



Selsdon Building Contractors Limited

Blackwell Farm, East Grinstead

Remediation Strategy and Verification Plan

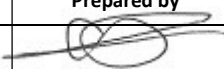
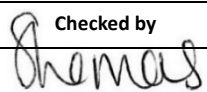
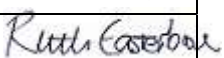




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Blackwell Farm, East Grinstead

Remediation Strategy and Verification Plan

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1 INTRODUCTION

1.1 Terms of Reference

1.1.1 TEC has been appointed by Selsdon Building Contractors Limited to prepare a Remediation Strategy and Verification Plan in support of the proposed development at Blackwell Farm, East Grinstead. All works were undertaken in accordance with our proposal letter dated 05 March 2025 and referenced CH.2503003.001_002.

1.2 Background

1.2.1 The site is situated off Blackwell Farm Road to the east of East Grinstead town centre (Figure 1). The site covers an approximate area of 0.56 hectares, with the centre of the site situated at approximate National Grid Reference 539710, 138810. The nearest postcode is RH19 3JW.

1.2.2 It is understood that planning permission has been granted by Mid Sussex District Council (reference DM/20/1333) for the proposed development comprising the construction of 10No. low rise residential dwellings with associated private gardens and hard infrastructure (Figure 2).

1.2.3 A number of phases of investigation has been undertaken at the site by Land Science (2018) and TEC (2021), as detailed within the following documents:

- Phase I and Phase II Geotechnical and Geo-Environmental Investigation – Blackwell Farm Road, East Grinstead, RH19 3JW. Prepared by Land Science for The Guinness Partnership Limited. Report reference LS 3734 dated September 2018.
- Blackwell Farm, East Grinstead – Ground Investigation Report. Prepared for W Stirland Ltd by TEC. Report reference 2006010.001.01 dated January 2021; and
- Blackwell Farm, East Grinstead – Supplementary Assessment. Prepared for W Stirland Ltd by TEC. Report reference 2006010.002.01 dated August 2021

1.2.4 Full reference should be made to the previous reporting, although salient information is provided in the following sections.

1.2.5 This Remediation Strategy and Verification Plan has been undertaken in accordance with current guidance such as LCRM - *Land contamination: risk management* (Environment Agency, 2023) and NHBC Standards/ LABC Technical Manual.

1.2.6 From the outset, sustainability and the potential impact of climate change have been considered, to assist in identification of options to minimise the environmental, social, and economic impacts of the risk assessment approach, with reference to Sustainable Management Practices (SMPs) from Sustainable Remediation Forum UK (SuRF-UK).

2 SITE CONDITIONS SUMMARY

2.1.1 A summary of the salient issues relating to the site and the proposed development, in relation to land contamination, is presented below. Reference to the previous reports should be made for detailed information.

2.2 Previous Report Summary

2.2.1 Below is a summary of the previous reporting undertaken by Land Science and TEC for the site, with relation to the geoenvironmental conditions at the site in between 2018 and 2021.

Table 2.1: Previous Report Summary

Land Science – 2018	
Site History	Land Science reported the site comprised a series of small fields associated with Blackwell Farm between 1898 and 1931. Two small ponds were noted on site in the southwest and southeast corners of the site. A stream was reportedly present on site, flowing from the northwest corner down to the pond in the southeast corner. By 1962, the pond and stream were reportedly no longer depicted on mapping. No further significant features relating to the site were reported by Land Science. Further internet research undertaken by Land Science in relation to the proposed development reportedly highlighted a number of comments by local residents regarding the possibility that the southern section of the site has been a former pond that had been infilled. No further details were provided. An underground sewage pipe was reported within the southern section of the site.
Surrounding Land Use	The surrounding area was reported to generally comprise open farmland and building associated with Blackwell Farm, which was located immediately northeast of the site. By 1962, much of Blackwell Farm was reported to have been redeveloped with a large housing development. Further potentially contaminative land uses identified in proximity to the site included an allotment garden ~150m to the northwest of the site from 1910 to present and a cemetery immediately west of the site from 1931 to present.
Geology and Hydrogeology	The underlying geology was recorded to comprise the Lower Tunbridge Wells Sand, described as grey silt and yellowish fine silty sand with cemented beds of siltstone and sandstone at intervals, classified by the Environment Agency as a Secondary A Aquifer. This in turn was reported to be underlain by Wadhurst Clay, which is described as dark grey shales, clays and silty clays with subordinate beds of silt, sandstone and shelly limestone. No superficial deposits were recorded on site, although it was noted by Land Science that the intrusive works recorded the presence of material considered to be Alluvium. No groundwater abstraction licences were reported in proximity of the site and the site was not recorded to be located within a Source Protection Zone.
Hydrology	A stream was reported approximately 50m to the east of the site by Land Science. No surface water abstractions were reported within 1000m of the site. A single discharge consent to controlled waters was recorded in proximity to the site. This related to the discharge of public sewage and storm sewage overflow to an un-named tributary of Medway via pond, approximately 55m to the east of the site.
Ground Gas Generation	Information presented by Land Science indicated the southern section of the site may have comprised a former pond that had been infilled, which may provide a potential source of ground gas generation subject to thickness and composition.

