

# Interim Validation Report

Site: Phase 1 Area - Castleton Sidings, Rochdale

Reference: 14-768-R7-A-1

Date: January 25

Client: Kellen Homes





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|------------------|-------------|

| REV REF: | DESCRIPTION                                      | AUTHOR | CHECKED | AUTHORISED | DATE    |
|----------|--------------------------------------------------|--------|---------|------------|---------|
| 1        | Interim validation report for Phase 1 area only. | HM     | JS      | MDD        | 29/1/25 |

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**DRAWING LIST:**

14-768-001 – Site Location Plan  
14-768-003 – Historical Features Plan  
14-768-105 – Exploratory Hole Location Plan  
14-768-106 – Depth of Made Ground Plan  
14-768-124 – Contamination Issues Plan  
14-768-025 – CBR 35 m Grid Validation Plan  
14-768-026 – In-Situ Density Grid Validation Plan  
14-768-032 – Hotspot Sample Plan  
14-768-033 – Made Ground Sample Plan  
14-768-034 – Crush Sample Plan  
Urban Regen 405-001-001 Asbuilt Topographical Survey and Constraints (Sheet 1 of 8)  
Urban Regen 405-001-002 Asbuilt Topographical Survey and Constraints (Sheet 2 of 8)  
Urban Regen 405-002-001 Base of Excavation Depth of Engineered Ground (Sheet 1 of 8)  
Urban Regen 405-002-002 Base of Excavation Depth of Engineered Ground (Sheet 2 of 8)



## 1. INTRODUCTION

### 1.1. BACKGROUND

This report details the remediation and enabling works operations that were undertaken by Urban Regen for the Phase 1 area only under the supervision of E3P to facilitate the future construction of a low-rise residential development on the land known as Castleton Sidings, off Heywood Road, Rochdale; herein referred to as the Site.

E3P was appointed by Kellen Homes as an independent geoenvironmental consultant for the site remediation, preparation/enabling and validation works and the subsequent production of a suitably detailed report to ensure the satisfaction of the relevant planning conditions and geotechnical engineering requirements for Building Control, warranty providers and the future adoption of infrastructure by the Highways Authority and statutory service providers.

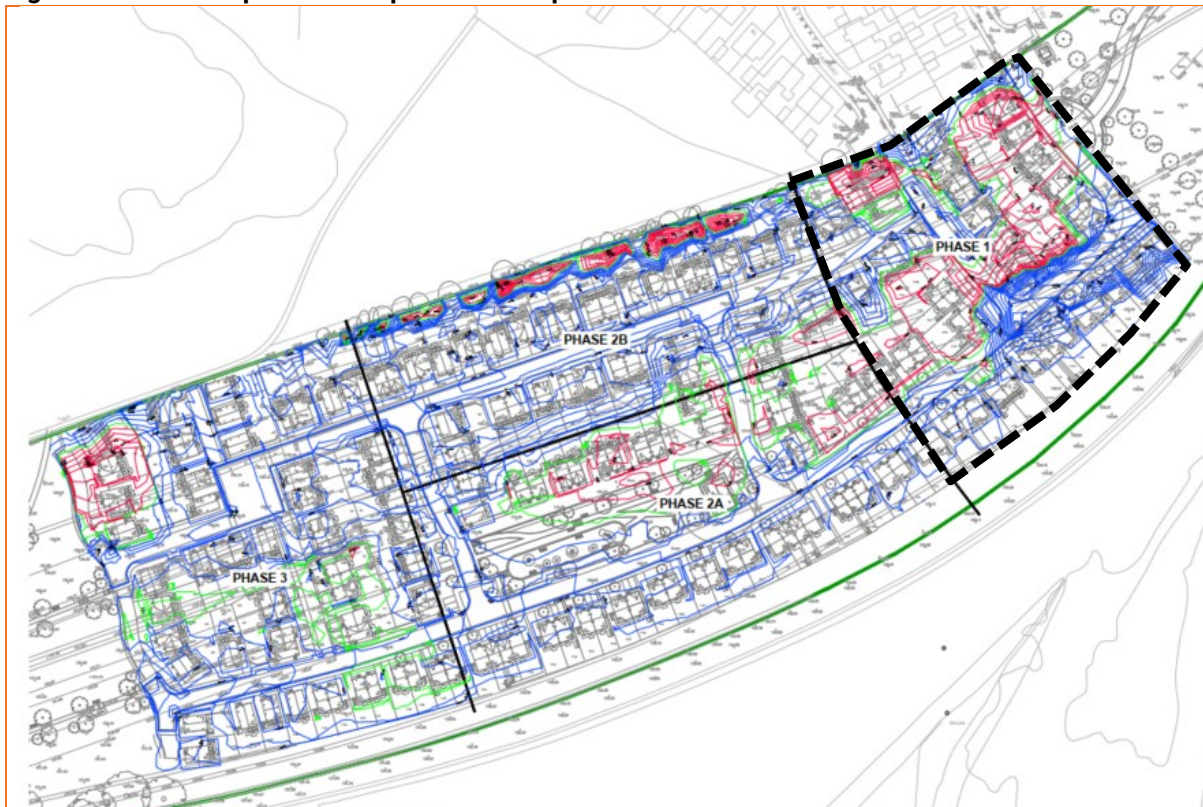
This report provides validation of works completed for the Phase 1 area only. Subsequent phases will be reported separately, with a final report issued on completion of the development.

### 1.2. PROPOSED DEVELOPMENT

Kellen Homes intend to construct 191 low-rise residential dwellings with associated access, landscaping, open space together with the erection of a sub-station and foul water pump station. The remediation and enabling works will be completed in four phases, referenced Phase 1, 2A, 2B and 3.

A snapshot of the proposed development and each of the development phases is shown in Figure 1, with Phase 1 indicated by the dashed boundary.

**Figure 1**      **Snapshot of Proposed Development**





### 1.3. SUMMARY OF PARTIES INVOLVED

**Table 1** Summary of Parties Involved

| FUNCTION/INTEREST                     | NAME OF PARTY            |
|---------------------------------------|--------------------------|
| Local Planning Authority              | Rochdale Borough Council |
| Developer                             | Kellen Homes             |
| Geoenvironmental Consultant           | E3P                      |
| Main Contractor                       | Kellen Homes             |
| Remediation/Enabling Works Contractor | Urban Regen Ltd          |
| Human Health Regulator                | Rochdale Borough Council |
| Controlled Waters and Waste Regulator | Environment Agency       |
| Highways Adoption Authority           | Rochdale Borough Council |

### 1.4. PREVIOUS WORKS

The following previous phases of site investigation and assessment have been completed at the subject site:

- ✳ E3P – Phase I & II Geoenvironmental Site Assessment. Ref: 14-768-R4, dated November 2023.
- ✳ E3P – Supplementary Ground Investigation. Ref: 14-768-L4-2, dated March 2023.
- ✳ E3P - Geoenvironmental Assessment – Network Rail Land. Ref: 14-768-L2-2, dated March 2023.
- ✳ E3P – Geoenvironmental Assessment – Public Open Space. Ref: 14-768-L3-2, dated March 2023.
- ✳ E3P – Remediation Strategy. Ref: 14-768-R4-3, dated September 2024.
- ✳ E3P – Geotechnical Performance Specification. Ref: 14-768-R3-4, dated October 2024.
- ✳ E3P – Piling Risk Assessment. Ref: 14-768-R5-1, dated March 2024.

### 1.5. REGULATORY CORRESPONDENCE

#### 1.5.1. PLANNING APPROVAL

A planning application was submitted to Rochdale Borough Council under reference 23/00431/HYBR and planning permission was granted on the 9th of August 2024.

The following conditions were placed on the development, relating to contaminated land and remediation:

*Condition 11 – In the event of unsuspected / unanticipated contamination being encountered then a review and revision to the previously approved documents identified above, demonstrating to the Local Planning Authority that there is no resultant unacceptable risk to groundwater, shall be submitted to and approved by the Local Planning Authority. The development shall thereafter be completed in accordance with the revised documents.*



*Condition 12 – Pursuant to condition 11 and prior to first use or occupation of any phase of development a verification report, which validates that all remedial works undertaken on Site as part of that phase of development were completed in accordance with those agreed with the Local Planning Authority, shall be submitted to and approved in writing by the Local Planning Authority.*

This report forms part of the overall verification report to be submitted to the Local Planning Authority.

## **2. SUMMARY OF REMEDIATION AND ENABLING WORKS OBJECTIVES**

The proposed remediation activities were detailed within the E3P Remediation and Enabling Works Strategy (14-768-4-3, dated September 2024).

This report has been prepared to document the completion of all necessary land remediation and enabling works for the Phase 1 development area and to record the presence of any variation in ground conditions or previously unidentified sources of potential contamination, environmental impact or potential nuisance to the wider environment.

The remediation and enabling works elements for the Site as a whole are summarised below. It should be noted that not all are applicable to the Phase 1 development area and/or may not have yet been completed.

- ✿ RE-1 – Pre-commencement Regulatory Compliance
- ✿ RE-2 – Environment and Nuisance Control
- ✿ RE-3 – Risk to Infrastructure
- ✿ RE-4 – Identification, Isolation and Treatment of Invasive Plants
- ✿ RE-5 – Site Clearance Operations
- ✿ RE-6 – Delineation, Excavation and Treatment of Identified Asbestos Impact
- ✿ RE-7 – Further Investigation and Remediation of Naphthalene & TPH Impact
- ✿ RE-8 – Delineation, Excavation and Treatment of Elemental Mercury Hotspots
- ✿ RE-9 – Excavation, Breaking and Processing of All Above- and Below-Ground Structures
- ✿ RE-10 – Delineation and Excavation of Identified Peat
- ✿ RE-11 – Delineation, Excavation, Treatment of Infilled Reservoir
- ✿ RE-12 – Removal of Deleterious Material
- ✿ RE-13 – Investigation and Removal of Historic Tanks
- ✿ RE-15 – Cut-And-Filling of Made Ground to Development Levels
- ✿ RE-16 – Construction of Temporary Working Platform
- ✿ RE-17 – Replacement of Materials, Geotechnical Engineering Requirements
- ✿ RE-18 – Importation of Bulk Fill
- ✿ RE-19 – Preparation of Garden for Cover System
- ✿ RE-20 – Provision of Subsoil
- ✿ RE-21 – Provision of Topsoil
- ✿ RE-22 – Independent Validation: Watching Brief
- ✿ RE-23 – Waste Soils Surplus to Requirements



- ✳ RE-24 – Validation of Materials for Potable Water Supply Infrastructure
- ✳ RE-25 – Remedial Verification Report

### 3. REMEDIATION AND ENABLING WORKS ACTIVITIES

The focus of the remediation and enabling works is to address the contaminant issues previously identified within the site investigations that presented an unacceptable risk to human health following the redevelopment of the Site.

For completeness, each of these activities has been discussed below within the context of the actual remediation works that were undertaken on-site.

**The remediation & Site enabling works within Phase 1 commenced in October 2024 and were completed by January 2025.**

#### RE-1 – PRE-COMMENCEMENT REGULATORY COMPLIANCE

|                          |                                                                                                                                                                                                                                                    |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Date of Works Undertaken | Prior to the commencement of remediation works                                                                                                                                                                                                     |
| Overview of Works        | <p>Planning application reference 23/00431/HYBR was granted on the 9th of August 2024 with conditions.</p> <p>A CL:AIRE MMP was prepared for the Site ahead of commencing works, allowing for re-use of materials on-site and direct transfer.</p> |

#### RE-2 – ENVIRONMENT AND NUISANCE CONTROL

|                          |                                                                                                                                                                                                                                                                                                      |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Date of Works Undertaken | Throughout works                                                                                                                                                                                                                                                                                     |
| Photographs              | Plate 1                                                                                                                                                                                                                                                                                              |
| Overview of Works        | <p>During remediation, works were restricted to between 8.00 am and 5.30 pm.</p> <p>Heras fencing was erected around the site boundary with appropriate health and safety signage.</p> <p>A street sweeper was employed when necessary to ensure no site debris was transferred to Heywood Road.</p> |

#### RE-3 – RISK TO INFRASTRUCTURE

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Date of Works Undertaken | Throughout works                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Overview of Works        | <p>Site works were completed under RAMS from Urban Regen as principle contractor in a safe and compliant manner, which ensured no risk of disturbance to the adjacent infrastructure (highways, services, surrounding residential property, signal box or railway infrastructure).</p> <p>The TRGM Safeguarding Boundary along the southern boundary of the Site was adhered to throughout works with heras fencing placed to ensure works would not enter the safeguarding zone.</p> |





## RE-4 – IDENTIFICATION, ISOLATION AND TREATMENT OF INVASIVE PLANTS

|                                 |                                                       |
|---------------------------------|-------------------------------------------------------|
| <b>Date of Works Undertaken</b> | N/A                                                   |
| <b>Overview of Works</b>        | No invasive species were identified during the works. |

## RE-5 – SITE CLEARANCE OPERATIONS

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date of Works Undertaken</b> | October–November 2024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Photographs</b>              | Plate 2–4, 13, 26–28                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Overview of Works</b>        | <p>No buildings were present on-site prior to remediation works, however a partial former rail platform remained in the south east of the Phase 1 area, together with concrete slabs, asphalt hardstanding and rail tracks.</p> <p>Rail tracks were pulled up with metal tracks and timber sleepers segregated and stockpiled for removal.</p> <p>The former rail platform was broken out and found to have deep reinforced foundations. Metal reinforcement was segregated and concrete retained for crushing.</p> <p>Concrete and asphalt slabs were broken out, with asphalt segregated and stockpiled for removal.</p> <p>A topsoil and vegetation strip were completed before E3Ps first visit to the Site. The vegetation and topsoil were stockpiled and subsequently removed off-site. Trees and shrubs were removed by a specialist contractor, shredded and temporarily stockpiled within the west of the Site in the area proposed to be retained as POS.</p> <p>Throughout the enabling works, scrap metal and general waste were separated from demolition materials and placed into allocated skips and stockpiles for subsequent disposal off-site.</p> |

## RE-6 – DELINEATION, EXCAVATION AND TREATMENT OF IDENTIFIED ASBESTOS IMPACT

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date of Works Undertaken</b> | November 2024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Photographs</b>              | Plate 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Chemical Testing</b>         | <p>Eurofins Report 24-33890 (MG BF 101–110)</p> <p>Eurofins Report 24-36173 (MG BF 111–112)</p> <p>Eurofins Report 24-39281 (MG BF 113–114)</p> <p>Eurofins Report 24-40956 (MG BF 115–116)</p>                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Overview of Works</b>        | <p>During remedial works within Phase 1, a visual inspection of the Made Ground identified ACM fragments within a small area along the southern boundary (between proposed plots 26–29). The Made Ground soil was excavated and stockpiled within the west of the Site on an area of hardstanding. The stockpile was handpicked with all visible ACM fragments removed. Asbestos fragments recovered were bagged sealed and placed within a skip for appropriate disposal. The residual soils remain stockpiled in the POS for re-use elsewhere in the development.</p> |



No further visible ACM has been identified within Phase 1. Asbestos fibres have not been identified within any Made Ground samples analysed to date.

