

**REMEDiation STRATEGY
AND VERIFICATION PLAN
FOR LAND ADJACENT TO
115 SALE ROAD,
NORTHERN MOOR**



REPORT STATUS SHEET

Client:	Seva Patidar Ltd
Report Title:	Remediation Strategy and Verification Plan for Land adjacent to 115 Sale Road, Northern Moor
Report Number:	AG3225-21-AL88
Report Status:	Validated Issue 1
Date:	February 2021



		Date	Signed for and on behalf of Applied Geology
Report Author	C Sellers MGeol (Hons) FGS MEnvSc Lead Project Geologist	25/02/2021	<i>C. Sellers</i>
Checked	P Gabrielle BSc (Hons) FGS Regional Manager	25/02/2021	<i>P. Gabrielle</i>
Authorised	S Day BSc (Hons) MSc CGeol FGS SiLC Director 	25/02/2021	<i>S. Day</i>

CONTENTS

1.0	INTRODUCTION.....	1
1.1	Objectives and Scope of Investigation.....	1
1.2	Existing Report.....	1
2.0	SCOPE OF REMEDIATION WORKS.....	1
2.1	Reasons and Objectives for Undertaking the Remediation	1
2.2	Remedial Methods	2
3.0	VERIFICATION.....	2
3.1	Testing of Topsoil Material	2
3.2	Verification of Clean Cover Layer Thickness	2
4.0	REPORTING.....	3
5.0	UNEXPECTED CONDITIONS.....	3
6.0	THIRD PARTY APPROVALS AND CONTACTS.....	3

GENERAL NOTES

APPENDICES

APPENDIX A DRAWINGS

- Preliminary Site Plan Option B drawing by Corstorphine + Wright Architects, Dwg No P101 Rev 02, dated 28th January 2020

APPENDIX B TESTING CRITERIA

- Imported Topsoil/ Subsoil Acceptance Criteria

1.0 INTRODUCTION

1.1 Objectives and Scope of Investigation

An area of land adjacent to 115 Sale Road, Northern Moor (the site) is being redeveloped by Seva Patidar Ltd (the Client). The proposals for the site comprise construction of a 3-storey building to form nine self-contained apartments with associated car parking and communal landscaping. The proposals are shown on a Preliminary Site Plan Option B drawing by Corstorphine + Wright Architects, Dwg No P101 Rev 02, dated 28th January 2020, a copy of which is presented in Appendix A.

The Ordnance Survey grid reference for the centre of the site is 381627 390495. The site is rectilinear in plan shape with dimensions of approximately 20m by 40m. Topographically, the site is relatively flat at approx. 100m AOD. The site is bounded to the north by Sale Road, to the west and south by residential properties, and to the east by a parade of commercial properties.

This Remediation Strategy and Verification Plan has been prepared to document the method to be used for placing and verifying these measures.

This report has been written in accordance with CLR11 (Model Procedures for the Management of Land Contamination and has been produced to satisfy Manchester City Council and support the discharge of Planning Condition 13 (Planning Permission Ref. 127586/FO/2020), dated 28th July 2020.

1.2 Existing Report

Applied Geology undertook a Desk Study and Ground Investigation for the site (Report Ref AG3225-21-AL85, Validated Issue 1 dated February 2021) to support the Planning Application.

The report identified the presence of some soil contamination, therefore, in order to develop the site safely, it has been necessary to incorporate measures to protect proposed end users.

This current report should be read in conjunction with the previous report referenced above, which includes full details of the site history, geo-environmental setting, works undertaken and an assessment of the findings.

2.0 SCOPE OF REMEDIATION WORKS

2.1 Reasons and Objectives for Undertaking the Remediation

While the Made Ground does not pose a risk to the end-user across the majority of the site due to pathways being effectively broken by the proposed building or hardstanding, elevated concentrations of determinands in the Made Ground may pose a potential risk to end users by ingestion and dermal contact pathways in the proposed areas of soft landscaping. Since the elevated concentrations of contaminants are not considered to pose a risk to Controlled Waters, the most pragmatic way to break the source-pathway-receptor linkage to Human Health receptors is either to remove the source or eliminate the pathways.

