordance with the agreed strategy and methodology for addressing and mitigating the residual contamination risks identified by the previous reports, listed above.

1.2 Limitations

This report has been prepared by Obsidian with all reasonable skill, care and attention within the terms of the Contract with the Client and taking account of the information made available by the Client, as well as the manpower and resources devoted to it by agreement with the Client. Obsidian disclaims any responsibility to the Client and others in respect of any matters outside the scope of the above Contract.

This report has been produced on behalf of the Client and no responsibility is accepted to any Third Party for all or any part. This report should not be relied upon or transferred to any other parties without the express written authorisation of Obsidian. If any unauthorised Third Party comes into possession of this report, they rely on it at their own risk and the authors owe them no duty of care or skill.

Any plans appended to this report should not be used for scaling purposes.

2 Remediation Strategy

Based on the outcome of the previous three phases of intrusive investigation and assessment, it was considered that further remedial measures would/may be necessary to mitigate potential migratory pathways with respect to human health for the following:

- Potential hydrocarbon contamination immediately adjacent to UGST's and pipe/interceptor infrastructure.
- Site wide PAH contamination within the Made Ground.
- Elevated Lead concentration in and around DS04.
- Installation of a 2000-gauge hydrocarbon resistant DPM to mitigate any nuisance issues.

2.1 UGST Removal, Inspection and Validation

The investigation and assessment work previously undertaken had not identified any significant hydrocarbon-based contamination which may have been attributable to the UGST's which have either been removed from site or have been infilled and remain on site. However, there was the potential for localised, elevated hydrocarbon concentrations immediately adjacent to the tank locations and their connecting pipe work.

The locations, were located within the proposed building footprint and as a result, would require removal and engineered backfilling during the demolition and site enabling works.

There are four confirmed, foam filled tanks on site as labelled T1 - T4 on the appended plan. There also four rubble and sand filled concrete chambers, believed to be the locations of former tanks.

It was recommended in the RMS that tanks and chambers should be excavated and removed by the demolition/ground works contractor under the supervision of a Geo-Environmental Engineer. The resulting excavation void should then be inspected immediately, and any peripheral soil which is deemed contaminated by the Engineer in attendance should also be removed.

To confirm that the residual concentrations within the resulting excavation do not pose a risk to Human Health, the recorded concentrations would be screened against appropriate screening criteria.

The proposed remedial target values for the tank excavations are detailed in Table 2.1.

Table 2.1: Proposed Hydrocarbon Remedial Target Values

Determinand	OB-Screen Value (mg/kg)
Aliphatic TPH Fractions	
Aliphatic C_5-C_6	42
Aliphatic C_6-C_8	100
Aliphatic C_8-C_{10}	27
Aliphatic C_{10}-C_{12}	130
Aliphatic C_{12}-C_{16}	1,100
Aliphatic C_{16}-C_{21}	65,000
Aliphatic C_{21}-C_{35}	65,000
Aromatic TPH Fractions	
Aromatic C_5-C_7	0.89
Aromatic C_7-C_8	880
Aromatic C_8-C_{10}	47
Aromatic C_{10}-C_{12}	250

Determinand	OB-Screen Value (mg/kg)
Aromatic C_{12}-C_{16}	1,800
Aromatic C_{16}-C_{21}	1,900
Aromatic C_{21}-C_{35}	1,900
BTEX Compounds	
Benzene	0.89
Toluene	880
Ethyl benzene	83
m-Xylene	82
o-Xylene	88
p-Xylene	82
MTBE	73

If concentrations in excess of the screening values were identified in the validation testing, then further excavation works would be undertaken, and further validation samples obtained for further analysis and screening.

2.2 Capping of Soft Landscaped Areas

Following consultation with the Local Authority and at their request, it has been agreed that in order to mitigate the potential risk from site wide PAH contamination, a minimum depth of 450mm of clean, verified topsoil will be placed in areas of proposed soft landscaping over a highly visible geotextile in order to reduce potential exposure to acceptable levels and to enable healthy plant growth.

It is noted that in close proximity of existing trees, removal and replacement of soil may not be practicable. Where this is the case, it will be acceptable to leave existing soils in-situ or remove and replace the maximum practicable amount that would not damage the trees.

The imported material should meet the following verification criteria which are also based on screening values for the Residential Without Home-grown Produce end use scenario.

Table 2.2: Proposed Imported Topsoil Verification Criteria

Determinand	OB-Screen Value (mg/kg)
Metals	
Arsenic	40
W/S Boron	11,000
Cadmium	150
Chromium (hexavalent)	21
Copper	7,100
Lead	310
Mercury	56
Nickel	180
Selenium	430
Zinc	40,000
PAH	
Naphthalene	2.3
Acenaphthylene	2,900
Acenaphthene	3,000
Fluorene	2,800
Phenanthrene	1,300
Anthracene	31,000
Fluoranthene	1,500
Pyrene	3,700
Benzo(a)anthracene	11

Determinand	OB-Screen Value (mg/kg)
Chrysene	30
Benzo(b)fluoranthene	3.9
Benzo(k)fluoranthene	110
Benzo(a)pyrene	3.2
Indeno(1,2,3-cd)pyrene	45
Dibenz(a,h)anthracene	0.31
Benzo(ghi)perylene	360
Other	
Cyanide	34
Total Phenols (monohydric)	440
Aliphatic TPH Fractions	
Aliphatic C_5-C_6	42
Aliphatic C_6-C_8	100
Aliphatic C_8-C_{10}	27
Aliphatic C_{10}-C_{12}	130
Aliphatic C_{12}-C_{16}	1,100
Aliphatic C_{16}-C_{21}	65,000
Aliphatic C_{21}-C_{35}	65,000
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BTEX Compounds	
Benzene	0.89
Toluene	880
Ethyl benzene	83
m-Xylene	82
o-Xylene	88
p-Xylene	82
MTBE	73

The depth of the placed topsoil is to be validated by a Geo-Environmental Engineer with the excavation and inspection of hand pits once the topsoil has been laid.

2.3 Lead Hotspot Removal

Previous phases of investigation have identified elevated Lead concentrations in window sample location DS04 located on the southern boundary of the site. The elevated concentration is considered be an isolated hotspot.

The Opus assessment recommended that the Made Ground be excavated down to natural strata on an initial 5.00m by 5.00m area which is centred on exploratory hole DS04 as referenced on the appended Exploratory Hole Location Plan.

The Made Ground in this area was to be excavated and removed from site under the supervision of a Geo-Environmental Engineer. Once excavated, the supervising engineer was to obtain an appropriate number of representative samples from the sides and base of the excavations and

schedule them for appropriate, confirmatory laboratory analysis at a UKAS and MCERTS accredited laboratory.

Once excavated and removed from site, validation samples should be taken and analysed for Lead to ascertain whether the hotspot remains. It was possible that the site strip and rationalisation of site levels may take site levels down to natural strata in this area in which case the exposed formation should be validated.

The results of the validation analysis for Lead are to be screened against the adopted C4SL Lead screening value of 310mg/kg to be protective of human health.

If concentrations in excess of the screening values are identified in the validation testing, then further excavation works will be undertaken, and further validation samples obtained for further analysis and screening.

2.4 Installation of Hydrocarbon Resistant DPM

Opus considered that gas protection measures would not be required for the proposed development. However, given the proximity of the underground tanks which will be removed from site to the proposed ground bearing elements of the building namely the concourse, travellator, stair wells and lifts, it would be prudent to upgrade the DPM to a 2000-gauge hydrocarbon resistant DPM to mitigate any nuisance issues relating to hydrocarbon odours.

The membrane should be installed within the proposed floor slab construction within all proposed ground bearing parts of the building. It is not required within the undercroft car park. Prior to installation, the chosen membrane should be approved for use by Obsidian and the local authority contaminated land officer.

The membrane must be installed and verified by a suitably qualified installer with all penetrations, and joints sealed and proven to be installed in accordance with the manufacturer requirements.

2.5 Asbestos

Although only limited, trace asbestos was encountered in one sample on site, it was possible that asbestos containing material (ACM) may be encountered elsewhere during construction activities. In the event that possible ACM is encountered on site, all works should cease in this area and Obsidian should be called to site to confirm its identity by laboratory testing, following which appropriate recommendations would be provided.

2.6 Drinking Water Pipe Selection

It should be noted that although not widespread, some hydrocarbon based contaminants had been detected on site, albeit in relatively low-level concentrations. As a result, the potential risks to buried, PE drinking water pipes cannot be ruled out.

It was therefore recommended that the local water authority be consulted with regards to the selection of drinking water pipe materials to be used on site.

3 General Comments

3.1 Protection of Site Workers

The Demolition Contractor/Ground Works Contractor will be responsible for implementing appropriate procedures to protect site workers from exposure to any potentially contaminated materials. This should include, as a minimum, provision of basic Personal Protective Equipment

(PPE) including hard hats, gloves, coveralls and steel toe-capped boots at all times, providing washing facilities, and forbidding eating, drinking and smoking at all times except in designated areas.

When working in areas potentially impacted by asbestos, Personal Respiratory Equipment (RPE) should be provided.

The Demolition Contractor/Ground Works Contractor is also responsible for implementing appropriate techniques to reduce the spread of potentially contaminated materials across the remainder of the site and surrounding properties during the works. This should include covering spoil to prevent the spread of dust, sealing surface water runoff to prevent the pollution of surface water drains and sewers and cleaning and washing boots, vehicle wheels and other equipment to prevent the spread of mud.

3.2 Unforeseen Ground Conditions

If ground conditions differ significantly from those encountered during the previous ground investigations or should additional areas of potentially contaminated materials be identified during the works, the Demolition Contractor/Ground Works Contractor should suspend site redevelopment works in the subject area immediately and inform the Client. The suspect material should then be inspected and assessed by a Geo-Environmental Engineer.

3.3 Waste Disposal

The reuse of Made Ground as engineered fill should be undertaken in accordance with an appropriate Environment Agency licence as defined in the statutory guidance on the 'Definition of Waste' or CL:AIRE Code of Practice.

The presence of isolated fibrous asbestos within the demolition stockpile at <0.001% would result in the material being classified as Non-Hazardous Waste. A level 1 waste characterisation of the Made Ground across the remainder of the site also confirms a Non-Hazardous Waste classification.

Waste Acceptance Criteria testing of the Made Ground located below ground level, further confirms that an Inert Waste classification may be appropriate, however the material would need to be free of wood and other organic materials.

Any excavated natural strata will have a default Inert Waste Classification.

4 Verification and Validation

4.1 Introduction

The Client, Lidl Great Britain Ltd have appointed Adston Construction Ltd to undertake the groundworks and construction works at the site. It should be noted from this point on that a significant amount of excavation, enabling and construction work had been undertaken on site before Obsidian had been notified by the Client that works had commenced on site. As a result, a number of significant elements such as the tank removal exercise had been undertaken without the consultation or involvement of Obsidian. Each element set out within the original RMS is addressed in the following sections along with an explanation of whether this was done in accordance with the process set out within the RMS and when not and what measures have been deployed to mitigate this.

Obsidian first attended site to undertake works in accordance with the requirements of the RMS on 8th July 2020 following a request from the client. We do not know when construction works began, however they clearly commenced several months prior to this date.

4.2 UGST Removal and Validation

Obsidian was notified by the client that construction works had commenced on site, and it was requested that Obsidian attend site on 8th July 2020 to assess what progress had been made with respect to the requirements of the RMS. Upon attending site, the site manager from Adston Construction confirmed verbally to the Obsidian Engineer that he had not seen or been made aware of the requirements of the RMS.

It was evident that a significant amount of enabling, and construction works had already progressed. The stockpile of demolition arisings had been processed, hard standing areas had been broken out, foundations had been constructed and the eastern part of the store building was already under construction with the steel frame and first floor concrete slab was in place.

The site manager was asked what procedure had been followed to remove the infilled tanks which had been present in close proximity to foundations which had now been cast. The site manger stated that the works had been undertaken whilst an agency site manager was on site, however one of the other site workers had been present. He verbally confirmed that the foam filled tanks had been excavated and removed from site. We were then subsequently issued with some photographs taken at the time of the excavation and removal.

The Obsidian Engineer requested that a mini excavator be made available so that some confirmatory trial pits could be excavated. There were significant ground restrictions by this time as foundations had been constructed and the first floor was now in place over one of the former tank areas.

Two trial trenches, TP401 and TP402 were excavated in the accessible areas of the former tanks as indicated on the appended validation trial pit location plan. The area where previous tanks had been removed but the concrete cradles had still been present was not accessible as this whole area had been turned over and construction progressed. The locations of the trenches are shown on the appended Tank Removal Area Trial Pit Location Plan Ref. 18-1015-P/003.

The trial trenches confirmed that the tanks were no longer present and that any concrete surrounds/cradles had also been removed. The former tank excavations had been backfilled with compacted, granular site won material below which was visually, uncontaminated natural strata. At each trial pit location 1 sample of the backfill and 2 samples at varying depths of the natural strata was sampled and analysed for a suite of speciated hydrocarbons at the UKAS and MCERTS accredited laboratory of DETS.

The results of the chemical laboratory analysis are presented within Appendix B. The results were assessed and compared with the agreed hydrocarbon remedial target values presented in table 2.1. None of the target values were exceeded.

We have also received written confirmation of the tank removal activities from Adston Construction. They state that there were two tanks encountered, one small (T4) and one large (T1-T3). Both tanks had previously been emptied, cleaned and filled with foamed concrete. Both tanks also had been surrounded in concrete in the ground, they further state that there was no evidence of oil leakage or contamination in either tanks or underlying soil when they were removed. The statements and photographs provided by Adston Construction match with our subsequent site inspection and analysis as well as what we know from information provided by previous consultant assessments.

We understand that the tanks were subsequently cut up and disposed of off-site in general waste skips.

Photographs from the Obsidian trial pits and from the tank removal works are included as Appendix A. The waste haulage tickets provided by Adston Construction are included as Appendix C.

4.3 Lead Hotspot Assessment and Mitigation

When Obsidian attended site on the 8th July 2020, we also observed that in the area of the identified Lead hotspot, a significant amount of excavation had been undertaken with subsequent installation of large concrete foundation pads forming the foundations for proposed steel columns. In addition, a concrete retaining wall had been constructed, awaiting backfilling and subsequent floor slab construction.

