



Geotechnical &
Environmental
Consultants

James Road
Crowland

**Remediation Method Statement
For
Seagate Homes Ltd**



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Project No: D38094		Date: 20 th January 2020	
Issue/revision	Prepared by	Checked By	Approved By
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Comments			

1.0 INTRODUCTION

1.1 Introduction

GeoDyne Ltd. has been instructed by the Client, Seagate Homes Ltd., to prepare a Remediation Method Statement (RMS) relating to a parcel of land located off James Road, Crowland.

This RMS has been prepared taking due consideration of the following previous report:

- GeoDyne Limited report entitled '*James Road, Crowland – Combined Phase I Desk Study & Phase II Exploratory Investigation*' produced for Seagate Homes Ltd., Reference D38094, dated 31st October 2018.

We would recommend that the above report is read in conjunction with this RMS.

1.2 Project Understanding

We understand that it is proposed to develop the site for a low-rise residential end-use incorporating private gardens with limited areas of soft landscape. A plan showing the proposed site layout is presented in Appendix III.

Where the proposed site end-use is not consistent with our current understanding, it would be necessary to review our RMS to ensure it continues to apply.

1.3 Project Overview

We have been forwarded by the Planning Consultant (Studio 11 Architecture), a copy of the Planning Conditions issued by the Local Planning Authority (South Holland District Council) for the proposed development (Ref H02-0859-19).

We understand that Planning Condition 12 (parts i to iv) relates to issues associated with the potential contamination of land and pollution of controlled waters. The Condition requires a phased contamination investigation to be undertaken at the site, with a remediation strategy required to address any issues associated with remediation and verification of remediation.

We understand that our Combined Phase I & II Report (referenced in Section 1.1) has been submitted to South Holland District Council (SHDC) as part of the planning consultation process by Studio 11 Architecture with the aim of assisting with the discharge of Condition 12 (parts i and ii).

Following this submission, an online comment (dated 9th October 2019) by the Environmental Protection Officer (EPO) at SHDC in relation to our Combined Phase I & II Report has been forwarded to GeoDyne by Studio II Architecture. This online comment is presented in Appendix IV of this RMS and provides an approval of the recommended remedial options stated in our Combined Phase I & II Report.

This approval should effectively discharge Condition 12 (parts i and ii). We have also been requested by the client to produce a RMS with the aim of assisting with the discharge of Condition 12 (part iii) and to provide the Site Manager with a document for the control of remediation and validation works at the site.

1.4 Details of Remediation Method Statement (RMS)

This RMS details the necessary remediation and validation measures required at the site and represents a stand-alone report to act as a working document for use by the Site Manager to control remediation and validation works. It also states the level of inspection and Site Acceptance Criteria considered appropriate by ourselves for assessment of any soils which are proposed to be imported to site for use within the development.

1.5 Limitations

This report has been produced specifically to address remediation and validation issues at the site. For a detailed review of the sites history, geology, geotechnical and environmental setting, and recommendations relating to all other matters, reference should be made to the previous report detailed in Section 1.1.

This report has been prepared in accordance with our understanding of current good practice. However changes to good practice, guidance or legislation may necessitate revision of this report after the date of issue.

GeoDyne Ltd has prepared this report for the sole use and reliance of the Client, Seagate Homes Ltd, in accordance with our Standard Conditions and Limitations (included in Appendix VI). This report may not be used or relied upon by any unauthorised third party without the explicit written agreement of GeoDyne Ltd.

2.0 SITE SUMMARY

2.1 Site Location

The site is located to the northwest of James Road, Crowland. The site may be located centred around approximate Ordnance Survey National Grid Reference 524380E 309860N. A site location plan (Figure No. D38094/R1) is included in Appendix I. The site covers an area of approximately 1.6 hectares.

2.2 Site Description

At the time of our Phase I & II works in August 2018, the site comprised allotment gardens, the majority of which appeared active. Based on the reviewed historical information, the site comprised an undeveloped field until circa 1960s – 1970s, after which the site comprised allotment gardens.

We understand that the site has remained unchanged since the production of our Combined Phase I & II Report in October 2018.

General views of the site during our intrusive works in August 2018 are presented in Appendix II (Figure No. D38094/R2).

2.3 Development Proposals

We understand that it is proposed to develop the site for a low-rise residential end-use incorporating private gardens with limited areas of soft landscape.

2.4 Contamination Summary

Risks to Human Health

The contamination assessment undertaken as part of our Phase I & II works, revealed the presence of elevated lead concentrations within the surface topsoil, along with localised elevated PAH compounds.

Our Combined Phase I & II Report stated ***'At this juncture and without the benefit of further investigation works, the surface topsoil is considered to be unsuitable for retention near surface in proposed private gardens and any areas of soft landscaping from a protection of human health perspective. In view of this, these materials will require further assessment in order to determine the extent of the elevated contaminant concentrations and to obtain a more robust dataset for statistical assessment purposes to ascertain whether or not remediation is indeed required. It is recommended that further sampling and analysis of the surface Topsoil is carried out prior to the Topsoil being stripped and stockpiled.'***

Given the magnitude of the PAH concentrations detected in WS3, the outcome of the further statistical assessment may still indicate that remediation is required in the southern area of the site. However, further works would be required to confirm (or otherwise) the suitability of the remaining surface topsoil for retention and re-use'.

With regard to the options for remediation of the existing surface topsoil, our Combined Phase I & II report stated that these could include removal and off-site disposal (such as to landfill) or potential encapsulation on site beneath a remedial capping layer.