	No areas of historic or current landfill were identified within 250m of the site. A single record of potentially infilled land was recorded on mapping from 1950, which related to an area of unknown filled ground (pond, marsh, river, stream, dock etc), approximately 15m to the east of the site. The site was reported to be located within a lower Radon affected area as less than 1% of homes exceed the threshold for radon gas. Therefore, no radon protective measures were reported as necessary within the proposed development.
Encountered Ground Conditions	Intrusive works undertaken by Land Science recorded the presence of made ground across the site to depths of between 0.65mbgl and 2.1mbgl, which was generally recorded to comprise light brown clayey gravelly sand underlain by brown gravelly sand with varying amounts of brick, metal, sandstone, glass and clinker. This in turn was reported to be underlain by Alluvium (possible made ground) to the base of the excavations (maximum 4.0mbgl). The encountered material was recorded to comprise orange brown and grey sandy clay with sandstone fragments and pockets of organic matter to depths of up to 2.5mbgl, underlain by dark brown, blue grey and black sandy gravelly clay with sandstone fragments and abundant organic material to recorded depths of between 3.0mbgl and >4.0mbgl. This was reportedly underlain by light orange, brown and grey sandy gravelly clay with occasional sandstone fragments. A strong organic / peaty odour was reported in a number of locations.
Groundwater	Groundwater was encountered within a single location at a depth of 2.3mbgl, rising to a static level of 2.2mbgl after a period of 20 minutes.
Contamination	No visual or olfactory evidence of potential significant contamination was reported by Land Science during the intrusive works. Laboratory analysis of representative made ground materials reportedly recorded the exceedance of the relevant screening values for a number of PAH's and heavy metals. Leachate analysis of samples reported the exceedance of a number of heavy metals when compared to the Environmental Quality Standards (EQS) in a single location. In addition, the presence of Chrysotile (hard/cement type material) was recorded within a single location. Ground gas monitoring within a single location recorded carbon dioxide concentrations of up to 7.0%. No measurable methane was reported.
TEC – 2021	
Encountered Ground Conditions	Intrusive works undertaken by TEC recorded the presence of made ground to depths of between 3.0mbgl and 5.5mbgl. The upper made ground materials were generally observed to comprise brown to dark brown sandy, very silty clay to depths of 0.1mbgl underlain by brown to dark brown or orange brown sandy gravelly clay or clayey gravelly sand to depths of between 1.7mbgl and 3.2mbgl. The gravel component within this material was observed to include flint, clinker, sandstone, red brick, concrete and metal. The upper materials were observed to be underlain by potential made ground materials comprising generally brown and blue grey silty clayey sand / silty sandy clay. Localised pockets of peat and decaying root matter as well as a strong organic odour was reported within this material. The Lower Tunbridge Wells Sand was recorded across the site from depths of 3.0mbgl and was generally recorded to comprise medium dense / dense becoming very dense clayey fine to medium sand with occasional to abundant gravel of flint interbedded with stiff dark grey / green grey slightly sandy clayey silt and sandy silty clay to the base of the excavations (maximum 11.5mbgl).