## RE-7 – FURTHER INVESTIGATION AND REMEDIATION OF NAPHTHALENE & TPH IMPACT

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date of Works Undertaken</b> | Throughout works                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Photographs</b>              | Plate 6–8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Chemical Testing</b>         | <p>Eurofins Report 24-35916 (MG 201–Visually/Olfactory Impacted MG)</p> <p>Eurofins Report 24-33890 (MG BF 101–110)</p> <p>Eurofins Report 24-36173 (MG BF 111–112)</p> <p>Eurofins Report 24-39281 (MG BF 113–114)</p> <p>Eurofins Report 24-40956 (MG BF 115–116)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Overview of Works</b>        | <p>E3P provided part-time supervision of the general turnover works, with Urban Regen providing a full-time watching brief.</p> <p>During general turnover works of the Site in proximity to WS112 a small area of visually impacted Made Ground with a hydrocarbon odour was encountered and reported to E3P by Urban Regen.</p> <p>The visually/olfactory impacted materials were excavated and placed on an area of hardstanding in the west of the Site (proposed POS). A PID was used to screen the stockpiled arisings to detect VOCs. PID readings were recorded to be 0.0 ppm. A sample taken from the stockpile identified exceedances of heavy metals and several S/VOCs. The material will ultimately be placed within the POS area (reduced sensitivity).</p> <p>Throughout the general turnover works, a PID was used, with readings recorded to be between 0.00–0.20 ppm (negligible).</p> <p>Other than the soils around WS112, no visual or olfactory evidence of contamination was encountered in the Phase 1 area. However, exceedances of naphthalene (semi-volatile) have been encountered within MGBF 101, MGBF 102, MG BF104, MG BF 111, MG BF 112, MG BF 114 and MG BF 116 when compared to GAC values for residential end use with plant uptake and conservative 1% SOM. However, these samples all have a SOM above 6% and therefore, a GAC value of 13 mg/kg is applicable. This leaves only one sample with naphthalene in exceedance (MG BF 102, 110 mg/kg). It is understood that plots will be installed with a Juta GP5 Gas Barrier (resistant to carbon dioxide, methane, radon and organic vapours/VOCs to mitigate vapour intrusion risk).</p> <p>Exceedances of TPH C16–C21 (MG BF 101, MG BF 111 and MG BF 114), TPH C21–C25 (MG BF 109) and TPH C25–C35 (MG BF 101 and MG BF 109) have also been encountered. The main pollutant pathway for these contaminants is dermal contact and ingestion. The material was placed &gt;1.00 m below ground level and will be covered by hardstanding or a cover system, therefore removing the risk to end users.</p> |





Exceedances of TPH C10–C12 (MG BF 101) and TPH C12–C16 (MG BF 101 and MG BF 109) have been encountered when compared to GAC values for residential end use with plant uptake and conservative 1% SOM. However, the SOM for these samples is above 6%; therefore, increased GAC values are applicable, which leaves no exceedances.

## RE-8 – DELINEATION, EXCAVATION AND TREATMENT OF ELEMENTAL MERCURY HOTSPOTS

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date of Works Undertaken</b> | Throughout works                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Photographs</b>              | Plate 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Chemical Testing</b>         | I2 Analytical Report 24-049982 (Hotspot 1)<br>Eurofins Report 24-33890 (MG BF 101–110)<br>I2 Analytical Report 24-051134 (MG BF 104, 109, 110 speciation)<br>I2 Analytical Report 24-052735 (Mercury 111–114)<br>I2 Analytical Report 24-056801-2 (Mercury 115–116)<br>I2 Analytical Report 24-059202 (Mercury 117–118)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Overview of Works</b>        | <p>Ground investigations identified elevated elemental (volatile) mercury above the site-specific screening remediation target value (SSSRTV) of 1.73 mg/kg within WS112 at 1.00 m bgl in the Phase 1 area (and other locations across the wider Site). The remediation strategy requires testing for mercury at a frequency of 1 sample per 1000 m<sup>3</sup> of material, in addition to hotspot delineation where exceedances have been encountered.</p> <p>A hotspot removal within the vicinity of WS112 (Hotspot 1) was undertaken on the 21st of October 2024. Concentrations of elemental (volatile) mercury were below 1.73 mg/kg and therefore further excavation was not required. The arisings were placed on hardstanding within the POS in the west of the Site and are awaiting placement within the POS.</p> <p>The Made Ground has been tested for mercury at 1 per 1000 m<sup>3</sup>, in accordance with the remediation and enabling works strategy. Any samples where total mercury exceeded 1.73 mg/kg were then speciated. MG BF 104, MG BF 109, MG BF 110, Mercury 111, Mercury 115, and Mercury 116 contained total mercury at concentrations &gt;1.73 mg/kg. However, speciation results showed no exceedances of elemental mercury.</p> |

## RE-9 – EXCAVATION, BREAKING AND PROCESSING OF ALL ABOVE- AND BELOW-GROUND STRUCTURES

|                                 |                                                                                                                              |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <b>Date of Works Undertaken</b> | Throughout works                                                                                                             |
| <b>Photographs</b>              | Plate 10–13                                                                                                                  |
| <b>Chemical Testing</b>         | Eurofins Report 24-36556 (SW 6F 101)<br>Eurofins Report 24-37744 (SW 6F 102–103)<br>Eurofins Report 24-41129 (SW 6F 104–106) |
| <b>Geotechnical Testing</b>     | MRN 24005-310 (SW 6F 101)<br>MRN 24005-319 (SW 6F 102–103)<br>MRN 25005-13 (SW 6F 104–105)                                   |



## Overview of Works

No buildings were present on-site prior to remediation works, however a partial former rail platform remained in the south east of the Phase 1 area, together with concrete slabs, asphalt hardstanding and rail tracks.

Rail tracks were pulled up with metal tracks and timber sleepers were segregated and stockpiled for removal.

The former rail platform was broken out and found to have deep reinforced foundations. Metal reinforcement was segregated and concrete retained for crushing.

Concrete and asphalt slabs were broken out, with asphalt segregated and stockpiled for removal.

The Site was subject to a 3.00–4.00 m turnover to ensure the full removal and excavation of all below-ground obstructions. This process allowed for the removal of any oversized materials from the areas of the proposed residential development, including plot footprints, rear gardens, private driveway, adopted highways and utility infrastructure (road box) as well as the identification of any previously unidentified areas of contamination.

Urban Regen have produced A Base of Dig Excavation Drawing (405-002-001 and 405-002-002) presented in APPENDIX III.

During the removal of obstructions, oversized materials and concrete were stockpiled prior to crushing/processing to nominal 6F2 grading. Any steel reinforcements present within the concrete hardstanding, or waste in the form of wood, scrap metal, or plastic were removed prior to crushing of demolition material stockpiles and allocated to skips for subsequent disposal.

The remediation contractor (Urban Regen) maintained a full-time watching brief during the turning and processing of Made Ground to inspect materials turned over and identify any previously unidentified obstructions or contamination hotspots. E3P maintained a part-time watching brief.

Chemical analysis of Site won crush/6F2 was undertaken in accordance with the agreed sampling frequency of 1 sample per 1000 m<sup>3</sup>. Prior to placement, stockpiled arisings were sampled for chemical and geotechnical analysis to confirm suitability. Six samples were taken to cover an approximate volume of 5000 m<sup>3</sup> of material. A Crush (Stockpile) Sample Plan is presented as drawing 14-768-034 in APPENDIX III.

Within three samples (SW 6F 104–106) elevated lead and several elevated PAHs were encountered. The main exposure pathway for these determinants is dermal contact and ingestion, therefore the pathway will be broken as the material will be placed beneath hard standing and will therefore not pose a risk to future end users.

Slightly elevated total mercury (1.4 mg/kg) was encountered within SW 6F 106. The site-specific screening remediation target value (SSSRTV) for mercury is 1.73 mg/kg. Using this value there is no exceedance and therefore no further action is required.



The 6F2 material is to be used within a sacrificial temporary pile mat which will be removed once works have finished. Any residual crush left behind in external areas will either be covered by hardstanding (roads, drives) or a validated clean cover system (garden/POS).

Particle size distribution (PSD) testing was also completed, which confirmed the material grading to be compliant with the 6F2 in accordance with the Specification for Highways Works.

## **RE-10 – DELINEATION AND EXCAVATION OF IDENTIFIED PEAT**

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date of Works Undertaken</b> | Throughout works                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Photographs</b>              | Plate 14–16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Overview of Works</b>        | <p>Previous investigations identified compressible peat deposits across the majority of the development area, albeit most prevalent in future development phases (Phase 2A, 2B and 3). In accordance with the E3P Geotechnical Performance Specification (ref: 14-768-R3-4), all organic/peaty soils require complete excavation.</p> <p>During the general turnover for Phase 1, organic deposits and peat were encountered within the south of the area. This material was excavated and stockpiled in the west of the Site in the area of proposed POS.</p> <p>E3P maintained a part-time watching brief to confirm when all unsuitable material had been suitably excavated.</p> |

## **RE-11 – DELINEATION, EXCAVATION AND TREATMENT OF INFILLED RESERVOIR**

|                                 |                                                                                                                                                                                    |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date of Works Undertaken</b> | N/A                                                                                                                                                                                |
| <b>Overview of Works</b>        | <p>To be completed.</p> <p>The mapped historical reservoir identified in Drawing 14-768-103 is located within Phase 2B/3, and will therefore be reported under separate cover.</p> |

## **RE-12 – REMOVAL OF DELETERIOUS MATERIAL**

|                                 |                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date of Works Undertaken</b> | Throughout works                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Overview of Works</b>        | <p>Refer to RE-7 and RE-10.</p> <p>Previous ground investigations on-site had identified possible deleterious materials within Made Ground.</p> <p>All deleterious materials encountered within the Made Ground were separated and stockpiled for off-site disposal. During the Made Ground turnover, Urban Regen maintained full-time supervision with E3P attending part-time.</p> |



## RE-13 – INVESTIGATION OF HISTORIC TANKS

|                          |                                                                                                                                      |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Date of Works Undertaken | N/A                                                                                                                                  |
| Overview of Works        | No historical tanks have been identified within the Phase 1 area from historical mapping or during the general Made Ground turnover. |

## RE-15 – CUT-AND-FILLING OF MADE GROUND TO DEVELOPMENT LEVELS

| Date of Works Undertaken | Throughout                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                          |                              |                                          |                              |                              |                   |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------------------------------|------------------------------------------|------------------------------|------------------------------|-------------------|----------|----|------|----|------|----|----------|----|------|----|------|----|----------|----|------|----|------|----|----------|----|------|----|------|----|----------|----|------|----|------|
| Photographs              | Plates 17–21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                          |                              |                                          |                              |                              |                   |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |
| Chemical Testing         | Eurofins Report 24-33890 (MG BF 101–110)<br>Eurofins Report 24-36173 (MG BF 111–112)<br>Eurofins Report 24-39281 (MG BF 113–114)<br>Eurofins Report 24-40956 (MG BF 115–116)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                          |                              |                                          |                              |                              |                   |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |
| Geotechnical Testing     | MRN 24005-268 (MG BF 101–110)<br>MRN 24005-309 (MG BF 111–112)<br>MRN 25005-3 (MG BF 113–114)<br>MRN 25005-12 (MG BF 115–116)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                          |                              |                                          |                              |                              |                   |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |
| Overview of Works        | <p>To achieve the proposed enabling works levels (EWLs), Urban Regen undertook a process of cut/fill works whereby a general Made Ground turnover was completed to remove obstructions and organic soils and subsequently re-engineer and compact suitable site-won materials. The turnover depth ranged from c. 1.50 m in the north of the Phase 1 area to &gt;6.00 m in the south where organic soils requiring removal were encountered at depth. Urban Regen Base of Excavation drawings (405-002-001 and -002) are presented in APPENDIX III.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                          |                              |                                          |                              |                              |                   |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |
|                          | <p>To complete the turnover and cut/fill, adjacent ‘cells’ or ‘blocks’ were excavated, with obstructions and artificially hard materials removed, then the resultant void backfilled with site-won Made Ground from the neighbouring block. Works were carried out under the full-time supervision of Urban Regen and part-time supervision of E3P.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                          |                              |                                          |                              |                              |                   |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |
|                          | <p>Prior to placement, stockpiled Made Ground arisings were obtained for geotechnical analysis to confirm suitability. Sixteen samples from Phase 1 were tested by E3P to achieve the required testing frequency of 1 per 2000 m<sup>3</sup> based on an estimated turnover volume of 36,000 m3 (12,000 m2 area x average turnover depth of 3.00 m). A summary of the geotechnical testing results is presented below.</p> <table><tr><th>SAMPLE REFERENCE</th><th>CLASSIFICATION</th><th>MAXIMUM DRY DENSITY (mg/m<sup>3</sup>)</th><th>OPTIMUM MOISTURE CONTENT (%)</th><th>NATURAL MOISTURE CONTENT (%)</th><th>% FINES &lt;0.063 MM</th></tr><tr><td>MGBF 101</td><td>2C</td><td>1.42</td><td>20</td><td>21.2</td><td>17</td></tr><tr><td>MGBF 102</td><td>2C</td><td>1.54</td><td>16</td><td>22.5</td><td>21</td></tr><tr><td>MGBF 103</td><td>2C</td><td>1.32</td><td>19</td><td>21.0</td><td>19</td></tr><tr><td>MGBF 104</td><td>2C</td><td>1.54</td><td>16</td><td>24.6</td><td>22</td></tr><tr><td>MGBF 105</td><td>2C</td><td>1.53</td><td>17</td><td>17.6</td><td>18</td></tr></table> | SAMPLE REFERENCE                         | CLASSIFICATION               | MAXIMUM DRY DENSITY (mg/m <sup>3</sup> ) | OPTIMUM MOISTURE CONTENT (%) | NATURAL MOISTURE CONTENT (%) | % FINES <0.063 MM | MGBF 101 | 2C | 1.42 | 20 | 21.2 | 17 | MGBF 102 | 2C | 1.54 | 16 | 22.5 | 21 | MGBF 103 | 2C | 1.32 | 19 | 21.0 | 19 | MGBF 104 | 2C | 1.54 | 16 | 24.6 | 22 | MGBF 105 | 2C | 1.53 | 17 | 17.6 |
| SAMPLE REFERENCE         | CLASSIFICATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | MAXIMUM DRY DENSITY (mg/m <sup>3</sup> ) | OPTIMUM MOISTURE CONTENT (%) | NATURAL MOISTURE CONTENT (%)             | % FINES <0.063 MM            |                              |                   |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |
| MGBF 101                 | 2C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1.42                                     | 20                           | 21.2                                     | 17                           |                              |                   |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |
| MGBF 102                 | 2C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1.54                                     | 16                           | 22.5                                     | 21                           |                              |                   |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |
| MGBF 103                 | 2C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1.32                                     | 19                           | 21.0                                     | 19                           |                              |                   |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |
| MGBF 104                 | 2C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1.54                                     | 16                           | 24.6                                     | 22                           |                              |                   |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |
| MGBF 105                 | 2C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 1.53                                     | 17                           | 17.6                                     | 18                           |                              |                   |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |    |          |    |      |    |      |



