

Woodlands Road, Mere

Remediation Strategy



Report for:

Redcliffe Homes

Reference:

S1313/4272

T & P Regeneration Ltd
Unit 5, Septimus
Hawkfield Business Park
Bristol
BS14 0BN
Tel: 0117 927 7756

Document Revision

Client		Redcliffe Homes		Project Reference	S1313/4272
Site Address		Woodlands Road, Mere			
Issue	Date	Revision Details	Prepared by	Checked by	Approved by
01	31/03/26	Original Issue	Duncan Guthrie	Matthew Carr	John Flannery
02	07/05/26	Updated remedial requirement for POS.	Duncan Guthrie	Matthew Carr	John Flannery

The information and advice contained within this report is provided by T&P Regeneration Ltd for sole use and reliance by its Client in performance of T&P Regeneration Ltd's duties under its contract with the Client. Any advice, opinions or recommendations within this report should be read and relied upon only in the context of the report as a whole. The advice within the reports is based upon the information made available to T&P Regeneration Ltd within the financial and timeframe constraints imposed. The report is based on UK standards, codes and common practice current at time of writing. When considering this report regard should be given to the terms and conditions of T&P Regeneration Ltd's contract with the Client under which the report was prepared. The copyright of this report is held by T&P Regeneration Ltd. Should the Client wish to release this report to a Third Party for that party's reliance, T&P Regeneration Ltd may agree to such release provided that: (i) T&P Regeneration Ltd's written agreement to such release is obtained (ii) By release of the report, T&P Regeneration Ltd assumes no duties, liabilities or obligations to the Third Party and that the Third Party does not acquire any rights whatsoever against T&P Regeneration Ltd (iii) T&P Regeneration Ltd accepts no responsibility for any loss incurred by the Client through the Client's release of the report to the Third Party. Following final issue of this report, T&P Regeneration Ltd has no further obligation to advise the Client on any matters such as changes in legislation or codes of practice that may affect the advice contained within the report.

CONTENTS

1	INTRODUCTION.....	1
1.1	BACKGROUND	1
1.2	SITE LOCATION AND DESCRIPTION	1
1.3	PROPOSED DEVELOPMENT	1
1.4	PREVIOUS REPORTS	1
1.5	OBJECTIVES	2
1.6	REPORT LIMITATIONS	2
2	BACKGROUND INFORMATION AND SITE SETTING	3
2.1	INFORMATION SOURCES	3
2.2	GEOLOGY, HYDROLOGY AND HYDROGEOLOGY	3
2.3	SITE HISTORY	3
2.4	SUMMARY OF PREVIOUS FINDINGS	3
3	REFINED CONCEPTUAL SITE MODEL	8
3.1	GENERAL	8
3.2	SOURCES	8
3.3	RISK EVALUATION	8
4	REMEDIATION STRATEGY	10
4.1	REMEDIATION OBJECTIVES	10
4.2	REMEDIATION STRATEGY	10
4.3	RISK MITIGATION	10
4.4	SOIL RE-USE OPPORTUNITIES	12
4.5	RESIDUAL RISK AND UNCERTAINTY	13
5	MANAGEMENT OF WORKS.....	14
5.1	HEALTH AND SAFETY	14
5.2	ON-SITE AND OFF-SITE MATERIAL MANAGEMENT	14
5.3	WASTE MANAGEMENT STRATEGY	14
5.4	WASTE CHARACTERISATION	15
5.5	CONTROL MEASURES AND MONITORING	15
6	VERIFICATION	16
6.1	CAPPING SOILS IN SOFT LANDSCAPING AREAS	16
6.2	RECORD KEEPING	17
6.3	REMEDIATION COMPLETION REPORT	18

APPENDICES

- A** DRAWINGS
- B** IMPORTED SOIL CRITERIA

1 INTRODUCTION

1.1 Background

Following instruction from Redcliffe Homes (the 'client'), this report presents a Remediation Strategy for a proposed residential development at Woodlands Road, Mere (the 'site').

1.2 Site Location and Description

The site is centred on National Grid Reference 381680, 131490. The nearest postcode is BA12 6BY. A site location plan is included within Appendix A.

The site comprises a roughly rectangular shaped parcel of land measuring approximately 165m north to south by 120m east to west, with an area of 1.8ha. The site currently comprises a mixture of buildings/structures located predominantly in the centre and western areas of the site with associated parking to the north. The eastern section of the site is mainly overgrown with vegetation.

The site is located on the outskirts of Mere with residential development to the north and east.

1.3 Proposed Development

Information presented to T&P Regeneration Ltd (T&P) indicates that the proposed development is intended to comprise the construction of 56No traditional single and two storey residential dwellings with associated areas of communal and private soft landscaping with hard landscaped access and parking (Planning Ref: 20/07469/OUT). This development will include an adjustment of levels across the site with an indicated net fill requirement of approximately 7095m³ due to general increase in site levels¹.

A Proposed Development Plan and Cut and Fill Plan are presented within Appendix A.

1.4 Previous Reports

Previous reports pertaining to the site are listed in Table 1.1. Pertinent information is summarised in this report where appropriate. However, reference should be made to these reports directly for further detail.

Table 1.1 Summary of Previous Reports

Date	Title	Reference	Author
July 2014	Beaumont Business Centre: Phase I Geo-Environmental Report	62756R1	ESI Ltd*
September 2014	Beaumont Business Centre: Site Investigation and Geo-environmental Assessment Report	62756R2	ESI Ltd*
June 2020	Beaumont Business Centre, Mere Phase 1 Land Quality Assessment (LQA)	330102363R1	Stantec

¹ Cut & Fill Analysis_138021-MCS-XX-DR-C-9000_P02, Morgan Civil + Structural, June 2025.