Our Combined Phase I & II Report noted that *'The Natural Strata may be considered to be uncontaminated for the proposed residential with plant uptake end-use (i.e. in relation to human health)'*.

Risks to Controlled Waters

Our Combined Phase I & II Report stated that there were no significant risks to Controlled Waters.

2.5 Ground Gas

On the basis of the ground gas monitoring undertaken in conjunction within the contamination assessment, the site was classified within our Combined Phase I & II Report as Characteristic Situation 'CS1' in accordance with BS 8485:2015 *'Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings'*, based on the concentrations of carbon dioxide encountered. No gas protection measures are considered to be required for the proposed new dwellings to be constructed at the site.

It is noted that since the issue of our Combined Phase I & II Report, an amended version of BS8485 has been published, which is referred to as BS8485:2015 +A1:2019.

We have reviewed the results of the ground gas monitoring with respect to the amended guidance and the ground gas classification of the site remains as 'CS1'.

2.6 Requirement for Remediation

Our Combined Phase I & II Report stated that *'Without the benefit of further investigation and risk assessment works, the following options are considered appropriate for the site, taking account of the lead and PAH contamination within the surface topsoil and the historical use (allotments) of the site'*.

These options are summarised below and match the recommendations given in our Combined Phase I & II Report, which have received approval of the EPO at SHDC:

OPTION 1 – Existing topsoil to be removed from site

It may be preferred to remove the topsoil from proposed gardens / areas of soft landscaping to expose the underlying uncontaminated Natural Strata.

If this option is preferred, we would recommend a nominal thickness of clean imported topsoil (150mm for example) is placed onto the Natural Strata to act as a suitable growing media.

OPTION 2 – Existing topsoil to remain in-situ (on site)

If the Client would prefer to retain the topsoil on site, we would recommend the provision of a remedial capping layer to proposed gardens / areas of soft landscape where the topsoil is present. The capping layer may comprise suitable thicknesses of imported topsoil and subsoil.

The recommended remedial capping thicknesses are detailed in Table 1.

TABLE 1 – REMEDIAL CAPPING PROPOSALS			
Land Use	Subsoil (m)	Topsoil (m)	Total (m)
Rear Gardens	0.45	0.15	0.60
Front Gardens	0.15	0.15	0.30

Please note that in practice, the existing surface topsoil is likely to be stripped and stockpiled whilst development takes place, then subsequently placed at / immediately below formation level prior to encapsulation by the soil capping layer. This process would therefore require a Materials Management Plan (MMP) to be prepared and with declaration by a Qualified Person. If the topsoil is to be encapsulated, consideration should also be given by the client to potential settlement issues in garden areas depending upon the thickness of compressible materials placed.

In addition to the above, following submission of the initial Remediation Method Statement to South Holland District Council, the Local Authority requested confirmation of which of the two remedial options the Client proposed to adopt at the site, prior to granting approval of the Remediation Method Statement. In view of this, the Client has chosen Option 1 *‘Existing topsoil to be removed from site’*. The remediation strategy has therefore been updated where required, as follows.

3.0 REMEDIATION STRATEGY

3.1 Introduction

In accordance with the findings of our previous works at the site and our understanding of the development proposals, the following remedial strategy is considered appropriate for the site.

Remediation and validation works are to be undertaken in accordance with the following guidance document:

- Yorkshire and Lincolnshire Pollution Advisory Group document entitled '*Verification Requirements for Cover Systems – Technical Guidance for Developers, Landowners and Consultants*', Version 3.4 – November 2017.

3.2 Pre-Start Site Meeting

Once the client has selected their preferred Contractor, it is recommended that a pre-start meeting is arranged between the Site Manager and GeoDyne (as a minimum), to outline the remedial requirements during the construction phase of the development.

3.3 Proposed Gardens and Soft Landscaped Areas

3.3.1 Existing Topsoil

In the absence of carrying out further robust investigation and statistical risk assessment works in relation to the potential re-use on site of the existing topsoil, the Client has opted to remove the Topsoil across the site. Chemically suitable topsoil (and subsoil, where required / preferred) is proposed to be subsequently imported and placed within proposed gardens and soft landscaped areas as a growing medium.

It is understood that the existing topsoil will be stripped and removed from site as part of the site clearance / preparation works. Further details of the measures to be adopted during the proposed site preparation works are contained within Section 3.5 of this document.

3.3.2 Natural Strata

Based on the laboratory analysis undertaken and subject to fulfilling the requirements of Section 3.9 (Validation Protocol) and Section 3.12 (Unforeseen Circumstances), the Natural Strata at the site is considered to be chemically uncontaminated with respect to a residential with plant uptake end-use.

Therefore, the Natural Strata may be re-used at the site as subsoil within gardens or proposed soft landscaped areas, or in order to achieve the proposed construction levels, as appropriate. The Natural Strata should be stockpiled in an appropriate manner at the site, to prevent cross contamination, prior to re-use.

3.4 Proposed Areas of Hard Standing

Specific remedial measures are considered not necessary within areas of proposed hard standing at the site (i.e. external hard standing areas and beneath the floor slabs to the proposed buildings).

3.5 Existing Topsoil Removal & Segregation of Materials

It is not proposed to re-use any of the existing topsoil at the site and all of the existing topsoil will be removed from site. It is anticipated that the existing topsoil will be removed from site as part of the site clearance / preparation works, prior to any construction / re-development works being commenced. Validation testing will then be carried out for proof of removal purposes.

Following removal of the topsoil and successful completion of the validation testing, it is then proposed to re-use the arisings of Natural Strata generated from foundations and drainage excavations to achieve construction levels, where necessary.