2.2 Remedial Methods

Due to the nature of the Made Ground which contains ash and demolition material throughout, it is not considered practical or cost effective to remove all Made Ground soils and is not warranted to minimise risks to Controlled Waters. Instead, a cover layer system across the areas of proposed communal landscaping is considered the most practical and cost-effective solution to protect the end-users at the development. We have assumed that this approach can be accommodated when setting proposed final site/floor levels.

A thickness of clean cover for the proposed soft standing/landscaped areas of 450mm is considered appropriate, subject to agreement with the Local Authority. It should be noted that a thicker layer may be required for planting requirements, such as in areas of trees/shrubs.

3.0 VERIFICATION

3.1 Testing of Topsoil Material

The existing topsoil on site should be tested to assess its suitability for re-use in the communal soft landscaping areas. It is proposed that the existing topsoil be tested for the following contaminants: arsenic, cadmium, chromium (trivalent and hexavalent), copper, lead, mercury, nickel, selenium, zinc, phenols (total), pH, speciated PAH, TPH (CWG ali/aro split), asbestos screen and organic matter.

If the existing topsoil is deemed unsuitable for re-use then clean topsoil will need to be imported. Although the Manchester City Council Guidance does not accept off-site validation of import material, the proposed Topsoil shall be confirmed prior to import and regardless of the source, it will need to be described and tested. The imported topsoil shall be tested for a range of potential contaminants as given in the Imported Topsoil Acceptance Criteria Table included in Appendix B. Three tests shall be taken at source to confirm suitability of the topsoil prior to import.

Once imported to site, one soil sample shall be tested as per the Manchester City Council guidance on proposed sampling frequency (i.e. 1 sample per 150m³, if from an unknown source). The topsoil results will be compared to the criteria in Appendix B, which are based on Applied Geology screening values derived using CLEA v.1.06 and published data or LQM Generic Assessment Criteria (GAC) for a residential with plant uptake end use and BS3882, and based on 6% Soil Organic Matter (SOM). Should the SOM of the topsoil imported be below 6%, criteria may need to be altered.

If all concentrations are less than the criteria, the topsoil will 'pass'. If any of the concentrations are above the criteria, the soil will be rejected or, if marginal, the results will be discussed with the Local Authority to agree the required action.

3.2 Verification of Clean Cover Layer Thickness

Confirmation that the required depth of cover layer has been placed will be via the excavation of hand dug pits in the imported topsoil material by a suitably qualified geo-environmental engineer, with photographs also taken for inclusion in a Verification Report. In accordance with the testing frequency for the imported topsoil, it is anticipated at this stage that approximately 3 evenly spaced hand dug pits shall be undertaken across the areas of proposed landscaping.

4.0 REPORTING

A Verification Report will be produced on completion of the verification of the clean topsoil layer.

Should any Made Ground be removed from the site, it will need to be appropriately classified in accordance with waste management legislation. All consignment/waste transfer notes from the Made Ground removed from site and soils imported (i.e., topsoil) onto site will be made available for inspection by third parties and available for inclusion within the site Verification Report.

The topsoil cover layer results will be confirmed as complying with the Imported Topsoil/ Subsoil Acceptance Criteria and copies will be provided within the Verification Report. Laboratory test results for the imported soils will be included within the Verification Report.

Any necessary plans/drawings, site diaries and photographs in support of the verification will be provided in the Verification Report. This will include photographs to demonstrate that an appropriate thickness of cover layer has been placed.

Once the cover layer is installed, no post-treatment management or monitoring is envisaged to be necessary for soil contamination issues.

5.0 UNEXPECTED CONDITIONS

Should any additional, previously unidentified gross contamination be encountered during construction, Applied Geology and the Local Authority should be notified. It would be anticipated that any previously unidentified contamination would be removed from site under a watching brief.

If any concentrations of the imported topsoil fail the required criteria, the results will be discussed with the Contaminated Land Officer at Manchester City Council to agree the required action. It should, however, be noted that other testing may be required, depending on the origin and nature of the source material.