Where accessible, the Obsidian engineer oversaw the excavation of four hand pits (HDP401-HDP404) undertaken by the contractor on site. It was not possible to access and excavate in the area with a mechanical excavator.

The hand pits were undertaken within the Made Ground which was present around the cast foundations. Representative samples were taken at each location for subsequent Lead laboratory analysis at the UKAS and MCERTS accredited laboratory of DETS.

In accordance with the RMS, the results of the validation analysis for Lead were screened against the adopted C4SL Lead screening value of 310mg/kg to be protective of human health. Of the four samples tested, only one sample from HDP403, exceeded the screening value with a concentration of 944mg/kg. The Client was advised of the exceedance, and we understand that the client made their contractor aware that this was the case, and that Obsidian would attend site to see if the residual area of Made Ground could be further excavated.

An Obsidian engineer returned to site on 4th August 2020 to assess whether the residual area could be further excavated, however upon arrival it was clear that further infilling and compaction in the area of the Lead hotspot had been undertaken using granular hard-core materials. The area had been infilled by over 1.00m taking the ground level to the underside of the proposed floor slab. It was not considered possible to re-excavate the area to get down to the level at which the residual, elevated concentration had been identified.

Given that significant excavation works had already been undertaken to install the foundations and over 1.00m of compacted made ground had been installed and there would also be a cast in-situ floor slab with and 2000-gauge DPM it is considered that any potential pathway posing risk to human health following completion of construction would be broken in this area.

The location of the Lead hotspot and hand pits are shown on the appended Lead Hotspot Location and Hand Pit Plan Ref. 18-1015-P/004.

4.4 DPM Installation

The contractor opted to use the Alderprufe HC Geomembrane to satisfy the requirement for installing a hydrocarbon resistant membrane set out within the RMS. The membrane was procured in 1.2m x 30m rolls. The specification sheet for the selected membrane is included as Appendix D.

The contractor opted to use the manufacturers lapping and taping sealing system and not the in-situ welding option. To provide confidence to the Client and to obtain an independent record of the membrane installation, Lidl instructed Obsidian to attend site at selected intervals to visually inspect the membrane installation and to highlight any potential workmanship issues so that they could be rectified prior to the installation of the cast in-situ floor slab.

The Client instructed their contractor, Adston Construction, to notify Obsidian directly with 2-3 days advance notice of when a membrane was to be installed and ready for inspection. With reference to the attached SDS Ltd drawing ref. 20010-3401-CN7, the ground bearing floor slabs of the proposed building were to be constructed in eight slab sections A-H. Within each slab section, the Alderprufe HC Geomembrane was to be installed by the contractor.

An Obsidian engineer attended site on the following dates to inspect the installation of the membrane within the corresponding floor slab sections:

- 26/08/2020 – Slab A (first section) and Slab C
- 28/08/2020 – Slab A (second section) and Slab B
- 04/09/2020 – Slab E and Slab F
- 11/09/2020 – Slab D and Slab G
- 19/09/2020 – Slab H

The membrane was lapped and sealed with a minimum of 100mm overlap and the manufacturers lapping tape and joint tape was used. Where the membrane was to span separate pours, the contractor had allowed for sufficient lapping between sections. On occasion, some joints and laps had not been fully sealed. In each instance, the contractor was notified by Obsidian and the defects were corrected immediately, in the presence of Obsidian.

A photographic record of the membrane installation as viewed by Obsidian is presented as Appendix E.

4.5 Verification of Drinking Water Pipe Selection

It was recommended that the local water authority be consulted with regards to the selection of drinking water pipe materials to be used on site.

We understand from an email sent to Obsidian from Space Architects on 22nd April 2021 that Adston Construction had confirmed that following consultation with the local water supply authority, the Protecta-Line barrier pipe system, manufactured by GPS PE Pipe Systems Ltd had been used on site. Obsidian have seen three photographs showing the Protecta-Line pipe on site in reels, and in addition Lidl have provided two photographs showing a barrier pipe in-situ at the site. These are attached as Appendix J

4.6 Validation of Capping in Soft Landscaped Areas

Obsidian has been previously provided with topsoil analysis data from two source sites located at the Bourne Amenity Ltd site in Westerham and the Freeland Horticulture Ltd site in Sevenoaks. The soil analysis results were screened and reported within the previously Preliminary Validation Report as we had been led to believe the material had eventually been used in the soft landscaped areas on site. However, we now understand that when attempts were made by Adston to import material from both sites, the material was no longer available. We have subsequently been made aware by Adston that material from a different source was imported and used, initially without our knowledge and without the screening of the analysis results which accompanied the material.

The source site used for the material placed within the soft landscaped areas has now been confirmed as being from the Blockade Services Ltd site at Moorhouse Park, Kent. Analysis results were provided by Tim O'Hare Associates. The results were compared with the Proposed Imported Topsoil Verification Criteria set out in Section 2.2 after the material was placed within soft landscaped Areas 1 and 2 but prior to it being placed within Areas 3, 4 and 5. All concentrations are below the adopted threshold levels. The topsoil was therefore considered to be acceptable for use within the proposed soft landscaped areas.

The chemical laboratory analysis results from the topsoil source are presented in Appendix F.

Adston Construction proposed the use of the FasTrack Orange geotextile manufactured by Wrekin Products Limited as the high visibility geotextile placed below the 450mm of verified clean topsoil.

Obsidian confirmed that the geotextile was acceptable for use within the proposed soft landscaped areas. The technical data sheet for the FasTrack Orange geotextile is presented in Appendix G.

There are five distinct areas pf proposed soft landscaping on site. For reference we have marked them on appended drawing 18-1015-P/005/A. Initially, only Areas 1 and 2 were completed as of the site visit dated 27th July 2021, the other three areas along the southern and eastern boundaries (areas 3-5) were subsequently completed and were inspected by Obsidian on 22nd November 2021.

Hand pits were excavated with areas 1 to 5 where it was proven that a minimum of 450mm of cover had been placed over the FasTrack Orange geotextile, the topsoil encountered comprised dark brown and grey, slightly clayey, slightly gravelly sand topsoil. An additional weed barrier geotextile had also been installed above the placed topsoil with bark chippings above for decorative effect.

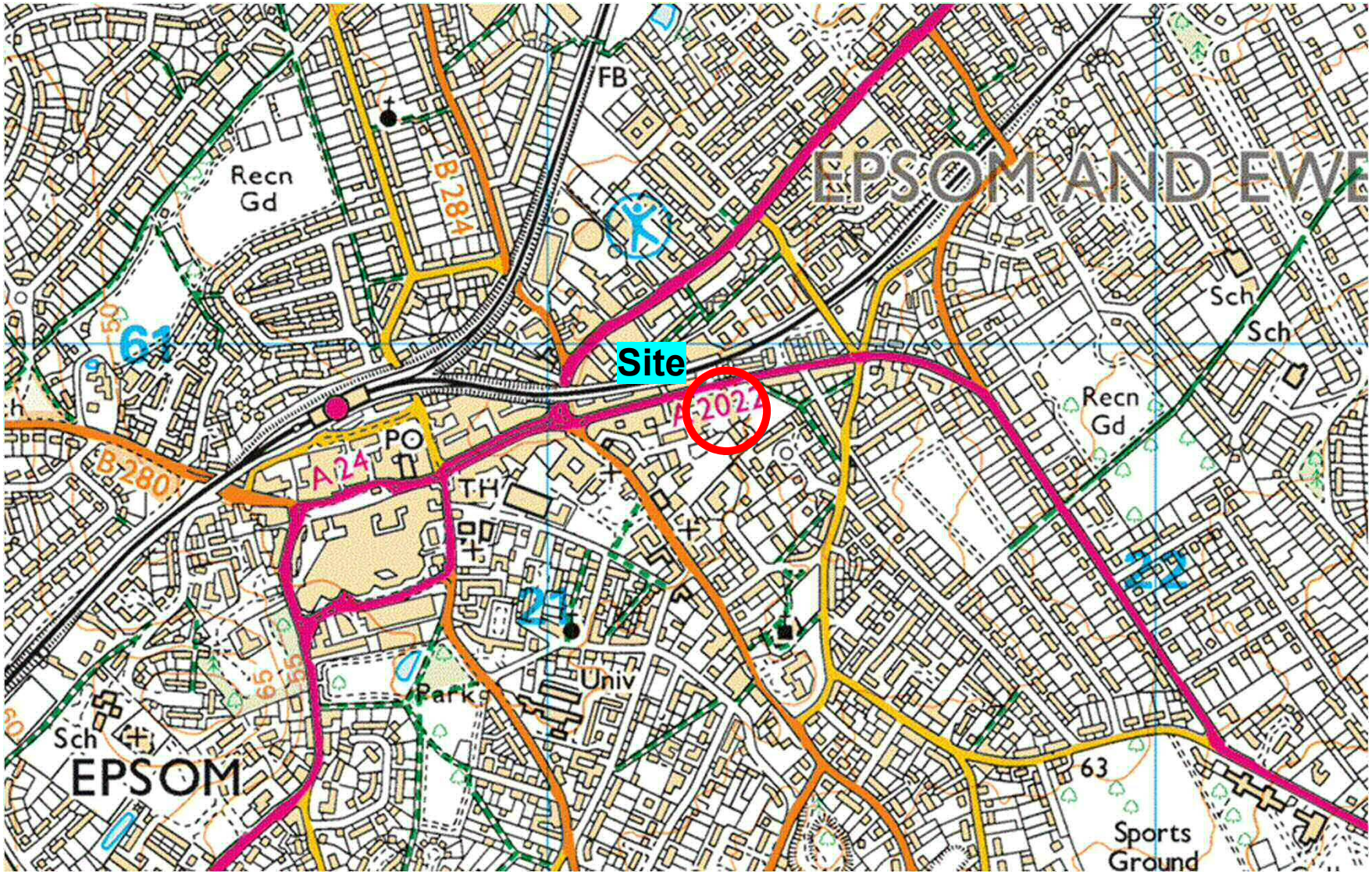
In agreement with the Local Authority Contaminated Land Officer, samples of the topsoil were retrieved by Obsidian to enable subsequent confirmatory analysis at the UKAS and MCERTS accredited laboratory of DETS. The analysis scheduled was in accordance with the Proposed Imported Topsoil Verification Criteria set out in Section 2.2. A total of seven samples were analysed from across the five landscaped areas. The results were screened against the Validation Criteria and all concentrations are below the adopted threshold levels. The results of the Obsidian scheduled analysis are presented in Appendix H.

We therefore consider the soft landscaping mitigation measures installed in areas 1 to 5 to be acceptable. A photographic record of areas 1 to 5 is presented in Appendix I.

5 Recommendations

- This report should be submitted to the local authority.

Drawings



OBSIDIAN GEO-CONSULTING

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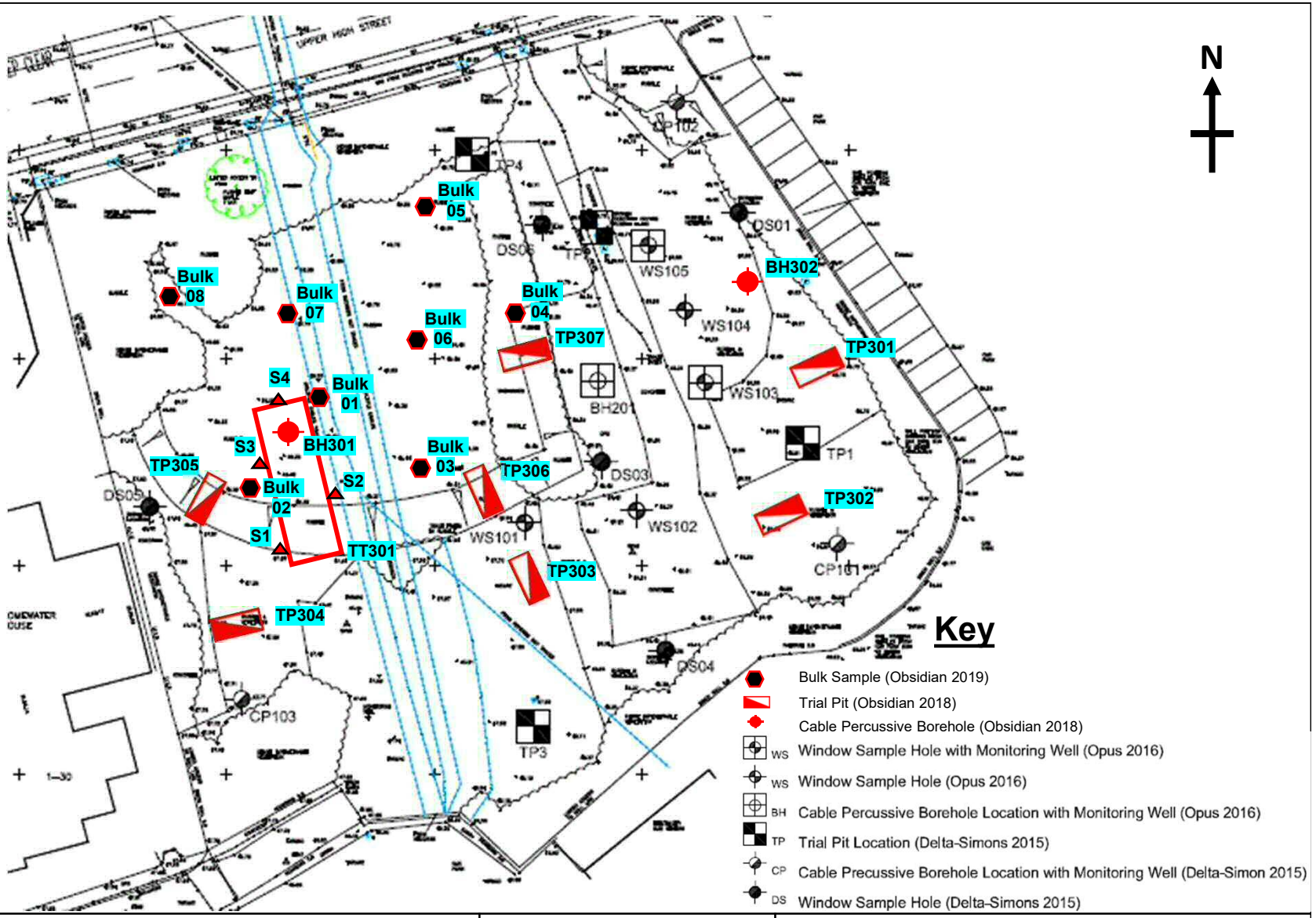
Title: Site Location Plan			
Project No: 18-1015-P	**Drawing No:** 001	**Revision:** A	**Scale:** NTS

