

BOOTH VENTURES LTD.

**LYTHAM GREEN DRIVE GOLF CLUB
NEW FOURTH HOLE CONSTRUCTION**

IMPORTED MATERIALS SPECIFICATION



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1.0 Introduction

- 1.1 This document had been completed to support a planning application for the construction of a new fourth hole at Lytham Green Drive Golf Club in Lytham St Annes, Lancashire.
- 1.2 This document will set out the acceptance and placement criteria for the imported material required to complete the works, plus details on how the works will be verified.

2.0 Regulation of Imported Material

- 2.1 It is intended that all material will be imported in accordance with the Contaminated Land: Applications in Real Environments Definition of Waste Code of Practice (CL:AIRE DoW CoP). A total volume of 188,175m³ of material will be imported from various development schemes and projects (donor sites) local to Lytham Green Drive Golf Club. The material imported is usually as a result of development schemes and projects having a surplus of material requiring removal from site, following preparation of site levels in accordance with a design.
- 2.2 Section A2.8 of the CL:AIRE DoW CoP states, “The principle should always be that the use of such natural materials must not increase the level of risk to the environment that already exists at the site of use.” The CL:AIRE DoW CoP also states that any material imported must be clean, inert, naturally occurring and fit for purpose (i.e., it must achieve the requirements of the design).
- 2.3 A Phase 1 Geoenvironmental Site Assessment, dated November 2023, was completed by E3P Ltd., in order to derive the existing baseline environmental setting of the site. This was submitted to support the planning application.
- 2.4 The Geoenvironmental site assessment highlighted the presence of a historical landfill around the western and southern boundaries of the proposed working area. Environment Agency records show that there was a Waste Management Licence for inert materials, held by Lytham Green Drive Golf Club. This was surrendered in November 1994. The records also show two other licences for historical landfill to the northeast of the proposed working area, but these are over 200m outside of the site boundary.
- 2.5 Given the inert nature of the material imported to the boundaries of the proposed working area, the risk of any contamination is low. As clean, inert and naturally occurring materials are proposed to raise levels further in this area, the risk posed by any potential contamination is negligible.
- 2.6 In order to carry out the works in accordance with the CL:AIRE DoW CoP, no material likely to impose any environmental risk will be imported to the site. In this case, the likelihood is that the imported material will improve the current environmental status of the site.
- 2.7 The chemical concentration limits (see Sections 3.3 and 3.4 of this document) along with all other details such as design, timescales, details of each donor site and on-site verification testing proposals (See Section 4.0 of this document) will be compiled into a Materials Management Plan (MMP).
- 2.8 The MMP will be approved by the CL:AIRE Qualified Person (QP). Once the QP is happy with the MMP he will complete the “Declaration” and submit to CL:AIRE prior to the commencement of the works. If any modifications to the scheme are required, such as a change in design or additional donor sites, the MMP will be updated and submitted to the QP for approval and a further declaration will be submitted to CL:AIRE.

3.0 Assessment of Material Prior to Import

3.1 Material Assessment

3.1.1 Booth Ventures Ltd. (BVL) have a team of experienced in-house assessors who review all enquiries for their sites and other schemes. For each source of material (donor site) proposed for import to Lytham Green Drive Golf Club the following information will be requested as a minimum:

- Name and full address of donor site.
- Full site investigation, including laboratory chemical analysis and a borehole / trial pit location plan (as a minimum). A minimum of 6no. samples for chemical analysis is required for a site investigation to be accepted. All chemical determinants set out in Section 3.2 of this document are required to have been analysed in the information provided.
- Name, full address and contact details of site owner.
- Name, full address and contact details of contractor excavating the material.
- Name, full address and contact details of haulier(s) bringing the material to Lytham Green Drive Golf Club.
- Carriers Licence(s) for each haulier.
- Total volume of material intended to be imported to site.
- Start date of intended import.
- Segregation statement if required.