Date	Title	Reference	Author
December 2024	Preliminary Findings of Ground Investigation	-	Wesson Environmental
June 2025	Groundwater Monitoring Summary	-	Wesson Environmental
March 2026	Ground Gas Note	-	Wesson Environmental
Notes: * Reports not directly available during production of remediation strategy. Information gathered via limited referencing from other reports.			

1.5 Objectives

The objective of this remediation strategy is to outline the risk mitigation measures required to address identified unacceptable risks presented to human health or the environment in the context of the site's proposed future end use as a residential development.

1.6 Report Limitations

The recommendations, interpretations and conclusions of this report are based solely on the site conditions observed and the ground conditions revealed during previous site investigation works undertaken by T&P and/or third parties. No responsibility can be accepted for the accuracy of third-party data. Due to the inherent variability of the ground conditions between exploratory hole positions these conditions can only be interpreted and are accurate only for the date of the investigation works.

2 BACKGROUND INFORMATION AND SITE SETTING

2.1 Information Sources

Reference has been made to previous reports and publicly available information from the Environment Agency, MAGIC and BGS websites, as relevant. Background and site setting information has been summarised below to provide context to the site, proposed development and remediation strategy.

2.2 Geology, Hydrology and Hydrogeology

Available geological records show the north eastern area of the site to be underlain by superficial River Terrace Deposits. The bedrock geology beneath the site is indicated to comprise mudstone of the Kimmeridge Clay Formation.

The underlying superficial River Terrace Deposits are classified as a Secondary A Aquifer, while the Kimmeridge Clay Formation is classified as Unproductive Strata. The site is not located in a Source Protection Zone. There are no records of licensed groundwater abstractions within 500m of the site.

Two small surface water features, identified as ponds were noted approximately 10m to the southeast of the site. The River Shreen is the largest nearby surface water feature located 320m to the northwest of the site.

There are 4No licensed surface water abstractions located within 500m of the site. The closest of which is located 315m to the north.

2.3 Site History

The site history is summarised from available historical maps included within the Stantec Phase 1 LQA.

Earliest historical maps from the late 19th century indicate the site was undeveloped agricultural land. No significant changes are noted until the 1970s, by which time the site is shown as a “works”, with the construction of significant industrial infrastructure including a main factory building, travelling cranes, an over-ground storage tank, a chimney and an electrical substation located on the sites northern edge. Post 2000, the site has transitioned to accommodate a mixture of commercial and light industrial operations comprising an online furniture store and unrelated welding and metalworks.

In the late 1800s, the surrounding area is dominated by agricultural land with some residential properties. Industrial development occurred to the north and east by the 1940s, which expands south to the site’s northern and eastern boundary between the 1970s to 1990s. This is part of a factory complex dedicated to manufacturing timber and wood-based products which since its closure is currently undergoing residential redevelopment. The factory is gradually replaced by residential properties from 2018. A pond noted on along the southeastern boundary of the site between 1887 and 1936 appears to have been infilled during the site and surrounding lands development.

2.4 Summary of Previous Findings

Intrusive ground investigation information is only available from the Wesson Environmental 2024 report. A summary of principal findings is provided below and further detail can be obtained with reference to the original reports.

2.4.1 *Ground Conditions*

During the Wesson ground investigation, made ground was encountered in all locations with the exception of WS01 & WS03 located midway along the Weston boundary and within the north east corner of the site respectively.

The made ground was typically found to comprises a mixture of reworked clay with sand and gravel. The gravel comprised a mixture of anthropogenic material including ash, masonry and plastic and was recorded to depths between 0.40m to 0.80m. Suspected asbestos containing material was noted at the base of the made ground in WS05. A slightly sweet odour, possibly indicating the presence of volatile organic carbons, was also noted in made ground recovered from WS02.

Within WS01 & WS03, brown silty sandy and gravelly clay topsoil was encountered to a depth of between 0.10 - 0.20m and underlain by natural deposits.

Beneath the made ground and topsoil, soft brown gravelly clay was typically encountered across the site to depths between 0.80 to 1.10m. Although not highlighted by Wesson, this is considered likely to represent superficial River Terrace Deposits shown on the geological mapping. Underlying the superficial cover, brown or grey clay was recorded to the base of the boreholes. These deposits were found to range in consistency from soft to stiff and occasional fine sandy partings were noted within WS01. These deposits are considered to represent the Kimmeridge Clay Formation.

2.4.2 *Evidence of Contamination*

During a site walkover, several potential sources and visible signs of contamination were identified across the site. These included a wide variety of waste (storage barrels, scrap vehicles, car batteries, gas canisters, etc.) along with physical evidence of burning waste in the southeastern area of the site. Asbestos-containing materials (ACMs) were potentially identified within the existing building structures, specifically the welding shed.

The intrusive investigation, noted that soil contamination was largely confined to anthropogenic materials found within the shallow made ground which included:

- Suspected asbestos fragments encountered at the base of the made ground in exploratory hole WS05 at a depth of 0.70-0.80m.
- In WS02 (0.60 – 0.90mbgl), the made ground contained macadam and ash, with a slightly sweet odour, which could indicate the possible presence of Volatile Organic Compounds (VOCs). Screening the soil from this location with a Photoionisation Detector (PID) confirmed a slightly elevated VOC reading of 17.1 parts per million (ppm).