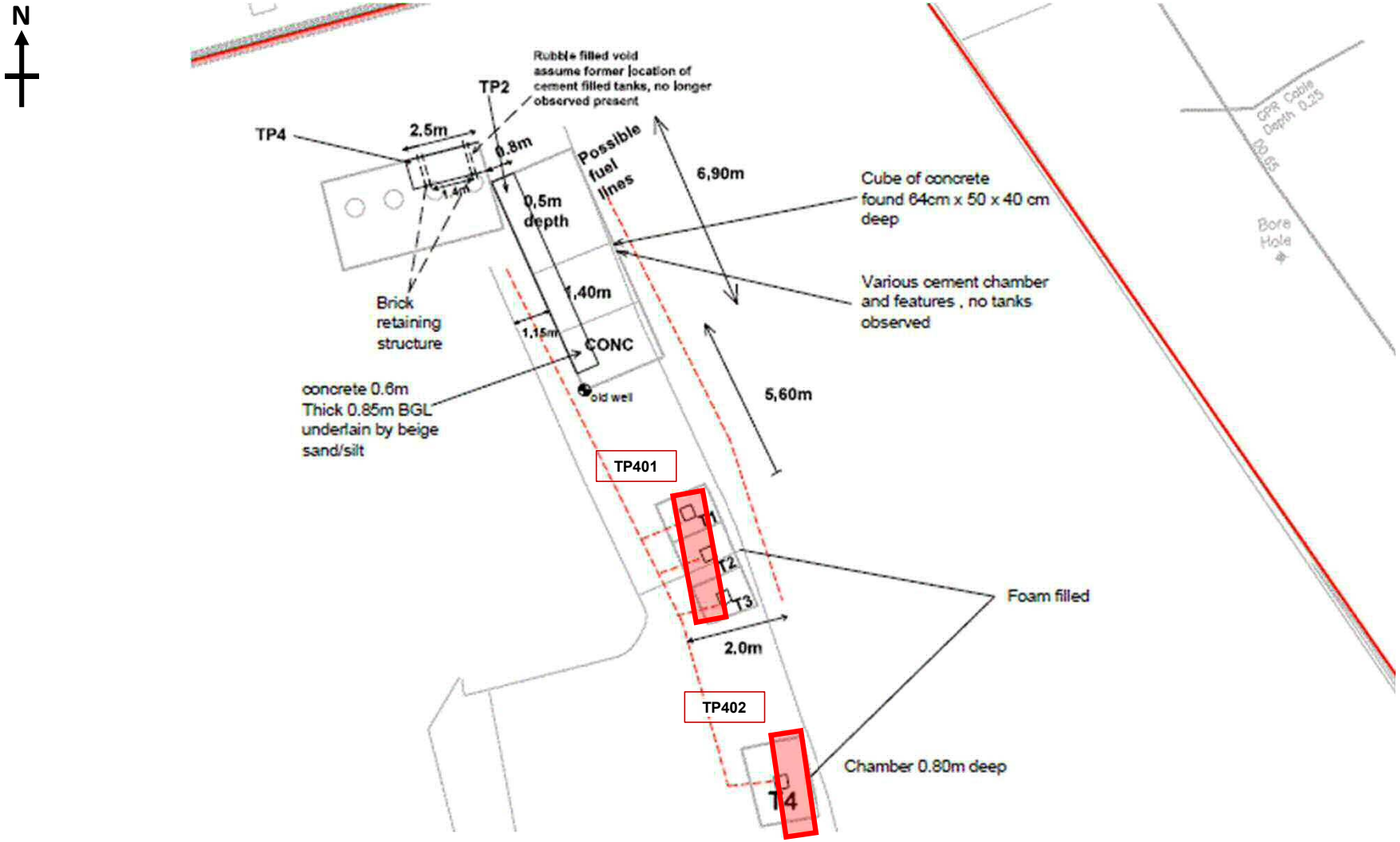


OBSIDIAN GEO–CONSULTING

Project:
Lidl, Upper High Street, Epsom

Title:
Exploratory Location Plan

Project No:	Drawing No:	Revision:	Scale:
18-1015-P	002	B	NTS



Key

Trial Pit

OBSIDIAN GEO–CONSULTING	**Project:** Lidl, High Street, Epsom	**Project No:**	18-1015-P
		Drawing No:	003
	Title: Tank Removal Area Trial Pit Location Plan	**Revision:**	A
		Scale:	NTS

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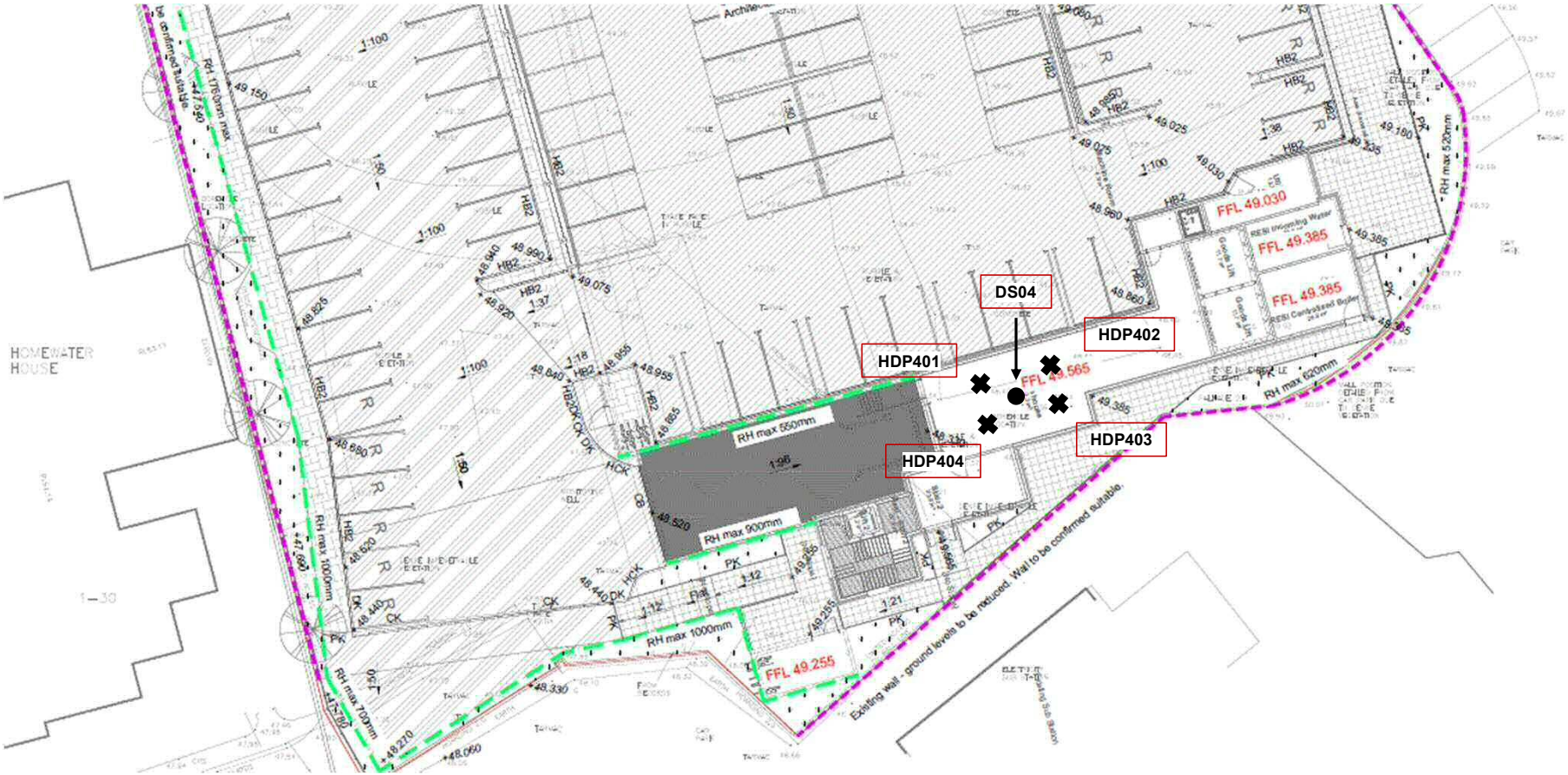
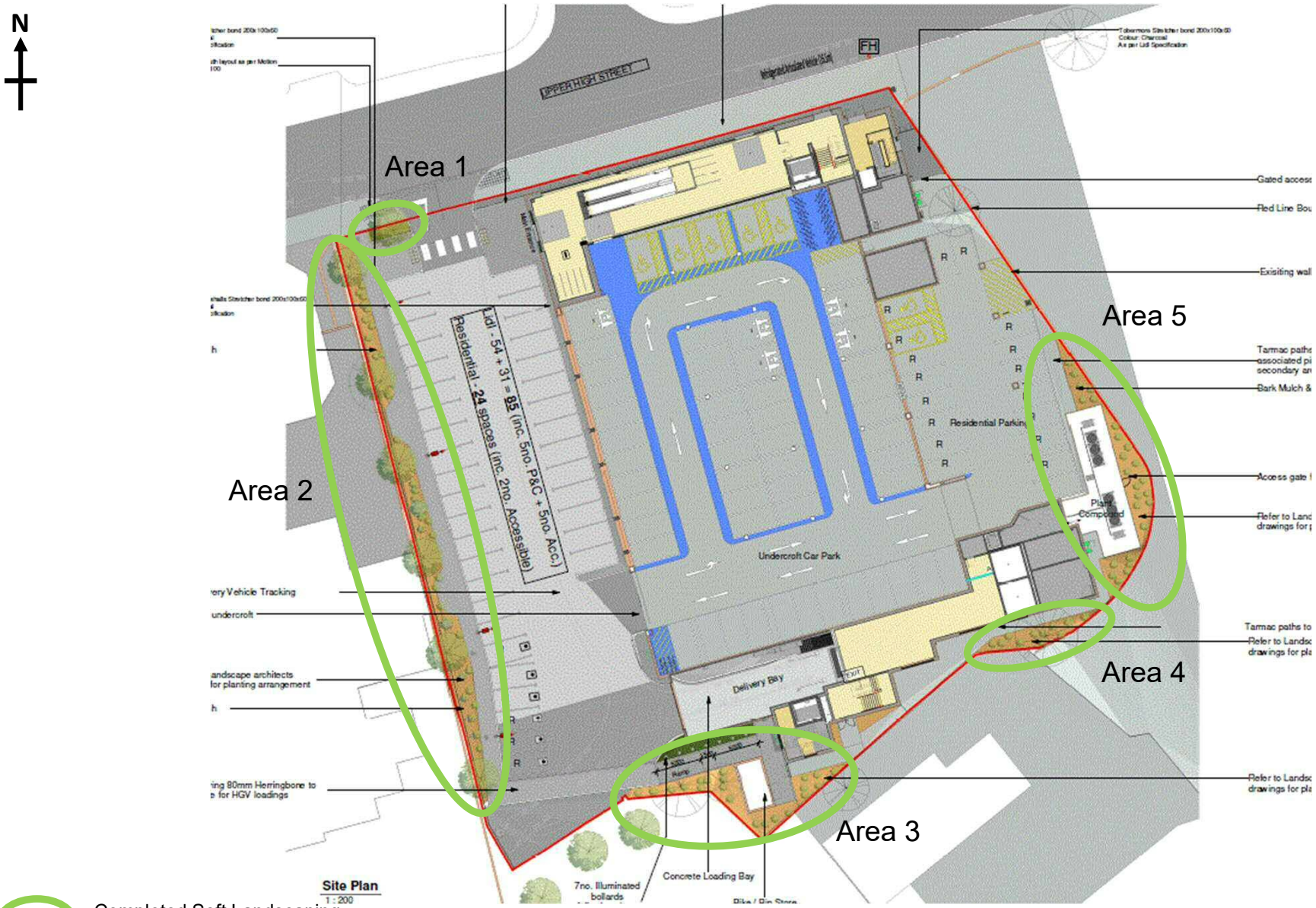


Key

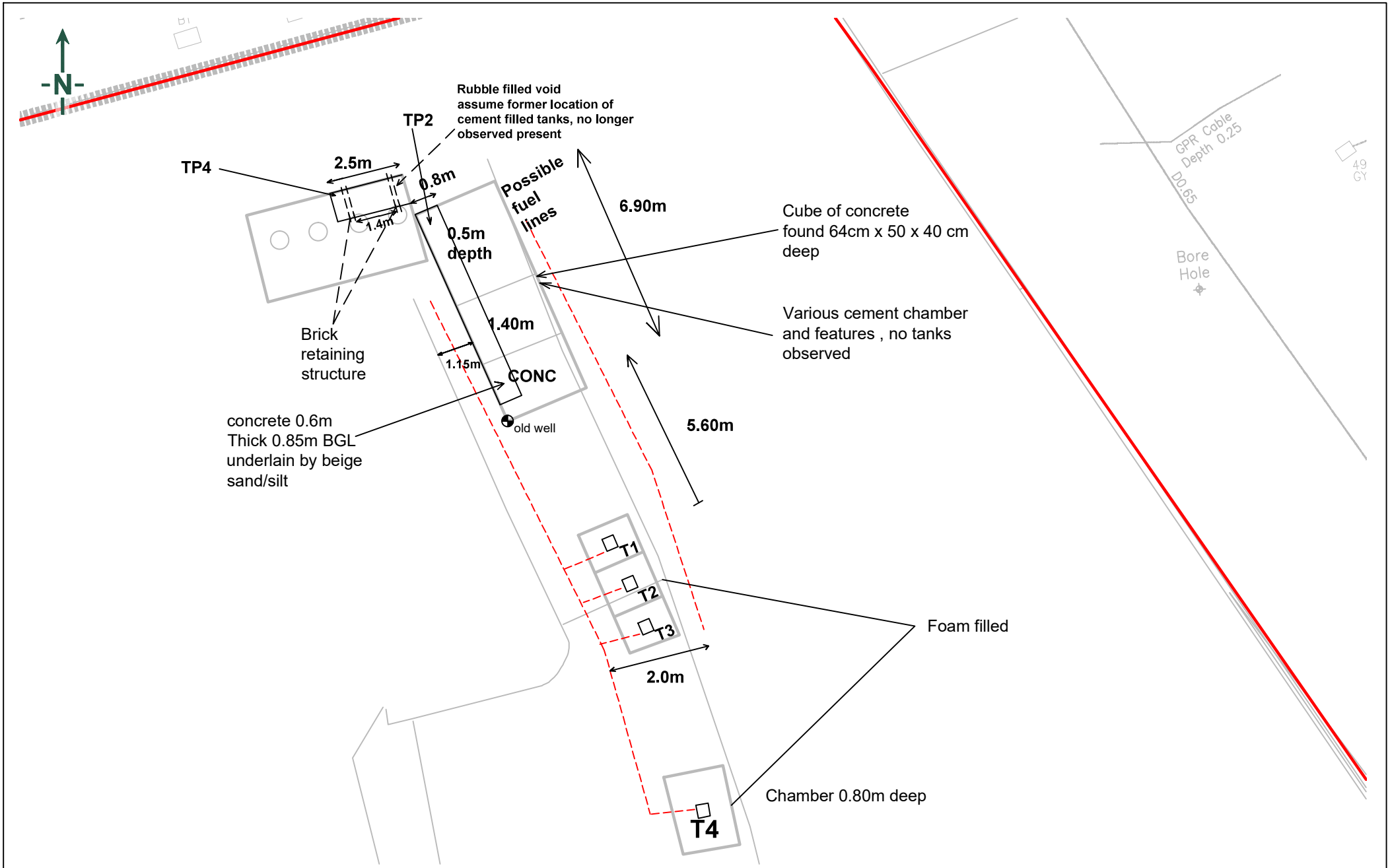
✖ **Hand Excavated Trial Pit**

OBSIDIAN GEO–CONSULTING

Project: Lidl, High Street, Epsom	**Project No:**	18-1015-P
	Drawing No:	004
Title: Lead Hotspot Location and Hand Pit Plan	**Revision:**	A
	Scale:	NTS