3.1.2 BVL will review the laboratory chemical analysis against the chemical acceptance criteria set out in Section 3.3 and 3.4 of this document and the CL:AIRE MMP. If the information provided shows that the proposed donor site is suitable for import under the CL:AIRE DoW CoP and meets the requirements of this specification, the site will be added to the MMP. The MMP will then be sent to the QP for review and declaration. Once the declaration receipt has been received from CL:AIRE, the site will be pre-booked in. No material will be permitted import to the site unless it has been pre-booked with the BVL waste assessment team.

3.2 Chemical Acceptance Criteria

3.1 In order to ensure the conditions of the CL:AIRE DoW CoP are met from a chemical acceptance perspective; a set of determinants and chemical concentration limits have been derived, which will be implemented as our chemical acceptance criteria when assessing the suitability of imported material. These can be seen in the table over leaf.

3.0 Assessment of Material Prior to Import

3.3 Imported Material Chemical Acceptance Criteria

| Analyte | Limit of Detection | SSAC Residential without Veg. Uptake - Tier I Screening Criteria | Source of Screening Criteria | Source of Toxicological Data |
|----------------------------------|--------------------|--|--|------------------------------|
| Asbestos Screen | 0.001% | Negative | - | - |
| Metals | | | | |
| Arsenic (total) | <2 mg/kg | 35 | CLEA v1.071 | Defra 2015/C4SL |
| Cadmium (total) | <0.5 mg/kg | 17.7 | CLEA v1.071 | Defra 2015/C4SL |
| Chromium (hexavalent) | <2 mg/kg | 4.3 | CLEA v1.071 | Defra 2015/C4SL |
| Chromium (total) (III for S4ULs) | <2 mg/kg | 301 | CLEA v1.071** | LQM 2009 |
| Copper (total) | <4 mg/kg | 135 | BS3882:2015: Topsoil | - |
| Lead (total) | <3 mg/kg | 330 | CLEA v1.071 | Defra 2015 |
| Mercury (total inorganic) | <1 mg/kg | 238 | CLEA v1.071 | Defra 2015/C4SL |
| Nickel (total) | <3 mg/kg | 59 | CLEA v1.071 | Defra 2015/C4SL |
| Selenium (total) | <3 mg/kg | 595 | CLEA v1.071 | Defra 2015/C4SL |
| Zinc (total) | <3 mg/kg | 300 | BS3882:2015: Topsoil | - |
| Inorganic | | | | |
| pH Value | pH Units | 2 – 11.5 | Range of acceptability for soils that can be classified as 'non-hazardous' in respect to EA Technical Guidance WM3: Waste Classification (bulk fill) | |
| | | 5.5 - 9 | Range of acceptability for Multipurpose Topsoil in respect to BS3882:2015 – Specification for Topsoil (final cover system) | |
| Sulphate (2:1) | 50 mg/l | 1800 | BRE SD1 for DS-2 | - |
| Cyanide (total) | <1 mg/kg | 34 | ATRISK SOIL | ATRISK SOIL |
| Organic | | | | |
| Phenol (Total Monohydric) | <2 mg/kg | 750 | CLEA v1.071 | LQM/CIEH 2014 |
| PAH | | | | |
| Naphthalene | <0.1 mg/kg | 2.3 | CLEA v1.071** | LQM/CIEH 2014 |
| Acenaphthylene | <0.1 mg/kg | 290 | CLEA v1.071** | LQM/CIEH 2014 |
| Acenaphthene | <0.1 mg/kg | 300 | CLEA v1.071** | LQM/CIEH 2014 |
| Fluorene | <0.1 mg/kg | 280 | CLEA v1.071** | LQM/CIEH 2014 |
| Phenanthrene | <0.1 mg/kg | 130 | CLEA v1.071** | LQM/CIEH 2014 |
| Anthracene | <0.1 mg/kg | 310 | CLEA v1.071** | LQM/CIEH 2014 |
| Fluoranthene | <0.1 mg/kg | 150 | CLEA v1.071** | LQM/CIEH 2014 |
| Pyrene | <0.1 mg/kg | 370 | CLEA v1.071** | LQM/CIEH 2014 |
| Benz(a)anthracene | <0.1 mg/kg | 11 | CLEA v1.071 | LQM/CIEH 2014 |
| Chrysene | <0.1 mg/kg | 30 | CLEA v1.071 | LQM/CIEH 2014 |
| Benzo(b)fluoranthene | <0.1 mg/kg | 3.9 | CLEA v1.071 | LQM/CIEH 2014 |
| Benzo(k)fluoranthene | <0.1 mg/kg | 110 | CLEA v1.071 | LQM/CIEH 2014 |
| Benzo(a)pyrene | <0.1 mg/kg | 3.2 | CLEA v1.071 | LQM/CIEH 2014 |
| Indeno(123cd)pyrene | <0.1 mg/kg | 45 | CLEA v1.071 | LQM/CIEH 2014 |
| Dibenzo(ah)anthracene | <0.1 mg/kg | 0.31 | CLEA v1.071 | LQM/CIEH 2014 |
| Benzo(ghi)perylene | <0.1 mg/kg | 360 | CLEA v1.071 | LQM/CIEH 2014 |