2.4.3 Groundwater

The Wesson groundwater monitoring report indicates that groundwater was encountered within made ground during drilling works with the exception of WS06. No groundwater was recorded within the 2No window sample holes (WS01 & WS03) where made ground had not been noted. It was concluded that the groundwater encountered was likely associated with perched water within the more granular made ground across the site.

Subsequent monitoring visits recorded groundwater in all wells on site which was found to range between ground level and 3.23mbgl during the monitoring period. Although some granular cohesive material (River Terrace) was noted beneath the made ground the Wesson assessment concluded that the water encountered on site was not a continuous groundwater body but rather a perched water within the more granular made ground and the subbase.

2.4.4 Human Health Risk Assessment

The Stantec report notes localised elevated concentrations of organic and inorganic contamination with the made ground. Although no evidence of gross contamination was recorded. No further details were supplied, including chemical analysis data or where the localised contamination was recorded on-site. Additionally, during the initial site assessment completed by Stantec, surveyors noted the potential presence of asbestos containing material (ACM) within the fabric of existing structures on site.

Following an intrusive site investigation undertaken by Wesson Environmental samples were sent for soil laboratory analysis. Results were compared against generic standards² for human health in a residential setting, although it is noted that cadmium, lead, nickel, mercury, benzo(a)pyrene and fluorene vary from the standard generic assessment criteria (GAC). Additionally, the laboratory analytical data was not available for review, and it is uncertain the locations, depths and number of samples tested,

The Wesson report state that no heavy metals or polycyclic aromatic hydrocarbons (PAHs) exceeded the adopted GACs. However, a within the summary results table a maximum beryllium concentrations of 1.8mg/kg is reported which exceeds the GAC (1.7mg/kg). As noted above, the laboratory analytical data is not included within the report and the location and depth are not reported.

The Wesson report does provide details on testing undertaken for TPH, and commentary on VOC and PCB testing, which included a sample taken from the sweet smelling made ground noted in WS02. All TPH concentrations were found to be below relevant GAC's and VOC and PCB concentrations were found below limits of detection. It was therefore concluded that organic contaminants are unlikely to pose a significant risk to future site users.

² The LQM/CIEH S4ULs for Human Health Risk Assessment. Nathanail, C.P. et al., 2015.

SP1010. Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination. CLAIRE. 2014.

Suspected ACM fragments were recorded in the made ground in WS05 by Wesson. However, records of testing this material are not available and as such without additional information it must be assumed that asbestos could pose a risk within the made ground on site.

Finally, the previous reports do not provide details on whether chemical analysis has been undertaken in the natural soils. Further confirmatory testing may be required to demonstrate it does not pose a risk to future site occupiers.

2.4.5 *Controlled Waters Risk Assessment*

Groundwater samples were obtained from historical boreholes (BH1 and BH2) via low flow sampling technique. The depth of sampling along with the borehole logs and installation details are not provided in the Wesson report, consequently it is not possible to determine if the samples are representative of water within the made ground or underlying natural strata. The results of the testing were screened against Environmental Quality Standards, although the data is not provided so this cannot be verified.

Wesson note that the perched water within the shallow made ground revealed elevated concentrations of copper and zinc exceeding freshwater Environmental Quality Standards. Wesson conclude, although the perched water may be potentially mobile within the granular made ground, lateral and vertical migration pathways are limited by the underlying cohesive deposits of the Kimmeridge Clay Formation which is classified as Unproductive strata. Based upon the unlikely migratory pathways and the absence of significant groundwater body the risk to groundwater is considered to be low.

The nearest surface water feature (River Sheen) of note is 320m northwest from the site while the nearest surface water abstraction is 315m to the north. In consideration of the distance from site and limited mobility of water within the cohesive natural soils the risk to surface water is also considered to be low.

No specific remediation or risk management measures were deemed necessary to protect controlled waters.

2.4.6 *Phytotoxic Risk Assessment*

No unacceptable concentrations were previously reported with respect to phytotoxic screening levels. However, on-site made ground is likely to be physically unsuitable for use at shallow depth within areas of soft landscaping.

2.4.7 *Ground Gas Risk Assessment*

Wesson Environmental have assessed the previous ground investigation works and confirmed that they do not consider there to be a ground gas risk on site. It was concluded that due to the absence of a plausible source or pathway high gas flow rates recorded by ESI Ltd and noted in the Stantec report were a consequence of borehole conditions unrelated to gas generation in the ground.

It is therefore considered that the risk posed by ground gases to the development is low and no further remedial measures will be required in relation to gas protection.

2.4.8 *Potable Water Supply*

Soil concentrations of benzo(a)pyrene (BaP), and the mineral oil fractions have been found to be elevated within shallow made ground. As such, for pipework installed within the made ground the use of upgraded pipework should be assumed.

Consultation with the statutory water provider is recommended, whereby it may be possible to negotiate the use of standard pipework within natural clean fill used to raise levels on site.

3 REFINED CONCEPTUAL SITE MODEL

3.1 General

Following completion of previous ground investigation and risk assessment, a refined conceptual site model has been developed as detailed below. Further detail of the assessment undertaken is provided in previous reports as listed in Table 1.1.

3.2 Sources

With consideration of the assessment summarised in Section 2, the following Areas of Potential Concern (APC) have been identified which require risk mitigation:

- **APC 1:** Made ground associated with former on-site development.
- Suspected asbestos fragment noted in WS05 (**APC 1A**).
- Upgraded potable pipework required if installed with the made ground.