As part of the removal of the existing topsoil, the soils will either be excavated and loaded directly into waiting tipper lorries; or temporarily stockpiled prior to the loading of tipper lorries.

The importation of topsoil for subsequent use as a growing medium in gardens and soft landscaped areas is likely to take place during the latter stages of construction, when the dwellings are nearing completion. The imported topsoil will then be placed directly into gardens and soft landscaped areas, as appropriate. In view of this and as the removal of existing topsoil is likely have been completed and validated, we consider that the potential for cross contamination of materials is therefore minimised.

It is imperative that any 'clean' materials (i.e. the Natural Strata proposed for re-use and any imported chemically suitable topsoil / subsoil materials) are kept separate from any unsuitable materials at the site. Any cross contamination may result in the necessity to remove all affected materials from the site. Appropriate measures should therefore be adopted by the chosen Contractor, such as placement of materials on suitable polythene sheeting to prevent cross contamination from occurring.

3.6 Imported Soils

It will be necessary to import chemically suitable topsoil and potentially subsoil to the site for use as a growing medium within proposed gardens and soft landscaped areas. Although no specific minimum thickness of topsoil is required for human health protection purposes (following removal of the existing topsoil and successful completion of the validation testing), it is proposed to import and place at least 0.15m of topsoil in garden areas. It may be necessary to increase the thicknesses of topsoil / growing medium likely to be required around tree roots and to suit the planting regime, subject to confirmation by an arborist.

Any donor topsoil / subsoil imported to site should be tested at source to ensure it is suitably clean (prior to importation) in accordance with CLEA / generic guidance. Imported topsoil should ideally conform to BS3882:2015 '*Specification for topsoil*', with respect to the presence of foreign objects and ideally nutrient levels etc.

The donor topsoil / subsoil should be tested at source for the determinands listed within Table 3 (as a minimum) and any other determinands, as appropriate for the source site, to ensure that it is suitably clean (prior to importation) in accordance with current guidance. The results of the chemical analysis on topsoil (or possible subsoil) proposed for importation should be forwarded to the Local Authority EPO for approval (prior to importation).

3.7 Site Acceptance Criteria

It will be necessary for the EPO at SHDC to review the suggested Site Acceptance Criteria (SAC) detailed in Tables 2 and 3, which would be used when assessing the suitability of any materials proposed for retention following removal of the existing topsoil (i.e. exposed Natural Strata); and also associated with the subsequent proposed importation of topsoil (and subsoil, as appropriate).

The SAC in Tables 2 and 3 have been derived for a residential end-use with home grown produce (i.e. private gardens).

Removal of Existing Topsoil

The following SAC are proposed for assessment of the laboratory results of the validation samples collected from retained soils (i.e. exposed Natural Strata) following removal of the Topsoil:

TABLE 2 – PROPOSED SITE ACCEPTANCE CRITERIA FOR THE RETENTION OF SOILS FOLLOWING THE REMOVAL OF EXISTING TOPSOIL (RESIDENTIAL END-USE WITH PLANT UPTAKE)	
Determinand	Tier 1 SAC (mg/kg)
Metals	
Lead	200 C4SL
PAHs	
Benz(a)anthracene	7.2 S4UL
Benzo(a)pyrene	2.2 S4UL
Benzo(b)fluoranthene	2.6 S4UL
Chrysene	15 S4UL
Dibenzo(ah)anthracene	0.24 S4UL
Key S4UL – CIEH/LQM Suitable 4 Use Levels (2015). Copyright Land Quality Management Limited. All rights reserved. C4SL - value for Lead taken from DEFRA publication SP1010.	
Note SAC values for PAHs derived from S4UL values assume 1% SOM in the first instance (where appropriate, S4UL values for 2.5% or 6% SOM may be considered for the assessment of donor soils).	

Imported Topsoil and Subsoil

The following SAC are proposed for assessment of the laboratory results relating to the topsoil (and subsoil) proposed to be imported to site:

TABLE 3 – PROPOSED SITE ACCEPTANCE CRITERIA (RESIDENTIAL END-USE WITH PLANT UPTAKE)	
Determinand	Tier 1 SAC (mg/kg)
Metals	
Arsenic	37 S4UL
Cadmium	11 S4UL
Chromium III	910 S4UL
Chromium VI	6 S4UL
Lead	200 C4SL
Inorganic Mercury	40 S4UL
Selenium	250 S4UL
Nickel	130 S4UL

TABLE 3 – PROPOSED SITE ACCEPTANCE CRITERIA (RESIDENTIAL END-USE WITH PLANT UPTAKE)	
Determinand	Tier 1 SAC (mg/kg)
Copper	2400 S4UL
Zinc	3700 S4UL
PAHs	
Acenaphthene	210 S4UL
Acenaphthylene	170 S4UL
Anthracene	2400 S4UL
Benzo(a)anthracene	7.2 S4UL
Benzo(a)pyrene	2.2 S4UL
Benzo(b)fluoranthene	2.6 S4UL
Benzo(ghi)perylene	320 S4UL
Benzo(k)fluoranthene	77 S4UL
Chrysene	15 S4UL
Dibenzo(ah)anthracene	0.24 S4UL
Fluoranthene	280 S4UL
Fluorene	170 S4UL
Indeno(123-cd)pyrene	27 S4UL
Naphthalene	2.3 S4UL
Phenanthrene	95 S4UL
Pyrene	620 S4UL
Asbestos	
Asbestos	Absence
Key S4UL – CIEH/LQM Suitable 4 Use Levels (2015). Copyright Land Quality Management Limited. All rights reserved. C4SL - value for Lead taken from DEFRA publication SP1010.	
Note SAC values for metals derived from S4UL values assume 6% Soil Organic Matter. SAC values for PAHs derived from S4UL values assume 1% SOM in the first instance (where appropriate, S4UL values for 2.5% or 6% SOM may be considered for the assessment of donor soils).	