Groundwater	During the intrusive works, groundwater was encountered within 2No locations at depths of 3.0mbgl. Subsequent monitoring at the site recorded standing groundwater levels within 3No. installed boreholes at depths of between 1.65mbgl and 2.8mbgl, with 2No of these locations recording groundwater as absent during one monitoring round.
Contamination	<i>Human Health</i> Visual and olfactory of potential hydrocarbon contamination was recorded within the south/south-east of the site (BH01, WS12 and WS13) during the intrusive investigation at depths of between 1.2mbgl and 3.5mbgl. However, screening of soils with a photo-ionisation detector (PID) within these locations recorded relatively low indicative VOC concentrations of between 0.4ppm and 54.8ppm. Laboratory analysis of representative samples of the underlying made ground and potential made ground recorded elevated PAH (benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene and dibenz(a,h)anthracene) and heavy metals (lead), when considering a residential with homegrown produce site end use. An asbestos screen completed on samples of the made ground/ at the laboratory recorded no suspected asbestos containing material or detectable asbestos fibres. It is noted that concentrations of petroleum hydrocarbons were all recorded to be below the relevant screening values for human health, including samples collected from the southern area of the site where field observations indicated the presence of potential residual hydrocarbons. <i>Controlled Waters</i> Initial leachate analysis undertaken recorded no contaminants of potential concern. However, due to the presence of elevated total TPH concentrations within the southern area of the site, the potential risk to controlled waters could not be fully discounted. As a result, subsequent groundwater monitoring was undertaken from perched water collected from the site during the later investigation in August 2021. It should be noted that no groundwater was encountered within the deeper monitoring wells installed to depths of 10.8mbgl and 11.5mbgl during the supplementary assessment works. The geochemical analysis recorded elevated ammonium, anthracene and fluoranthene within the sampled perched water. However, it was concluded that while elevated SVOC concentrations associated with the above PAHs were recorded in the sampled perched water, concentrations of VOC's and TPH were reported as below laboratory limit of detection within both locations, suggesting no vertical migration of the residual hydrocarbon contamination recorded on site during the previous investigation. In addition, heavy metal concentrations were recorded to be below the GAC deemed protective of the identified controlled water receptors. Concentrations of ammoniacal nitrogen were recorded to exceed the generic assessment criteria (GAC) of 500µg/l (based on the conservative UK Drinking Water Standard for Ammonium as NH4+) in all sampled perched water. The results were considered likely to be associated with anaerobic degradation of organic matter as recorded within the shallow ground materials on site – localised pockets of peat, organic clay and decayed roots were noted to depths of around 3 – 5.5m, considered to be associated with the former stream and ponds historically recorded on site (now infilled). No further potential sources of ammonium were identified in relation to the site. No groundwater was recorded within the deeper boreholes undertaken on site to depths between 10.8m and 11.5mbgl, within the Lower Tunbridge Wells Sand deposits. The nearest BGS borehole record (approximately 300m east of the site) indicated groundwater was struck at a depth of 20m within the sands/

	sandstone during drilling of a borehole in June 2020 for East Grinstead Town Football Club. The boreholes for Hackenden Pumping Station record resting groundwater levels of around 10m – 15mbgl. Given the underlying thickness of unsaturated zone below the made ground (of at least 5.3-7.0m), and the distance to the identified controlled waters receptors (groundwater abstractions (850m-960m) and nearest surface water (small stream approximately 50m east),) it was considered that the risk to these receptors was low owing to the resulting attenuation and dilution of the concentrations of PAHs and ammoniacal nitrogen recorded in the perched water on site. In addition, the recorded ammoniacal nitrogen concentrations were considered likely to be associated with background levels for the area resulting from degradation of organic matter from the previous stream and ponds on site.
Ground Gas	The assessment works undertaken by TEC in 2021 indicated the site would likely be classified as Characteristic Situation 2 as a result of the maximum recorded concentrations and gas screening values obtained as part of the monitoring at the site. Notwithstanding this, a reassessment of the likely characteristic situation for the site has been undertaken following the release of updated ground gas guidance since the issue of the original assessment works, as detailed below.

2.3 Ground Gas – Updated Assessment March 2025

2.3.1 Toxic, asphyxiating and flammable potentially explosive ground gas can enter buildings and other structures on and below the ground. These gases can potentially pose risks to occupants and other site end users, and to the structures themselves.

2.3.2 In accordance with BS8485:2019, CL:AIRE RB17, and NHBC Foundation NF94, an assessment of the risk posed by ground gases at the site has been undertaken, based on the findings of the desk study, ground investigation and the development of the initial conceptual side model (detailed within TEC report 2006010.001.01) and, as a result, the site has been classified as 'low risk' with respect to ground gases. The following site-specific information has been considered as part of the lines of evidence based assessment;