3.0 Assessment of Material Prior to Import

3.4 Imported Material Chemical Acceptance Criteria (Continued)

| Analyte | Limit of Detection | SSAC Residential without Veg. Uptake - Tier I Screening Criteria | Source of Screening Criteria | Source of Toxicological Data |
|--|--------------------|--|------------------------------|------------------------------|
| BTEX | | | | |
| Benzene | <0.002 mg/kg | 0.38 | CLEA v1.071 | LQM/CIEH 2014 |
| Toluene | <0.005 mg/kg | 88 | CLEA v1.071** | LQM/CIEH 2014 |
| Ethyl Benzene | <0.01 mg/kg | 8.3 | CLEA v1.071** | LQM/CIEH 2014 |
| Xylene (o) | <0.01 mg/kg | 8.8 | CLEA v1.071** | LQM/CIEH 2014 |
| Xylene (m) | <0.01 mg/kg | 8.2 | CLEA v1.071** | LQM/CIEH 2014 |
| Xylene (p) | <0.01 mg/kg | 7.9 | CLEA v1.071** | LQM/CIEH 2014 |
| Petroleum Hydrocarbons | | | | |
| Aliphatic >C ₅ - C ₆ | <0.01 mg/kg | 42 | CLEA v1.071 | LQM/CIEH 2014 |
| Aliphatic >C ₆ - C ₈ | <0.05 mg/kg | 100 | CLEA v1.071 | LQM/CIEH 2014 |
| Aliphatic >C ₈ - C ₁₀ | <1 mg/kg | 27 | CLEA v1.071 | LQM/CIEH 2014 |
| Aliphatic >C ₁₀ - C ₁₂ | <1 mg/kg | 130 | CLEA v1.071 | LQM/CIEH 2014 |
| Aliphatic >C ₁₂ - C ₁₆ | <1 mg/kg | 110 | CLEA v1.071** | LQM/CIEH 2014 |
| Aliphatic >C ₁₆ - C ₂₁ | <1 mg/kg | 650 | CLEA v1.071** | LQM/CIEH 2014 |
| Aliphatic >C ₂₁ - C ₃₅ | <6 mg/kg | 650 | CLEA v1.071** | LQM/CIEH 2014 |
| Aliphatic >C ₃₅ - C ₄₄ | <10 mg/kg | 650 | CLEA v1.071** | LQM/CIEH 2014 |
| Aromatic C ₅ - C ₇ | <0.01 mg/kg | 37 | CLEA v1.071 | LQM/CIEH 2014 |
| Aromatic C ₇ - C ₈ | <0.05 mg/kg | 86 | CLEA v1.071 | LQM/CIEH 2014 |
| Aromatic >C ₈ - C ₁₀ | <1 mg/kg | 47 | CLEA v1.071 | LQM/CIEH 2014 |
| Aromatic >C ₁₀ - C ₁₂ | <1 mg/kg | 25 | CLEA v1.071 | LQM/CIEH 2014 |
| Aromatic >C ₁₂ - C ₁₆ | <1 mg/kg | 180 | CLEA v1.071** | LQM/CIEH 2014 |
| Aromatic >C ₁₆ - C ₂₁ | <1 mg/kg | 190 | CLEA v1.071** | LQM/CIEH 2014 |
| Aromatic >C ₂₁ - C ₃₅ | <6 mg/kg | 190 | CLEA v1.071** | LQM/CIEH 2014 |
| Notes | | | | |
| 1. Generic Qualitative Assessment Criteria have been used where appropriate based on the current CLEA 1.071 Model (default values, sandy loam 1% SOM). Where no CLEA generic guideline value has been calculated no assessment has been made. 2. Cyanide (total)*, in the absence of a GQAC based on current CLEA 1.071 Model, the Atrisk Soil Value for Cyanide (free) has been used. 3. For metals, where an SGV has been published, this value has been used. Note that the published SGVs do not include the residential without plant uptake scenario. CLEA v1.071 has therefore been used to derive GACs for this scenario. For organics, CLEA v1.071 has been used (as the SGV assumes 6% SOM). Use BS3882 limits for copper and zinc because these are lower than the human health derived SSACs. 4. pC4SL based on adjusted toxicology and exposure assumptions 5. pC4SL for benzene assumes 6% SOM 6. CLEA v1.071** means CLEA derived value divided by a factor of 10 or more based on judgement for clean natural soils. 7. Note that TPH can be encountered in some natural soils from breakdown of organic matter. 8. Assessment criteria for pH, Sulphide and Sulphate are not based on human health. Sulphate criteria assumes DS-2 ACEC classification for concrete. | | | | |