6.0 THIRD PARTY APPROVALS AND CONTACTS

This Remediation Strategy and Verification Plan should be submitted to the Local Authority for approval as required by Planning Condition 13. The remedial works should then be undertaken in accordance with the agreed Strategy (as required by Condition 14) and a Verification Report be produced on completion and also submitted to the Local Authority to discharge Condition 14.

The Local Authority is as follows:

Contaminated Land Section
Environmental Services
Manchester City Council
Hammerstone Road
Gorton
Manchester
M18 8EQ

Tel: 0161 234 1363

Applied Geology Limited
First Floor, Lowton Business Park
Newton Road
Lowton St. Mary'
Warrington
WA3 2AN

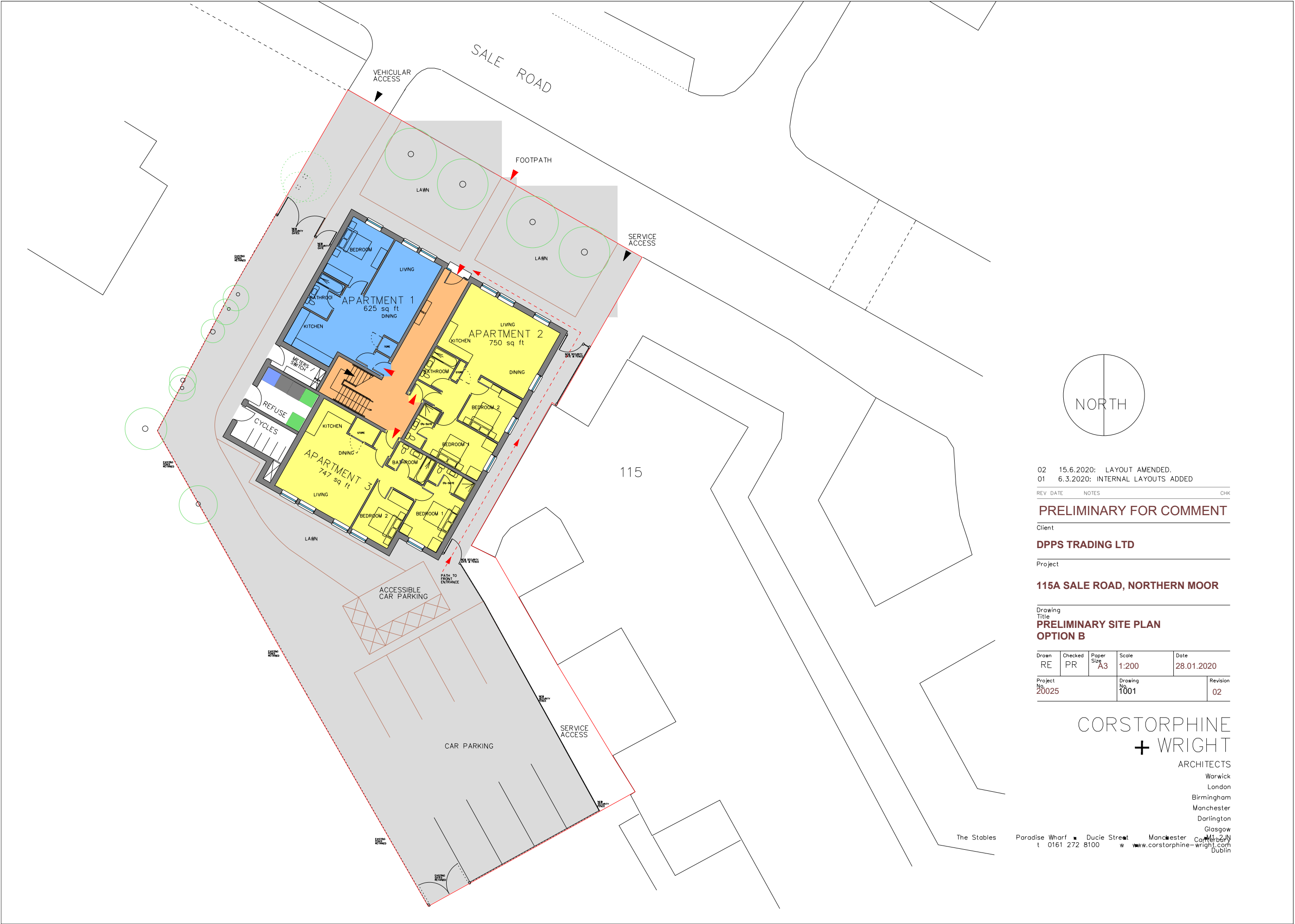
Tel: 01925 738599

GENERAL NOTES

- A) This report is based on the site terrain and ground conditions revealed by the various field investigations undertaken and also any other relevant data for the site including previous site investigation reports (if available) and desk study data. There may be special conditions appertaining to the site, however, which have not been revealed by the investigations and which have not, therefore, been taken into account in the report. The report may be subject to amendment in the light of additional information becoming available.
- B) Where any data supplied by the Client or other external source has been used it has been assumed that the information is correct. No responsibility can be accepted by Applied Geology for inaccuracies within this data.
- C) The copyright of this report and other plans and documents prepared by Applied Geology is owned by Applied Geology and no such report, plan or document may be reproduced, published or adapted without the written consent of Applied Geology. Complete copies of the report may, however, be made and distributed by the Client as an expedient in dealing with matters related to its submission.