3.3 Risk evaluation

National guidance 3.4.5 has been considered in the development of the conceptual model for the site to inform an estimation of risk in relation to each plausible source-pathway-receptor (SPR) identified. Table 3.1 presents a summary of the (SPR) relationships identified as a moderate/low risk or higher which will require remedial action and/or management to mitigate unacceptable risks identified, further detail of which will be provided in later sections of this report.

³ Contaminated Land Risk Assessment. A Guide to Good Practice. CIRIA C552. 2001.

⁴ Land contamination risk management - <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>.

⁵ Guidance for the Safe Development of Housing on Land Affected by Contamination. NHBC. 2008.

Table 3.1 Source-Pathway-Receptor (SPR) Relationships Requiring Risk Mitigation

APC N°	Source	Pathway (s)	Receptor	Consequence	Probability	Risk*	Comment
A	On-site Made ground associated with former on-site development	Oral ingestion	Future residents and maintenance workers	Medium	Low likelihood	Moderate/Low	Localised inorganic and Organic contaminants including elevated Beryllium, ACM noted in made ground and physically unsuitable for soft landscaped areas.
		Vegetable uptake	Future residents	Medium	Low likelihood	Moderate/Low	
		Dermal contact	Future residents and maintenance workers	Medium	Low likelihood	Moderate/Low	
		Dust migration/inhalation	Future residents, maintenance workers and off-site residents/workers	Medium	Low likelihood	Moderate/Low	
		Permeation into drinking water supplies	Future residents	Medium	Low likelihood	Moderate/Low	Upgraded pipework required.

**Where multiple receptors exist the risk classification is based on most sensitive receptor for conservatism.*

4 REMEDIATION STRATEGY

4.1 Remediation Objectives

The objective of the proposed remediation strategy is to render the site suitable for a proposed residential end-use. In addition, the remediation strategy will address statutory risks, such that the site would not be determined as Contaminated Land under Part 2A of the Environmental Protection Act 1995.

4.2 Remediation Strategy

Remedial recommendations are made in the context of the proposed development which will comprise the construction of 56N^o residential houses. The residential houses will have private residential soft landscaped areas with some small areas of Public Open Space (POS) also noted adjacent to the parking areas.

As a result of the development works, site levels are due to be raised by between 0.0 -1.0m with localised deeper fill >1.0m. A plan is provided within Appendix A showing the proposed cut and fill. In consideration of the planned earthworks and significant fill volumes required within the development, opportunities for re-use within the scheme have been identified, and which will be discussed further in Section 4.4.

Remediation measures have been presented in the context of existing site levels. However, based on the filling works proposed across the majority of the site, this may provide a suitable capping thickness and could achieve the remedial requirements set out below subject to the placement/import of chemically and physically suitable material.

4.3 Risk Mitigation

As summarised in Table 3.1, several SPR relationships have been identified which are considered to present an unacceptable risk to identified receptors, and which will require risk mitigation measures to be applied, as discussed further in subsequent sections. Reference should be made to the Remediation Strategy Plan included within Appendix A. Recommendations for risk mitigation actions are made in the context of client supplied development information including earthworks strategy and landscaping proposals. In the event that significant changes to the development proposals are made, these recommendations should be reviewed and updated as necessary.

Remediation verification requirements are set out within Section 6.

4.3.1 *Areas of Soft Landscaping – Front and Rear Gardens Plots 1 - 56*

- In the defined areas of proposed private soft landscaping as shown on the plan within Appendix A, made ground shall be removed down to a minimum 600mm below finished level. It may be possible to terminate the capping depth on natural soils if encountered at shallower depths providing adequate additional testing has been undertaken to demonstrate that natural soils on site do not pose a risk to future site users. Levels shall be reinstated to reflect engineering requirements utilising chemically and physically suitable topsoil/sub-soil, as detailed within Section 6.1. A high visibility geotextile shall be provided at the base and sides of excavations as a marker layer

where existing made ground is to remain *in situ* at the base of the capping excavations. If natural soils are found to be at the base of the excavation then providing it can be shown not to pose a risk to future site users a geotextile membrane will not be required.

- Where levels are being raised on site with clean chemically suitable natural soils this can form part of the required 600mm capping layer which would reduce the depth to which made ground needs to be removed.

4.3.2 Area of POSresi (south east)

- In the defined areas of communal soft landscaping as shown on the plan within Appendix A, made ground shall be removed down to a minimum 300mm below finished level or the top of the natural soils, whichever is least. Levels shall be reinstated to reflect engineering requirements utilising chemically and physically suitable topsoil/sub-soil, as detailed within Section 6.1. A high visibility geotextile shall be provided at the base and sides of excavations as a marker layer where existing made ground is to remain *in situ* at the base of the capping excavations. If natural soils are found to be at the base of the excavation then providing it can be shown not to pose a risk to future site users a geotextile membrane will not be required. The geotextile membrane requirement can also be excluded in areas of POS where increases in levels with chemically suitable imported material provides a minimum total capping thickness of 600mm above residual made ground or where an impermeable clay pond liner has been used in the creation of the attenuation basins.

4.3.3 General Recommendations

- Upgraded water supply pipework shall be used for any services installed within the made ground within the development.
- Any positively identified or suspected contaminated soils shall be stockpiled upon an impermeable barrier to mitigate the potential for cross contamination of underlying soils.
- Where specialist planting is dictated by landscaping proposals, a deeper growth medium may be required, including up to 450mm in areas of proposed shrubs and up to 900mm for tree pits (which may also require specialist installation in line with BS 5837⁶). These details should be confirmed with the project landscaping adviser.
- Vigilance should be employed for any unforeseen ground conditions when excavating in previously inaccessible areas and when grubbing out, where specialist advice may be required. If during the subsequent construction works additional suspected contaminated soils are subsequently revealed, it will be necessary to contact a suitably qualified environmental consultant who will be able to attend site and advise upon the most appropriate course of action.