OBSIDIAN GEO–CONSULTING	**Project:** Lidl, High Street, Epsom	**Project No:**	18-1015-P
		Drawing No:	005
	Title: Soft Landscaped Areas	**Revision:**	A
		Scale:	NTS



deltasimons

TITLE:
Identified Former Underground Tank Infrastructure (Indicative)
Upper High Street
Epsom

DRAWN BY: DP	SCALE: Not to Scale	PROJECT NO: 14-7038.01
CHECKED BY: SS	REVISION: 1	FIGURE NO: 3
DATE: 17 August 2015		

DO NOT SCALE

S.H.E.
Do not excavate until all underground services have been identified and marked out. Refer to service providers drawings and to the utilities survey drawings. Unknown underground services may exist. Check for services by carrying out a scan with a cable avoidance tool.

Notes:

1. All levels are in metres to Ordnance Datum (m AOD).
2. The contractor is to check all dimensions and levels and report any discrepancies or omissions to the engineer.
3. All works and materials to be in accordance with client requirements.
4. All concrete for foundations to kerb channels and edgings shall be Class Gen3 (BS 5328) unless shown otherwise.
5. All kerbs and channels shall be hydraulically pressed and comply in all respects with BS 7263 Part 1.
6. Kerbs and channels shall be laid true to line and level and shall not be backed until inspected and approved by the Engineer.
7. All dimensions are in metres unless otherwise noted.
8. For softscape areas refer to Landscape Architects specification & details.
9. A number of proposed retaining walls are required in close proximity to the site boundary. Suitable construction methods required in these locations.
10. Edge protection to be installed where required for retaining structures.
11. Autotrack for delivery vehicle has been carried out by Space Architecture. Contractor to satisfy themselves that suitable area has been provided for HGV maneuvers .

Legend

13.050+	Proposed Levels
+13.050	Existing Level
HB2	Half battered Kerb 125 x 255mm
CK	Centre Kerb (25mm check Vehicle / 6mm check pedestrian)
HCK	High Containment Kerb
PK	Pin Kerb 50 x 150mm
CB	Channel Block 125 x 225mm
DK	Dropped Kerb Transitioning from HB2 to CK

Proposed Retaining Wall

Existing Retaining Wall to be amended and made suitable by contractor

Asphalt Car Park (Cars Only)

Asphalt Access Road (HGV and Cars)

Landscaping (Refer to Architect for details)

Pedestrian Block Footpath

Concrete Yard/Service Ramp

Pedestrian Asphalt Footpath

Issued for Tender	ZW	T2	TC	18.10.2018
Issued for Tender	ZW	T1	TC	12.10.2018
AMENDMENT	BY	REV	CHK	DATE

Rev P = Preliminary T = Tender C = Construction LCI = Last Construction Issue

In instances where this drawing completes or partly completes a contract, Billinghurst George & Partners will consider that it's product has been validated, unless in a period not exceeding 90 working days, the client advises to the contrary.

Client

Project
Lidl Epsom

Drawing Title
External Works GA

Drawn	ZW	Date	12/10/2018
Checked	TC	Date	12/10/2018
Scale	1:200	Original Size	A1

Billinghurst George & Partners
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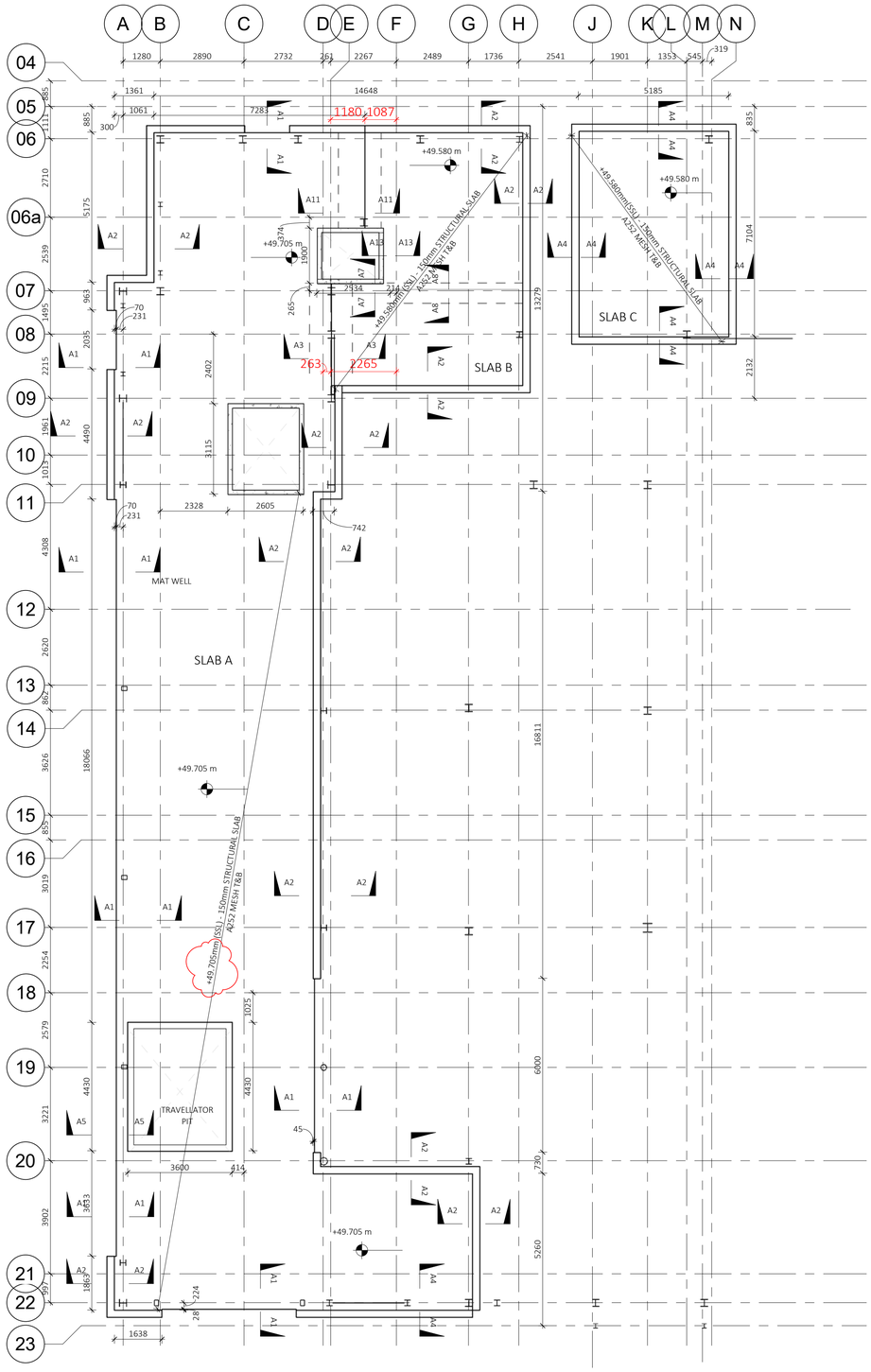
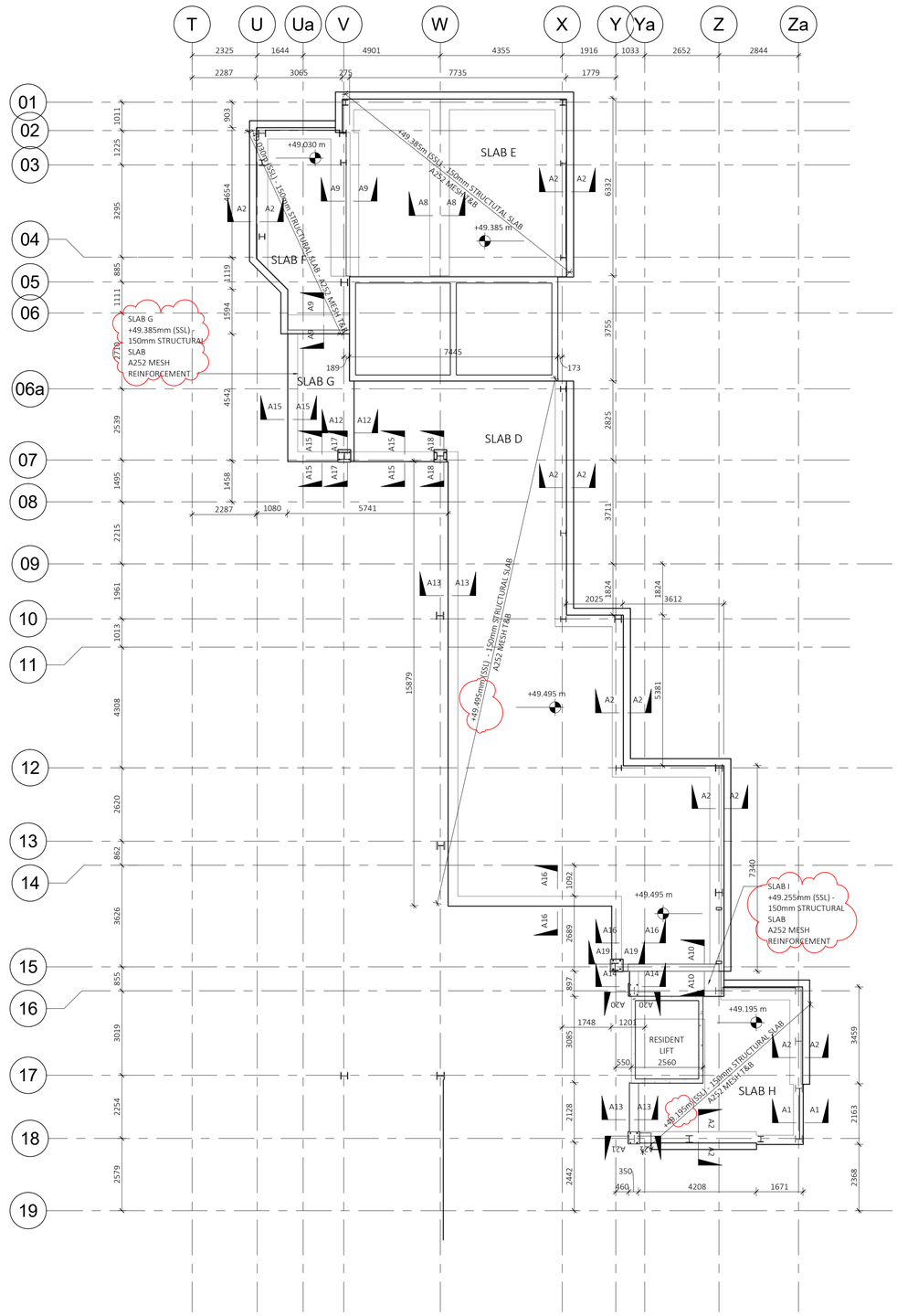
Drg. No. 18T2074-110 Rev. T2



1 RAFT LAYOUT 1

1 : 100



2 RAFT LAYOUT 2

1 : 100

FFL =+ 49.780m = +0.000m

Fabric Reinforcement Schedule						
Host Mark	Type	Major Lap Splice Length	Minor Lap Splice Length	Sheet Mass	Cut Sheet Mass	Total Sheet
SLAB A	A252 MESH	400 mm	400 mm	45.50 kg	2954.29 kg	65
SLAB B	A252 MESH	400 mm	400 mm	45.50 kg	433.20 kg	10
SLAB C	A252 MESH	400 mm	400 mm	45.50 kg	304.67 kg	7
SLAB D	A252 MESH	400 mm	400 mm	45.50 kg	1373.05 kg	30
SLAB E	A252 MESH	400 mm	400 mm	45.50 kg	435.95 kg	10
SLAB F	A252 MESH	400 mm	400 mm	45.50 kg	188.45 kg	4
SLAB G	A252 MESH	400 mm	400 mm	45.50 kg	90.87 kg	2
SLAB H	A252 MESH	400 mm	400 mm	45.50 kg	244.25 kg	5
SLAB I	A252 MESH	400 mm	400 mm	45.50 kg	26.64 kg	1

SDS (Structural Design Solutions) Ltd,

DUBLIN • LONDON • CASTLEBAR

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London: Bridge House, 25-27 The Bridge, Wealdstone, Harrow, HA3 5AB. **Tel:** +44(0)20-30266724
✉ : info@structuraldesign.ie Web: www.structuraldesign.ie .