Topsoil and subsoil samples should be tested at the donor site for the metals and the PAHs detailed in the above table (this may be undertaken by a Consultant under instruction from the Client or directly by the Supplier). Please note that where donor materials are sourced from an unknown or potentially contaminated source (i.e. 'brownfield' sites) it may also be necessary to test the materials for additional determinands (i.e. speciated Total Petroleum Hydrocarbons, pesticides etc.), as well having the appropriate permits in place to allow transport of the material.

3.8 Pre-Importation Testing Methodology

In accordance with the requirements of the YALPAG document for a greenfield source, it is recommended that the donor topsoil / subsoil should be sampled and analysed at a minimum density of 1 No. sample per 250m³ or 3 No. samples per source site / stockpile (whichever is the greater) to ensure that the results are representative and provide sufficient confidence that the soils will be acceptable in the proposed residential context.

If soils are proposed to be imported from an unknown or potentially contaminated source, then an increased testing frequency of a minimum of 1 No. sample per 100m³ or 6 No. samples per source (whichever is the greater) would be necessary, along with laboratory analysis for additional determinands to those contained in Table 3 (depending upon the source).

In the first instance, the results of the testing will be compared directly to the SAC (Table 3). If the individual values are less than the SAC the source shall be considered suitable for use at the site.

If the individual values are greater than the SAC, the supervising Engineer may elect to calculate the 95th percentile Upper Confidence Level (UCL) Mean Value of the topsoil samples, which would then be compared to the appropriate SAC to determine whether the soil is 'clean' and suitable for use at the site.

Should the UCL Mean Value of the topsoil / subsoil samples be in excess of the SAC, further samples may be obtained to enlarge the dataset prior to reassessment and a final decision being reached. Alternatively, the Client may elect to reject the donor site and select an alternative donor site.

3.9 Remediation Validation Protocol

The recommended remediation validation protocol for use by the Site Manager is presented in Appendix V of this RMS.

GeoDyne will undertake periodic inspection of the remediation works on a rolling basis as necessary. Validation works will include:

Existing Topsoil Removal

- Obtain photographic records to demonstrate compliance with the RMS.
- Inspection of the formation layer (including photographic records) within gardens and areas of soft landscape.
- Collection of soil samples from the formation layer (i.e. exposed Natural Strata) following removal of the existing topsoil for laboratory validation testing purposes. Samples will be collected from 6 No. proposed validation point locations across the site within proposed gardens / soft landscaped areas. This will include validation sampling points within the proposed gardens closest to the locations where the elevated lead and PAHs have previously been recorded (i.e. in WS3 and WS5).

Proposed Imported Soils

- Review of laboratory test certificates for donor topsoil / subsoil prior to importation to site and undertake potential additional chemical analysis (as appropriate). Laboratory test certificates are to be supplied to the EPO at SHDC for comment / approval prior to the importation of materials to site.
- Preparation of a validation report to confirm that the remediation objectives (as set out in the RMS) have been met.

3.10 Off-Site Disposal & Waste Classification

The chemical testing regime for off-site disposal is different to the chemical testing required to assess the suitability of the soils for retention on site and the risks to human health. Therefore, a separate contamination assessment may be required to classify the soils for off-site disposal with testing criteria to assess whether the soil is hazardous, non-hazardous or inert waste.

The receiving landfill may require additional specialist laboratory testing to further characterise the material proposed for disposal against Waste Acceptance Criteria (WAC). We would recommend early consultation between the Contractor and the receiving landfill to determine any specific laboratory testing requirements. These may potentially include bespoke WAC leachate testing.

Individuals / companies removing soils from the site are bound by a **duty of care**; as such this should only be undertaken by an **authorised person**. All waste movements should be accompanied by a **waste transfer note and Environment Agency waste consignment notes**.

3.11 Licences, Permits, Registrations, Plans & Approvals

The Contractor / Developer is responsible for, and must ensure that, all necessary licenses, permits, plans, registrations and approvals are in place prior to commencing with the earthworks at the site. These will include any Materials Management Plans (MMPs), Site Waste Management Plans (SWMPs) and/or Environmental Permits / Exemptions as necessary to enable the completion of the proposed works.

3.12 Unforeseen Circumstances

Any areas of potentially contaminated soils encountered during site construction works must be brought to the attention of GeoDyne, to ensure that our recommendations continue to apply. Any potentially contaminated soils should be left in-situ and subjected to further assessment, to potentially include further chemical testing and risk assessment.

The following procedure should be adhered to if any areas of previously unidentified suspected contamination are encountered during the redevelopment of the site:

- i. Suspected contaminated material will remain in-situ.
- ii. GeoDyne to be notified, and will inform the Local Authority.
- iii. GeoDyne will undertake a visual assessment of the possible contamination, followed by appropriate sampling/testing.
- iv. If necessary, contamination will then be treated or removed from site and the EPO at SHDC informed accordingly. All necessary remediation works should be validated by testing in accordance with an approved strategy.

3.13 Construction Workers

Site workers should adopt suitable good practice for example PPE (i.e. boots, gloves, overalls etc.) together with dust suppression (as necessary). Furthermore, hygiene facilities should be provided in accordance with general health and safety guidelines.