4.0 Material Placement & Verification

4.1 Material Imports

4.1.1 188,175m³ of material will be imported to site on road tipper lorries (generally eight wheelers). Material will be imported directly into the working area. All companies delivering material to site must have a valid carrier's licence. This will be asked for as part of the information required at the initial material assessment stage (see Section 3.1 of this document).

4.1.2 All drivers will be required to stop at the booking-in cabin, located in the site compound, and provide information relating to their load. The information is then inputted onto the BVL electronic booking in system, by the Booking in Officer (BIO), using a tablet computer. The following must be provided at a minimum:

- Date
- Vehicle Registration Number
- Name and address of site of origin (donor site)
- Name and address of haulage company
- Description of load

4.1.3 Any driver not able to produce this information on arrival will be refused entry to the site and asked to leave.

4.1.4 Using the information added to the BVL electronic booking in system, a CL:AIRE materials tracking plan will be completed for each delivery of material. The forms also include the destination where each load is to be placed within the works. The materials tracking plans will be provided to CL:AIRE as part of the final Verification Report. A copy of the materials tracking plan to be used can be seen in Appendix 'A' of this document.

4.2 Visual on Site Checks

4.2.1 In order to verify the imported material is the same as what was assessed during the initial material assessment, visual checks will be carried out on site for each load arriving. Any loads deemed unsuitable for the works will be rejected and the driver asked to leave the site. Unsuitable material is as follows:

- Material with visible contamination such as fuel and oil residue or any distinct odour.
- Material containing un-natural materials such as bricks, concrete, plastic or glass etc. (i.e., not clean, inert and naturally occurring).
- Material containing excessive amounts of organic matter such as trees & roots, plants (including invasive species), pieces of wood, vegetation etc.
- Material with a visually excessive moisture content (must be able to support the weight of a bulldozer).

4.2.2 If a load contains any of the items listed above the customer will be immediately notified, and further investigations will be carried out. Visits to the donor site will be undertaken if necessary.

4.3 Material Placement

4.3.1 Imported material will be placed in accordance with Clause 620 and Table 6/1 of the Specification for Highway Works, Series 600 Earthworks. The imported material will be a Class 4 Landscape Fill material. The material will be pushed out in layers with a bulldozer and will receive compaction from the bulldozer as it is tracked in.

4.3.2 The final contours and levels will be achieved using GPS surveying equipment, in accordance with the design submitted as part of the planning application.