| SAMPLE<br>REFERENCE | CLASSIFI-<br>CATION | MAXIMUM<br>DRY DENSITY<br>(mg/m <sup>3</sup> ) | optimum<br>moisture<br>content (%) | natural<br>moisture<br>content (%) | % fines <0.063<br>mm |
|---------------------|---------------------|------------------------------------------------|------------------------------------|------------------------------------|----------------------|
| MG BF 106           | 2C                  | 1.43                                           | 20                                 | 19.6                               | 25                   |
| MG BF 107           | 2C                  | 1.42                                           | 20                                 | <b>24.7</b>                        | 18                   |
| MG BF 108           | 2C                  | 1.31                                           | 20                                 | <b>30.7</b>                        | 25                   |
| MG BF 109           | 2C                  | 1.33                                           | 18                                 | <b>24.6</b>                        | 21                   |
| MG BF 110           | 2C                  | 1.34                                           | 18                                 | 20.4                               | 40                   |
| MG BF 111           | 2C                  | 1.40                                           | 20                                 | <b>15.2</b>                        | 18                   |
| MG BF 112           | 2C                  | 1.40                                           | 19                                 | 17.5                               | 18                   |
| MG BF 113           | 2C                  | 1.39                                           | 15                                 | 18.2                               | 22                   |
| MG BF 114           | 2C                  | 1.43                                           | 15                                 | <b>24.5</b>                        | 22                   |
| MG BF 115           | 2C                  | 1.48                                           | 19                                 | 18.0                               | 28                   |
| MG BF 116           | 2C                  | 1.61                                           | 12                                 | 15.1                               | 27                   |
| <b>Average</b>      | -                   | <b>1.44</b>                                    | <b>17.94</b>                       | <b>20.8</b>                        | <b>20.77</b>         |

The results indicated the material to be 2C (cohesive) with fines content generally <30% (except MG BF 110). The average as dug/natural moisture content overall for the full dataset was found to be within +/- 3% of the optimum, with some samples being greater or less than. Notably wet or soft (geotechnically unsuitable) soils were segregated at the time of turnover.

The material was placed in approximately 275 mm layers and compacted to >90% of the maximum dry density using a smooth-wheeled vibratory roller in accordance with Specification for Highways Works Method 2 for a Class 2C material to create a uniformly engineered development platform. All plots are to be constructed using piled foundations; therefore 95% compaction was not required.

Chemical testing was also completed on a 1 per 2000 m<sup>3</sup> frequency with 16 samples obtained for analysis.

Within the majority of Made Ground backfill samples, heavy metal and PAH concentrations in the exceedance of residential end-use GACs were noted. The main exposure for these determinants is dermal contact and ingestion, therefore the pathway will be broken as the material will be placed either beneath hardstanding or a clean cover system and will therefore not pose a risk to end users. Exceedances of potentially volatile elevated naphthalene and TPH are discussed in RE-7.

A Made Ground Sample Plans is presented as drawing 14-768-033 in APPENDIX III.

In-situ testing was completed on layers throughout the upfill, together with CBR tests at formation (underside pile mat/engineered capping layer) by Murray Rix under the instruction and supervision of Urban Regen. Results are summarised in RE-17.



## RE-16 – CONSTRUCTION OF TEMPORARY WORKING PLATFORM

| <b>Date of Works Undertaken</b> | December 2024–January 2025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |       |        |      |         |      |         |     |               |      |               |      |               |      |          |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------|--------|------|---------|------|---------|-----|---------------|------|---------------|------|---------------|------|----------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|------------|------|
| <b>Photographs</b>              | Plates 22–23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                |       |        |      |         |      |         |     |               |      |               |      |               |      |          |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |
| <b>Chemical Testing</b>         | Refer to RE-9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                |       |        |      |         |      |         |     |               |      |               |      |               |      |          |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |
| <b>Geotechnical Testing</b>     | Refer to RE-9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                |       |        |      |         |      |         |     |               |      |               |      |               |      |          |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |
| <b>In-situ Testing</b>          | <p>MRN 25005-1 (Plot 126, Plot 130, Plot 177)<br/>MRN 24005-324 (Plot 4, Plot 190, Road 1 [1], Road 1 [2], Road 1 [3], Road 1 [4])<br/>MRN 25005-330 (Plot 10, Plot 15, Road 1 [5] Road 1 [6], Road 2 [1], Road 2 [2])</p> <p>Approximately 5000 m<sup>3</sup> of site-won crushed aggregate (6F2) was generated throughout the works. Chemical and geotechnical analyses were completed (refer to RE-9), which found the material to be suitable for retention beneath hardstanding and to be compliant with 6F2 grading.</p> <p>A temporary works design was prepared by E3P for a (driven) piling rig (Juttan PM20 J1 Short Leader 4T), which required a 300 mm platform without geotextile reinforcement with CBR testing completed to confirm &lt;10 mm settlement at 1.5 x working rig load (151 kN/m<sup>2</sup>) on the top of the platform using a 300 mm plate. The working platform was constructed in accordance with the design using site-won 6F2.</p> <p>Plate load tests were completed by Murray Rix at a rate of c. 1 per 7 plots and at regular intervals along highways under the instruction and supervision of Urban Regen. Test locations are shown on Urban Regen As Built Topographic Survey and Constraints drawings (405-001-001 and -002) in APPENDIX III. Results are summarised below and in APPENDIX VIII.</p> |                |       |        |      |         |      |         |     |               |      |               |      |               |      |          |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |
| <b>Overview of Works</b>        | <table border="1"> <thead> <tr> <th>TEST REFERENCE</th><th>CBR %</th></tr> </thead> <tbody> <tr><td>Plot 4</td><td>11.5</td></tr> <tr><td>Plot 10</td><td>11.1</td></tr> <tr><td>Plot 15</td><td>9.4</td></tr> <tr><td>01 – Plot 126</td><td>10.4</td></tr> <tr><td>02 – Plot 130</td><td>13.2</td></tr> <tr><td>03 – Plot 177</td><td>13.3</td></tr> <tr><td>Plot 190</td><td>15.9</td></tr> <tr><td>Road 1 (1)</td><td>20.9</td></tr> <tr><td>Road 1 (2)</td><td>19.5</td></tr> <tr><td>Road 1 (3)</td><td>19.5</td></tr> <tr><td>Road 1 (4)</td><td>20.0</td></tr> <tr><td>Road 1 (5)</td><td>23.1</td></tr> <tr><td>Road 1 (6)</td><td>25.4</td></tr> <tr><td>Road 2 (1)</td><td>26.9</td></tr> <tr><td>Road 2 (2)</td><td>29.7</td></tr> </tbody> </table> <p>Results indicate the CBR on top of the temporary works platform to be generally &gt;10%. Tests on roads also achieved CBR values generally &gt;20%.</p>                                                                                                                                                                                                                                                                                                                                                                                                                    | TEST REFERENCE | CBR % | Plot 4 | 11.5 | Plot 10 | 11.1 | Plot 15 | 9.4 | 01 – Plot 126 | 10.4 | 02 – Plot 130 | 13.2 | 03 – Plot 177 | 13.3 | Plot 190 | 15.9 | Road 1 (1) | 20.9 | Road 1 (2) | 19.5 | Road 1 (3) | 19.5 | Road 1 (4) | 20.0 | Road 1 (5) | 23.1 | Road 1 (6) | 25.4 | Road 2 (1) | 26.9 | Road 2 (2) | 29.7 |
| TEST REFERENCE                  | CBR %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                |       |        |      |         |      |         |     |               |      |               |      |               |      |          |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |
| Plot 4                          | 11.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |       |        |      |         |      |         |     |               |      |               |      |               |      |          |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |
| Plot 10                         | 11.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |       |        |      |         |      |         |     |               |      |               |      |               |      |          |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |
| Plot 15                         | 9.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                |       |        |      |         |      |         |     |               |      |               |      |               |      |          |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |
| 01 – Plot 126                   | 10.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |       |        |      |         |      |         |     |               |      |               |      |               |      |          |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |
| 02 – Plot 130                   | 13.2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |       |        |      |         |      |         |     |               |      |               |      |               |      |          |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |
| 03 – Plot 177                   | 13.3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |       |        |      |         |      |         |     |               |      |               |      |               |      |          |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |
| Plot 190                        | 15.9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |       |        |      |         |      |         |     |               |      |               |      |               |      |          |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |
| Road 1 (1)                      | 20.9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |       |        |      |         |      |         |     |               |      |               |      |               |      |          |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |
| Road 1 (2)                      | 19.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |       |        |      |         |      |         |     |               |      |               |      |               |      |          |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |
| Road 1 (3)                      | 19.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |       |        |      |         |      |         |     |               |      |               |      |               |      |          |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |
| Road 1 (4)                      | 20.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |       |        |      |         |      |         |     |               |      |               |      |               |      |          |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |
| Road 1 (5)                      | 23.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |       |        |      |         |      |         |     |               |      |               |      |               |      |          |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |
| Road 1 (6)                      | 25.4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |       |        |      |         |      |         |     |               |      |               |      |               |      |          |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |
| Road 2 (1)                      | 26.9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |       |        |      |         |      |         |     |               |      |               |      |               |      |          |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |
| Road 2 (2)                      | 29.7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |       |        |      |         |      |         |     |               |      |               |      |               |      |          |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |            |      |



## RE-17 – REPLACEMENT OF MATERIALS, GEOTECHNICAL ENGINEERING REQUIREMENTS

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date of Works Undertaken</b> | Throughout                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Photographs</b>              | Plates 24–25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Chemical Testing</b>         | Refer to RE-15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Geotechnical Testing</b>     | Refer to RE-15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>In-situ Testing</b>          | <p><u>NNDGs</u><br/> MRN 24005-292<br/> MRN 24005-260<br/> MRN 24005-262<br/> MRN 24005-264<br/> MRN 24005-267<br/> MRN 24005-269<br/> MRN 24005-271<br/> MRN 24005-278<br/> MRN 24005-292<br/> MRN 24005-294<br/> MRN 24005-296<br/> MRN 24005-304<br/> MRN 24005-313<br/> MRN 24005-324</p> <p><u>CBRs</u><br/> MRN 24005-324<br/> MRN 24005-328<br/> MRN 24005-330</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Overview of Works</b>        | <p>The following specification was required for placement and compaction of upfill materials:</p> <ul style="list-style-type: none"> <li>• Compaction of Made Ground / engineered fill material to &gt;90% of the Maximum Dry Density (MDD) and &lt;10% air voids.</li> <li>• CBR &gt;5% at formation/underside of pile mat.</li> </ul> <p>Removal of shrinkable clay soils was not required given the proposed foundation solution being driven piles. Plasticity analysis of MG BF 101-116 has also confirmed the material to be non-plastic. Testing on natural soils has not been undertaken.</p> <p>The thickness of Made Ground re-engineered was variable depending on the extent of Made Ground, as shown on Urban Regen Base of Excavation drawings (405-002-001 and -002) presented in APPENDIX III.</p> <p>Geotechnical testing of the Made Ground fill material was undertaken prior to placement and is summarised in RE-15.</p> <p>In-situ SRD and NDG testing was completed by Murray Rix every third layer (c. 900 mm of fill) on a 25 m linear grid under the instruction and supervision of Urban Regen. Prior to each visit, the test engineer was provided with up-to-date MDD/OMC values from the corresponding soil test results to calibrate the tests. A referenced test grid is presented as drawing 14-768-026 and Urban Regen drawings in APPENDIX III, with each in-situ test referenced as per the grid. Full results are presented in APPENDIX VIII.</p> |





The tests confirmed that the compaction generally exceeds the required 90% of the MDD. It is therefore considered the Site has been sufficiently re-engineered in accordance with the specification.

CBR tests were also undertaken at formation (underside of pile mat/engineered capping layer) and referenced as per the grid. Results were generally >5% in accordance with the specification. Results are presented within APPENDIX VIII.

## RE-18 – IMPORTATION OF BULK FILL

|                                 |                                                                                                                                                                         |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date of Works Undertaken</b> | N/A                                                                                                                                                                     |
| <b>Overview of Works</b>        | No materials (bulk fill or aggregate) were required to be imported to the Site during the remediation and enabling works for Phase 1. All materials used were site-won. |

## RE-19 – PREPARATION OF GARDEN FOR COVER SYSTEM

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date of Works Undertaken</b> | Throughout works.                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Overview of Works</b>        | <p>All gardens have been prepared to 600 mm below the finished level to allow the placement of a 600 mm clean cover system.</p> <p>Levels of the gardens will be brought to the intended finished garden level following the importation of validated subsoil and topsoil.</p> <p>The placement of the garden cover system is currently outstanding. Interim validation letter reports pertaining to cover system validations will be reported under separate cover.</p> |

## RE-20 – PROVISION OF SUBSOIL

|                                 |                                                                                                                                                                                                                                                     |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date of Works Undertaken</b> | To be completed.                                                                                                                                                                                                                                    |
| <b>Overview of Works</b>        | <p>There is no source of site-won subsoil on-site therefore subsoil will be required to be imported for cover systems.</p> <p>The provision of subsoil is currently outstanding and will be reported in subsequent phases/under separate cover.</p> |

## RE-21 – PROVISION OF TOPSOIL

|                                 |                                                                                                                                                                                                                                                     |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date of Works Undertaken</b> | To be completed                                                                                                                                                                                                                                     |
| <b>Overview of Works</b>        | <p>There is no source of site-won topsoil on-site therefore topsoil will be required to be imported for cover systems.</p> <p>The provision of subsoil is currently outstanding and will be reported in subsequent phases/under separate cover.</p> |



## RE-22 – INDEPENDENT VALIDATION: WATCHING BRIEF

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date of Works Undertaken</b> | Throughout                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Overview of Works</b>        | <p>Throughout the remediation and enabling works Urban Regen maintained full-time supervision with E3P providing part-time supervision.</p> <p>Communication was maintained between parties throughout the works to allow for the project to progress and inform of any ongoing change.</p> <p>Regular site diaries were kept by E3P and Urban Regen with progress meetings between E3P and Urban Regen to communicate any changes to the programme.</p> |

## RE-23 – WASTE SOILS SURPLUS TO REQUIREMENTS

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date of Works Undertaken</b> | Throughout                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Photographs</b>              | Plate 26–28                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Overview of Works</b>        | <p>Mixed general waste including scrap metal and timber have been removed to a licensed waste facility.</p> <p>Visible ACM was handpicked and bagged for removal off-site. Waste tickets for the asbestos removal are presented in APPENDIX IX.</p> <p>Vegetation and subsequent chippings have been stockpiled in the west of the Site and are awaiting removal to a licensed waste facility.</p> <p>Geotechnically unsuitable material excavated from the Phase 1 area has been stockpiled and is awaiting a decision regarding removal or retention within the proposed POS.</p> <p>Waste tickets for future disposals will be provided in subsequent validation reports for future phases and on completion of the development.</p> |

## RE-24 – VALIDATION OF MATERIALS FOR POTABLE WATER SUPPLY INFRASTRUCTURE

|                                 |                                                                                                                                                                                                                                                     |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date of Works Undertaken</b> | To be completed                                                                                                                                                                                                                                     |
| <b>Overview of Works</b>        | An UKWIR assessment is required to determine the pipeline requirements post-remediation. Based on the original ground conditions and analysis of Made Ground materials used in the general turn over within Phase 1, barrier pipe will be required. |



## RE-25 – REMEDIAL VERIFICATION REPORT

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date of Works Undertaken</b> | Throughout                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Overview of Works</b>        | <p><b>This validation report covers all remediation and enabling works completed within Phase 1 up until January 2025.</b></p> <p>Supplementary interim validation reports/letters pertaining to any outstanding remediation and enabling works for future phases, as well as the validation of garden cover systems and gas membrane installations will be provided under separate cover.</p> |

## 4. POST REMEDIATION BUILD PHASE REQUIREMENTS – PHASE 1

This document details the construction works that are required to ensure full compliance with the remediation strategy, regulatory authorities, building control & warranty providers.