SDS design engineers

REV	DATE	BY	DESCRIPTION
CN 7	14.08.2020	AM	REVISED SLABS LEVELS
CN 6	02.06.2020	AM	UPDATED SLAB EDGE AT GL 22 & PAD 5 SIZE
CN 5	08.05.2020	AM	UPDATED FOUNDATION
CN 4	29.04.2020	AM	ISSUED FOR COMMENTS
CN 3	23.04.2020	AM	ISSUED FOR COMMENTS
CN 2	10.04.2020	AM	ISSUED FOR COMMENTS
CN 1	18.03.2020	AM	ISSUED FOR REVIEW

DRAWING NOTES:

1. This Drawing is to be read in conjunction with the relevant Specifications & other Architectural & Engineering Drawings. Engineers to be informed immediately of any discrepancies before work proceeds.
2. Do Not Scale from this Drawing; -Metric Figured Dimension only are to be used.
3. It Is "The Contractors" responsibility to ensure that all works are carried out in accordance with the requirements of the current Building Regulations and all other statutory documents relevant to this project including the grant of planning permission, Fire Safety Certificate and Disability Access Certificate.
4. SDS (Structural Design Solutions) Ltd./ SDS-UK (Structural Design Solutions) Ltd. bear no liability for unilateral changes/modifications made during the course of construction based on the drawing prepared, without prior consultation and confirmation of acceptance of the revision by SDS (Structural Design Solutions) Ltd./ SDS-UK (Structural Design Solutions) Ltd.

Client: ADSTON

Project Title: LIDL EPSOM METROPOLITAN

Drawing Title: G.A & Details of Ground Floor Slab

Scales: 1 : 100	Paper Size: @ A1	Status: CONSTRUCTION	
Drawn by: A.M	Date: FEB 2020	Checked: M.M	
Project No.: 20010	Drawing No.: 3401	Revision: CN 7	

Appendix A
General Photographs

Photograph 1 – Adston Construction photo of breaking out around tank T1-T3.

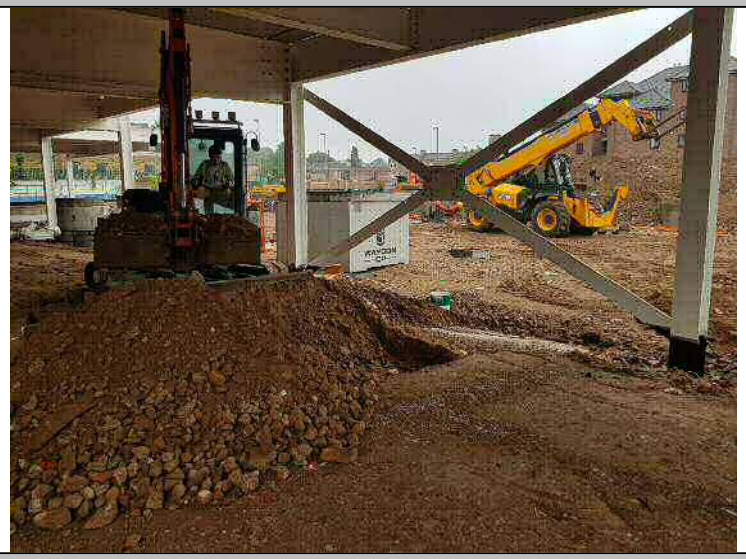
Photograph 2 – Adston Construction photo of tanks T1-T3 (foreground) and T4 (background).

Photograph 3 – Adston Construction photo of tank T1-T3.

Photograph 4 – Adston Construction photo of tank T4.

Photograph 5 – A view of TP401 location.

Photograph 6 – A view of part of TP401.



Photograph 7 – A view of TP402 location.

Photograph 8 – A view of part of TP402.

Photograph 9 – A view of the Lead hotspot area on 8th July 2020.

Photograph10 – A view of the Lead hotspot area on 8th July 2020.

Photograph 11 – A view of the Lead hotspot area on 4th August 2020.

Photograph 12 – A view of the Lead hotspot area on 4th August 2020.

Appendix B
Chemical Laboratory Analysis Results

Steven Dempsey
Obsidian Geo-Consulting Ltd
Unit C4
Castle Vale Enterprise Park
Park Lane
Birmingham
B35 6LJ

DETS Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Kent
ME17 2JN
t: 01622 850410

DETS Report No: 20-07608

Site Reference:	Lidl, Epsom
Project / Job Ref:	18-1015-P
Order No:	None Supplied
Sample Receipt Date:	13/07/2020
Sample Scheduled Date:	13/07/2020
Report Issue Number:	1
Reporting Date:	21/07/2020

Authorised by:

Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate						
DETS Report No: 20-07608	**Date Sampled**	08/07/20	08/07/20	08/07/20	08/07/20	
Obsidian Geo-Consulting Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	
Site Reference: Lidl, Epsom	**TP / BH No**	HDP401	HDP402	HDP403	HDP404	
Project / Job Ref: 18-1015-P	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	
Order No: None Supplied	**Depth (m)**	0.50	0.50	0.60	0.50	
Reporting Date: 21/07/2020	**DETS Sample No**	486129	486130	486131	486132	

Determinand	Unit	RL	Accreditation					
Lead (Pb)	mg/kg	< 3	MCERTS	70	112	944	147	

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

DETS Ltd
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Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 20-07608	**Date Sampled**	08/07/20	08/07/20	08/07/20	08/07/20	08/07/20
Obsidian Geo-Consulting Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Lidl, Epsom	**TP / BH No**	TP401	TP401	TP401	TP402	TP402
Project / Job Ref: 18-1015-P	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	**Depth (m)**	0.70	1.60	2.00	0.60	1.50
Reporting Date: 21/07/2020	**DETS Sample No**	486123	486124	486125	486126	486127

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	< 3
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	< 3
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	32	< 10	< 10	37	< 10
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	32	< 21	< 21	37	< 21
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	5	< 3	< 3	5	< 3
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	25	< 10	< 10	37	< 10
Aromatic (C5 - C35)	mg/kg	< 21	NONE	30	< 21	< 21	42	< 21
Total >C5 - C35	mg/kg	< 42	NONE	63	< 42	< 42	79	< 42

DETS Ltd
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Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

Soil Analysis Certificate - TPH CWG Banded							
DETS Report No: 20-07608	**Date Sampled**	08/07/20					
Obsidian Geo-Consulting Ltd	**Time Sampled**	None Supplied					
Site Reference: Lidl, Epsom	**TP / BH No**	TP402					
Project / Job Ref: 18-1015-P	**Additional Refs**	None Supplied					
Order No: None Supplied	**Depth (m)**	1.90					
Reporting Date: 21/07/2020	**DETS Sample No**	486128					

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01				
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05				
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2				
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2				
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3				
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3				
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	< 10				
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	< 21				
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01				
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05				
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2				
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2				
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2				
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	< 3				
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	< 10				
Aromatic (C5 - C35)	mg/kg	< 21	NONE	< 21				
Total >C5 - C35	mg/kg	< 42	NONE	< 42				

DETS Ltd
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Maidstone
Kent ME17 2JN
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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 20-07608	**Date Sampled**	08/07/20	08/07/20	08/07/20	08/07/20	08/07/20
Obsidian Geo-Consulting Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Lidl, Epsom	**TP / BH No**	TP401	TP401	TP401	TP402	TP402
Project / Job Ref: 18-1015-P	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: None Supplied	**Depth (m)**	0.70	1.60	2.00	0.60	1.50
Reporting Date: 21/07/2020	**DETS Sample No**	486123	486124	486125	486126	486127

Determinand	Unit	RL	Accreditation					
Benzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Toluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
p & m-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
o-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5

DETS Ltd
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Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
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Soil Analysis Certificate - BTEX / MTBE							
DETS Report No: 20-07608	**Date Sampled**	08/07/20					
Obsidian Geo-Consulting Ltd	**Time Sampled**	None Supplied					
Site Reference: Lidl, Epsom	**TP / BH No**	TP402					
Project / Job Ref: 18-1015-P	**Additional Refs**	None Supplied					
Order No: None Supplied	**Depth (m)**	1.90					
Reporting Date: 21/07/2020	**DETS Sample No**	486128					

Determinand	Unit	RL	Accreditation					
Benzene	ug/kg	< 2	MCERTS	< 2				
Toluene	ug/kg	< 5	MCERTS	< 5				
Ethylbenzene	ug/kg	< 2	MCERTS	< 2				
p & m-xylene	ug/kg	< 2	MCERTS	< 2				
o-xylene	ug/kg	< 2	MCERTS	< 2				
MTBE	ug/kg	< 5	MCERTS	< 5				

DETS Ltd
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Maidstone
Kent ME17 2JN
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4480

Soil Analysis Certificate - Sample Descriptions	
DETS Report No: 20-07608	
Obsidian Geo-Consulting Ltd	
Site Reference: Lidl, Epsom	
Project / Job Ref: 18-1015-P	
Order No: None Supplied	
Reporting Date: 21/07/2020	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
486123	TP401	None Supplied	0.70	6.8	Brown sandy gravel with brick and concrete
486124	TP401	None Supplied	1.60	9	Brown sandy clay with stones
486125	TP401	None Supplied	2.00	13.7	Brown sandy clay with stones
486126	TP402	None Supplied	0.60	6.5	Brown sandy gravel with stones and concrete
486127	TP402	None Supplied	1.50	10.6	Brown sandy clay
486128	TP402	None Supplied	1.90	14.3	Brown sandy clay
486129	HDP401	None Supplied	0.50	8	Orange sand
486130	HDP402	None Supplied	0.50	9.5	Brown loamy sand
486131	HDP403	None Supplied	0.60	13	Brown loamy sand with brick and concrete
486132	HDP404	None Supplied	0.50	7.9	Brown loamy sand with stones and concrete

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample I/S

Unsuitable Sample U/S

DETS Ltd
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Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

4480

Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 20-07608
Obsidian Geo-Consulting Ltd
Site Reference: Lidl, Epsom
Project / Job Ref: 18-1015-P
Order No: None Supplied
Reporting Date: 21/07/2020

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

Appendix C
Tank Disposal Waste Transfer Notes

PINO49290

5 - JUN 2020

Invoice

NJB RECYCLING LTD
77 Weir Road
Wimbledon
London
SW19 8UG
VAT Reg No: 794963168

ADSTON (UK) LIMITED
UNIT 4, THE SQUARE
MANDERWOOD
DRUMHAW
FERMANAGH
BT92 OFP

Document No.	74670
Date/Tax Point	01-05-2020
Order No.	
Account No.	ADSTON

r No	Date	Ticket	Qty	Details	Unit Price	Net	VAT Rate	VAT
	28/04/2020	143390	1	Site Address: ADSTON (UK) LIMITED 40 YD ROLL ON - CON	590.00	590.00	20.00	118.00

PAYMENTS TERMS: Strictly 30 days from end of month

BACS PAYMENT DETAILS: HSBC

Account Number: 03004883
Sort Code: 40-61-35
All invoice queries must be made within 14 days
Download our app from App Store and Google Play
The app is available for iPhones and Android phones

PAYMENTS TERMS: Strictly 30 days from end of month

BACS PAYMENT DETAILS: HSBC

Account Number: 03004883

£.D
10.06.0

Total Net Amount	590.00
Total VAT Amount	118.00
Invoice Total	708.00

NJB RECYCLING LTD
77 Weir Road
Wimbledon
London
SW19 8UG
VAT Reg No: 794963168

5 - JUN 2020

Type: Collection | **Order No: 19208** | **Ticket No: 143390**

Cash Sale: No	Date: 28/04/2020	Product: (R40) 40 Yd Roll On	Customer Order No:
Time On Site: 2020-04-28T11:58:23Z	Time Complete: 2020-04-28T11:59:20Z	Waste Type Code/Confirmed:	CON/Mixed Construction
Waiting Time: No	Waiting Time Charge: 0.00	Cancelled: No	Cancelled Reason:
SIC Code: 41.20/1	EWC Code: 17 04 07	Disposal Site: (WSTIN) NJB Waste In	

Feedback:

'I confirm that I have fulfilled my duty to apply the waste hierarchy as required by regulations 12 of the waste (England and Wales) Regulations 2011'

Account Address:

ADSTON
UNIT 4, THE SQUARE
MANDERWOOD
DRUMHAW

BT92 OFP

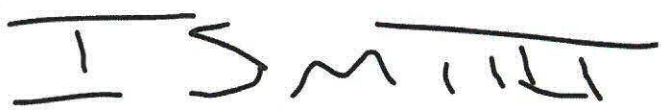
Delivery Address:

3205343
ADSTON (UK) LIMITED
40-52 UPPER HIGH STREET
EPSOM
NOT BEFORE 0930

Vehicle: LT19DZS

Driver: DAVID FOX

Customer: Ian



Driver: DAVID FOX

Photo 1:

Photo 2:

PIN049291

5 - JUN 2020

Invoice

NJB RECYCLING LTD
77 Weir Road
Wimbledon
London
SW19 8UG
VAT Reg No: 794963168

ADSTON (UK) LIMITED
UNIT 4, THE SQUARE
MANDERWOOD
DRUMHAW
FERMANAGH
BT92 OFP

Document No.	74442
Date/Tax Point	26-04-2020
Order No.	POR020819 / 19745
Account No.	ADSTON

er No	Date	Ticket	Qty	Details	Unit Price	Net	VAT Rate	VAT
POR020819 19745	24/04/2020	143278	1	Site Address: ADSTON (UK) LIMITED 6 YARD SKIP - CON	190.00	190.00	20.00	38.00

PAYMENTS TERMS: Strictly 30 days from end of month

BACS PAYMENT DETAILS: HSBC

Account Number: 03004883
Sort Code: 40-61-35
All invoice queries must be made within 14 days
Download our app from App Store and Google Play
The app is available for iPhones and Android phones
PAYMENTS TERMS: Strictly 30 days from end of month

A.D 1006.0

BACS PAYMENT DETAILS: HSBC

Account Number: 03004883

Total Net Amount	190.00
Total VAT Amount	38.00
Invoice Total	228.00

NJB RECYCLING LTD
77 Weir Road
Wimbledon
London
SW19 8UG
VAT Reg No: 794963168

5 - JUN 2020

Type: Delivery | **Order No: 19745** | **Ticket No: 143278**

Cash Sale: No | Date: 24/04/2020 | Product: (SK6YD) 6 Yard Skip | Customer Order No: POR020819

Time On Site: 2020-04-24T12:00:40Z | Time Complete: 2020-04-24T12:00:48Z | Waste Type Code/Confirmed: /