The Contractor should undertake a suitable Risk Assessment to confirm the appropriate level of PPE.

A copy of all reports relating to the site (by GeoDyne) should be included within the site health and safety file and site workers should be made fully aware of the sites setting.

3.14 Site Managers Site Diary

It is the responsibility of the Site Manager to keep a site diary to record the progress of remediation works. This should include, but not be limited to:

- Photographic and written records of remediation works, with specific attention paid to unforeseen circumstances.
- Records of any remedial measures that cannot be dug up/sampled and validated at a later date.
- Records of all movements of waste materials, including consignment notes etc.

3.15 Communication

We would recommend that regular communication is maintained between GeoDyne and the Site Manager throughout the development / remediation works.

It will be the responsibility of the Site Manager to inform GeoDyne when the formation level and remedial capping (if placed) is ready for inspection and validation.

3.16 Statutory Consultation

We would recommend that a copy of our Remediation Method Statement is issued (by Studio 11 Architecture to the EPO at SHDC for review / comment and approval, at the earliest opportunity, prior to commencing with any remedial activity.

Where the proposed dwellings are to benefit from a buildmark warranty (i.e. NHBC, or similar) the warranty provider will require written approval of the RMS from the EPO in order to satisfy their Land Quality Conditions.

4.0 CONCLUSIONS

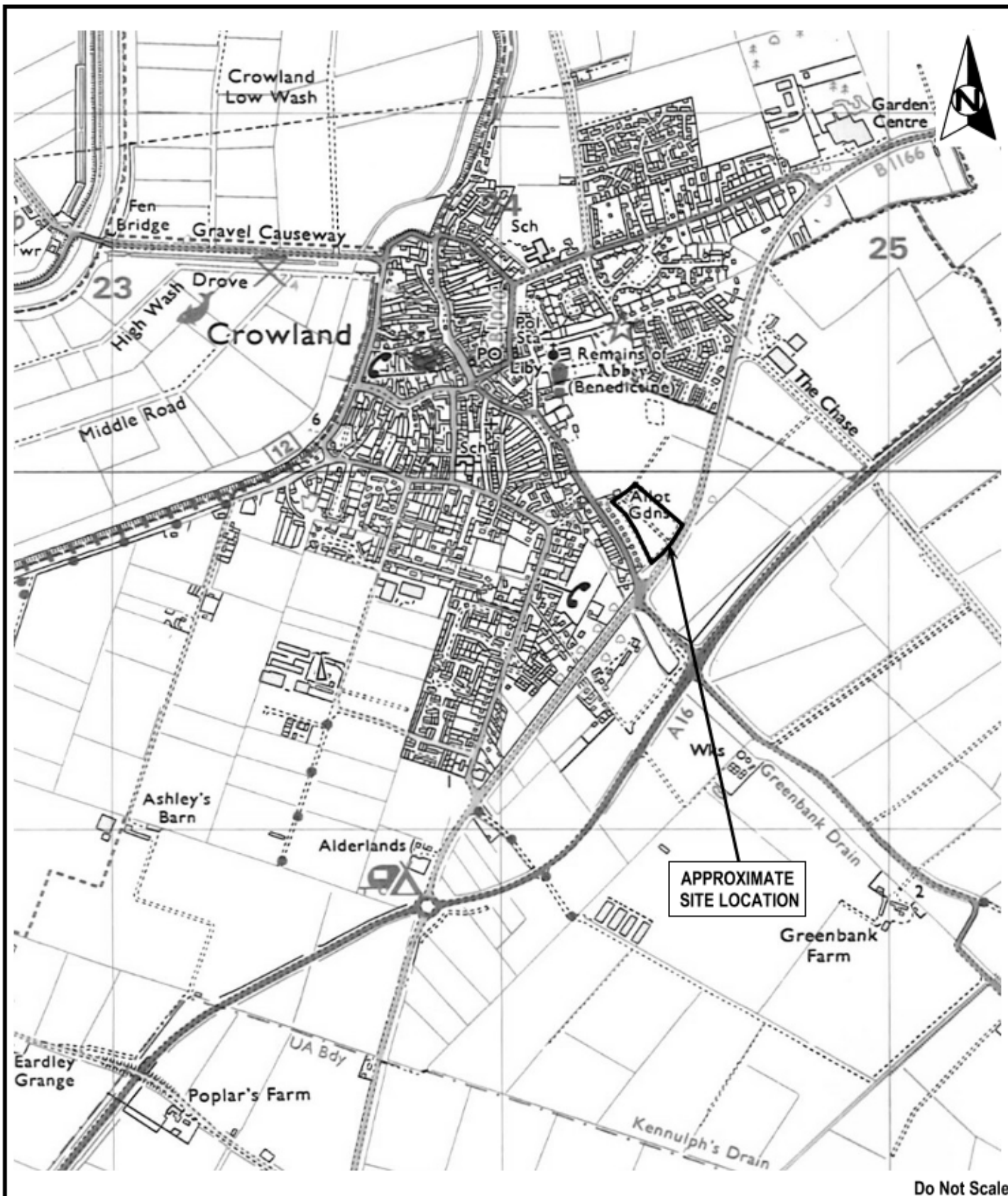
To the best of our knowledge, this RMS has been prepared to be compliant with the requirements of the planning department at SHDC.

Written approval of this report should be obtained from the EPO at SHDC prior to implementation of the recommendations.

This RMS presents methodologies and procedures which, when implemented, are considered to be appropriate to enable the future development of the site without creating unacceptable risk to end-users.