- Soils with a high organic content can give rise to elevated concentrations of carbon dioxide, or methane, from pockets of trapped gas, and have been identified underlying the site; however, as the generation rate of these gases are low, the volumes of gas likely to be generated are also expected to be low. Therefore, in the absence of any preferential pathways within the ground connecting the source to the development, the risks are considered to be low;
- The age of infilled material present at the site is greater than 50 years old, and therefore the source generation potential will have significantly decreased, due to any easily degradable material having already been depleted.
- No additional landfills, areas of potentially significant infilled ground or coal mine entries/ workings have been identified within potential influence of the site;
- The natural soils were recorded to comprise the Lower Tunbridge Wells Sand of typically low organic content;
- The site is not located within a radon affected area.
- While evidence of potential hydrocarbon impacted material was recorded at the site, laboratory analysis of representative materials recorded TPH concentrations to be generally low (below conservative residential screening criteria). In addition, screening of representative samples with a Photo-Ionisation Detector (PID) recorded generally low VOC concentrations, with a maximum of 54.8ppm recorded.
- A maximum flow rate of 0.5l/hr was recorded during the initial round of monitoring, with flow rates generally recorded as 0.0l/hr during subsequent monitoring. It is noted within the NHBC Foundation NF94 guidance that if generation rates are low (as is likely to be the case in this instance), the flow may be driven by diffusion and ground gas risks will be lower. It is further noted that while gas flowing by

diffusion through the ground may migrate to the underside of a floor slab, if gas flow in the ground is diffusion driven, the risk of ingress to the building is still likely to be low.

- Furthermore, as part of this updated assessment, the monitoring data obtained during the previous assessment has been examined using graphical representative via a ternary plot. The resulting graph (Appendix A) indicates the data obtained from site is representative of air/CO₂ mixing, providing further lines of evidence that the encountered infilled material on site is not providing a significant source of ground gas which may impact upon the proposed development, and is likely associated with biological respiration, a natural process that widely occurs within the underlying materials and gives rise to elevated carbon dioxide and does not pose a risk of hazardous emissions.

2.3.3 While gas monitoring undertaken at the site has recorded elevated methane (maximum 0.7%v/v) and carbon dioxide (maximum 16.2%v/v) concentrations, given the absence of any significant flow (maximum recorded 0.5l/hr) and the further lines of evidence risk assessment detailed above, the risk from ground gas is considered to be low and it is considered that there is no requirement for ground gas protection measures as part of the proposed development and this has not been considered further within this Strategy.

2.3.4 The site is not within an area where radon protection is required.

2.4 Updated Conceptual Model

2.4.1 On the basis of the assessment works undertaken by Land Science and TEC to-date, a number of relevant contaminant linkages (RCL) have been identified in relation to ground contamination and the proposed development, which are considered by TEC to be as follows:

- RCL1 Risk to site end users via exposure to Contaminants of Potential Concern (CoPC) within the made ground materials through ingestion, inhalation and dermal contact pathways in areas of proposed soft landscaping, where made ground remains;
- RCL2 Cumulative risk to brownfield construction workers and future site maintenance via exposure to Contaminants of Potential Concern (CoPC) within the made ground materials through the ingestion, inhalation and dermal contact pathways; and
- RCL3 Potential risk of statutory nuisance via disturbance of in-situ ground materials during development works resulting in the generation of dust, including fine particulate matter.

3 REMEDIATION OBJECTIVES AND CRITERIA

3.1 Introduction

3.1.1 LCRM defines remediation objectives as site-specific objectives that relate solely to the reduction, control or removal of the risks associated with one or more of the relevant contaminant linkages (RCL). LCRM also defines remediation criteria as site-specific measures against which compliance with remediation objectives will be assessed.

3.1.2 Remediation objectives and criteria for the identified RCL in relation to the proposed development are presented in Table 3.1.

Table 3.1: Remediation Objectives and Criteria

Relevant Contaminant Linkage (RCL)	Remediation Options/Objectives	Remediation Criteria
RCL1: Chronic risk to site end users via exposure to Contaminants of Potential Concern (CoPC) within the impacted made ground through ingestion, inhalation and dermal contact outside of the proposed building footprint.	- Long-term effective containment or removal of contaminated made ground i.e. eliminating exposure to contaminated made ground materials. - Management of contaminant pathway. - Ensure the site is suitable for use in relation to the proposed residential development. - Satisfy planning requirements in relation land contamination.	Compliance to be based on either the removal of made ground or the provision and maintenance of an appropriate cover system across all areas of the site where made ground remains, following site preparation.
RCL2: Acute risk to construction workers and future site maintenance workers via exposure to Contaminants of Potential Concern (CoPC) within the made ground materials through the ingestion, inhalation and dermal contact pathways.	- Long-term effective containment or removal of contaminated made ground materials. - Management of the pathway and receptor.	Adoption of appropriate good / suitable brownfield working practices and implementation of appropriate site maintenance procedures and risk assessments during construction. For future maintenance workers, compliance is to be based on the provision and maintenance of an appropriate cover system following site preparation, where made ground remains.
RCL3: Short term disturbance of in-situ ground materials during development works resulting in the potential generation of dust, including fine particulate matter resulting in a potential risk of statutory nuisance.	Effective control of dust and dust generating activities	Employ best practice methods at all times.