Waiting Time: No | Waiting Time Charge: 0.00 | Cancelled: No | Cancelled Reason:

SIC Code: 41.20/1 | EWC Code: 17 09 04 | Disposal Site: ()

Feedback:

'I confirm that I have fulfilled my duty to apply the waste hierarchy as required by regulations 12 of the waste (England and Wales) Regulations 2011'

Account Address:

ADSTON
UNIT 4, THE SQUARE
MANDERWOOD
DRUMHAW

BT92 OFP

Delivery Address:

3205343
ADSTON (UK) LIMITED
40-52 UPPER HIGH STREET
EPSOM
NOT BEFORE 0930

Vehicle: KX67WYJ

Driver: ANTHONY GATO

Customer: Nigel

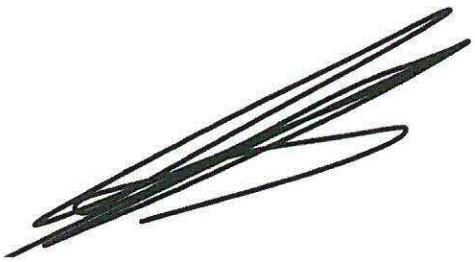


Photo 1:

Driver: ANTHONY GATO

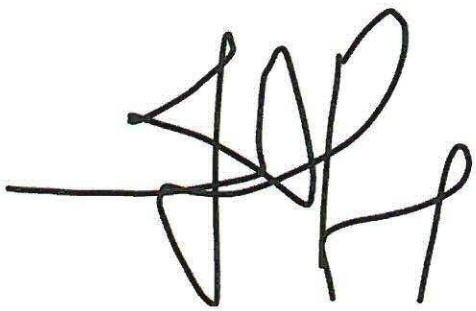


Photo 2:

Appendix D

Alderprufe HC Geomembrane Technical Sheet

Alderprufe HC Geomembrane (hydrocarbon)

- Suitable for use on hydrocarbon contaminated sites
- High Puncture & Tear Resistance
- Excellent Chemical Resistance
- Excellent Welding Properties
- Low Permeability to Hydrocarbon Gases

Description

Alderprufe HC Geomembrane is a high quality single layer HDPE membrane and is suitable for use as a barrier membrane on brownfield sites that require protection from dangerous contaminants such as hydrocarbons and methane, together with excellent damp proofing characteristics.

Application

Alderprufe HC Geomembrane has a proven track record as a barrier membrane on gas contaminated and hydrocarbon contaminated brownfield sites.

Alderprufe HC Geomembrane combines strength with flexibility enabling high levels of stress/crack resistance to be achieved together with excellent bi-axial load absorption characteristics. Due to its high puncture and impact resistance HC Geomembrane generally requires no protective screed or boarding when laying reinforced concrete above it.

Alderprufe HC Geomembrane has been designed to exhibit superior welding properties when compared to conventional materials. High quality welding can be performed in a wide range of climate conditions. The material can be welded with one of three welding systems,

- Hot Edge Welding
- Air Welding
- Extrusion Welding

Material Specification

Alderprufe HC Geomembrane can be manufactured in a range of sizes to suit individual applications; standard rolls are also available and the membrane can also be prefabricated into panels prior to installation. Alderburgh strongly advise the use of the following components when installing the membrane

Alderburgh Limited

Sladen Mill, Halifax Road , Littleborough OL15 OLB

For Further Assistance Contact our Sales Office on

Tel: 01706 374416 Fax: 01706 376785

Alderprufe HC Geomembrane (hydrocarbon)

HC Geomembrane: 1mm x 1.2m x 30m (36m^2) Standard Roll

Pre-formed Top Hat Units: For sealing around service pipe penetrations

HC DPC: 600mm x 30m Roll. A flexible DPC designed to prevent the transmission of hydrocarbon gases through the cavity.

Pre-formed DPC Internal and external Corner Units: To form an effective seal at corners.

Installation

Installation Details

Alderprufe HC Geomembrane is designed to exhibit superior welding properties therefore we recommend factory welding or on-site welding methods wherever possible. However, it is also possible to tape the laps using the HC Jointing system. In these instances 100mm Alderprufe HC Jointing Tape should be applied, the next width of Alderprufe HC Geomembrane should then be overlapped, and a 75mm Lap tape should then be applied over the joint – roll the layers well for good adhesion. For effective protection all laps must be a minimum of 100mm. Always ensure that the membrane is clean, dust free and dry at the time of jointing. If in doubt as to the suitability of taped laps in your specific application, please contact us for further advice.

Alderprufe HC Geomembrane and ancillary components must be installed in accordance with the recommendations of Building Research establishment BRE 414 "Protective measures for housing on gas contaminated land", Ciria Report 149 "Protecting development from methane", together with codes of practice CP102 and BS 8102.

Alderprufe HC Membrane should be installed on a blinded or smooth surface allowing adequate overlap for jointing between the sheets and avoiding bridging, i.e. areas of unsupported membrane. A final floor covering should be installed above it and care should be taken to ensure the membrane is not damaged prior to this.

To avoid slip or shear planes it is not recommended to take membranes through the wall. In order to provide a continuous barrier across the cavity Alderprufe HC DPC should be sealed to the membrane, taken through the blockwork, up the wall and incorporated below the damp proof course on the outer leaf.

Alderprufe HC DPC should be installed in accordance with BS 8215: 1991, BS 8000: Part 3, 1989 and BS 5628: Part 3: 1985. All horizontal DPCs must be bedded on both sides with fresh mortar. All DPCs must project through the full width of the wall, including any externally applied rendering and project 5mm beyond the finished external face.

Alderburgh Limited

Sladen Mill, Halifax Road , Littleborough OL15 OLB

For Further Assistance Contact our Sales Office on

Tel: 01706 374416 Fax: 01706 376785

ALDERBURGH

Alderprufe HC Geomembrane (hydrocarbon)

Please contact the Alderburgh Technical Support Team for more information

Technical Support

Due to the wide variety of hydrocarbon contaminants found, we strongly recommend the use of the Alderburgh Ltd Technical Support Team at an early design stage so that the most appropriate detailing and material specification are adopted.

Typical Properties	
Density (ASTM D1505)	1mm: 941kg/m^3 +/- 1% / 1.5mm: 941kg/m^3 +/- 1%
Thickness (BS2782-630A Av.across roll width)	1mm: +/- 5% 1.5mm: +/- 5%
Melt Flow Index (ASTM D1238	1mm:<0.5gm/10 minutes 1.5mm:<0.5gm / 10 minutes
Unaged Tensile (Mpa)	1mm: 31.2 1.5mm: 29.3
Unaged Elongation (%)	1mm: 860 1.5mm: 845
Unaged instrument Impact (N)	1mm: 2220.1 1.5mm: 3357.5
Tear Strength (N/mm)	1mm: 156.8/145.6 1.5mm: 1498.1/156.5
Petrol Permeability (g/m^2/hr)	1mm: 7.0 1.5mm: 3.8
Diesel Permeability (g/m^2/hr)	1mm: 14.8 1.5mm: 1.7
Aged (Petrol) Tensile Strength (Mpa)	1mm: 32.65 1.5mm: 26.4
Aged (Petrol) Elongation @ break (%)	1mm: 925 1.5mm: 805
Aged (Diesel) Tensile Strength (MPa)	1mm: 29.2 1.5mm: 30.4
Aged (Diesel) Elongation @ break (%)	1mm: 780 1.5mm: 835
Methane Permeability (m^2/sec/Pa)	1mm: 8.61 x 10-18 1.5mm: 7.96 x 10-18
Methane Permeability (cc/m^2/day/bar)	1mm: 76.2 1.5mm: 46.0
Methane Permeability (cc/m^2/hr)	1mm: 3.2 1.5mm: 1.95

Alderburgh Limited
Sladen Mill, Halifax Road , Littleborough OL15 OLB
For Further Assistance Contact our Sales Office on
Tel: 01706 374416 Fax: 01706 376785

Appendix E
Membrane Photographic Record

Photograph 13 – A view of the first section of Slab A

Photograph 14 – A view of the second section of Slab A

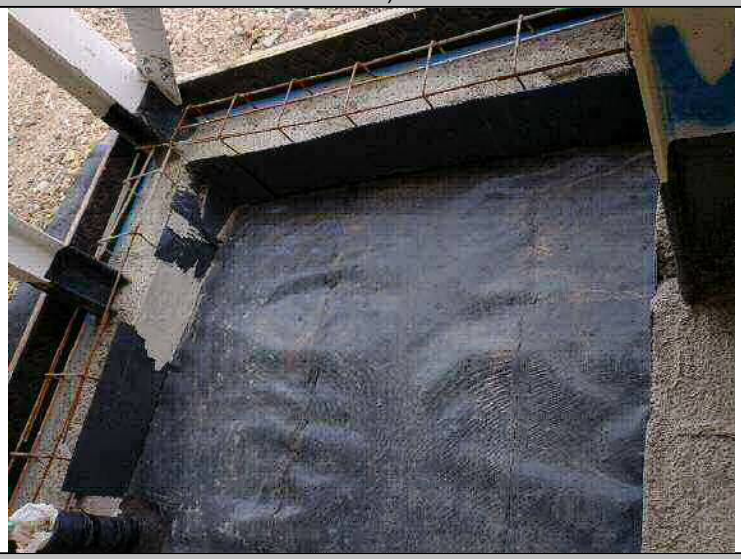
Photograph 15 – A view of Slab B (steel work installed prior to arrival)

Photograph 16 – A view of Slab C (steel work installed prior to arrival)

Photograph 17 – An example of some of the detailing around service entries (Slab E & F)

Photograph 18 – An example of some of the detailing around steel columns (Slab E & F)

Photograph 19 – Membrane and service entry, Slab D.



Photograph 20 – A view of the membrane in Slab G.

	
Photograph 21 – A view of the membrane installed in Slab H.	Photograph 22 – A view of the membrane installed in Slab H.

Appendix F

Topsoil Source Test Results – Blockade Services Ltd

TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Mr Steve Burrows
Blockade Services Ltd
Moorhouse Park
Westerham Road
Kent
TN16 2EU

30th April 2021
Our Ref: TOHA/21/9927/SS
Your Ref: see below

Dear Sirs

Topsoil Analysis Report: Contractors Mix Topsoil

We have completed the analysis of the soil sample recently submitted, referenced *Contractors Mix Topsoil,* and have pleasure reporting our findings.

The purpose of the analysis was to determine the suitability of the sample for general landscape purposes (trees, shrubs, amenity grass). In addition, this sample has been assessed to determine its compliance with the requirements of the British Standard for Topsoil *(BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil).*

This report presents the results of analysis for the sample submitted to our office, and it should be considered 'indicative' of the topsoil source. The report and results should therefore not be used by third parties as a means of verification or validation testing or waste designation purposes, especially after the topsoil has left the Blockade Services Ltd site.

SAMPLE EXAMINATION

The sample was described as a dark brown (Munsell Colour 10YR 3/3), slightly moist, friable, non-calcareous, LOAMY SAND with a weakly developed, fine granular structure*. The sample was slightly stony and contained a moderate proportion of organic fines and occasional woody fragments. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

*This appraisal of soil structure was made from examination of a disturbed sample(s). Structure is a key soil characteristic that may only be accurately assessed by examination in an in-situ state.

Tim O'Hare Associates LLP
Howbery Park Wallingford Oxfordshire OX10 8BA
T:01491 822653 E:info@toha.co.uk
www.toha.co.uk

Registered in England No. OC324049 Registered Office: The Innovation Centre, Howbery Park, Wallingford, Oxfordshire OX10 8BA

ANALYTICAL SCHEDULE

The sample was submitted to a UKAS and MCERTS accredited laboratory for a range of physical and chemical tests to confirm the composition and fertility of the soil, and the concentration of selected potential contaminants. The following parameters were determined:

- detailed particle size analysis ('5 sands', silt, clay);
- stone content (2-20mm, 20-50mm, >50mm);
- saturated hydraulic conductivity;
- pH and electrical conductivity values;
- exchangeable sodium percentage;
- major plant nutrients (N, P, K, Mg);
- organic matter content;
- C:N ratio;
- heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Se, Zn, B);
- total cyanide and total (mono) phenols;
- speciated PAHs (US EPA16 suite);
- aromatic and aliphatic TPH (C5-C35 banding);
- benzene, toluene, ethylbenzene, xylene (BTEX);
- asbestos screen.

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below.

RESULTS OF ANALYSIS

Particle Size Analysis and Stone Content

The sample fell into the *loamy sand* texture class. Further detailed particle size analysis found the sample to have a reasonably broad particle size distribution, with a slightly higher proportion of sand falling into the *medium sand* (0.25-0.50mm) class. This could increase the risk of particle interpacking once the material is placed. In this situation, finer particles fill the voids between the larger particles, thereby reducing drainage and aeration. Therefore, to reduce this risk, we recommend placing this topsoil to a maximum depth of 300mm, which is in line with *BS3882:2015*, section A.3.

The stone content of the sample was low and, as such, stones should not restrict the use of the soil for general landscape purposes.

Saturated Hydraulic Conductivity

The sample had a saturated hydraulic conductivity value of 82.3 mm/hr, which indicates that the material would demonstrate a 'high' drainage performance for a general landscape topsoil.

pH and Electrical Conductivity Values

The sample was strongly alkaline in reaction (pH 8.5). This pH value would be considered suitable for general landscape purposes providing species with a wide pH tolerance or those known to prefer alkaline soils are selected for planting, turfing and seeding.

The electrical conductivity (salinity) value (water extract) was moderate, which indicates that soluble salts should not be present at levels that would be harmful to plants.

The electrical conductivity value by $CaSO_4$ extract (*BS3882* requirement) fell below the maximum specified value (3300 µS/cm) given in *BS3882:2015 – Table 1*.

Organic Matter and Fertility Status

The sample was well supplied with organic matter and all major plant nutrients.

The sample contained a level of extractable potassium (1745 mg/l) that exceeded the maximum permissible value given in *BS3882:2015 – Table 1* (1500 mg/l).

The C:N ratio of the sample was acceptable for general landscape purposes.