APPENDIX I

**Site Location Plan
(Figure No. D38094/R1)**



Do Not Scale

REPRODUCED FROM THE ORDNANCE SURVEY MAP WITH THE PERMISSION OF THE CONTROLLER OF HER MAJESTY'S STATIONERY OFFICE. CROWN COPYRIGHT RESERVED. LICENCE NO. LAN 1001274

Project No.	D38094	Drawn	PK
Client	Seagate Homes	Checked	DB
Project	James Road Crowland	Approved	PK
		Scale	NTS
		Date Drawn	02.12.19
Title	Site Location Plan	Rev.	
		Figure No.	D38094/R1


GeoDyne

APPENDIX II

**Site Plan Showing General Site Views
(Plate Nos. D38094/R2)**



APPROXIMATE SITE BOUNDARY



REPRODUCED FROM THE DRAWING ENTITLED 'FEASIBILITY LAYOUT'. PRODUCED BY NKW DESIGN, DRAWING REF 1229-001, DATED JAN 2018. REPRODUCED AND EDITED WITH THE PERMISSION OF THE CLIENT.

Project No.	D38094	Title	Site Plan Showing General Site Views	Drawn	PK
Client	Seagate Homes			Checked	DB
Project	James Road Crowland	Date Drawn	02.12.19	Approved	PK
		Scale	NTS	Figure No.	D38094/R2
		Revision			

APPENDIX III
Proposed Site Layout



Site Layout 1:500

Housetype Schedule

1 Bedroom Affordable House			
The Stirling	62.4 m ² (672 ft ²)	Plots 6, 7, 10, 11	$\frac{4}{4}$
2 Bedroom Affordable House			
The Richmond	72.0 m ² (775 ft ²)	Plots 12, 13, 14	$\frac{3}{3}$
3 Bedroom Affordable House			
The Cheveley	83.1 m ² (894 ft ²)	Plots 15, 16, 34, 35, 36	$\frac{5}{5}$
2 Bedroom Chalet Bungalow			
The Elsdon	86.87 m ² (935 ft ²)	Plots 23, 24, 27, 29, 30	$\frac{5}{5}$
3 Bedroom Chalet Bungalow			
The Oakham	107.72 m ² (1159 ft ²)	Plots 25, 26, 28	$\frac{3}{3}$
3 Bedroom House			
The Lancaster	86.8 m ² (934 ft ²)	Plots 4, 37, 41, 45	4
The Alnwick	86.4 m ² (930 ft ²)	Plots 3, 33, 40, 49	4
The Hylton	76.2 m ² (820 ft ²)	Plots 1, 2, 8, 9, 17, 18, 19, 20, 21, 22, 38, 39	$\frac{12}{20}$
4 Bedroom House			
The Lumley	115.2 m ² (1240 ft ²)	Plot 5, 43, 44, 47	4
The Colchester	127.0 m ² (1367 ft ²)	Plots 31, 32, 42, 46, 48	$\frac{5}{9}$

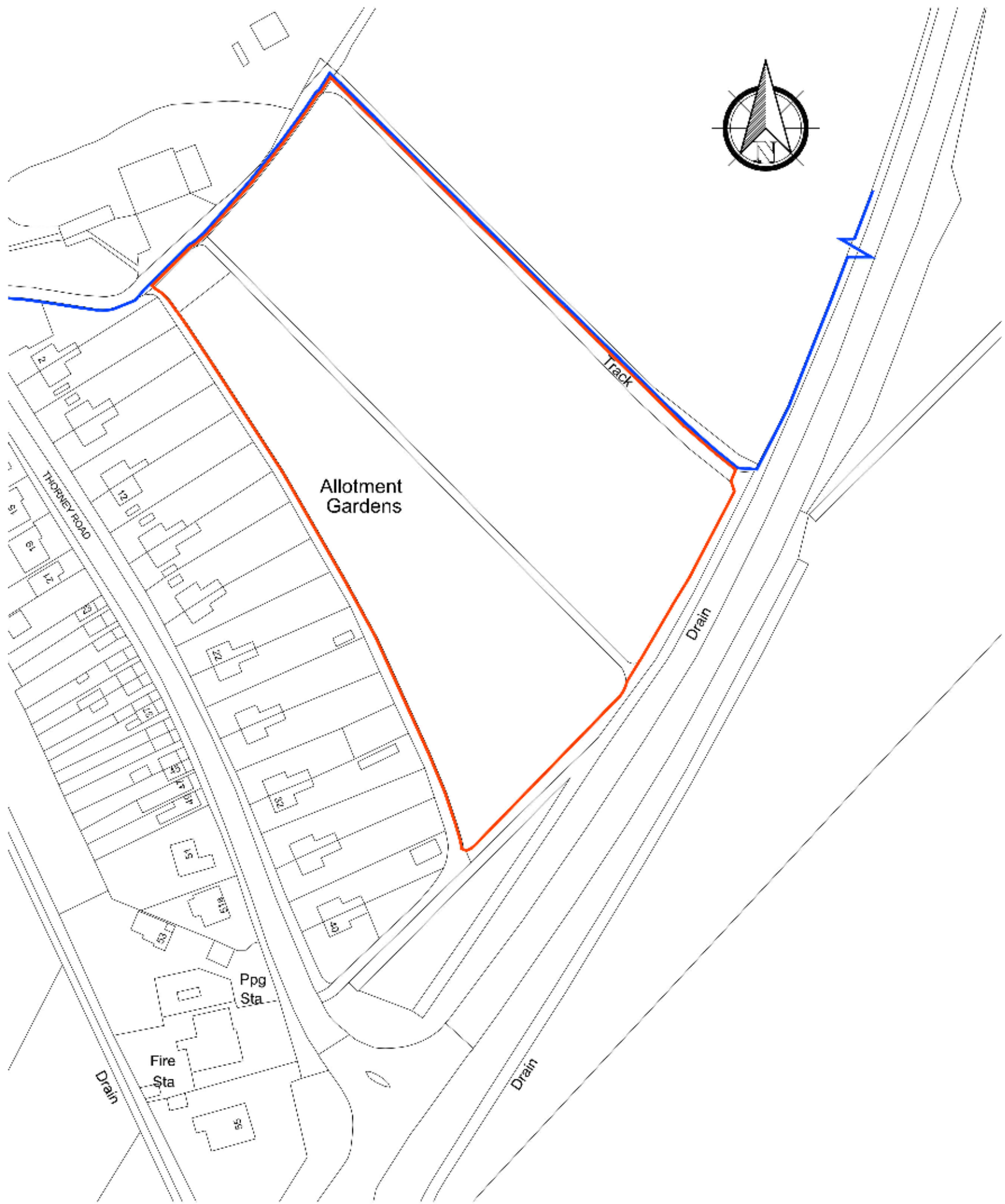
Gross Site Area: 1.69 Hectares (4.18 Acres) Total 49