4 SCOPE OF REMEDIATION WORKS

4.1.1 Based upon the identified Relevant Contaminant Linkages (RCL), the following Remediation Strategy has been prepared to provide appropriate mitigation against the identified risks.

4.1.2 The Remediation Strategy has been undertaken in accordance with LCRM - *Land contamination: risk management* (Environment Agency 2023) and will require agreement in writing of the Regulatory Authorities prior to commencing any remediation on site.

4.2 Remedial Measures

4.2.1 Remedial measures to achieve the site-specific remediation objectives set out in Table 3.1 for RCL1 to RCL3 are presented below.

RCL1

4.2.2 RCL1 relates to the chronic risk to site end users via exposure to identified contaminants of potential concern within the made ground materials, through the dermal contact, ingestion and inhalation pathways.

Hard Standing and Building Footprint

4.2.3 The proposed development plan indicates a large portion of the site area is to be covered by the footprint of the proposed development buildings or hardstanding. Where present, such hard cover features would remove the identified potential contaminant pathways in relation to site end users.

Soft Landscaped Areas

4.2.4 Due to the recorded contaminant concentrations within the made ground materials and the presence of localised asbestos, a simple cover system in accordance with Building Research Establishment (BRE) guidance (BRE465) would not be considered appropriate in these areas. Therefore, an engineered cover system, designed to provide complete separation of the receptor from the hazard, would be recommended within all the proposed soft landscaping areas, where made ground remains.

4.2.5 The engineered cover system would need to comprise a visual marker/break layer overlain by a suitable cover thickness, comprising topsoil and subsoil in accordance with the requirements of BS3882:2015 'Specification for topsoil' and BS8601:2013 'Specification for Subsoil and Requirements for Use'. Consequently, consolidated minimum thicknesses of 450mm will be required within the general soft landscaped (grassed) areas, 600mm in areas of shrub and 900mm in areas of tree planting. The consolidated depth of topsoil spread should not normally exceed 300mm with the remainder of the rooting depth being made up of suitable subsoil. It should be noted that the thickness of the cover system should be agreed by the regulators as policies and guidance on this issue varies between Local Authorities.

4.2.6 Prior to placement of soils and after grading and compacting, an appropriate high visibility geotextile break layer (Terram Hi-Vis or equivalent) should be laid and secured, in accordance with the manufacturer's instructions, to inhibit mixing with underlying material and minimise mixing and penetration of foreign objects such as glass, metal etc. into the clean cover. Prior to geotextile placement, the graded area should be inspected to ensure no material is protruding from the surface which may cause significant damage to the geotextile.

General Cover System Requirements

4.2.7 Careful management of the site works will be required to ensure potential cross-contamination from materials containing CoPC is avoided (Section 5).

4.2.8 Imported material will likely be required to provide the proposed depth of cover system within the soft landscaped areas. Therefore, geochemical verification testing should be undertaken on all imported material as well as any excavated material proposed for re-use. The testing regime for such material is detailed below and in Section 6.

4.2.9 Topsoil should meet the requirements of BS3882:2015 for multipurpose topsoil whilst subsoils should meet the requirements of BS8601:2013 for multipurpose subsoil. Appropriate certificates of analysis should be provided, in advance of material importation, to demonstrate compliance with these criteria.

- 4.2.10 Further, in accordance with BS3882:2015 and BS8601:2013, all imported material should be free from propagules of aggressive weeds and bulk vegetative matter, and topsoil and subsoil should have a maximum stone size of 20mm and 50mm, respectively.