The following should be implemented during the build phase of the development:

- ✳ Laboratory testing of imported topsoil/subsoil at the correct volume by frequency.
- ✳ Installation of validated clean cover system in gardens and soft landscaped areas.
- ✳ Installation of vapour resistant/CS<sub>2</sub> gas protection measures. (A design statement for the installation of gas protection measures will be provided under separate cover).
- ✳ Installation of suitable (barrier) water supply pipe network in accordance with the completed UKWIR assessment.

The validation protocols are presented within the E3P Remediation and Enabling Works Strategy and are presented below.

### 4.1. COVER SYSTEM

The remediation and enabling works strategy for the Site, concerning the health of the future site users, includes the provision of a chemically suitable clean material to be installed in all garden and soft landscaped areas.

The construction of the clean cover/placement of clean material shall be in accordance with Table 2.

**Table 2 Construction and Validation of Cover System**

| SOFTSCAPE TYPE     | DEPTH                      |         | BREAK LAYER Y/N/TYPE | VALIDATION FREQUENCY      | TESTING SUITE | VALIDATION DOCUMENTATION |
|--------------------|----------------------------|---------|----------------------|---------------------------|---------------|--------------------------|
|                    | TOPSOIL                    | SUBSOIL |                      |                           |               |                          |
| <b>Back Garden</b> | 150                        | 450     | N                    | 1 per plot                | A/B/C/D       | Letter                   |
| <b>POS</b>         | Minimum 300 mm clean cover |         | N                    | 1 per 2000 m <sup>2</sup> | A/B/C/D       | Letter                   |

In accordance with the current requirements of the regulatory authorities, validation samples will be collected from all materials that are to be imported or re-used on-site.



Subsoil and topsoil shall be free of any deleterious materials, such as building materials, timber, plastics etc and conform to the requirements of BS 3882:2007.

Testing requirements for topsoil and subsoil are presented in Table 3.

**Table 3 Specification for Soil Testing**

| MATERIAL USE                        | TESTING FREQUENCY               | SUITE OF ANALYSIS |
|-------------------------------------|---------------------------------|-------------------|
| <b>Site-Generated</b>               |                                 |                   |
| <b>Site-Generated Subsoil</b>       | 1 Sample per 250 m <sup>3</sup> | A/B/C/D           |
| <b>Site-Generated Topsoil Cover</b> | N/A                             | N/A               |
| <b>Imported</b>                     |                                 |                   |
| <b>Subsoil Greenfield Source</b>    | 1 Sample per 250 m <sup>3</sup> | A/B/C/D           |
| <b>Subsoil Brownfield Source</b>    | 1 Sample per 250 m <sup>3</sup> | A/B/C/D           |
| <b>Topsoil Greenfield Source</b>    | 1 Sample per 250 m <sup>3</sup> | A/B/C/D           |
| <b>Topsoil Brownfield Source</b>    | 1 Sample per 50 m <sup>3</sup>  | A/B/C/D           |

**Notes**

Minimum 3 samples per source or the frequency stated, whichever is the greater number.

**Suites of Analysis:**

- A. Speciated PAH.
- B. Speciated TPH (C5-C35).
- C. Asbestos (ID).
- D. CLEA Inorganic Heavy Metals.

Garden and landscaped areas need to be backfilled with validated subsoil, and topsoil overlaying this in line with Table 3. Topsoil and subsoil are required to be confirmed as chemically suitable prior to placement

The placement of clean material in soft landscaping will be undertaken during the build phase works of the project. Levels have been left suitably low to accommodate the correct thickness of cover in gardens and landscaped areas.

The placement of subsoil and corresponding validation will be documented within the Garden Validation Letters (to be issued on completion of the contractor's works). If proposed utilities are to be placed within the cover system, the clean cover should be placed prior to installation of these utilities.

E3P will collect photographic evidence of the placement of 150 mm of certified topsoil and 450 mm of subsoil on completion of construction works. This element will also be checked by the Building Control Officer as part of the site completion prior to issuing of a CML certificate.

The garden validation procedure is detailed in Table 4.



**Table 4 Garden Validation Procedure**

| PROCEDURE                     | METHOD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Chemical Validation</b>    | <p>Subsoils and topsoils will need to be chemically analysed to confirm suitability for use with the proposed cover system prior to installation and completion of the garden systems.</p> <p>E3P will issue an email to the client with an assessment of the chemical suitability of both subsoils and topsoils.</p> <p>If acceptable the materials can be installed to the required depth at which time the plot will be deemed complete following a validation procedure by a suitability qualified E3P engineer.</p> |
| <b>Trial Holes</b>            | Trial holes are deemed necessary for all plots and in landscaped areas at the frequencies specified in Table 3.                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Validation</b>             | Photographic evidence will be taken by E3P of the topsoil placement demonstrating the depth of topsoil and practical completion of works are required for each and every plot.                                                                                                                                                                                                                                                                                                                                           |
| <b>Validation Certificate</b> | Once the photographs of the placement of topsoil (over the clean material) have been provided, E3P will issue a plot specific validation certificate to demonstrate that the required subsoil and topsoil has been placed in the required garden plots along with the chemical analysis.                                                                                                                                                                                                                                 |
| <b>Completion Report</b>      | Upon completion of all garden and landscaped areas within the development, a Completion Report will be issued providing the confirmation that all remediation requirements have been achieved.                                                                                                                                                                                                                                                                                                                           |

Figure 2 provides an example of a garden validation photographs that will be required for each plot.



**Figure 2 Example of Plot Cover System Validation**

| <b><u>Plot Validation</u></b>                                                                                                                                                                                                           |  | 20 / 20 (100%)                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------|
| <b>Plot Validation 1</b>                                                                                                                                                                                                                |  | 5 / 5 (100%)                        |
| <b>Plot Number</b>                                                                                                                                                                                                                      |  | 117                                 |
| <b>Is Plot Ready</b>                                                                                                                                                                                                                    |  | Yes                                 |
| <b>Installation Standard</b>                                                                                                                                                                                                            |  | Pass                                |
| <b>Depth of Cover System Materials (record the depth and support with Photo down the hole)</b>                                                                                                                                          |  | 1000                                |
| <div>   </div> <div> <span>Photo 1</span> <span>Photo 2</span> </div> |  |                                     |
| <b>Depth of Topsoil (mm)</b>                                                                                                                                                                                                            |  | 150                                 |
| <b>Depth of Subsoil (mm)</b>                                                                                                                                                                                                            |  | 850                                 |
| <b>Depth of Cover System at Ground Level (Photo)</b>                                                                                                                                                                                    |  | <input checked="" type="checkbox"/> |
|  <div>Photo 3</div>                                                                                                                                  |  |                                     |
| <b>Depth of Cover System in Relation to Plot (Ensure the whole plot can be seen in the photo)</b>                                                                                                                                       |  | <input checked="" type="checkbox"/> |
|  <div>Photo 4</div>                                                                                                                                  |  |                                     |
| <b>Soil suitable</b>                                                                                                                                                                                                                    |  | Yes                                 |
| <b>Geotextile membrane present</b>                                                                                                                                                                                                      |  | N/A                                 |



## 4.2. GROUND GAS PROTECTION MEASURES

The validation of ground gas mitigations should be completed in line with the corresponding Gas Protection Design Report (*to be completed*).

## 4.3. POTABLE WATER SUPPLY

A United Utilities Risk Assessment for Water Pipes will be required to determine the pipeline requirements post-remediation. Based on the original ground conditions and analysis of Made Ground materials used in the general turn over within Phase 1, barrier pipe will be required.

## 5. CONCLUSION

The remediation elements identified within the approved Remediation and Enabling Works Strategy **for Phase 1** have been completed with validation testing confirming that the works have been completed to the required standard.

As part of the on-going construction works the developer will be required to construct and validate the items listed below in strict accordance with the requirements of the regulatory authorities as documented in detail within this report.

- ✳ Installation of validated clean cover system with break layer in gardens and soft landscaped areas.
- ✳ Installation of vapour resistant/CS2 gas protection measures. (A design statement for the installation of gas protection measures will be provided under separate cover).
- ✳ Installation of suitable (barrier) water supply pipe network in accordance with the completed UKWIR assessment.

**END OF REPORT**



# APPENDIX I

## LIMITATIONS





## **GENERAL**

1. This report and any associated works (together comprising the "Services") were compiled and carried out by E3P for the client (as present in Section 1) under the E3P "Terms of Business" or with those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed and outlined in the body of the report.
2. Unless explicitly agreed otherwise, in writing, this report has been prepared under E3P Standard Terms and Business as included within our proposal to the Client.
3. Project-specific appointment documents may be agreed upon at our discretion and a charge may be levied for both the time to review and finalise appointment documents and also for associated changes to the appointment terms. E3P reserves the right to amend the fee should any changes to the appointment terms create an increased risk to E3P.
4. The report needs to be considered in light of the proposal and associated limitations of scope. The report needs to be read in full and isolated sections cannot be used without full reference to other elements of the report and any previous works referenced within the report.

## **PHASE 1 GEOENVIRONMENTAL AND PRELIMINARY RISK ASSESSMENTS**

5. Coverage: This section covers reports with the following titles or combination of titles: Phase 1; Desktop Study; Geoenvironmental Assessment; Development Appraisal; Preliminary Environmental Risk Assessment; Constraints Report; Due Diligence Report; Geotechnical Development Review; Environmental Statement; Environmental Chapter; Baseline Environmental Assessment; Project Scope Summary Report (PSSR), Program Environmental Impact Report (PEIR), Geotechnical Development Risk Register; Agricultural Land Assessment; Mineral Safeguarding Assessment; Desk Top Coal Mining Risk Assessment; Hydrogeological Appraisal; Construction Environmental Management Plan; and Site Water Management Plan.
6. The works undertaken to prepare this report comprised a study of available and easily documented information from a variety of sources (including the Client), together with (where appropriate) a brief walkover inspection of the Site and correspondence with relevant authorities and other interested parties. Due to the short timescales associated with these projects responses may not have been received from all parties. E3P cannot be held responsible for any disclosures that are provided post-production of our report and will not automatically update our report.
7. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only for the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, E3P reserves the right to review such information and, if warranted, to modify the opinions accordingly.
8. It should be noted that any risks identified in this report are perceived risks based on the information reviewed. Actual risks can only be assessed following intrusive investigations of the Site.



9. Where mention has been made to the identification of Japanese Knotweed and other invasive plant species and asbestos or asbestos-containing materials, this is for indicative purposes only and does not constitute or replace full and proper surveys completed by suitably qualified and experienced specialists in these fields.
10. E3P does not warrant work/data undertaken/provided by others.

### **INTRUSIVE INVESTIGATION REPORTS**

11. Coverage: The following report titles (or combination) may cover this category of work: Geoenvironmental Site Investigation; Geotechnical Assessment; GIR (Ground Investigation Reports); Preliminary Environmental And Geotechnical Risk Assessment; Preliminary Summary; Coal Mining Risk Assessment, Ground Gas Addendum; and, Geotechnical Risk Register.
12. The investigation has been undertaken to provide information concerning either:
  - I. The type and degree of contamination present at the Site in order to allow a generic quantitative risk assessment to be undertaken; or
  - II. Information on the soil properties present at the Site to allow for geotechnical development constraints to be considered.
13. The scope of the investigation was selected on the basis of the specific development and land use scenario proposed by the Client and may be inappropriate to another form of development or scheme. If the development layout was not known at the time of the investigation the report findings may need revisiting once the development layout is confirmed.
14. Unless otherwise specified in the scope of works, any site drawing(s) provided in this report is (are) not meant to be an accurate base plan but is (are) used to present the general relative locations of features on, and surrounding, the Site. Features (intrusive and sample locations etc) annotated on site plans are not drawn to scale but are centred over the approximate location. Such features should not be used for setting out and should be considered indicative only.
15. For contamination purposes, the objectives of the investigation are limited to establishing the risks associated with potential contamination sources with the potential to cause harm to human health, building materials, the environment (including adjacent land), or controlled waters.
16. For geotechnical investigations, the purpose is to broadly consider potential development constraints associated with the physical property of the soils underlying the Site within the context of the proposed future or continued use of the Site, as stated within the report.
17. The amount of exploratory work, soil property testing and chemical testing undertaken has necessarily been restricted by various factors which may include accessibility, the presence of services; existing buildings; current site usage or short timescales. The exploratory holes completed assess only a small percentage of the area in relation to the overall size of the Site, and as such can only provide a general indication of conditions.