Potential Contaminants

With reference to *BS3882:2015 - Table 1*: Notes 3 and 4, there is a requirement to confirm levels of potential contaminants in relation to the topsoil's proposed end use. This includes human health, environmental protection and metals considered toxic to plants. In the absence of site-specific assessment criteria, the concentrations that affect human health have been compared with the *residential with homegrown produce* land use in the Suitable For Use Levels (S4ULs) presented in *The LQM/CIEH S4ULs for Human Health Risk Assessment* (2015) and the DEFRA SP1010: *Development of Category 4 Screening Levels* (C4SLs) *for Assessment of Land Affected by Contamination – Policy Companion Document* (2014).

Of the potential contaminants determined, none exceeded their respective guideline values.

Phytotoxic Contaminants

Of the phytotoxic (toxic to plants) contaminants determined (copper, nickel, zinc), none was found at levels that exceeded the maximum permissible levels specified in *BS3882:2015 – Table 1*.

CONCLUSION

The purpose of the analysis was to determine the suitability of the sample for general landscape purposes (trees, shrubs, amenity grass). In addition, this sample has been assessed to determine its compliance with the requirements of the British Standard for Topsoil *(BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil).*

From the soil examination and subsequent laboratory analysis, the sample was described as a strongly alkaline, non-saline, non-calcareous loamy sand, with a weakly developed structure and low stone content. The sample was well supplied with organic matter and all major plant nutrients with a slightly elevated level of extractable potassium. Of the potential contaminants determined, none exceeded their respective guideline values.

To conclude, based on our findings, the topsoil represented by this sample would be considered suitable for general landscape purposes providing species with a wide pH tolerance, or those known to prefer alkaline soils are selected, and the physical condition of the soil is satisfactory.

To minimise the risk of self-compaction and anaerobism, we recommend that this soil is placed to a maximum depth of **300**mm.

The sample was largely compliant with the requirements of the British Standard for Topsoil (*BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil*), with the exception of an elevated level of extractable potassium.

On this occasion, this non-compliance is considered relatively minor when reviewed in the context of all the other results, and especially the pH and salinity levels. To avoid this in future batches of this topsoil, it would be sensible to slightly reduce the proportion of the compost used in the topsoil blend as it appears to be particularly rich, especially in potassium.

RECOMMENDATIONS

It is important to maintain the physical condition of the soil and avoid structural damage during all phases of soil handling (e.g. stockpiling, respreading, cultivating, planting, seeding or turfing). As a consequence, soil handling operations should be carried out when soil is reasonably dry and non-plastic (friable) in consistency.

It is important to ensure that the soil is not unnecessarily compacted by trampling or trafficking by site machinery, and soil handling should be stopped during and after heavy rainfall and not continued until the soil is friable in consistency. If the soil is structurally damaged and compacted at any stage during the course of soiling or landscaping works, it should be cultivated appropriately to relieve the compaction and to restore the soil's structure prior to any planting, turfing or seeding.

Further details on soil handling are provided in Annex A of *BS3882:2015.*

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if we can be of further assistance.

Yours faithfully

Tilly Kimble-Wilde
BSc MSc
Graduate Soil Scientist

Matthew Heins
BSc (Hons)
Soil Scientist

For & on behalf of Tim O'Hare Associates LLP

TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Client:	**Blockade Services Ltd**
Project:	**Contractors Mix Topsoil**
Job:	**Topsoil Analysis - BS3882:2015**
Date:	**30/04/2021**
Job Ref No:	**TOHA/21/9927/SS**

Sample Reference			**Contractors Mix Topsoil**
		Accreditation	
Clay (<0.002mm)	%	UKAS	8
Silt (0.002-0.05mm)	%	UKAS	6
Very Fine Sand (0.05-0.15mm)	%	UKAS	13
Fine Sand (0.15-0.25mm)	%	UKAS	13
Medium Sand (0.25-0.50mm)	%	UKAS	35
Coarse Sand (0.50-1.0mm)	%	UKAS	19
Very Coarse Sand (1.0-2.0mm)	%	UKAS	6
Total Sand (0.05-2.0mm)	%	UKAS	86
Texture Class (UK Classification)	--	UKAS	LS
Stones (2-20mm)	% DW	GLP	12
Stones (20-50mm)	% DW	GLP	0
Stones (>50mm)	% DW	GLP	0
Saturated Hydraulic Conductivity	mm/hr	A2LA	82.3
pH Value (1:2.5 water extract)	units	UKAS	8.5
Electrical Conductivity (1:2.5 water extract)	uS/cm	UKAS	1321
Electrical Conductivity (1:2 $CaSO_4$ extract)	uS/cm	UKAS	3265
Exchangeable Sodium Percentage	%	UKAS	7.0
Organic Matter (LOI)	%	UKAS	7.7
Total Nitrogen (Dumas)	%	UKAS	0.35
C : N Ratio	ratio	UKAS	13
Extractable Phosphorus	mg/l	UKAS	80
Extractable Potassium	mg/l	UKAS	1745
Extractable Magnesium	mg/l	UKAS	166
Total Arsenic (As)	mg/kg	MCERTS	14
Total Cadmium (Cd)	mg/kg	MCERTS	< 0.2
Total Chromium (Cr)	mg/kg	MCERTS	24
Hexavalent Chromium (Cr VI)	mg/kg	MCERTS	< 4.0
Total Copper (Cu)	mg/kg	MCERTS	14
Total Lead (Pb)	mg/kg	MCERTS	18
Total Mercury (Hg)	mg/kg	MCERTS	< 0.3
Total Nickel (Ni)	mg/kg	MCERTS	14
Total Selenium (Se)	mg/kg	MCERTS	< 1.0
Total Zinc (Zn)	mg/kg	MCERTS	46
Water Soluble Boron (B)	mg/kg	MCERTS	2.8
Total Cyanide (CN)	mg/kg	MCERTS	< 1.0
Total (mono) Phenols	mg/kg	MCERTS	< 1.0
Naphthalene	mg/kg	MCERTS	< 0.05
Acenaphthylene	mg/kg	MCERTS	< 0.05
Acenaphthene	mg/kg	MCERTS	< 0.05
Fluorene	mg/kg	MCERTS	< 0.05
Phenanthrene	mg/kg	MCERTS	< 0.05
Anthracene	mg/kg	MCERTS	< 0.05
Fluoranthene	mg/kg	MCERTS	< 0.05
Pyrene	mg/kg	MCERTS	< 0.05
Benzo(a)anthracene	mg/kg	MCERTS	< 0.05
Chrysene	mg/kg	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	MCERTS	< 0.05
Benzo(k)fluoranthene	mg/kg	MCERTS	< 0.05
Benzo(a)pyrene	mg/kg	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	MCERTS	< 0.05
Dibenzo(a,h)anthracene	mg/kg	MCERTS	< 0.05
Benzo(g,h,i)perylene	mg/kg	MCERTS	< 0.05
Total PAHs (sum USEPA16)	mg/kg	MCERTS	< 0.80
Aliphatic TPH >C5 - C6	mg/kg	MCERTS	< 0.001
Aliphatic TPH >C6 - C8	mg/kg	MCERTS	< 0.001
Aliphatic TPH >C8 - C10	mg/kg	MCERTS	< 0.001
Aliphatic TPH >C10 - C12	mg/kg	MCERTS	< 1.0
Aliphatic TPH >C12 - C16	mg/kg	MCERTS	< 2.0
Aliphatic TPH >C16 - C21	mg/kg	MCERTS	< 8.0
Aliphatic TPH >C21 - C35	mg/kg	MCERTS	< 8.0
Aliphatic TPH (C5 - C35)	mg/kg	MCERTS	< 10
Aromatic TPH >C5 - C7	mg/kg	MCERTS	< 0.001
Aromatic TPH >C7 - C8	mg/kg	MCERTS	< 0.001
Aromatic TPH >C8 - C10	mg/kg	MCERTS	< 0.001
Aromatic TPH >C10 - C12	mg/kg	MCERTS	< 1.0
Aromatic TPH >C12 - C16	mg/kg	MCERTS	< 2.0
Aromatic TPH >C16 - C21	mg/kg	MCERTS	< 10
Aromatic TPH >C21 - C35	mg/kg	MCERTS	< 10
Aromatic TPH (C5 - C35)	mg/kg	MCERTS	< 10
Benzene	mg/kg	MCERTS	< 0.001
Toluene	mg/kg	MCERTS	< 0.001
Ethylbenzene	mg/kg	MCERTS	< 0.001
p & m-xylene	mg/kg	MCERTS	< 0.001
o-xylene	mg/kg	MCERTS	< 0.001
MTBE (Methyl Tertiary Butyl Ether)	mg/kg	MCERTS	< 0.001
Asbestos	ND/D	ISO 17025	Not-detected

LS = LOAMY SAND

Visual Examination

The sample was described as a dark brown (Munsell Colour 10YR 3/3), slightly moist, friable, non-calcareous, LOAMY SAND with a weakly developed, fine granular structure. The sample was slightly stony and contained a moderate proportion of organic fines and occasional woody fragments. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

mkimble-wilde

Tilly Kimble-Wilde
BSc MSc
Graduate Soil Scientist

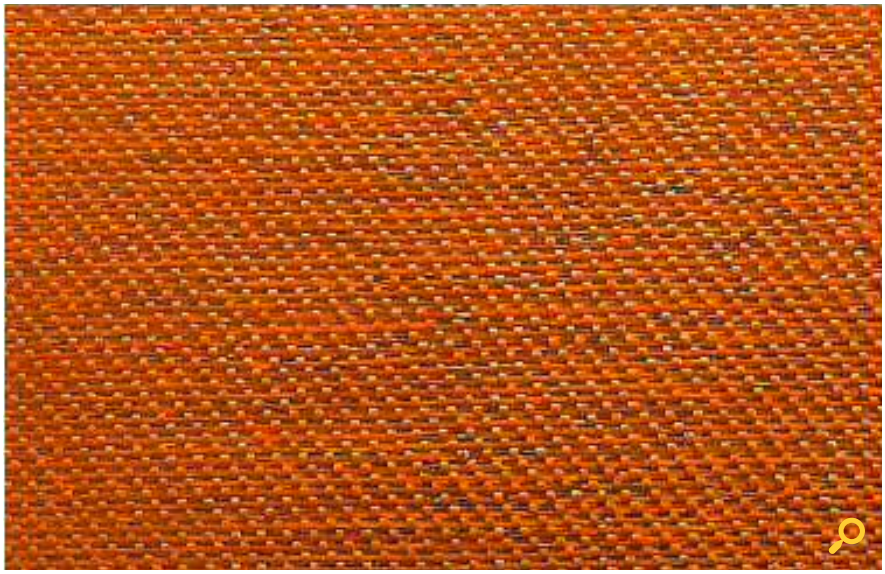
Results of analysis should be read in conjunction with the report they were issued with

Appendix G

FasTrack Orange Geotextile Technical Sheet

WREKIN
Intelligent products for civil engineering

FasTrack™



FasTrack™ Orange

Standard Grade (SG) woven geotextiles

Based on our popular 609 geotextiles, FasTrack™ Orange prevents the intermixing of contaminated and uncontaminated soils and its bright colour also alerts users and future users to the potential danger of further excavation. It is designed and manufactured to conform to the old Department of Transport & Highways specification for road and earthworks separation.

Separation - Prevents intermixing of dissimilar soil layers

Filtration - Allows passage of fluids whilst retaining soil particles

Applications for FasTrack™ Orange

- Contamination
- Warning Barrier

Benefits of FasTrack™ Orange

- Bright Colour For Visability
- Reinforcement
- Seperation

MECHANICAL PROPERTIES	TEST	UNITS	FASTRACK ORANGE
Tensile Strength - MD	EN ISO 10319	kN/m	16
Tensile Strength - XD	EN ISO 10319	kN/m	11.5
Elongation at break - MD	EN ISO 10319	%	18.5
Elongation at break - XD	EN ISO 10319	%	18.5
CBR Puncture Resistance	EN ISO 12236	N	1500
HYDRAULIC PROPERTIES			
Water flow normal to the plane	EN ISO 11058	l/m²/s	17
Characteristic opening (pore) size	EN ISO 12956	µm	250
PHYSICAL PROPERTIES			
Thickness under 2 kPa	EN ISO 9863-1	mm	0.4
Weight	EN ISO 9864	g/m²	75
Roll width		cm	450
Roll length		m	100

Other grades of geotextiles within the Wrekin range include:
Standard Grade, High Flow, and High Strength woven fabrics and Needle Punched non-wovens.