RCL2

- 4.2.11 RCL2 relates to the risk to construction workers and future site maintenance workers via exposure to contaminants of concern recorded within the made ground materials on site through dermal contact, ingestion and inhalation pathways.
- 4.2.12 The adoption of good brownfield working practices, including good site welfare and hygiene facilities and the provision of appropriate Personal Protective Equipment (PPE) should be implemented.
- 4.2.13 Short term (acute) exposure to the levels of contamination encountered at the site is considered unlikely to cause significant harm to construction workers.
- 4.2.14 Full site maintenance procedures and risk assessments should be documented and implemented to ensure that future maintenance workers are protected from potential residual risk during possible exposure to materials beneath the capping layer.

RCL3

- 4.2.15 RCL3 relates to the potential risk of statutory nuisance via disturbance of in situ ground materials during remediation and development works resulting in the generation of dust, including fine particulate matter.
- 4.2.16 Development works will provide a long-term betterment with respect to dust generation as potentially contaminated materials will be effectively capped (e.g. by hardstanding or clean cover). Given the proposed development works for the site, the short-term potential for the generation of dust and fine particulate matter cannot be discounted. This is due to the requirement for the excavation and handling of potentially dry materials and their transportation on and off-site. In addition, wind blow across bare ground or stockpiles of excavated and treated materials can also represent a potential significant source of dust generation.
- 4.2.17 Fugitive dust and fine particle generation from remediation and construction activities can be substantially reduced through carefully selected mitigation techniques and effective management. Once particles are airborne, it is very difficult to prevent them from dispersing into the surrounding area. The most effective technique is to control dust at source and prevent it from becoming airborne.
- 4.2.18 The contractor will be required to take all necessary measures to avoid creating a dust nuisance during both remediation and construction works. Best practicable means should be used to minimise dust.

4.3 General Remedial Measures

Previously Unidentified Contamination

- 4.3.1 During the site clearance works, should contamination be found at any time when carrying out the development that was not previously identified, it will be reported in writing immediately to the Local Planning Authority and further investigation and risk assessment will be undertaken. Where further remediation is considered necessary, a revised remediation scheme will be produced and forwarded to the Local Planning Authority for approval in writing. Section 6 of this Remediation Strategy provides the communication process should further assessment be undertaken.

Services Protection

- 4.3.2 Should water supply pipes be placed within the made ground encountered at the site, due consideration would need to be given to the UK Water Industry Research Ltd (UKWIR) guidance.

5 GENERAL REQUIREMENTS

5.1 Environmental Permits / Licences

- 5.1.1 The Contractor will be required to comply with all relevant legislation, statutory requirements and guidance, Codes of Practice, British Standards and all relevant HSE Guidance and Approved Codes of Practice.
- 5.1.2 The Contractor will be responsible for obtaining and complying with all necessary permissions, licenses and permits required to undertake the works.

5.2 Materials Excavation

- 5.2.1 Given the presence of elevated contaminant concentrations within the made ground, as a minimum, made ground shall be segregated in accordance with current waste regulations to allow for separate treatment/disposal. Further, segregation may be required should further grossly contaminated materials be encountered. Characterisation of waste materials will be undertaken by suitably experienced person and will be limited to ensure appropriate visual characterisation of materials.
- 5.2.2 All on-site waste material movements on site will be undertaken in a controlled fashion, to avoid cross contamination of materials.

5.3 Stockpiling

- 5.3.1 Temporary stockpiles should be on suitable hardstanding or membrane to prevent mixing with underlying materials, and such stockpiles will be covered with an impermeable membrane. In addition, to avoid potential cross-contamination, work methodologies should be adopted such that the trafficking over contaminated areas is minimised and, wherever possible, avoided.

5.4 Waste Management

- 5.4.1 Excavated contaminated material will be disposed from site to an appropriately licensed facility. Additional testing may be required in accordance with guidance outlined by the Environment Agency's document '*Waste Sampling and Testing for Disposal to Landfill*' (EBPRI 11507B), dated March 2013, to allow determination of an appropriately licensed landfill for disposal. The waste producer must develop a sampling plan using Best Practice with reference to BS EN 14899 (and supporting technical guidance CEN/TR 15310) to ensure samples are representative of the waste being produced.

5.5 Materials Transport and Disposal

- 5.5.1 All waste disposal activities will be undertaken in accordance with the Waste (England and Wales) (Amendment) Regulations 2014 and consequently, the haulier will need to be a licensed waste carrier and evidence of registration will need to be obtained prior to any consignment.
- 5.5.2 All waste will only be sent to a class of disposal facility permitted to accept the materials identified.
- 5.5.3 Laboratory results of the excavated material will need to be passed on to the haulier, and the material will need to be transported and disposed of accordingly. All excavated contaminated waste materials are to be transported off-site in appropriately sheeted lorries.