⁶ Trees in relation to design, demolition and construction. Recommendations. BS 5837 2012.

4.4 Soil Re-Use Opportunities

As with all construction projects, it is preferable to maximise the reuse of soils on-site and minimise the amounts of off-site disposal. To achieve this whilst accomplishing the remedial objectives, a number of potential re-use opportunities have been identified and are summarised in Table 4.1, which may be undertaken in line with the CL:AIRE Definition of Waste Code of Practice (DoW:CoP).

Table 4.1 Soil Re-use Opportunities

Material	Reuse Scenarios			
	Clean Capping		General or Engineered Fill	
	Yes/No	Comments	Yes/No	Comments
Made Ground	No	Physically unsuitable for reuse. ACM noted locally within made ground precludes use as part of clean cover system.	See comments	Likely to be suitable for reuse as engineered fill, subject to confirmatory testing. Watching brief would be required for ACM and any other potential contaminants.
Natural Soils	Yes	See Section 6.1.2.	See comments	Likely to be suitable for reuse as general fill, subject to confirmatory testing.

As with all construction projects, it is preferable to maximise the reuse of soils on-site and minimise the amounts of off-site disposal. To achieve this whilst accomplishing the remedial objectives, a number of potential re-use opportunities have been identified and which are described in later sections of this report, which may be undertaken in line with the CL:AIRE Definition of Waste Code of Practice (DoW:CoP).

In recognition of the increase in development levels against existing, which will require level raising by >1.0m in large areas of the site (particularly the north east), significant opportunity for material re-use has been identified:

- Made ground should be suitable for re-use at depth as general fill beneath chemically and physically suitable capping soils. Subject to confirmation of geotechnical properties, it may be possible to re-use this material as engineering fill in line with the project earthworks strategy. Due the reported presence of ACM locally within the made ground, any reuse of made ground will require a watching brief by appropriately competent site personnel who can identify if ACM is present. If identified associated works will be put on hold until positive identification can be made and suitable control measures implemented to mitigate risk to on site personnel and future site users.
- Natural soils should be suitable for reuse as general fill following confirmation of chemical and geotechnical suitability.

All site won and imported soil reuse for general filling works should be undertaken in line with an appropriate earthwork's specification. This will set out the characterisation testing required to demonstrate geotechnical suitability along with verification testing for the placement works.

4.5 Residual Risk and Uncertainty

The following areas of uncertainty have been identified, along with recommendations set out for further work, where appropriate which may assist with refining/understanding attendant risk costs:

- Due to the limited nature of the initial site investigations, a supplementary investigation is recommended to assess and verify conclusions made. It should include additional investigation beneath building footprints to assess the presence/absence of made ground/contaminants/asbestos in soils with consideration of the proposed residential end use. In particular, the extent of asbestos impacted soils in the vicinity of WS05 should be further delineated following building demolition.
- If due to the current underlying geology and rising of site levels it is determined that localised piling foundation solutions will be required a piling risk assessment may be required to confirm that risks to Controlled Waters are low.

5 MANAGEMENT OF WORKS

5.1 Health and Safety

The works should be carried out in accordance with the Construction (Design & Management) Regulations 2015. These regulations place specific responsibilities on the Principal Contractor, Principal Designer and Employer. The Employer should appoint a Principal Designer and a Principal Contractor for the works.

The Principal Contractor shall develop appropriate methods of working to ensure the health and safety of workers, visitors and neighbours and also protect the environment, in accordance with management procedures outlined in their Construction Phase Plan.

Following completion of the remediation works, pertinent information shall be supplied to the Principal Designer for incorporation into the site Health and Safety File.

5.2 On-Site and Off-Site Material Management

In the event that on-site re-use of made ground or the import of natural soils, to make up site levels, is proposed, this may be undertaken in accordance with the CL:AIRE Development Industry Definition of Waste Code of Practice. In this case, a Materials Management Plan (MMP) shall be prepared to document the principles of re-use outlined within this Remediation Strategy prior to any excavation or stockpiling works commencing on site.

Re-use of aggregates from inert waste may also be undertaken in line with the WRAP Quality Protocol.

5.3 Waste Management Strategy

It is a requirement of the Landfill Regulations 2002 that all waste must be treated to reduce its quantity and/or its environmental impact before being disposed of to landfill. This process has been undertaken as part of this remediation design and is demonstrated by the following:

- Intrusive ground investigation has been undertaken at the site in order to identify areas where contamination deemed to present an unacceptable risk to identified receptors is present. Reference should be made to previous ground investigation reports for further details.
- The Principal Contractor is required to further reduce the volume of material for off-site disposal and/or treatment by the sorting of inert rubble, metal, etc. from all excavated and/or stockpiled soils where practically possible.

In accordance with the waste hierarchy, it is preferable to retain as much site won material as possible, in line with the reuse opportunities set out in Section 4.4.

Excavated soils requiring off-site disposal will be transported in road going lorries, in accordance with appropriate duty of care requirements⁷. The waste haulier will be a licensed waste carrier,

⁷ Waste Duty of Care Code of Practice. Defra. 2018.

with evidence of registrations obtained prior to consigning waste for off-site treatment and/or disposal. Appropriate controls will be put in place for handling/transportation of materials including any which may contain asbestos. Laboratory results of the excavated material will be passed on to the haulier and the material will be transported and disposed of accordingly.