18. The number of sampling points and the methods of sampling and testing do not preclude the possible existence of contamination where concentrations may be significantly higher than those actually encountered or ground conditions that vary from those identified. In addition, there may be exceptional ground conditions elsewhere on the Site which have not been disclosed by this investigation and which have therefore not been taken into account in this report.
19. The inspection, testing and monitoring records relate specifically to the investigation points and the timeframe that the works were undertaken. They will also be limited by the techniques employed. As part of this assessment, E3P has used reasonable skill and care to extrapolate conditions between these points based on assumptions to develop our interpretation and conclusions.
20. The assumption made in forming our conclusions is that the ground and groundwater conditions (both chemically and physically) are the same as have been encountered during the works undertaken at the specific points of investigation and at the time of the investigation.
21. Conditions can change between investigation points both spatially and over time and these interpretations should therefore be considered indicative. The assessment of extreme weather events and their impact on ground conditions is not within the scope of E3P's work.
22. The risk assessment and opinions provided are based on currently available guidance relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values. Specific assumptions associated with the risk assessment process have been outlined within the body or associated appendix of the report.
23. Additional investigations may be required in order to satisfy relevant planning conditions or to resolve any engineering and environmental issues.
24. Where soil contamination concentrations recorded as part of this investigation are used for commentary on the potential waste classification of soils for disposal purposes, these should be classed as indicative only. Due consideration should be given to the variability of contaminant concentrations taken from targeted samples versus bulk excavated soils and the potential variability of contaminant concentrations between sampling locations. Where major waste disposal operations are considered, targeted waste classification investigations should be designed and the waste classification and any subsequent disposal option agreed upon with licenced subcontractors and/or the relevant regulators.
25. The results of the asbestos testing are factually reported and interpretation is given as to how this relates to the previous use of the Site, the types of ground encountered and site conceptualisation. This does not however constitute a formal asbestos assessment. These results should be treated cautiously and should not be relied upon to provide detailed and representative information on the delineation, type and extent of bulk ACMs and/or trace loose asbestos fibres within the soil matrix at the Site.
26. If costs have been included in relation to additional Site works, and/or site remediation works these must be considered as indicative only and must be confirmed by a qualified quantity surveyor.



## **EUROCODE 7: GEOTECHNICAL DESIGN**

27. On 1st April 2010, BS EN 1997-1:2004 (Eurocode 7: Geotechnical Design – Part 1) became the mandatory baseline standard for geotechnical ground investigations.
28. In terms of geotechnical design for foundations, slopes, retaining walls and earthworks, EC7 sets guidance on design procedures including specific guidance on the numbers and spacings of boreholes for geotechnical design, there are limits to methods of ground investigation and the quality of data obtained and there are also prescriptive methods of assessing soil strengths and methods of design. Unless otherwise explicitly stated, the work has not been undertaken in accordance with EC7. A standard geotechnical interpretative report will not meet the requirements of the Geotechnical Design Report (GDR) under Eurocode 7. The GDR can only be prepared following confirmation of all structural loads and serviceability requirements. The report is likely to represent a Ground Investigation Report (GIR) under the Eurocode 7 guidance.

## **DETAILED QUANTITATIVE RISK ASSESSMENTS AND REMEDIATION AND ENABLING WORK STRATEGY REPORTS**

29. These reports build upon previous report versions and associated notes. The scope of the investigation, further testing and monitoring and associated risk assessments were selected based on the specific development and land use scenario proposed by the Client and may not be appropriate to another form of development or scheme layout. The risk assessment and opinions provided are based on currently available approaches in the generation of Site Specific Assessment Criteria relating to contamination concentrations and are not considered to represent a risk in a specific land use scenario to a specific receptor. No liability can be accepted for the retrospective effects of any future changes or amendments to these values, associated models or associated guidance.
30. The outputs of the Detailed Quantitative Risk Assessments are based upon the manipulation of standard risk assessment models. These are our interpretation of the risk assessment criteria.
31. Before adoption on-site, assessment criteria will need to be discussed and agreed upon with the Regulatory Authorities prior to adoption on Site. The regulatory discussion and engagement process may result in an alternative interpretation being determined and agreed. The process and timescales associated with the Regulatory Authority engagement are not within the control of E3P. All costs and programmes presented as a result of this process should be validated by a quantity surveyor and should be presumed to be indicative.
32. E3P does not accept liability for any subcontract work that has not been completed in strict accordance with an approved E3P Remediation and Enabling Works Strategy.

## **GEOTECHNICAL DESIGN REPORT (GDR)**

33. The GDR can only be prepared following confirmation of all structural loads and serviceability requirements. All the relevant information needs to be provided to allow for a GDR to be produced.



## **MONITORING (INCLUDING REMEDIATION MONITORING REPORTS AND BUILD PHASE MITIGATION)**

34. These reports are factual and comprise monitoring, normally groundwater and ground gas and data provided by contractors as part of earthworks or remedial works.
35. The data is presented and will be compared with assessment criteria.

# APPENDIX II

## GLOSSARY





## TERMS

|              |                                                            |                |                                                      |
|--------------|------------------------------------------------------------|----------------|------------------------------------------------------|
| <b>ACM</b>   | Asbestos-containing material                               | <b>MMP</b>     | Materials management plan                            |
| <b>ADS</b>   | Acoustic design statement                                  | <b>ND</b>      | Not detected                                         |
| <b>AST</b>   | Above-ground storage tank                                  | <b>NDP</b>     | Nuclear density probe                                |
| <b>BGS</b>   | British Geological Survey                                  | <b>NMP</b>     | Noise management plan                                |
| <b>BSI</b>   | British Standards Institute                                | <b>NPSE</b>    | Noise policy statement for England                   |
| <b>BTEX</b>  | Benzene, toluene, ethylbenzene, xylenes                    | <b>NR</b>      | Not recorded                                         |
| <b>MRA</b>   | Mining Remediation Authority                               | <b>PAH</b>     | Polycyclic aromatic hydrocarbon                      |
| <b>CBR</b>   | California bearing ratio                                   | <b>PCB</b>     | Polychlorinated biphenyl                             |
| <b>CIEH</b>  | Chartered Institute of Environmental Health                | <b>PI</b>      | Plasticity index                                     |
| <b>CIRIA</b> | Construction Industry Research Association                 | <b>PID</b>     | Photo ionisation detector                            |
| <b>CLEA</b>  | Contaminated land exposure assessment                      | <b>POS</b>     | Public open space                                    |
| <b>CML</b>   | Council of Mortgage Lenders                                | <b>PPE</b>     | Personnel protective equipment                       |
| <b>CoC</b>   | Contaminants of concern                                    | <b>ProPG</b>   | Professional practice guidance                       |
| <b>CSM</b>   | Conceptual site model                                      | <b>QA</b>      | Quality assurance                                    |
| <b>DNAPL</b> | Dense non-aqueous phase liquid (chlorinated solvents, PCB) | <b>SGV</b>     | Soil guideline value                                 |
| <b>DWS</b>   | Drinking water standard                                    | <b>SPH</b>     | Separate-phase hydrocarbon                           |
| <b>EA</b>    | Environment Agency                                         | <b>SPT</b>     | Standard penetration test                            |
| <b>EQS</b>   | Environmental quality standard                             | <b>SVOC</b>    | Semi-volatile organic compound                       |
| <b>FFL</b>   | Finished floor level                                       | <b>TPH</b>     | Total and speciated petroleum hydrocarbon            |
| <b>GAC</b>   | General assessment criteria                                | <b>TPH CWG</b> | Total Petroleum Hydrocarbon (Criteria Working Group) |
| <b>GL</b>    | Ground level                                               | <b>UKWIR</b>   | United Kingdom Water Infrastructure Risk             |
| <b>GSV</b>   | Gas screening value                                        | <b>UST</b>     | Underground storage tank                             |
| <b>HCV</b>   | Health criteria value                                      | <b>VCC</b>     | Vibro-concrete column                                |
| <b>ICSM</b>  | Initial conceptual site model                              | <b>VOC</b>     | Volatile organic compound                            |
| <b>LEL</b>   | Lower explosive limit                                      | <b>VRSC</b>    | Vibro-replacement stone columns                      |
| <b>LMRL</b>  | Lower method reporting limit                               | <b>VSC</b>     | Vibro-stone columns                                  |
| <b>LNAPL</b> | Light non-aqueous phase liquid (petrol, diesel, kerosene)  | <b>WHO</b>     | World Health Organisation                            |
| <b>MCV</b>   | Moisture condition value                                   | <b>WRAP</b>    | Waste and Resources Action Programme                 |
| <b>MIBK</b>  | Methyl isobutyl ketone                                     | <b>WTE</b>     | Water table elevation                                |



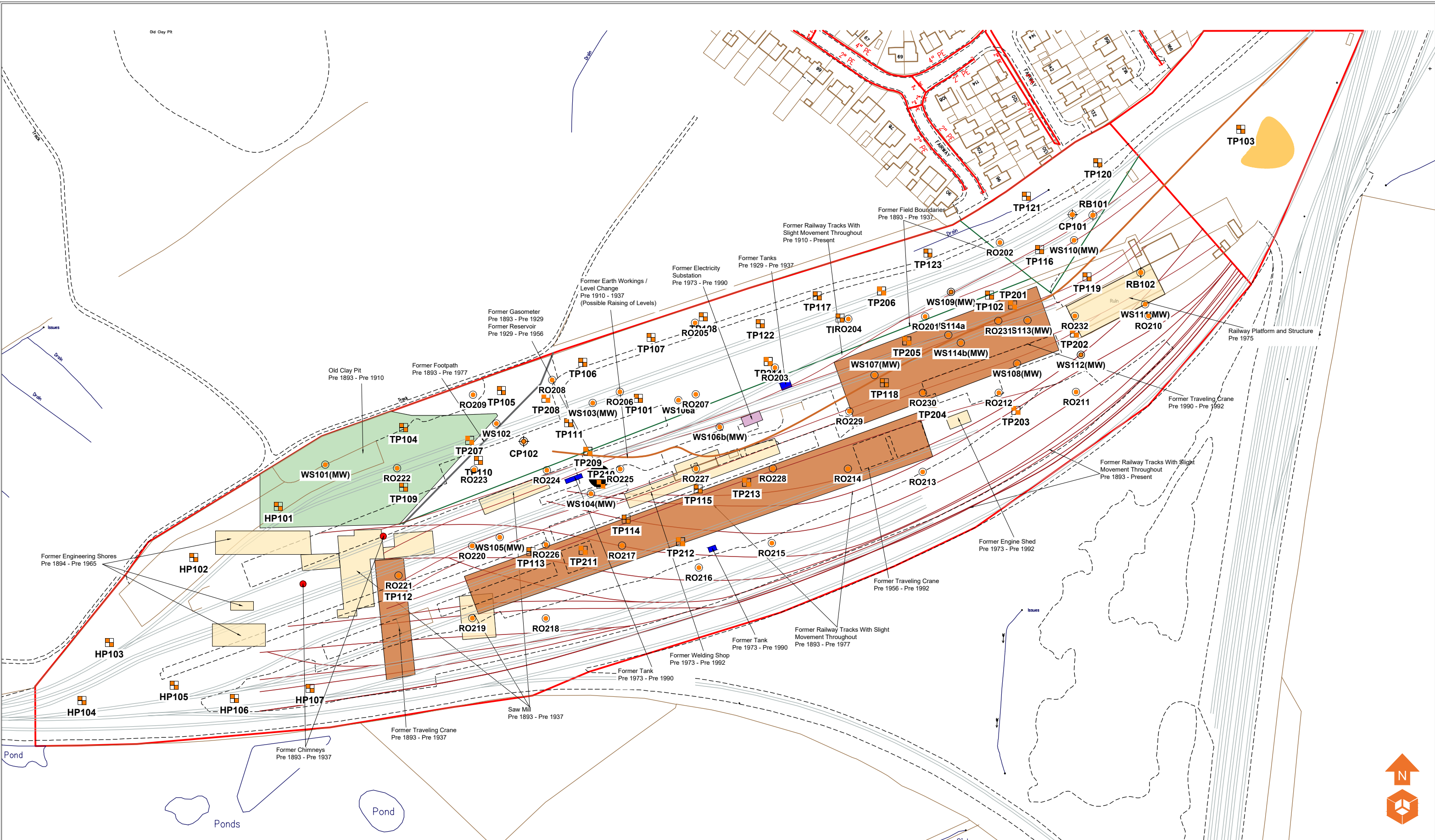


|                |                                                            |                         |                                         |
|----------------|------------------------------------------------------------|-------------------------|-----------------------------------------|
| <b>m</b>       | Metres                                                     | <b>ppm</b>              | Parts per million                       |
| <b>km</b>      | Kilometres                                                 | <b>mg/m<sup>3</sup></b> | Milligram per metre cubed               |
| <b>% v/v</b>   | Percent volume in air                                      | <b>m bgl bgl</b>        | Metres below ground level               |
| <b>mb</b>      | Millibars (atmospheric pressure)                           | <b>m bcl</b>            | Metre below cover level                 |
| <b>l/hr</b>    | Litres per hour                                            | <b>mAOD</b>             | Metres above ordnance datum (sea level) |
| <b>µg/l</b>    | Micrograms per litre (parts per billion)                   | <b>kN/m<sup>2</sup></b> | Kilonewtons per metre squared           |
| <b>ppb</b>     | Parts per billion                                          | <b>µm</b>               | Micrometre                              |
| <b>mg/kg</b>   | Milligrams per kilogram (parts per million)                | <b>SSRT</b>             | Site Specific Remediation Target        |
| <b>PSD</b>     | Particle Size Distribution                                 | <b>DD</b>               | Dry Density                             |
| <b>CL:AIRE</b> | Contaminated Land: Applications in Real Environments       | <b>Mc</b>               | Moisture Content                        |
| <b>ρ</b>       | Bulk Density                                               | <b>GPR</b>              | Ground Penetrating Radar                |
| <b>NDP</b>     | Nuclear Density Probe                                      | <b>FFL</b>              | Finished Floor Level                    |
| <b>LEL</b>     | Lower Explosive Limit                                      | <b>UKWIR</b>            | UK Water Industry Research              |
| <b>CIRIA</b>   | Construction Industry Research and Information Association | <b>LOD</b>              | Limit of Detection                      |