5.6 De-Watering

- 5.6.1 Groundwater seepages were recorded from depths of approximately 3.0mbgl. Based on observations made during the ground investigations, significant groundwater ingress into excavations is considered unlikely, although some dewatering is likely to be required, particularly where excavations are left open for any length of time. It would be recommended that formation levels are protected to mitigate against softening associated with any such water ingress.
- 5.6.2 To minimise the generation of water requiring management, surface run-off and collection should be reduced by ensuring that the scale of open excavation is restricted to that necessary for the immediate works.

5.7 Backfilling

- 5.7.1 Where excavation of contaminated materials occurs, the resultant excavation should be backfilled with suitably classified general fill or imported clean material. Excavated contaminated materials should not be used for backfilling.

5.8 Site Maintenance

- 5.8.1 Site maintenance procedures and risk assessments should be documented and implemented to ensure that the capping layer and hard cover areas are appropriately maintained, and future maintenance workers are protected during exposure to materials beneath the capping layer and hardstanding.
- 5.8.2 Due consideration should be given as to whether the depth of any clean cover system is sufficient for the planting proposed, e.g. planting of vegetation with a rooting zone in excess of the depth of clean cover may require deepened excavations or use of containers.
- 5.8.3 Should significant future excavation works be required within the site then full reinstatement in accordance with this Remediation Strategy will be required.

5.9 General Site Safety

- 5.9.1 All aspects of health and safety during site works will be undertaken in accordance with the Construction (Design and Management) Regulations, 2015 (CDM), or superseding documentation. In addition, all remedial works will be undertaken in accordance with the Health and Safety Executive publication (HSG66) "Protection of workers and the general public during the development of contaminated land" (1991), CIRIA Report 132 "A guide for safe working on contaminated sites" (1996) and current best practice guidance.

6 VERIFICATION PLAN

6.1 Materials Importation

- 6.1.1 Appropriate chemical testing of imported materials will be required, if the origin of the imported clean cover capping materials is other than one of the following:
- A “greenfield” site where an appropriate desk study has been undertaken in accordance with BS10175:2011+A2:2017 which shows that no sources of contamination are or have been present; or
 - A site where suitable site investigation and testing has been undertaken in accordance with BS10175:2011+A2:2017 which clearly demonstrates the chemical suitability of the imported material.
- 6.1.2 If the source of the capping materials does not comply with the above or is from a site that is known to be, or suspected of being, contaminated, sufficient testing should be undertaken to confirm the materials are suitable for use. Where separate subsoil and topsoil materials are used in the cover system, it will be necessary to confirm the chemical quality of both components.
- 6.1.3 All imported material, whether used as part of a clean cover system or not, will comply with the limits set out within Table 6.1.
- 6.1.4 In addition, all imported topsoil and subsoil materials should meet the requirements of BS3882:2015 and BS8601:2013. All imported topsoil and subsoil should be free from foreign objects discernible by the naked eye (e.g. glass, brick, concrete, wire, tarmac, plastic, ceramic, metal, treated wood) or potentially hazardous foreign matter which may represent a risk of traumatic injury or damage to health.
- 6.1.5 In all cases, a copy of the delivery ticket should be available to confirm the imported materials have been transferred directly from the approved source site.
- 6.1.6 Where capping materials (including manufactured soils) are sourced from a commercial provider, a copy of the supplier’s routine chemical test certificate(s) and delivery tickets to site should be included within the remediation Verification Report. All test certificates should be current, and representative of the material actually being used on site. Should importation be undertaken over an extended period of time, separate certification may be required. The amount of testing undertaken by the commercial provider should be linked to the former uses of the source site and the potential for contamination to be present. It is noted that the use of skip waste will not be accepted as capping materials without extensive testing to confirm it is suitable for use.
- 6.1.7 Quarried aggregate need not be subject to this testing regime, where supported by appropriate certification.
- 6.1.8 Placement of fill materials associated with these remedial works should not be permitted unless this information has been received and approved in advance by the Client’s representative.
- 6.1.9 All samples will be submitted to an appropriate accredited laboratory (MCERTS/UKAS) for analysis. Given the proposed development includes a general commercial site end use with limited areas of soft landscaping, limits have been set on the basis of a ‘*Residential with homegrown produce*’ site end use, which is considered conservative in the context of the proposed end use for the site.