Demolition rubble or other recyclable aggregates, metals or other inert and recoverable materials may be segregated for re-use on-site or sent for off-site recycling to an appropriately licensed facility.

5.4 Waste Characterisation

Previous reports have not provided a waste classification for on-site material which may require removal from site. This waste classification, which is separate to human health or other environmental risk assessment completed to support the remediation strategy, will be required prior to made ground or natural soils being removed from site.

As a minimum waste classification testing should be undertaken on the basis of 1No sample per 250m³ but the actual required testing will need to be agreed with the receiving waste facility and based upon a sampling strategy taking into consideration the material type and origin.

5.5 Control Measures and Monitoring

An environmental risk assessment shall be undertaken by the Principal Contractor which shall establish appropriate environmental control measures and monitoring protocols required during the works, which should be documented within a site-specific Environmental Management Plan. The Principal Contractor shall implement appropriate dust and noise control measures as appropriate and shall ensure that competent staff are on-site to implement the controls when necessary. Where/if movement of asbestos impacted soils/material is required, appropriate controls shall be implemented e.g. damping down and monitoring undertaken as required.

In addition to the above, construction and groundworkers should be made aware of the potential risks associated with made ground soils and when working with soils which may be potentially impacted by asbestos, should allow for appropriate precautionary working practices, personal protective measures and air monitoring in line with Control of Asbestos Regulations: 2012 – 'CAR:2012', as necessary.

6 VERIFICATION

6.1 Capping Soils in Soft Landscaping Areas

6.1.1 Imported Soils

Where imported soils are required within the development as capping soils in front/rear gardens or areas of POSresi, they shall comply with the soil criteria in Appendix B for a 'residential with homegrown produce' or POSresi end use, as appropriate. All imported soils shall be free of asbestos (<0.001%w/w). Furthermore, it is recommended that the suitability of topsoil in accordance with BS38828 is considered, in consultation with a specialist landscaping consultant.

Details of the proposed source of material shall be supplied. It is recommended that soils are tested at source prior to movement and importation to confirm suitability. Providing certainty of use of stockpiled material from an appropriate donor site this testing could be carried out at a minimum frequency of 1 per 100m³ for private soft landscaping increasing to 1 per 250m³ in communal soft landscaping prior to arrival onsite. The frequency of testing may need to be increased to 1 per 50m³ if the origin of the topsoil is a brownfield site or an undefined source. This will reduce the likelihood of material being imported and subsequently requiring removal from site due to being found to be unsuitable for use at a later date.

If testing cannot be undertaken prior to import of material then representative soil samples should be collected for chemical analysis once received at site, inline with the testing outlined above.

A minimum number of samples shall be collected, as detailed in Table 6.1..

Table 6.1 Imported Capping Sampling Frequency

Number of Plots Per Capping Material	Minimum Number of Samples Per Capping Material
1 to 5 plots	3
6 to 10 plots	5
11 to 20 plots	5
21 to 30 plots	7
Over 30 plots	10

All samples shall be submitted to a laboratory with UKAS and MCERTS accredited methods (as appropriate).

Testing shall comprise the following, as a minimum:

- Metals.
- Speciated Polycyclic Aromatic Hydrocarbons (PAHs).
- pH.
- Phenols.

- Total organic carbon.
- Asbestos screening.

Additionally, where the origin of the material is a brownfield site or an undefined source, testing shall include petroleum and diesel hydrocarbons within the carbon range C6-C35, including aliphatic/aromatic split.

6.1.2 *Site Won Soils*

6.1.2.1 *Natural Soils*

Based upon information provided, chemical testing appears to be very limited for natural soils. If they are to be used within the clean capping layer further sampling in line with import criteria of 1 per 100m³ for private soft landscaping and to 1 per 250m³ in communal soft landscaping will be required. If additional testing information can be supplied from previous investigation works, then it may be possible to review this requirement and update in line with the testing results.

6.1.2.2 *Made Ground*

On-site made ground is not considered suitable for reuse within areas of soft landscaping, but subject to further geotechnical assessment may be suitable as general fill at depth or under areas of hard landscaping. Dependent upon the geotechnical classification testing further remedial works to screen oversized material may also be required.

Due to the reported presence of ACM locally within the made ground, a watching brief should be implemented throughout the works by appropriately competent site operatives to visual check for the presence of ACM fragments. If encountered associated works should stop and advice sort from a suitably qualified consultant to determine if the material is ACM and what control measures may be required in order to allow works to continue.

6.1.3 *Visual Inspections*

Visual inspection should be undertaken to confirm placement of appropriate thickness of capping soils and presence of geotextile membrane in line with requirements of Section 4.3. Inspections should be undertaken at a minimum frequency of 1 per 4 plots.

In addition, inspections should be undertaken at 2N° locations within communal soft landscaping. Anticipated communal soft landscaping inspection locations are shown on the plan in Appendix A.

6.2 **Record Keeping**

Records of operations relating to the remediation works will be maintained on-site by the Principal Contractor and provided to the client for inclusion within the Remediation Completion Report. These records shall include the following, where relevant/appropriate:

- Photographic records during construction works showing extents of excavation, placement of geotextile membranes and imported material for capping layers, where appropriate;
- Photos from inspection pits confirming required thickness of capping soils;

- Environmental monitoring undertaken (if required);
- Volumes of waste materials disposed off-site including tickets/waste consignment notes;
- Volumes of imported fill;
- Validation sample locations;
- Chemical validation test results including supplier certificates for imported fill; and,
- Details of variations and/or contingency arrangements as a result of design variation;

In addition, where reuse of materials is undertaken in line with an MMP the following shall be recorded:

- Wagon movements on- and off-site;
- On- and off-site soil movement records; and,
- Volumes and placement locations/depths of soil reuse.