Key

- Bin Lay Down Area
- Existing Tree
- Proposed Tree
- Bin Carry Distance from Dwelling

23.4m
- Bin Carry Distance to Highway

7.5m



Location Plan 1:1250

Do not scale directly from this drawing. All discrepancies are to be brought to the attention of the below office.
The copyright to this drawing is owned by studio 11 architecture.

I	15.11.2019	LR	Attenuation and design amended to suit Civil Engineers design.
H	03.09.2019	LR	Plan is amended to Alnwick house type.
G	09.05.2019	LR	170 trees added to site plan.
F	16.02.2019	LR	Cheveley house type amended.
E	16.12.2018	LR	Bin lay down area amended and critical distances added.
D	25.11.2018	LR	Site plan layout amended.
C	25.11.2018	LR	Site plan layout amended & sunny side of site.
B	26.09.2018	LR	Site plan layout amended.
A	10.02.2018	LR	Attenuation amended.
REV'S ON	DATE	DRAWN	CHECKED

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CLIENT	Seagate Homes Ltd		
PROJECT	Proposed residential development at Land off James Road, Crowland		
DRAWING	Site Layout & Location Plan		
DRAWN LAR	PROJECT DESIGNER LAR	PROJECT DIRECTOR KB	
DATE 25.04.2018	SCALE 1:500, 1:1250	PAPER SIZE A1	
DRAWING NUMBER	437.SL.01		
Working in partnership with Ralph Charman Associates & Eleven Consultants			

APPENDIX IV

Local Authority Correspondence

Online Comment

Application H02-0859-19
Location Land off James Road Crowland
Proposal Details of scheme to deal with contamination (Condition 12 of H02-0771-18)

Name Sue Armour
Address Council Offices Spalding PE11 2XE

Date Submitted 09-10-19
For/Against Comments

I have reviewed GeoDyne Combined Phase I Desk Study & Phase II Exploratory Investigation for Seagate Homes - Project No. D38094 V1.0 - Dated 31st October 2018. The report does not consider the whole of the applicant area, and only covers the residential area to the west of the A16. The area to the east of the A16 is not included. Use as an allotment does constitute the introduction of a vulnerable receptor to a new area of land, and as such consideration of the area to the east of the A16 is required prior to the discharge of condition 12 of H02-0771-18.

With respect to the area of proposed residential development covered by the report, I make the following comments:

I am in general agreement with the findings of the report, and consider that either further site investigation or remediation is required at this location. Either of the two remedial options presented are acceptable from a land contamination perspective, although a land raise of 0.60m may need to be agreed with the planning department if that is the selected option. My preference would be for further site investigation with the aim of retaining reworked topsoil on site, although a suitably robust dataset would need to be obtained to allow the appropriate use of statistics.

Should remediation be the chosen option, a suitably detailed remediation method statement will need to be agreed with this department. For clarity, I would refer the consultant to the YALPAG Guidance 'Verification - Requirements for cover systems; which can be downloaded from <https://www.sholland.gov.uk/article/11653/Planning-Application-Consultations-Condition-Discharge> for acceptable sampling rates for imported materials, and verification requirements.