Table 6.1: Importation & Re-use Criteria

Contaminant	Maximum Import Concentration (mg/kg) ⁽¹⁾
Arsenic	37
Boron	290
Cadmium	22
Chromium (Total)	910
Chromium (VI)	21
Copper	2400
Lead	200
Mercury	40

Contaminant	Maximum Import Concentration (mg/kg) ⁽¹⁾
Nickel	130
Selenium	350
Zinc	3700
Beryllium	1.7
Barium	1300
Vanadium	410
Cyanide	20
Total Phenol	120
Petroleum Hydrocarbons	
Total Petroleum Hydrocarbons (TPH)	500 ⁽²⁾
Naphthalene	2.3
Benzo(a)anthracene	7.2
Chrysene	15
Benzo(b)fluoranthene	2.6
Benzo(k)fluoranthene	77
Benzo(a)pyrene	2.2
Indeno(1,2,3-cd)pyrene	27
Dibenzo(a,h)anthracene	0.24
Benzo(ghi)perylene	320
TPH Aliphatic C5-C6	42
TPH Aliphatic C6-C8	100
TPH Aliphatic C8-C10	27
TPH Aliphatic C10-C12	130
TPH Aromatic C5-C7	70
TPH Aromatic C8-C10	34
TPH Aromatic C10-C12	74
Other	
Asbestos Screen	Absent

Notes:

1. Importation criteria based on human health screening values for 'residential with homegrown produce' end use (based on DEFRA C4SL (2014), Environment Agency Soil Guideline Values (2009) and CIEH/LQM GAC (2014), where appropriate, based upon a 'worst-case' Soil Organic Matter (SOM) of 1%).
2. Speciated hydrocarbon contaminants with screening values >500mg/kg are not included as total TPH limit has been set at 500mg/kg.

6.2 Verification Testing of Cover System

- 6.2.1 Following the placement of the appropriate cover system, verification pits should be excavated to prove the depth, and where necessary, the chemical quality of the clean cover, along with the presence of the appropriate high visibility geotextile break layer (Terram Hi-Vis or equivalent). A written description and photographic record of each verification pit shall be obtained.
- 6.2.2 Where appropriate supporting current certification is not available in relation to the chemical quality of placed imported cover system material, verification samples will be taken and chemically analysed. The

number of validation samples required will be confirmed with the regulatory authorities prior to undertaking the sampling but would be initially suggested as follows:

- One sample for every 100m³ of fill, if the material is imported from a known 'Greenfield' source.
- One sample per 50m³ of fill if the material is derived from site or imported from an unknown source or off-site source without appropriate documentation of non-contaminative history.

6.2.3 However, where different sources are utilised to provide the cover system, there may be the need for further testing to confirm the chemical composition of the imported materials.

6.3 Verification Reporting

6.3.1 In accordance with current guidance, upon completion of the final works a verification report(s) will be prepared that demonstrates the effectiveness of the remediation carried out and identifying any requirements for longer-term monitoring of identified pollutant linkages, maintenance and arrangements for contingency action, if appropriate. It may be that, with prior agreement of the regulatory authorities, partial verification of the site may be obtained should the development be completed in a phased manner.

6.3.2 The verification report(s) will be prepared in accordance with the LCRM - *Land contamination: risk management* (Environment Agency, 2023).

6.4 Communications Plan

6.4.1 Should, at any time, verification information show that remediation activities have not achieved the remediation criteria derived for the relevant contaminant linkages, or additional assessment is undertaken which updates the requirements of this strategy, the following action plan shall be implemented:

- The results shall be notified to the Local Planning Authority immediately and confirmed in writing;
- Any agreed remedial action will be undertaken within such reasonable time as required by the Local Planning Authority; and
- A report detailing any remedial works undertaken, the monitoring results and the effectiveness of the action plan shall be forwarded to the Local Planning Authority.

TEC

Figures and Drawings



Approximate Site Location:



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The Old Chapel
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Site Name:

Blackwell Farm, East Grinstead

Drawing Name:

Site Location Plan

Client Name:

Selsdon Building Contractors Limited

Project No:

2503003.001

Figure No:

1

Date:

March 2025

Scale:

NTS



Extract of m h architects Site Plan drawing No. 18-202BFRMHA00ZZDRA002A



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Site Name:

Blackwell Farm, East Grinstead

Drawing Name:

Proposed Development Plan

Client Name:

Selsdon Building Contractors Limited

Project No:

2503003.001

Figure No:

2

Date:

March 2025

Scale:

NTS

Appendix A

Ground Gas Ternary Plot