- D) This report is prepared and written in the context of the proposals stated in the introduction to the report and should not be used in a differing context. Furthermore, new information, improved practices and legislation may necessitate an alteration to the report in whole or in part after its submission. Therefore with any change in circumstances or after the expiry of one year from the date of the report, the report should be referred to Applied Geology for re-assessment and if necessary, re-appraisal.
- E) The work was undertaken and this report was prepared for the sole internal use and reliance of the Client. This report shall not be relied upon or transferred to any other parties without the express written authorisation of Applied Geology. If an unauthorised third party comes into possession of this report they rely on it at their peril and Applied Geology owes them no duty of care and skill.
- F) Ground conditions should be monitored during the construction of the works and the recommendations of the report re-evaluated in the light of this data by the supervising geotechnical or geo-environmental engineers.

APPENDIX

A



02	15.6.2020:	LAYOUT AMENDED.
01	6.3.2020:	INTERNAL LAYOUTS ADDED

REV	DATE	NOTES	CHK
-----	------	-------	-----

PRELIMINARY FOR COMMENT

Client

DPPS TRADING LTD

Project

115A SALE ROAD, NORTHERN MOOR

Drawing
Title
PRELIMINARY SITE PLAN
OPTION B

Drawn	Checked	Paper	Scale	Date
RE	PR	A3	1:200	28.01.2020

Project	Drawing	Revision
No. 20025	No. 1001	02

CORSTORPHINE
+ WRIGHT

ARCHITECTS

Warwick

London

Birmingham

Manchester

Darlington

Glasgow

Dublin

Paradise Wharf ■ Ducie Street ■ Manchester ■ M12 7JN
t 0161 272 8100 w www.corstorphine-wright.com