4.0 Material Placement & Verification

4.4 Sampling for Chemical Analysis

4.4.1 In order to ensure the imported material meets the requirements set out in Sections 3.3 and 3.4 of this document, sampling of the imported material will be undertaken during the works. Each sample will be sent to an independent UKAS accredited laboratory for analysis.

4.4.2 Each sample will be scheduled for the full suite of determinants set out in Sections 3.3 and 3.4 of this document. The frequency of sampling is as follows:

- 1 sample per every donor site imported.
- 1 sample per 2,500m³ of material imported thereafter (Only donor sites where clean material has been segregated for import and contamination is shown to be present in other areas of the site).

4.4.3 Apart from one initial sample from a donor site, ongoing sampling of material imported from uncontaminated sites is not deemed necessary, as there is no requirement to segregate clean materials from contaminated areas and therefore no risk of cross contamination.

4.4.4 The frequencies set out in Section 4.4.2 of this document are minimum frequencies and will be increased if deemed necessary.

4.4.5 The location of each sample for chemical analysis will be allocated a grid reference and recorded on a sample location plan.

4.4.6 Details of each sample including sample reference, sample date, sample location (grid reference), sample depth (layer number) and laboratory analysis scheduled, and results (pass or fail) once received will be recorded on a summary spreadsheet. The spreadsheet and test results certificates will be included within the final verification report.

4.5 Review of Laboratory Analysis

4.5.1 All chemical laboratory analysis (initial assessment stage and samples during works) will be reviewed by the BVL in-house assessment team in the first instance. A final review of the results provided within a site investigation at the initial assessment stage will be carried out by the QP as part of his MMP declaration process. The laboratory analysis undertaken during the works will be presented in the final verification report.

5.0 Remediation

5.1 In the event that material placed within the works requires further testing or removal (usually following a non-compliant test result), the following steps will be carried out:

- Identify the location of the non-compliant test result using the relevant sample location plan.
- Identify the respective donor site and import date using the relevant material placement plan. Contact the site owner / contractor and make them aware.
- Once the location of the non-compliant sample is known, locate the material in question. This may involve excavating down through layers if the non-compliant test is from a buried layer. Remove the material from the works and place in a separate area for quarantine.
- Take another sample from the same area and send off to the laboratory for a re-test.
- If the re-test meets the requirements set out in Sections 3.3 and 3.4 of this document, no further action is required.
- If the re-test does not meet the requirements set out in Sections 3.3 and 3.4 of this document, further testing will be required until compliant test results are produced.
- A further three samples shall be taken in triangulation around the non-compliant test location, approximately 1m away from the original location. This exercise should be repeated until compliant material is found. All non-compliant material will be excavated and placed in a separate area for quarantine.
- The respective donor site owner / contractor shall be informed of the non-compliant material. If this source is still being imported the import will be stopped immediately until further investigation at the donor site is undertaken. This may include sampling at the donor site, or a site visit to ensure that the material being imported is from the area(s) previously agreed.
- All quarantined material must be removed from the site quarantine area. The respective donor site owner / contractor will be asked to collect and remove the material themselves and take to a suitably licenced facility.
- Details of all non-compliant material, material used to replace non-compliant material and actions taken will be provided within the final verification report.

6.0 Final Verification

- 6.1 All material imported to site and the works themselves will be fully verified in accordance with the CL:AIRE DoW CoP. A verification report will be compiled and submitted to CL:AIRE and North Yorkshire County Council (if required) on completion of the works. The report will outline full details of the works (items completed, specifications, methods adopted etc), any problems encountered, discussion and analysis of laboratory testing, remediation undertaken, and details of information obtained in order to verify the works have been undertaken in accordance with the design, the planning consent and the CL:AIRE DoW CoP.
- 6.2 The verification report will include the following information as a minimum:
- Details of each donor site (information as set out in Section 3.1.1 of this document).
 - Site photographs
 - CL:AIRE material tracking forms showing details and volume of each load delivered.
 - Laboratory chemical analysis sample location plans.
 - Laboratory chemical analysis summary spreadsheets.
 - Laboratory test results certificates.
 - Topographical surveys to verify the works have been completed to the agreed design (levels, contours and required import volume).