# APPENDIX III

## DRAWINGS

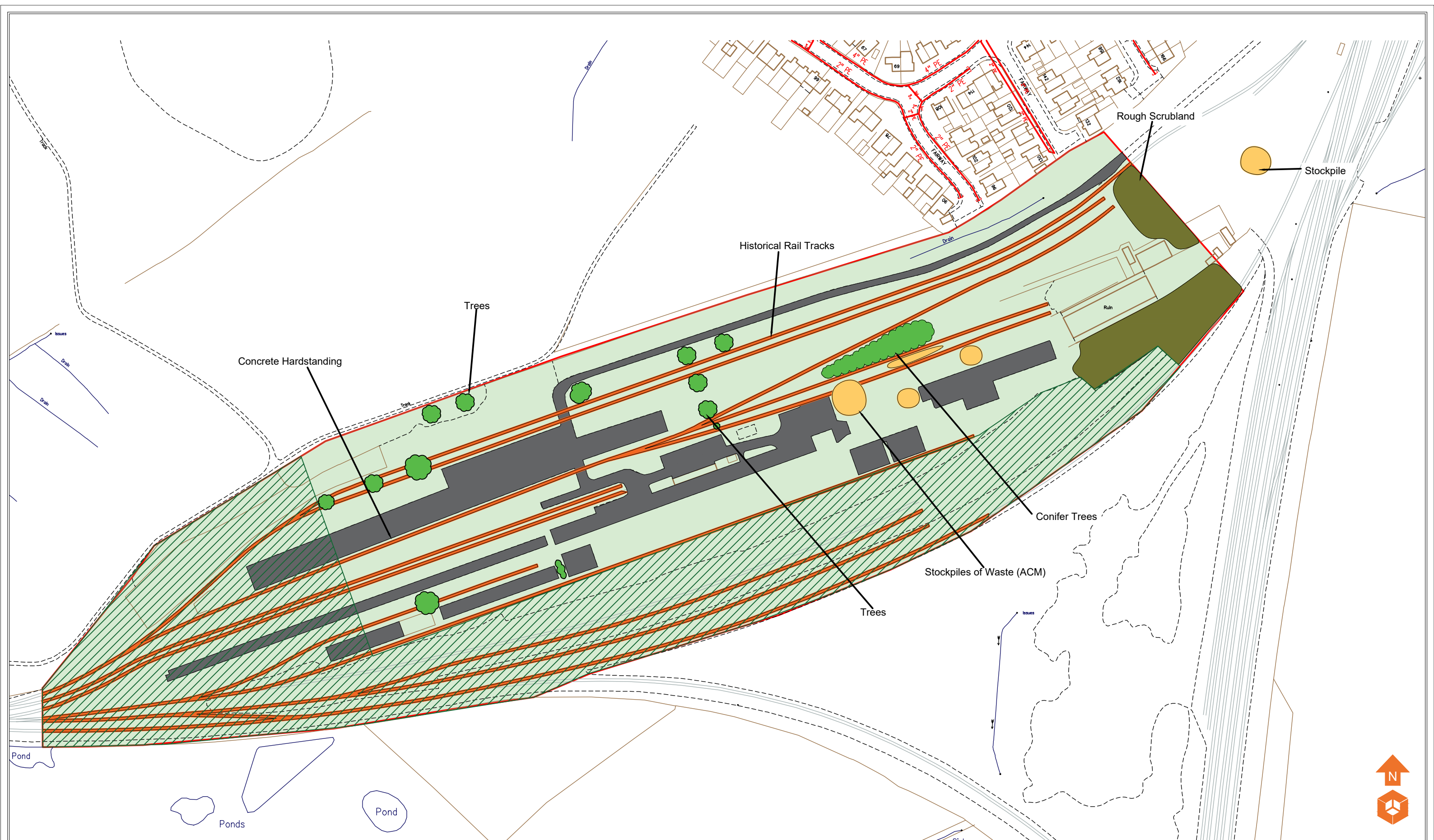




|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                             |                                 |                                             |                             |                             |                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                        |                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------------------|---------------------------------------------|-----------------------------|-----------------------------|---------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>Historical Features</div> <div><div><div><div></div><div>Former Commercial Buildings / Structures</div></div><div><div></div><div>Former Traveling Cranes</div></div><div><div></div><div>Old Clay Pit</div></div><div><div></div><div>Former Tanks</div></div><div><div></div><div>Former Gasometer / Reservoir</div></div><div><div></div><div>Former Footpath</div></div><div><div></div><div>Former Field Boundaries</div></div><div><div></div><div>Former Railway Tracks</div></div><div><div></div><div>Former Earth Workings</div></div></div><div><div><div></div><div>Former Chimneys</div></div><div><div></div><div>Former Electricity Substation</div></div></div></div> | <div>Location Symbols</div> <div><div><div><div></div><div>Approximate Window Sample Probehole Location (March 2021)</div></div><div><div></div><div>Approximate Window Sample Probehole Location with Install (March 2021)</div></div><div><div></div><div>Approximate Trial Pit Location (March 2021)</div></div><div><div></div><div>Approximate Rotary Borehole Location (March 2021)</div></div><div><div></div><div>Approximate Trial Pit Location (June 2021)</div></div><div><div></div><div>Approximate Rotary Borehole Location (July 2021)</div></div><div><div></div><div>Approximate Hand Dug Pit Location (July 2021)</div></div><div><div></div><div>Approximate Stockpile Sample Location (July 2021)</div></div></div></div> | <div>Notes:</div>           |                                 |                                             |                             |                             | <div>Client:</div> <div>Kellen Homes</div>                    |  | <div>Job No:</div> <div>14-768</div>                                                                                                                                                                                                                                                                                                                                                                                                       | <div>Date:</div> <div>25.03.2022</div> | <div><div><div></div><div>e3p</div></div><div>Environmental Engineering Partnership Ltd<br/>Taylor Road, Trafford Park<br/>Urmston, Manchester, M41 7JQ<br/>Tel: 0161 707 9612<br/>E-mail: info@e3p.co.uk<br/>Website: www.e3p.co.uk</div></div> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                             |                                 |                                             |                             |                             | <div>Job Title:</div> <div>Heywood Road, Castleton</div>      |  | <div>Drawing No:</div> <div>003</div>                                                                                                                                                                                                                                                                                                                                                                                                      | <div>Scale:</div> <div>NTS @ A3</div>  |                                                                                                                                                                                                                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <div>P1</div> <div>P1</div> | <div>REVB</div> <div>REVA</div> | <div>25.03.2022</div> <div>31.03.2021</div> | <div>EB</div> <div>EB</div> | <div>JS</div> <div>EF</div> | <div>Drawing Title:</div> <div>Historical Features Plan</div> |  | <div>The client must not amend any drawing, design or other intellectual property produced by E3P Ltd without permission in writing from E3P Ltd in advance of any amendments being made. In the event that such written permission is not obtained in advance of the amendments being made, E3P Ltd shall not be liable for any damage and/or losses occurring as a result of the amended drawing, design or intellectual property.</div> |                                        |                                                                                                                                                                                                                                                  |

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Site Features

- Overgrown Trees
- Concrete Hardstanding
- Rough Scrubland
- Trees
- Stockpiles of Waste (Possible ACM)
- Historical Rail Tracks

Notes:

|       |       |            |       |         |
|-------|-------|------------|-------|---------|
| P1    | REVB  | 11.03.2022 | HM    | JS      |
| P1    | REVA  | 15.04.2021 | EB    | EF      |
| Phase | Issue | Date       | Drawn | Checked |

Client:

Kellen Homes

Job Title:

Heywood Road,  
Castleton

Job No:

14-768

Drawing No:

004

Date:

11.03.2022

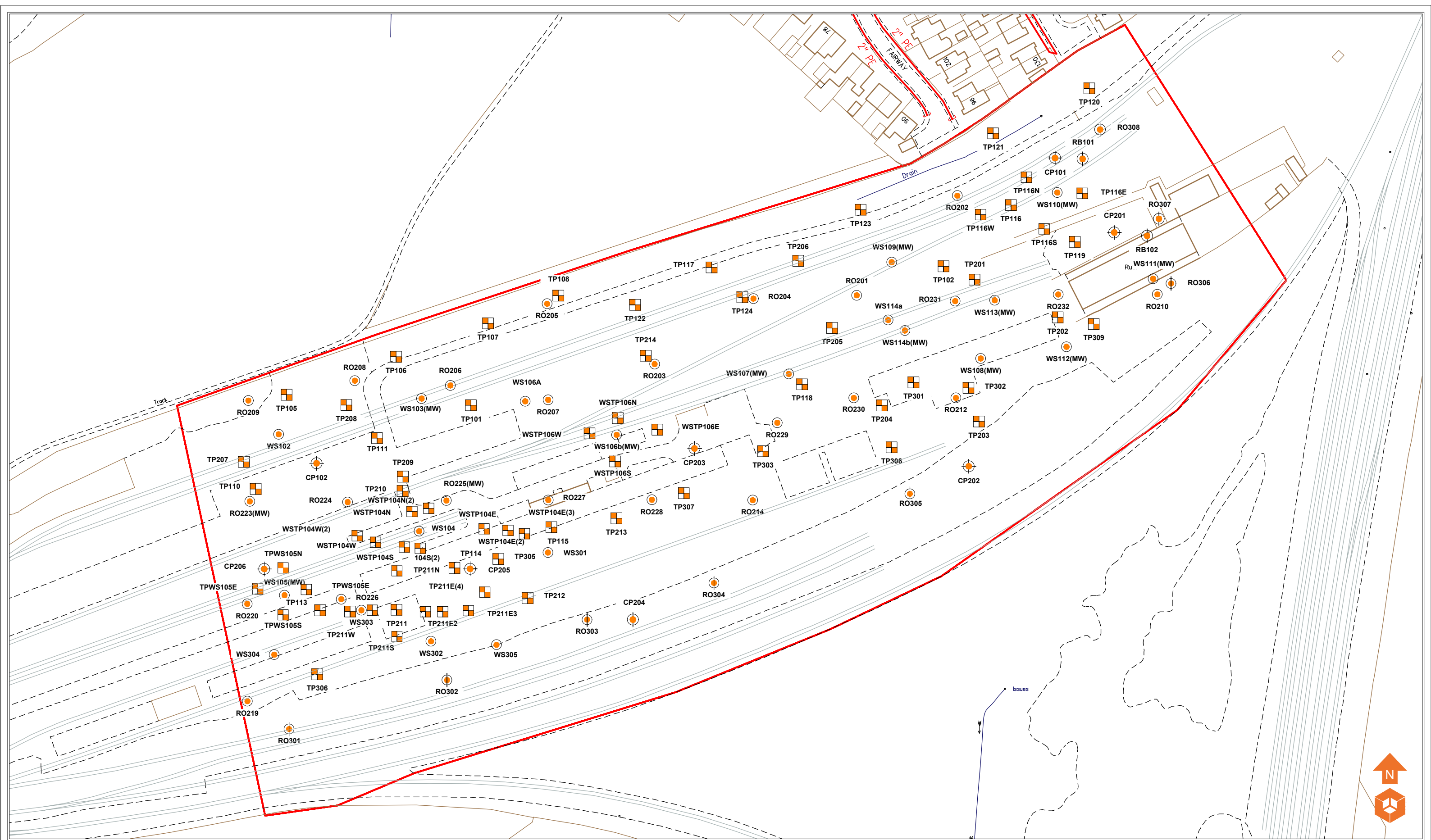
Scale:

NTS @ A3



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Location Symbols

Approximate Window Sample Probehole Location (March 2021)

Approximate Window Sample Probehole Location with Install (March 2021)

Approximate Trial Pit Location (March 2021)

Approximate Rotary Borehole Location (March 2021)

Approximate Trial Pit Location (June 2021)

Approximate Rotary Borehole Location (July 2021)

Approximate Hand Dug Pit Location (July 2021)

Approximate Stockpile Sample Location (July 2021)

Approximate Location of Rotary Borehole

Approximate Cable Percussive Borehole Location (March 2021)

Approximate Cable Percussive Borehole Location (June 2023)

Approximate Window Sample Probehole Location (December 2023)

Notes:

|       |       |            |       |         |
|-------|-------|------------|-------|---------|
| P1    | REVI  | 14.12.2023 | OW    | JS      |
| P1    | REVG  | 29.08.2023 | LM    | JS      |
| P1    | REVG  | 30.01.2023 | EB    | JS      |
| P1    | REVI  | 16.01.2023 | HM    | JS      |
| P1    | REVE  | 12.12.2022 | HM    | EC      |
| P1    | REVD  | 19.10.2022 | HM    | EC      |
| P1    | REVC  | 30.03.2022 | EB    | JS      |
| P1    | REVB  | 11.03.2022 | HM    | JS      |
| P1    | REVA  | 25.03.2021 | EB    | EF      |
| Phase | Issue | Date       | Drawn | Checked |

Client:

Kellen Homes

Job Title:

Heywood Road,  
Castleton

Job No:

14-768

Drawing No:

005

Drawing Title:

Exploratory Hole  
Location Plan

Date:

14.12.2023

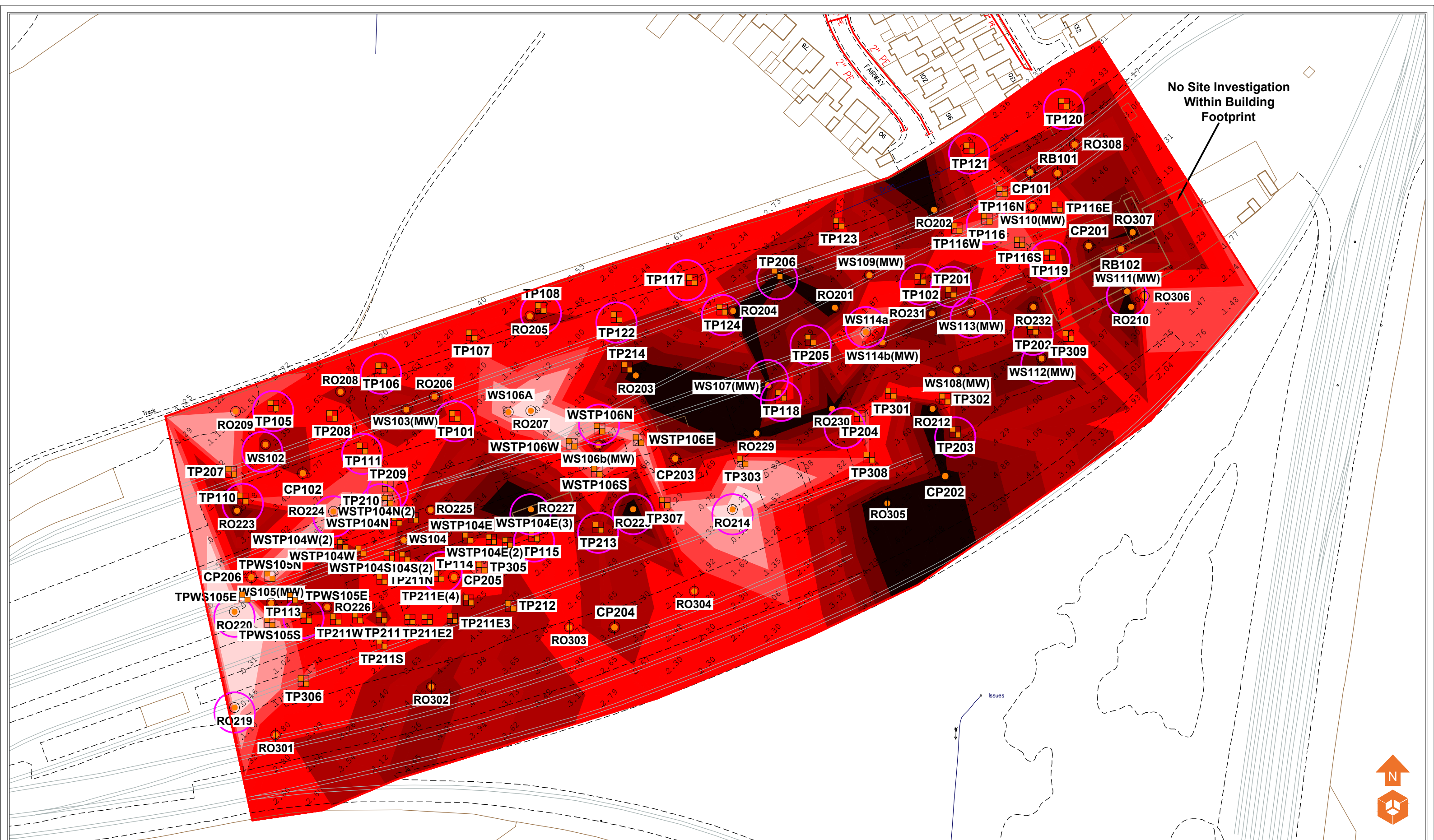
Scale:

NTS @ A3

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| Location Symbols |                                                                        |  |                                                             |
|------------------|------------------------------------------------------------------------|--|-------------------------------------------------------------|
|                  | Approximate Window Sample Probehole Location (March 2021)              |  | Approximate Cable Percussive Borehole Location (March 2021) |
|                  | Approximate Window Sample Probehole Location with Install (March 2021) |  | Approximate Cable Percussive Borehole Location (June 2023)  |
|                  | Approximate Trial Pit Location (March 2021)                            |  |                                                             |
|                  | Approximate Rotary Borehole Location (March 2021)                      |  |                                                             |
|                  | Approximate Trial Pit Location (June 2021)                             |  |                                                             |
|                  | Approximate Rotary Borehole Location (July 2021)                       |  |                                                             |
|                  | Approximate Hand Dug Pit Location (July 2021)                          |  |                                                             |
|                  | Approximate Stockpile Sample Location (July 2021)                      |  |                                                             |
|                  | Approximate Location of Rotary Borehole                                |  |                                                             |

| Made Ground Depth (m) |                                   |
|-----------------------|-----------------------------------|
|                       | Depth of Made Ground 0.00 - 0.49m |
|                       | Depth of Made Ground 0.50 - 0.99m |
|                       | Depth of Made Ground 1.00 - 1.49m |
|                       | Depth of Made Ground 2.00 - 2.49m |
|                       | Depth of Made Ground 2.50 - 2.99m |
|                       | Depth of Made Ground 3.00 - 3.49m |
|                       | Depth of Made Ground >3.50m       |
|                       | Depth of Made Ground 2.50 - 2.99m |
|                       | Depth of Made Ground 3.00 - 3.49m |
|                       | Depth of Made Ground 3.00 - 3.49m |

|  |                                |
|--|--------------------------------|
|  | Base of Made Ground Not Proven |
|--|--------------------------------|

| Notes: |       |            |       |         |  |
|--------|-------|------------|-------|---------|--|
| P1     | REVG  | 30.08.2023 | LM    | JS      |  |
| P1     | REVF  | 31.01.2023 | EB    | JS      |  |
| P1     | REVE  | 13.12.2022 | HM    | EC      |  |
| P1     | REVD  | 30.03.2022 | EB    | JS      |  |
| P1     | REVC  | 11.03.2022 | HM    | JS      |  |
| P1     | REVB  | 07.05.2021 | EB    | JS      |  |
| P1     | REVA  | 31.03.2021 | EB    | EF      |  |
| Phase  | Issue | Date       | Drawn | Checked |  |

| Client:                 |  |
|-------------------------|--|
| Kellen Homes            |  |
| Job Title:              |  |
| Heywood Road, Castleton |  |

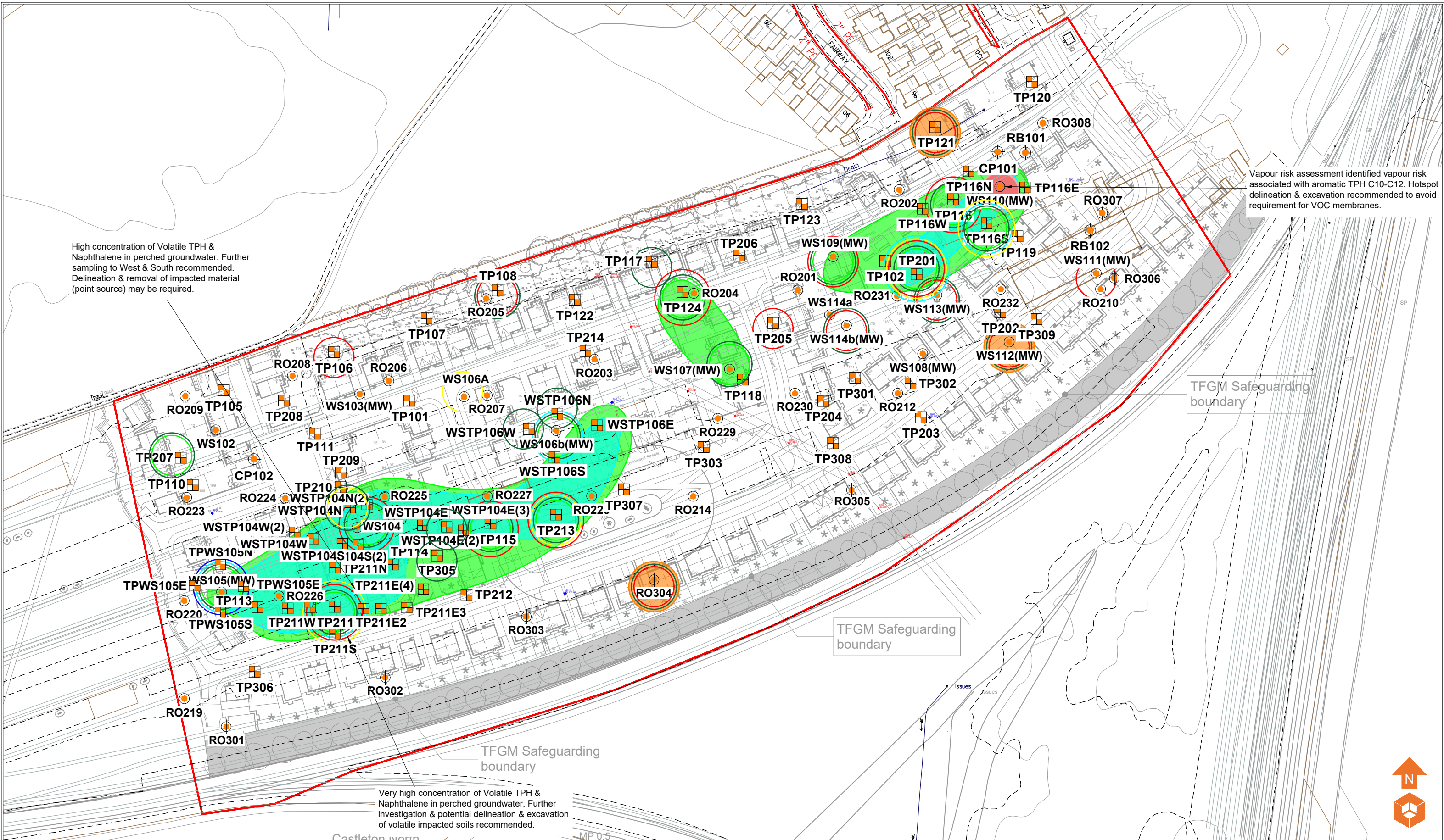
| Job No:     |
|-------------|
| 14-768      |
| Drawing No: |
| 106         |

|                   |
|-------------------|
| Date:             |
| 30.08.2023        |
| Scale:            |
| NTS @ A3          |
| Of Made<br>d Plan |

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Location Symbols

Approximate Window Sample Probehole Location (March 2021)

Approximate Window Sample Probehole Location with Install (March 2021)

Approximate Trial Pit Location (March 2021)

Approximate Rotary Borehole Location (March 2021)

Approximate Trial Pit Location (June 2021)

Approximate Rotary Borehole Location (July 2021)

Approximate Hand Dug Pit Location (July 2021)

Approximate Stockpile Sample Location (July 2021)

Approximate Location of Rotary Borehole

Approximate Cable Percussive Borehole Location

Heavy metals

Mercury (volatile)

Asbestos (chrysotile <0.001% wt/wt)

Napathalene (volatile)

Non-volatile PAH

TPH C10-C16 (volatile)

TPH C16-C21 (non-volatile)

Volatile TPH & Naphthalene in Groundwater Sample.

Vapour Risk (TPH C10-C12 Aromatic)

Napathalene Impacted Soils

TPH Impacted Soils

Volatile Mercury

Notes:

|       |       |            |       |         |
|-------|-------|------------|-------|---------|
| P1    | REVA  | 23.08.2023 | EB    | JS      |
| Phase | Issue | Date       | Drawn | Checked |

Client:

Kellen Homes

Job No:

14-768

Drawing No:

024

Date:

23.08.2023

Scale:

NTS @ A3

Job Title:

Heywood Road, Castleton

Drawing Title:

Contamination Issues Plan and Proposed Development Plan

e3p

Environmental Engineering Partnership Ltd

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Urmston, Manchester, M41 7JQ

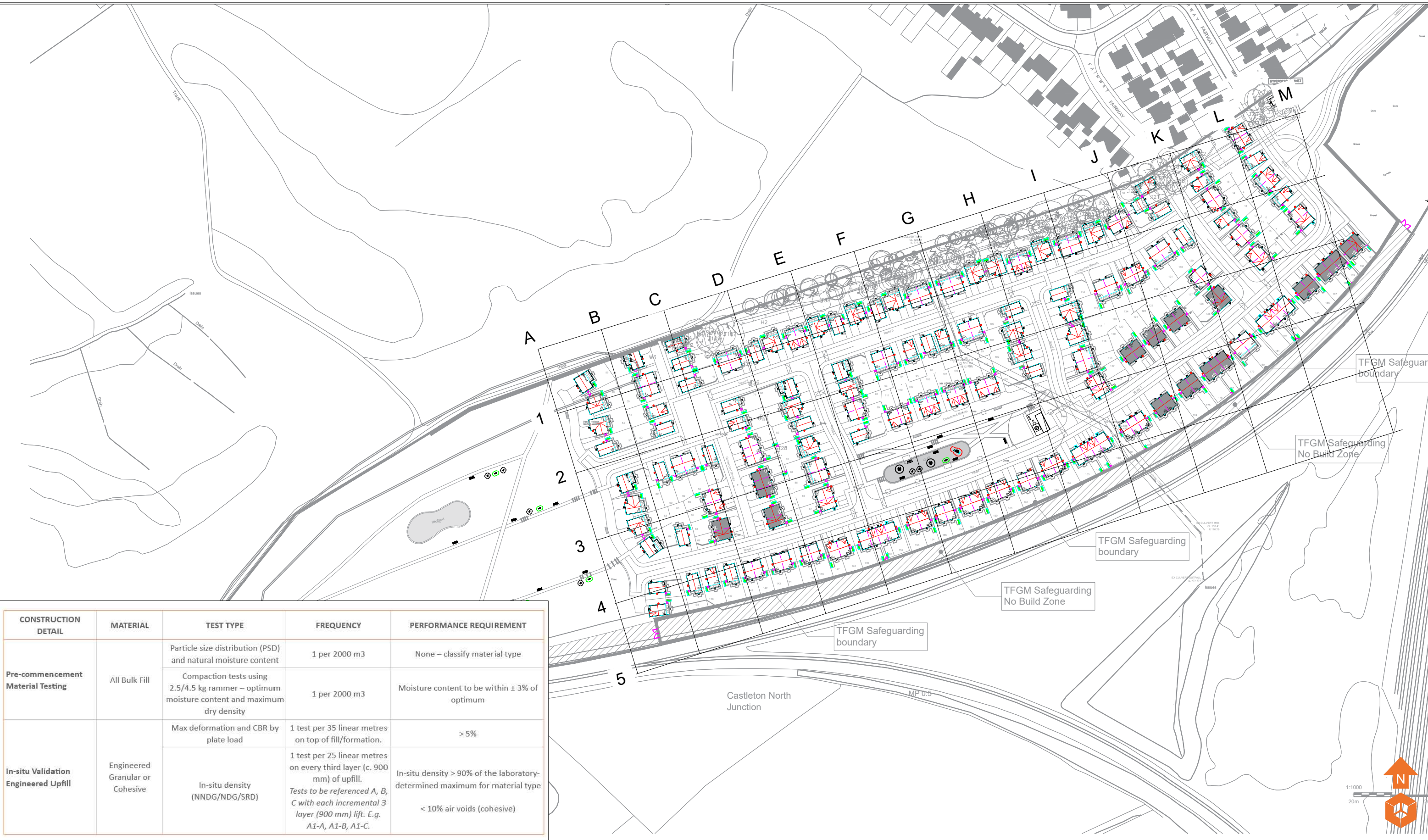
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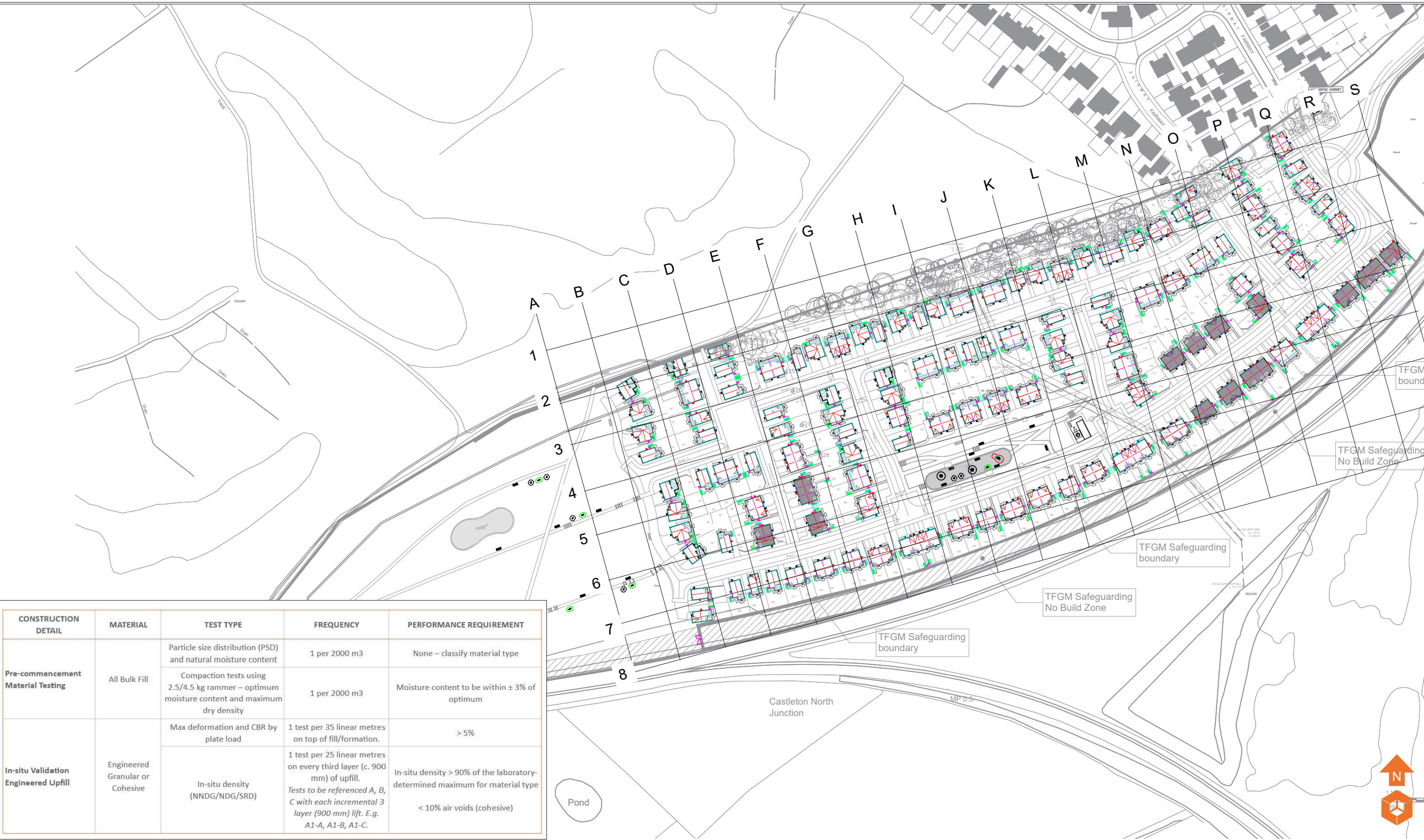