6.3 Remediation Completion Report

A Remediation Completion Report will be prepared that will include a summary of the works undertaken to demonstrate that the remediation objectives have been met. Supporting information will be provided as summarised in Section 6.2, the report will also serve to demonstrate compliance with the principles of material re-use outlined within the supporting MMP and will be submitted to CL:AIRE as a final record, if required.

The Remediation Completion Report shall be issued to the regulators upon completion of the works.

Appendix A – Drawings

— Site Boundary



Base Map
Company: Bing Maps Autodesk Licence
DWG Title: -
DWG Number: -
Date: -

Drawn	Checked	Amendment	Date	Rev.
Redcliffe Homes				Client
Woodlands Road, Mere				Project
Site Location Plan				Title
Scale	Date	Drawn by	Check by	Rev.
1:4000@A4	25/03/26	DA	DG	-



Unit 5, Septimus, Hawkfield Buisness Park,
Bristol, BS14 0BN
Tel: 0117 927 7756
Email: Info@TP-regen.co.uk





- | | |
|-----|-------|
| REV | NOTES |
|-----|-------|

AU/CH	DATE
-------	------

© Crown copyright and database rights 2025 Ordnance Survey 0100031673



CliftonEmerydesign

Bristol • Exeter • London • Plymouth
www.cliftonemerydesign.co.uk mail@cliftonemerydesign.co.uk

Drawing Status PLANNING

CONTRACTORS MUST CHECK ALL DIMENSIONS ON SITE. ONLY FIGURED DIMENSIONS ARE TO BE WORKED FROM. © THIS DRAWING IS COPYRIGHT

Level against Topsoil Strip:



Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
Cut & Fill	1.000	1.000	16814.562sq.m	653.630 Cu. M.	7748.952 Cu. M.	7095.322 Cu. M.<Fill>
Totals			16814.562sq.m	653.630 Cu. M.	7748.952 Cu. M.	7095.322 Cu. M.<Fill>

This model is based on the following parameters:

- A Topsoil strip of 150mm has been assumed across the site
- House & Garage foundation construction depth has been assumed at 450mm below FFL.
- Highway construction depth has been set to **640mm** based on Wiltshire CC's Highway Design Guidance. This also assumes CBR of 2-5%
- Footway construction depth set to **240mm** based on Wiltshire CC's Highway Design Guidance.
- Attenuation basin included.



DO NOT SCALE this drawing. Use figured dimensions only.
The Contractor must check & verify all dimensions on site.
Any discrepancies must be reported immediately to the Engineer for clarification before proceeding.
This drawing is copyright and owned by Morgan Civil + Structural.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION
Refer to the relevant Construction (Design and Management) documentation where applicable.
It is assumed that all works on this drawing will be carried out by a competent contractor, working where appropriate to an approved method statement.

P02	08/07/25	Minor amendments to key colour	NT
P01	30/06/25	First Issue	NT
Rev	Date	Description	By
Client			

Redcliffe Homes Ltd

Project
Woodlands Road,
Mere

Title
Cut & Fill Analysis

Drawing Status PRELIMINARY				
Drawn	Checked	Approved	Date	Scale @ A1
AM	NT	NT	JUNE 2025	1:500
Project No.	Drawing No.	Revision		
138021	138021-MCS-XX-DR-C-9000	P02		

Site Boundary

600mm Clean Cover System Residential Soft Landscaping:
Made ground shall be excavated to a minimum depth of 600mm beneath finished level or the top of the natural soils, whichever is least. Levels shall be reinstated utilising chemically and physically suitable imported or site-won soils. A high visibility geotextile marker should be provided at the base and sides of excavations as a marker layer where existing made ground soils are to remain in situ at the base of the capping excavations.

300mm Clean Cover System in Areas of POS:
Made ground shall be excavated to a minimum depth of 300mm beneath finished level or the top of the natural soils, whichever is least. Levels shall be reinstated utilising chemically and physically suitable imported or site-won soils. A high visibility geotextile marker should be provided at the base and sides of excavations as a marker layer where existing made ground soils are to remain in situ at the base of the capping excavations. Where level raising has resulted in a minimum capping thickness of 600mm clean cover residual made ground, or placement of puddle clay in attenuation ponds has created an impermeable barrier no geotextile membrane will be required. If original natural ground is present are of 300mm clean cover then no geotextile membrane will be required.

TPZ in Areas of POS:
Tree Protection Zones, no further remedial requirements required.

300mm Clean Cover System in Areas of POS:
Protected ecological area for newt relocation, no remedial requirements in order to leave undisturbed.

Proposed POS Verification Locations

General notes

- Upgraded water supply pipework shall be used if installed within site-wide made ground.
- Where specialist planting is dictated by landscaping proposals, a deeper growth medium may be required, including up to 450mm in areas of proposed shrubs and up to 900mm for tree pits (which may also require specialist installation in line with BS 5837). These details should be confirmed with the project landscaping adviser.
- Vigilance should be employed for any unforeseen ground conditions when excavating in previously inaccessible areas and when grubbing out, where specialist advice may be required.
- The required thickness and quality of capping soils to support the necessary plant growth should be discussed and agreed separately with the project landscaping team as necessary.