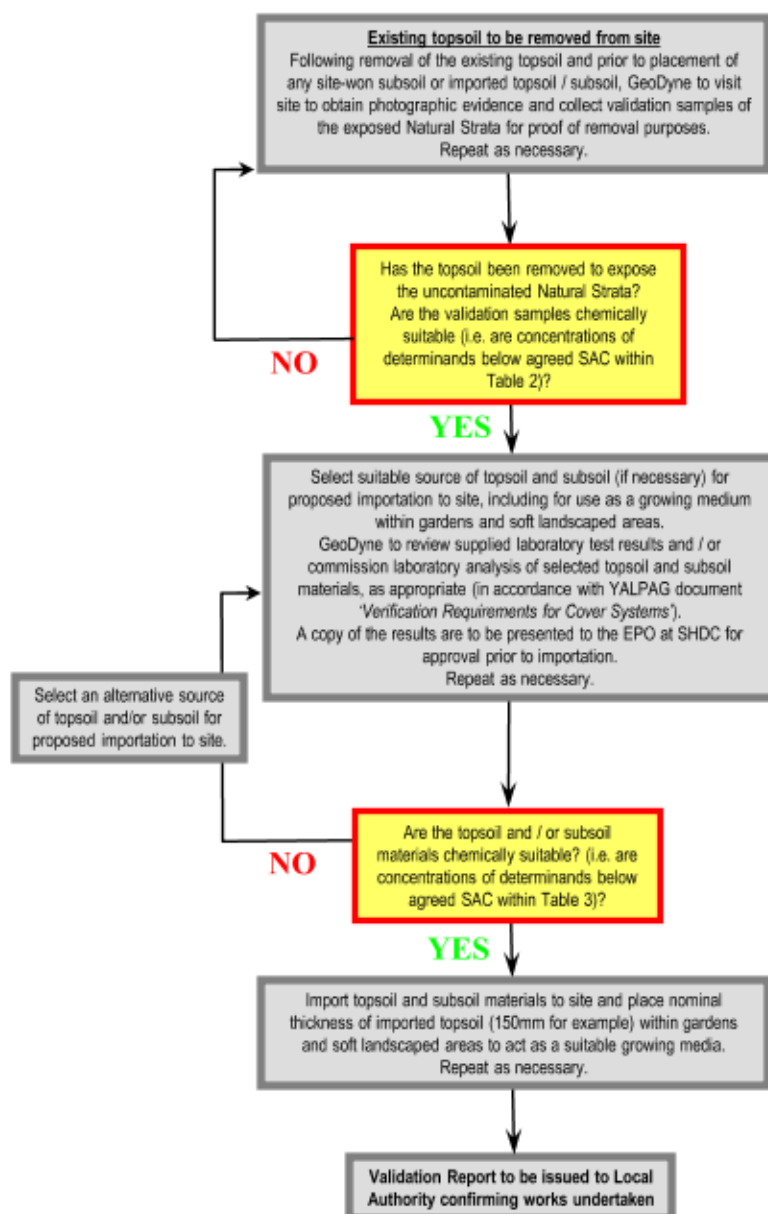
I note that potential remediation activities have not been included in the construction management plan, submitted separately. That document may need to be revised depending on the options chosen. (NB EP comments will follow separately on that matter)

If remediation is the chosen option, and a plot by plot release is required, this will need to be agreed in advance with the planning department as part of the remediation method statement.

APPENDIX V

Remediation Validation Protocol

Client	Seagate Homes
Project No.	D38094
Site	James Road, Crowland
Date	January 2020
Comments	Remediation Validation Protocol (Version V1.1) – Proposed Gardens and Soft Landscaped Areas



APPENDIX VI
Conditions & Limitations

Conditions & Limitations

Phase I Desk Studies

1. Works undertaken to provide the basis of the Phase I Desk Study report comprise a review of information available from a number of sources/parties (potentially also including the Client) together with a walk over of the site (where applicable and included within the quotation). The opinions given in the Phase I Desk Study are based on the information available from third parties/sources that has been obtained within the available timeframe. GeoDyne Limited assumes all third party information to be true and correct and therefore cannot accept liability for the accuracy of such information supplied.
2. Should additional information become available that may affect the comments and opinions made within the Phase I Desk Study, GeoDyne Limited reserves the right to review such information and make modifications to comments/opinions as appropriate.
3. It should be borne in mind that a Phase I Desk Study collates available information to generate a conceptual model of the site. The actual geotechnical and environmental considerations can only be fully quantified by intrusive investigation works to confirm the accuracy of the conceptual site model.

Phase II Intrusive Investigations

1. Our quotation assumes that access to the site will be arranged by others at no cost to ourselves.
2. We have assumed that free access is available throughout to the entire site and that works can be undertaken during a single mobilisation. Where restricted access is encountered, or where additional unscheduled mobilisations are required, additional costs may be incurred to the client.
3. We have assumed that all available information relating to buried services will be supplied by the Client at no cost to ourselves. No responsibility will be accepted for damage to underground services that have not been brought to our prior attention by the Client.
4. All excavations/boreholes will be backfilled with compacted arisings upon completion, with any excess arisings left proud of ground levels. Excess arisings will not be removed from the site unless specifically requested by the Client. Where we are requested to remove excess arisings, all associated costs will be passed to the Client.
5. We will attempt to leave the site in a clean and tidy state, however, it must be understood that some disturbance of the site is unavoidable during intrusive works.
6. Exploratory holes are positioned approximately on site by GeoDyne Limited. Should the client require precise locations of all exploratory points, additional fees will be incurred. It must be borne in mind that backfilled trial pits can create 'soft spots', therefore, should the Client wish to designate 'no dig' zones, for example under the footprint of proposed structures, these must be brought to our attention prior to commencement of works.
7. Groundwater observations relate to conditions encountered at the time of investigation. It must be understood that groundwater levels may vary as a result of recent climatic conditions or seasonal variation.
8. Trial pits and boreholes examine only a small proportion of the total site area. No liability can be accepted for conditions not revealed in exploratory holes, particularly between positions. All extrapolations of available data are given in good faith.

Payment

1. Payment terms are strictly 28 days from the invoice date.
2. Prior to commencement of works, we require receipt of formal written instruction from the party accepting full financial responsibility for the work. In the absence of such an instruction, we would expect the instructing Consulting Engineers/Architects to accept full financial responsibility for the works.
3. Receipt of instruction to commence work shall be taken as acceptance and compliance of the foregoing conditions.

Liability

1. GeoDyne Limited offer £5,000,000.00 Professional Indemnity Insurance (in aggregate over the year). This shall be the limit of our liability for works undertaken. No individual liability shall be implied to, or accepted by, any employee for works undertaken for and on the behalf of GeoDyne Limited.