1. Wrekin Products Ltd is continually seeking to improve our products and therefore reserves the right to alter product specifications without prior notice.
2. It is the responsibility of all users to satisfy themselves the above data is current.
3. Installation details are available on request.
4. Published April 2019 - Version 2.CT

SCAN QR CODE FOR MORE INFO

SPECIFICATIONS:

Appendix H
Obsidian Topsoil Test Results

Jamie Dillon
Obsidian Geo-Consulting Ltd
Unit C4
Castle Vale Enterprise Park
Park Lane
Birmingham
B35 6LJ

Derwentside Environmental Testing Services Ltd
Unit 1
Rose Lane Industrial Estate
Rose Lane
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Kent
ME17 2JN
t: 01622 850410

DETS Report No: 21-14182

Site Reference:	Lidl, Epsom
Project / Job Ref:	18-1015-P
Order No:	00816
Sample Receipt Date:	29/11/2021
Sample Scheduled Date:	29/11/2021
Report Issue Number:	1
Reporting Date:	03/12/2021

Authorised by:

Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

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Soil Analysis Certificate						
DETS Report No: 21-14182	**Date Sampled**	22/11/21	22/11/21	22/11/21	22/11/21	22/11/21
Obsidian Geo-Consulting Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Lidl, Epsom	**TP / BH No**	Area 1 S1	Area 2 S1	Area 2 S2	Area 2 S3	Area 3 S1
Project / Job Ref: 18-1015-P	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 00816	**Depth (m)**	0.20	0.20	0.20	0.20	0.20
Reporting Date: 03/12/2021	**DETS Sample No**	577099	577100	577101	577102	577103

Determinand	Unit	RL	Accreditation					
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
pH	pH Units	N/a	MCERTS	7.4	6.8	7.5	7.4	7.2
Total Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	12	< 10	68	< 10	28
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	0.01	< 0.01	0.07	< 0.01	0.03
Sulphide	mg/kg	< 5	NONE	< 5	< 5	< 5	< 5	< 5
Arsenic (As)	mg/kg	< 2	MCERTS	10	13	7	10	8
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	1.4	< 1	< 1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	0.2	< 0.2	< 0.2	< 0.2
Chromium (Cr)	mg/kg	< 2	MCERTS	12	16	13	13	12
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	14	24	18	13	10
Lead (Pb)	mg/kg	< 3	MCERTS	23	27	23	23	12
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	11	14	10	11	11
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	< 3	< 3	< 3	< 3
Zinc (Zn)	mg/kg	< 3	MCERTS	43	61	76	45	33
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

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Soil Analysis Certificate						
DETS Report No: 21-14182	**Date Sampled**	22/11/21	22/11/21			
Obsidian Geo-Consulting Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Lidl, Epsom	**TP / BH No**	Area 4 S1	Area 5 S1			
Project / Job Ref: 18-1015-P	**Additional Refs**	None Supplied	None Supplied			
Order No: 00816	**Depth (m)**	0.20	0.20			
Reporting Date: 03/12/2021	**DETS Sample No**	577104	577105			

Determinand	Unit	RL	Accreditation					
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected	Not Detected			
pH	pH Units	N/a	MCERTS	6.9	8.4			
Total Cyanide	mg/kg	< 2	NONE	< 2	< 2			
W/S Sulphate as SO_4 (2:1)	mg/l	< 10	MCERTS	125	38			
W/S Sulphate as SO_4 (2:1)	g/l	< 0.01	MCERTS	0.12	0.04			
Sulphide	mg/kg	< 5	NONE	< 5	< 5			
Arsenic (As)	mg/kg	< 2	MCERTS	7	7			
W/S Boron	mg/kg	< 1	NONE	1.5	< 1			
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	< 0.2			
Chromium (Cr)	mg/kg	< 2	MCERTS	12	12			
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2			
Copper (Cu)	mg/kg	< 4	MCERTS	12	12			
Lead (Pb)	mg/kg	< 3	MCERTS	15	15			
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1			
Nickel (Ni)	mg/kg	< 3	MCERTS	10	11			
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	< 3			
Zinc (Zn)	mg/kg	< 3	MCERTS	32	39			
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 21-14182	**Date Sampled**	22/11/21	22/11/21	22/11/21	22/11/21	22/11/21
Obsidian Geo-Consulting Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Lidl, Epsom	**TP / BH No**	Area 1 S1	Area 2 S1	Area 2 S2	Area 2 S3	Area 3 S1
Project / Job Ref: 18-1015-P	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 00816	**Depth (m)**	0.20	0.20	0.20	0.20	0.20
Reporting Date: 03/12/2021	**DETS Sample No**	577099	577100	577101	577102	577103

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	0.14
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6

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Soil Analysis Certificate - Speciated PAHs							
DETS Report No: 21-14182	**Date Sampled**	22/11/21	22/11/21			
Obsidian Geo-Consulting Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Lidl, Epsom	**TP / BH No**	Area 4 S1	Area 5 S1			
Project / Job Ref: 18-1015-P	**Additional Refs**	None Supplied	None Supplied			
Order No: 00816	**Depth (m)**	0.20	0.20			
Reporting Date: 03/12/2021	**DETS Sample No**	577104	577105			

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Fluoranthene	mg/kg	< 0.1	MCERTS	0.27	0.15			
Pyrene	mg/kg	< 0.1	MCERTS	0.22	0.14			
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Chrysene	mg/kg	< 0.1	MCERTS	0.13	< 0.1			
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1			
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	< 1.6			

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Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 21-14182	**Date Sampled**	22/11/21	22/11/21	22/11/21	22/11/21	22/11/21
Obsidian Geo-Consulting Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Lidl, Epsom	**TP / BH No**	Area 1 S1	Area 2 S1	Area 2 S2	Area 2 S3	Area 3 S1
Project / Job Ref: 18-1015-P	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 00816	**Depth (m)**	0.20	0.20	0.20	0.20	0.20
Reporting Date: 03/12/2021	**DETS Sample No**	577099	577100	577101	577102	577103

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	< 3
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	< 3
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	< 10
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	< 21	< 21	< 21	< 21	< 21
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3	< 3	< 3	6
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	< 10	< 10	< 10	< 10	24
Aromatic (C5 - C35)	mg/kg	< 21	NONE	< 21	< 21	< 21	< 21	30
Total >C5 - C35	mg/kg	< 42	NONE	< 42	< 42	< 42	< 42	< 42

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Soil Analysis Certificate - TPH CWG Banded						
DETS Report No: 21-14182	**Date Sampled**	22/11/21	22/11/21			
Obsidian Geo-Consulting Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Lidl, Epsom	**TP / BH No**	Area 4 S1	Area 5 S1			
Project / Job Ref: 18-1015-P	**Additional Refs**	None Supplied	None Supplied			
Order No: 00816	**Depth (m)**	0.20	0.20			
Reporting Date: 03/12/2021	**DETS Sample No**	577104	577105			

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6	mg/kg	< 0.01	NONE	< 0.01	< 0.01			
Aliphatic >C6 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05			
Aliphatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2			
Aliphatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2			
Aliphatic >C12 - C16	mg/kg	< 3	MCERTS	< 3	< 3			
Aliphatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3			
Aliphatic >C21 - C34	mg/kg	< 10	MCERTS	< 10	< 10			
Aliphatic (C5 - C34)	mg/kg	< 21	NONE	< 21	< 21			
Aromatic >C5 - C7	mg/kg	< 0.01	NONE	< 0.01	< 0.01			
Aromatic >C7 - C8	mg/kg	< 0.05	NONE	< 0.05	< 0.05			
Aromatic >C8 - C10	mg/kg	< 2	MCERTS	< 2	< 2			
Aromatic >C10 - C12	mg/kg	< 2	MCERTS	< 2	< 2			
Aromatic >C12 - C16	mg/kg	< 2	MCERTS	< 2	< 2			
Aromatic >C16 - C21	mg/kg	< 3	MCERTS	< 3	< 3			
Aromatic >C21 - C35	mg/kg	< 10	MCERTS	< 10	< 10			
Aromatic (C5 - C35)	mg/kg	< 21	NONE	< 21	< 21			
Total >C5 - C35	mg/kg	< 42	NONE	< 42	< 42			

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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 21-14182	**Date Sampled**	22/11/21	22/11/21	22/11/21	22/11/21	22/11/21
Obsidian Geo-Consulting Ltd	**Time Sampled**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Lidl, Epsom	**TP / BH No**	Area 1 S1	Area 2 S1	Area 2 S2	Area 2 S3	Area 3 S1
Project / Job Ref: 18-1015-P	**Additional Refs**	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: 00816	**Depth (m)**	0.20	0.20	0.20	0.20	0.20
Reporting Date: 03/12/2021	**DETS Sample No**	577099	577100	577101	577102	577103

Determinand	Unit	RL	Accreditation					
Benzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
Toluene	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5
Ethylbenzene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
p & m-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
o-xylene	ug/kg	< 2	MCERTS	< 2	< 2	< 2	< 2	< 2
MTBE	ug/kg	< 5	MCERTS	< 5	< 5	< 5	< 5	< 5

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Soil Analysis Certificate - BTEX / MTBE						
DETS Report No: 21-14182	**Date Sampled**	22/11/21	22/11/21			
Obsidian Geo-Consulting Ltd	**Time Sampled**	None Supplied	None Supplied			
Site Reference: Lidl, Epsom	**TP / BH No**	Area 4 S1	Area 5 S1			
Project / Job Ref: 18-1015-P	**Additional Refs**	None Supplied	None Supplied			
Order No: 00816	**Depth (m)**	0.20	0.20			
Reporting Date: 03/12/2021	**DETS Sample No**	577104	577105			

Determinand	Unit	RL	Accreditation					
Benzene	ug/kg	< 2	MCERTS	< 2	< 2			
Toluene	ug/kg	< 5	MCERTS	< 5	< 5			
Ethylbenzene	ug/kg	< 2	MCERTS	< 2	< 2			
p & m-xylene	ug/kg	< 2	MCERTS	< 2	< 2			
o-xylene	ug/kg	< 2	MCERTS	< 2	< 2			
MTBE	ug/kg	< 5	MCERTS	< 5	< 5			

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Soil Analysis Certificate - Sample Descriptions
DETS Report No: 21-14182
Obsidian Geo-Consulting Ltd
Site Reference: Lidl, Epsom
Project / Job Ref: 18-1015-P
Order No: 00816
Reporting Date: 03/12/2021

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
577099	Area 1 S1	None Supplied	0.20	18.2	Brown loamy clay with stones and vegetation
577100	Area 2 S1	None Supplied	0.20	16.2	Brown loamy sand with stones and vegetation
577101	Area 2 S2	None Supplied	0.20	19.5	Brown loamy sand with vegetation
577102	Area 2 S3	None Supplied	0.20	15.3	Brown loamy sand with vegetation
577103	Area 3 S1	None Supplied	0.20	15.5	Brown loamy sand with vegetation
577104	Area 4 S1	None Supplied	0.20	22.4	Brown loamy sand with vegetation
577105	Area 5 S1	None Supplied	0.20	13	Brown loamy sand with vegetation

Moisture content is part of procedure E003 & is not an accredited test
Insufficient Sample I/S
Unsuitable Sample U/S

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Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 21-14182
Obsidian Geo-Consulting Ltd
Site Reference: Lidl, Epsom
Project / Job Ref: 18-1015-P
Order No: 00816
Reporting Date: 03/12/2021

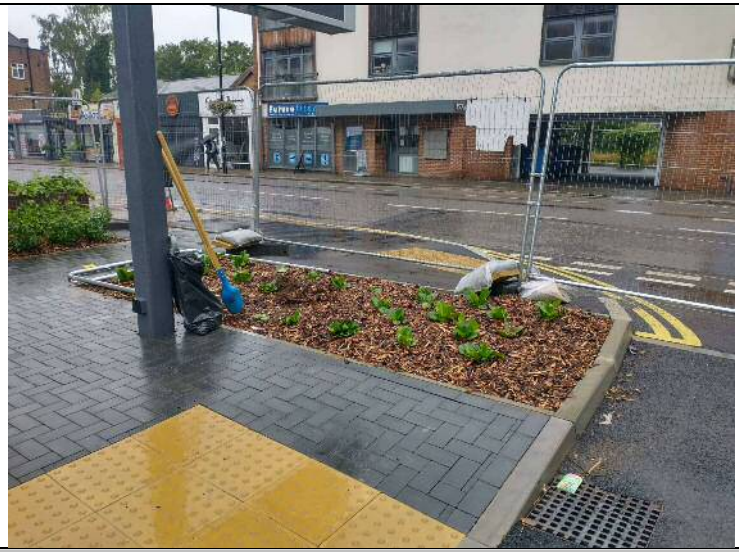
Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

Appendix I

Soft Landscaping Photographic Record - Areas 1 - 5

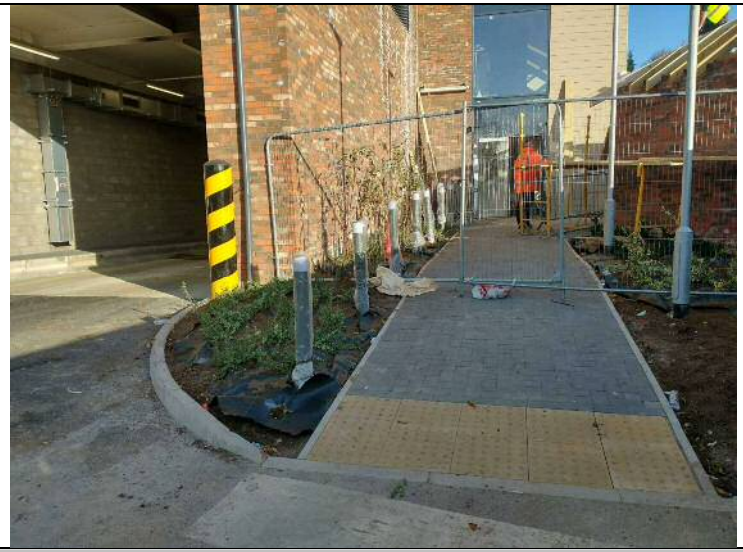
Photograph 1 – Adston construction photo of FasTrack Orange Geotextile installation



Photograph 2 – Hand pit location and general view of Area 1

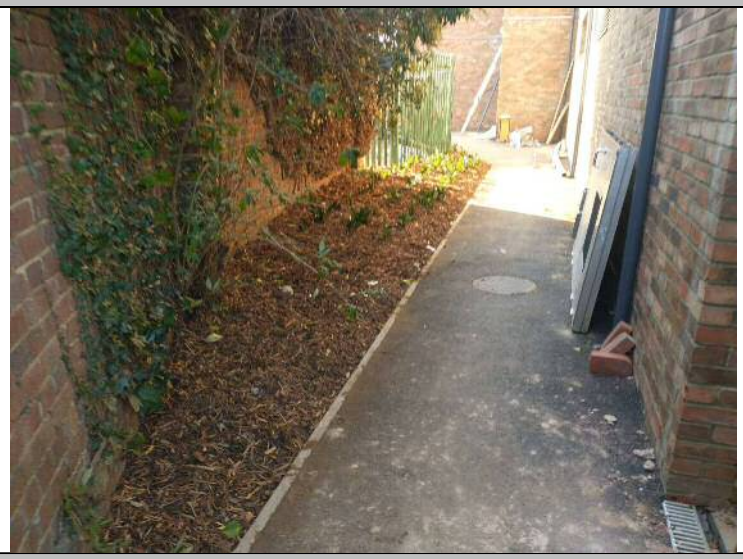
Photograph 3 – Hand pit in Area 2

Photograph 4 – Hand pit in Area 2



Photograph 5 – A general view of Area 3.

Photograph 6 – Hand pit in Area 3.



Photograph 7 – A general view of Area 4.

Photograph 8 – Hand pit in Area 4.

Photograph 9 – A general view of Area 5.

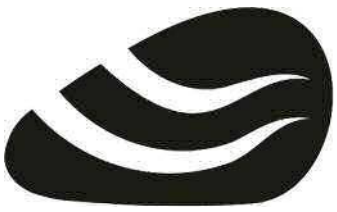
Photograph10 – A general view of Area 5.

Photograph 11 – Hand pit in Area 5.

Appendix J

Lidl Provided In-Situ Barrier Pipe Photographs

	
Photograph 1 – Lidl photograph of installed Protecta-Line Barrier Pipe	Photograph 2 – Lidl photograph of installed Protecta-Line Barrier Pipe



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