Base Map
Company: - Clifton Emery Design
DWG Title: - Proposed Site Layout
DWG Number: - L 02 01
Date: - 05/25

AW	DG	removed gas protection hatch and key	26/03/26	A
Drawn	Checked	Amendment	Date	Rev.
Redcliffe Homes				
Woodlands Road, Mere				
Remedial Strategy Plan				
Scale	Date	Drawn by	Check by	Rev.
1:800@A3	08/05/26	DA	DG	B



Unit 5, Septimus, Hawkfield Buisness Park,
Bristol, BS14 0BN
Tel: 0117 927 7756
Email:Info@TP-regen.co.uk

Drawing No.	S1313-4272-01-001
-------------	-------------------



40

80

1:800
m

Appendix B – Imported Soil Criteria

SOIL TARGET CONCENTRATIONS – HUMAN HEALTH

Contaminant	Assessment Criteria				
	Residential with homegrown produce	Residential without homegrown produce	POS _{RESI}	Commercial	Source
Heavy Metals					
Arsenic	37	40	79	640	C4SL
Beryllium	1.7	1.7	2.2	12	S4UL
Cadmium	22	150	220	410	C4SL
Chromium III	910	910	1,500	8,600	S4UL
Hexavalent chromium	21	21	21	49	C4SL
Lead*1	200	310	630	2,300	C4SL
Mercury - inorganic	200	300	610	5,100	C4SL
Nickel	180	180	230	980	S4UL
Vanadium	410	1,200	2,000	9,000	S4UL
Selenium	250	430	1,100	12,000	S4UL
Phytotoxic Metals					
Copper	2,400	7,100	12,000	68,000	S4UL
Zinc	3,700	40,000	81,000	730,000	S4UL
Boron	290	11,000	21,000	240,000	S4UL
Organics					
Phenol	120	440	440	440	S4UL
PAHs					
Naphthalene*3	15	15	11,000	1,600	C4SL
Acenaphthylene*3	170	2,900	15,000	83,000	S4UL
Acenaphthene*3	210	3,000	15,000	84,000	S4UL
Fluorene*3	170	2,800	9,900	63,000	S4UL
Phenanthrene*3	95	1,300	3,100	22,000	S4UL
Anthracene*3	2,400	31,000	74,000	520,000	S4UL
Fluoranthene*3	280	1,500	3,100	23,000	S4UL
Pyrene*3	620	3,700	7,400	54,000	S4UL
Benz(a)anthracene*3	7.2	11	29	170	S4UL
Chrysene*3	15	30	57	350	S4UL
Benzo(b)fluoranthene*3	2.6	3.9	7.1	44	S4UL
Benzo(k)fluoranthene*3	77	110	190	1,200	S4UL
Benzo(a)pyrene*2	5.0	5.3	10	77	C4SL
Indeno(123-cd) pyrene*3	27	45	82	500	S4UL
Dibenz(ah)anthracene*3	0.24	0.31	0.57	3.5	S4UL
Benzo(ghi)perylene*3	320	360	640	3,900	S4UL

Contaminant	Assessment Criteria				
	Residential with homegrown produce	Residential without homegrown produce	POS _{RESI}	Commercial	Source
Fuel range hydrocarbons					
Benzene	0.20	0.89	140	27	C4SL
Toluene	130	880	56,000	56,000	S4UL
Ethyl Benzene	47	83	24,000	5,700	S4UL
Xylenes	56	79	41,000	5,900	S4UL
Aromatic C5-C7	70	370	56,000	26,000	S4UL
Aromatic C7-C8	130	860	56,000	56,000	S4UL
Aromatic C8-C10	34	47	5,000	3,500	S4UL
Aromatic C10-C12	74	250	5,100	16,000	S4UL
Aromatic C12-C16	140	1,800	3,800	36,000	S4UL
Aromatic C16-C21	260	1,900	3,800	28,000	S4UL
Aromatic C21-C35	1,100	1,900	3,800	28,000	S4UL
Aromatic C35-C44	1,100	1,900	3,800	28,000	S4UL
Aliphatic C5-C6	42	42	570,000	3,200	S4UL
Aliphatic C6-C8	100	100	60,000	7,800	S4UL
Aliphatic C8-C10	27	27	1,300	2,000	S4UL
Aliphatic C10-C12	130	130	1,300	9,700	S4UL
Aliphatic C12-C16	1,100	1,100	1,300	59,000	S4UL
Aliphatic C16-C35	65,000	65,000	250,000	1,600,000	S4UL
Aliphatic C35-C44	65,000	65,000	250,000	1,600,000	S4UL

Notes:

All values are mg/kg unless stated

C4SL – Category 4 Screening Level as produced by Defra and CL:AIRE – based on 1% SOM

S4UL – Suitable 4 Use Levels as produced by Land Quality Management – based on 1% SOM.

*1 – C4SL for lead based on the LLTC of 3.5µg/dL⁻¹ and C4SL exposure changes.

*2 – BaP can be considered as a marker compound for consideration of other PAHs.

*3 – Threshold values may be discounted based upon use of BaP as a marker compound.

SOIL TARGET CONCENTRATIONS – PHYTOTOXCITY

Contaminant	Assessment Criteria (Phytotoxic thresholds for plants)	Source
Phytotoxic Metals		
Selenium	10.0	SGV9 Document
Boron	3.0	ICRCL 59/83
Copper	130.0	
Nickel	70.0	
Zinc	300.0	
Cadmium	8.0	Amended Dutch RIVM – Ecotoxilogical risk
Chromium	154.0	
Mercury	28.0	