APPENDIX B

Imported Topsoil/Subsoil Acceptance Criteria

Site: Land adjacent to 115 Sale Road, Northern Moor
Job No: AG3225-21

Exploratory Hole Reference Depth (m) Strata		Soil Screening Value (6% SOM)	Source/Justification
	Units		
Arsenic	mg/kg	40	LQM/CIEH S4UL (2015)
Boron	mg/kg	11000	LQM/CIEH S4UL (2015)
Cadmium	mg/kg	85	LQM/CIEH S4UL (2015)
Chromium	mg/kg	910	LQM/CIEH S4UL (2015)
Chromium (Hexavalent)	mg/kg	6	LQM/CIEH S4UL (2015)
Copper	mg/kg	200	BS3882: 2015
Lead	mg/kg	310	C4SL (2014)
Mercury	mg/kg	56	LQM/CIEH S4UL (2015)
Nickel	mg/kg	110	BS3882: 2015
Selenium	mg/kg	430	LQM/CIEH S4UL (2015)
Vanadium	mg/kg	1200	LQM/CIEH S4UL (2015)
Zinc	mg/kg	300	BS3882: 2015
Naphthalene	mg/kg	13	LQM/CIEH S4UL (2015)
Acenaphthylene	mg/kg	*	LQM/CIEH S4UL (2015)
Acenaphthene	mg/kg	1000	LQM/CIEH S4UL (2015)
Fluorene	mg/kg	1000	LQM/CIEH S4UL (2015)
Phenanthrene	mg/kg	1000	LQM/CIEH S4UL (2015)
Anthracene	mg/kg	*	-
Fluoranthene	mg/kg	1000	LQM/CIEH S4UL (2015)
Pyrene	mg/kg	*	LQM/CIEH S4UL (2015)
Benzo[a]anthracene	mg/kg	15	LQM/CIEH S4UL (2015)
Chrysene	mg/kg	32	LQM/CIEH S4UL (2015)
Benzo[b]fluoranthene	mg/kg	4	LQM/CIEH S4UL (2015)
Benzo[k]fluoranthene	mg/kg	110	LQM/CIEH S4UL (2015)
Benzo[a]pyrene	mg/kg	3.2	LQM/CIEH S4UL (2015)
Dibenzo[a,h]anthracene	mg/kg	0.32	LQM/CIEH S4UL (2015)
Indeno[1,2,3-cd]pyrene	mg/kg	46	LQM/CIEH S4UL (2015)
Benzo[g,h,i]perylene	mg/kg	360	LQM/CIEH S4UL (2015)
Total PAH	mg/kg	1000	-
Phenols	mg/kg	1200	LQM/CIEH S4UL (2015)
Benzene	mg/kg	1.4	LQM/CIEH S4UL (2015)
Toluene	mg/kg	1000	LQM/CIEH S4UL (2015)
Ethylbenzene	mg/kg	440	LQM/CIEH S4UL (2015)
m&p Xylene	mg/kg	430	LQM/CIEH S4UL (2015)
o-Xylene	mg/kg	480	LQM/CIEH S4UL (2015)
Aliphatic TPH >C5-C6	mg/kg	160	LQM/CIEH S4UL (2015)
Aliphatic TPH >C6-C8	mg/kg	530	LQM/CIEH S4UL (2015)
Aliphatic TPH >C8-C10	mg/kg	150	LQM/CIEH S4UL (2015)
Aliphatic TPH >C10-C12	mg/kg	770	LQM/CIEH S4UL (2015)
Aliphatic TPH >C12-C16	mg/kg	*	-
Aliphatic TPH >C16-C21	mg/kg	*	-
Aliphatic TPH >C21-C35	mg/kg	*	-
Aliphatic TPH >C35-C44	mg/kg	*	-
Aromatic TPH >C5-C7	mg/kg	1000	LQM/CIEH S4UL (2015)
Aromatic TPH >C7-C8	mg/kg	1000	LQM/CIEH S4UL (2015)
Aromatic TPH >C8-C10	mg/kg	270	LQM/CIEH S4UL (2015)
Aromatic TPH >C10-C12	mg/kg	1000	LQM/CIEH S4UL (2015)
Aromatic TPH >C12-C16	mg/kg	1000	LQM/CIEH S4UL (2015)
Aromatic TPH >C16-C21	mg/kg	1000	LQM/CIEH S4UL (2015)
Aromatic TPH >C21-C35	mg/kg	*	-
Aromatic TPH >C35-C44	mg/kg	*	-
Total Petroleum Hydrocarbons	mg/kg	1000	-
Asbestos		Below Detection Limit of Test	-
VOCs (other than BTEX)	µg/kg	Below Detection Limit of Test	Any values above detection to be assessed in more detail to determine suitability for end use. Ideally VOCs to be below detection.
Testing should be based on the donor site and its historical use. * Individual PAH compounds and TPH fractions have S4UL's in excess of 1000mg/kg, therefore no specific limits are proposed as overall limits of 1000mg/kg TPH and 1000mg/kg PAH are to be adhered to. LQM/CIEH S4UL Reference No. S4UL3159 (2015)			