| CONSTRUCTION DETAIL                  | MATERIAL                        | TEST TYPE                                                                                   | FREQUENCY                                                                                                                                                                     | PERFORMANCE REQUIREMENT                                                                                        |
|--------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Pre-commencement Material Testing    | All Bulk Fill                   | Particle size distribution (PSD) and natural moisture content                               | 1 per 2000 m3                                                                                                                                                                 | None – classify material type                                                                                  |
|                                      |                                 | Compaction tests using 2.5/4.5 kg rammer – optimum moisture content and maximum dry density | 1 per 2000 m3                                                                                                                                                                 | Moisture content to be within ± 3% of optimum                                                                  |
| In-situ Validation Engineered Uphill | Engineered Granular or Cohesive | Max deformation and CBR by plate load                                                       | 1 test per 35 linear metres on top of fill/formation.                                                                                                                         | > 5%                                                                                                           |
|                                      |                                 | In-situ density (NNDG/NDG/SRD)                                                              | 1 test per 25 linear metres on every third layer (c. 900 mm) of upfill.<br>Tests to be referenced A, B, C with each incremental 3 layer (900 mm) lift. E.g. A1-A, A1-B, A1-C. | In-situ density > 90% of the laboratory-determined maximum for material type<br><br>< 10% air voids (cohesive) |

|       |        |      |            |         |    |                                              |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                        |
|-------|--------|------|------------|---------|----|----------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|       | Notes: |      |            |         |    | Client:<br><br>Kellen Homes                  | Job No:<br><br>14-768                                 | Date:<br><br>14.10.2024                                                                                                                                                                                                                                                                                                                                                                                                         | <div>Environmental Engineering Partnership Ltd<br/>Taylor Road, Trafford Park<br/>Urmston, Manchester, M41 7JQ<br/>Tel: 0161 707 9612<br/>E-mail: info@e3p.co.uk<br/>Website: www.e3p.co.uk</div> |
|       |        |      |            |         |    |                                              | Drawing No:<br><br>025                                | Scale:<br><br>NTS @ A3                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                        |
|       | P1     | REVA | 14.10.2024 | OW      | JS | Job Title:<br><br>Heywood Road,<br>Castleton | Drawing Title:<br><br>CBR 35m Grid<br>Validation Plan | The client must not amend any drawing, design or other intellectual property produced by E3P Ltd without permission in writing from E3P Ltd in advance of any amendments being made. In the event that such written permission is not obtained in advance of the amendments being made, E3P Ltd shall not be liable for any damage and/or losses occurring as a result of the amended drawing, design or intellectual property. |                                                                                                                                                                                                                                                                                        |
| Phase | Issue  | Date | Drawn      | Checked |    |                                              |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                        |





| CONSTRUCTION DETAIL                  | MATERIAL                        | TEST TYPE                                                                                   | FREQUENCY                                                                                                                                                                            | PERFORMANCE REQUIREMENT                                                                                        |
|--------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Pre-commencement Material Testing    | All Bulk Fill                   | Particle size distribution (PSD) and natural moisture content                               | 1 per 2000 m3                                                                                                                                                                        | None – classify material type                                                                                  |
|                                      |                                 | Compaction tests using 2.5/4.5 kg rammer – optimum moisture content and maximum dry density | 1 per 2000 m3                                                                                                                                                                        | Moisture content to be within ± 3% of optimum                                                                  |
| In-situ Validation Engineered Upfill | Engineered Granular or Cohesive | Max deformation and CBR by plate load                                                       | 1 test per 35 linear metres on top of fill/formation.                                                                                                                                | > 5%                                                                                                           |
|                                      |                                 | In-situ density (NNDG/NDG/SRD)                                                              | 1 test per 25 linear metres on every third layer (c. 900 mm) of upfill.<br><i>Tests to be referenced A, B, C with each incremental 3 layer (900 mm) lift. E.g. A1-A, A1-B, A1-C.</i> | In-situ density > 90% of the laboratory-determined maximum for material type<br><br>< 10% air voids (cohesive) |

Notes:

P1

REVA

14.10.2024

OW

JS

Phase

Issue

Date

Drawn

Checked

Client:

Kellen Homes

Job Title:

Heywood Road, Castleton

Job No:

14-768

Drawing No:

026

Job Title:

In Situ Density (25m Grid) Validation Plan

Date:

14.10.2024

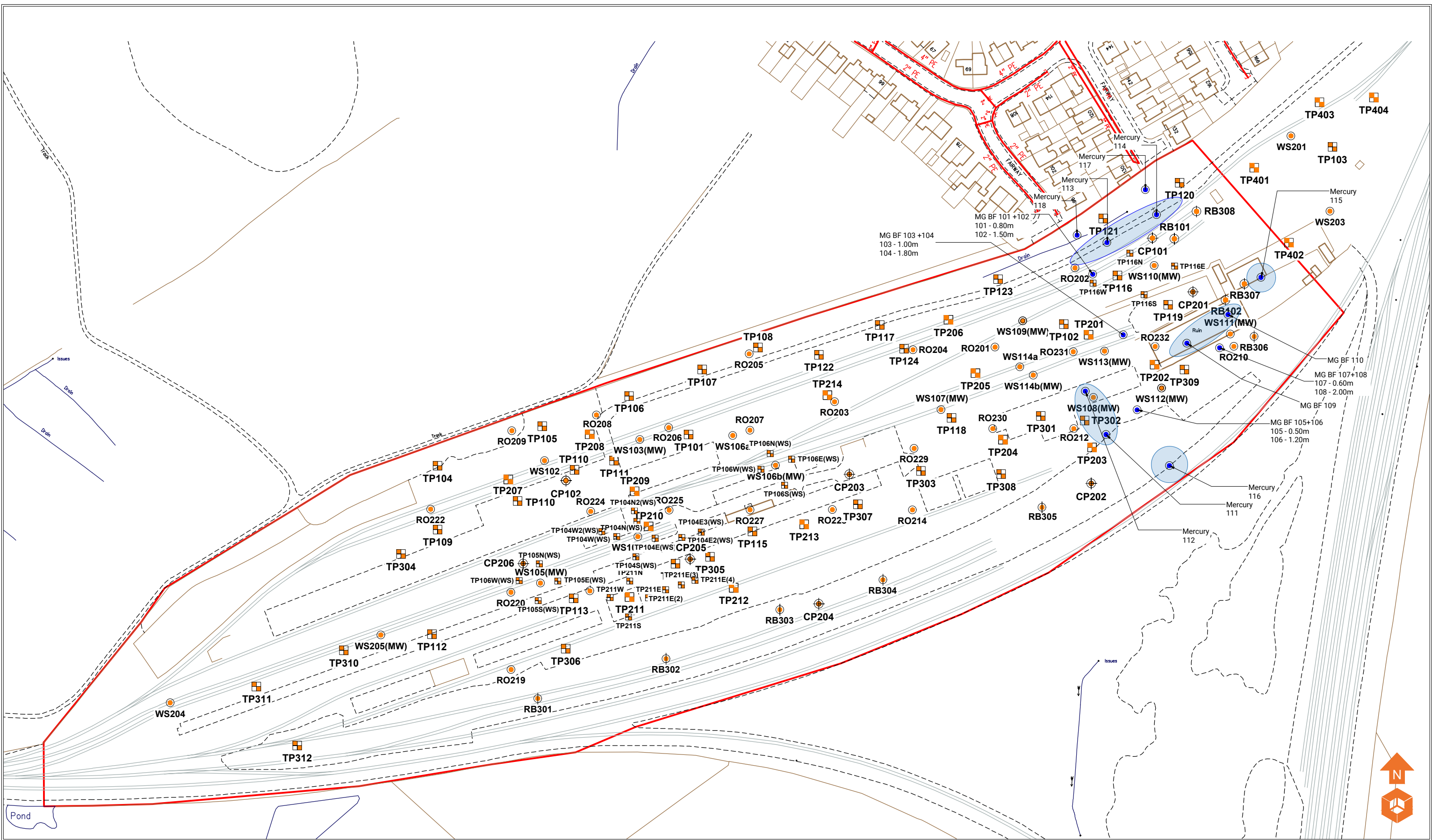
Scale:

NTS @ A3

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Location Symbols

Approximate Window Sample Probehole Location (March 2021)

Approximate Window Sample Probehole Location with Install (March 2021)

Approximate Trial Pit Location (March 2021)

Approximate Rotary Borehole Location (March 2021)

Approximate Trial Pit Location (June 2021)

Approximate Rotary Borehole Location (July 2021)

Approximate Hand Dug Pit Location (July 2021)

Approximate Stockpile Sample Location (July 2021)

Key

Sample Location

Stockpile

Notes:

|       |       |            |       |         |    |
|-------|-------|------------|-------|---------|----|
| P1    | REVA  | 24.01.2025 | TG    | HM      | HM |
| Phase | Issue | Date       | Drawn | Checked | PM |

Client:

Kellen Homes

Job Title:

Heywood road, Castleton

Job No:

14-768

Drawing No:

031

Job Title:

Mercury Sample Plan

Date:

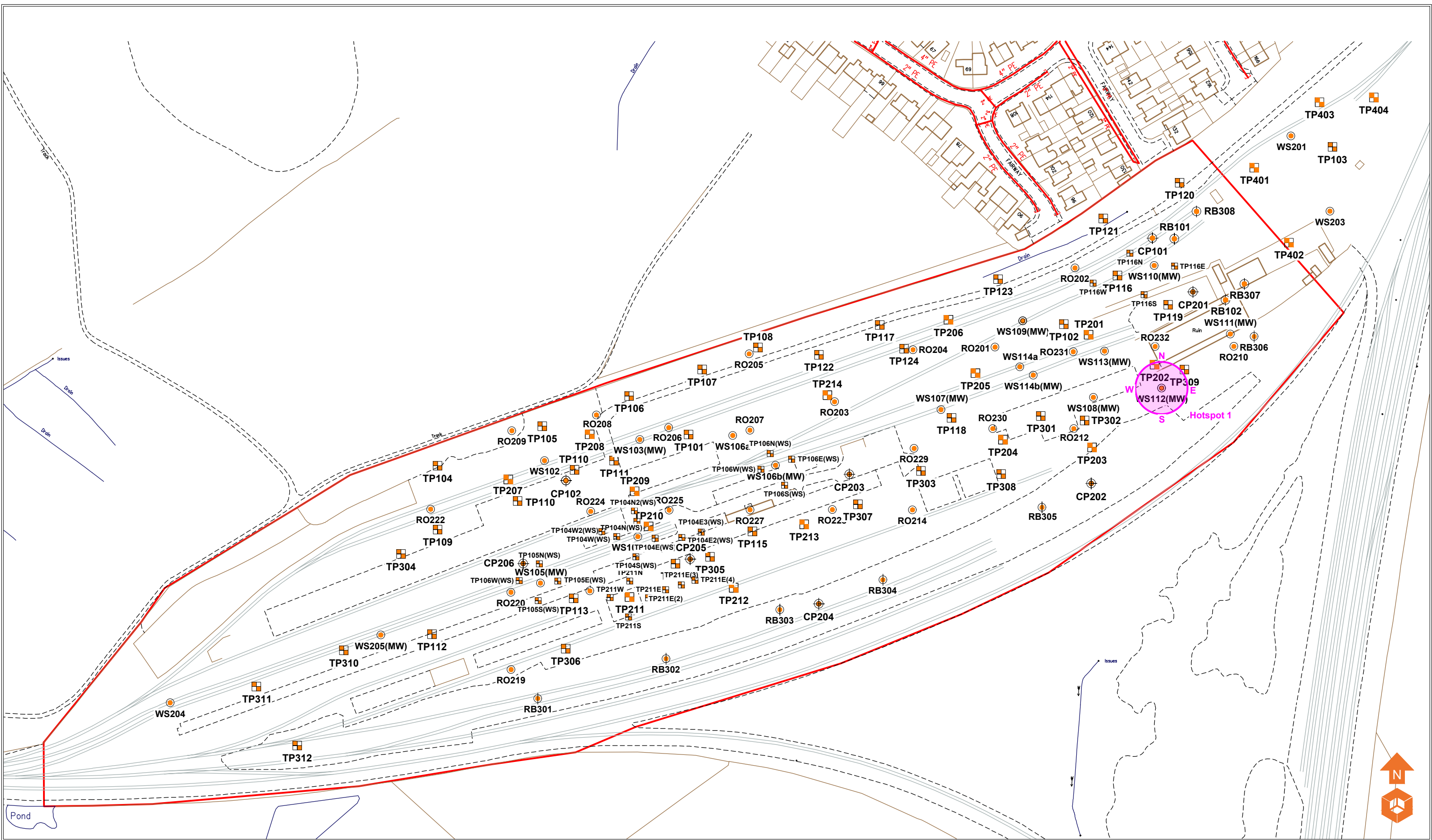
24.01.2025

Scale:

NTS

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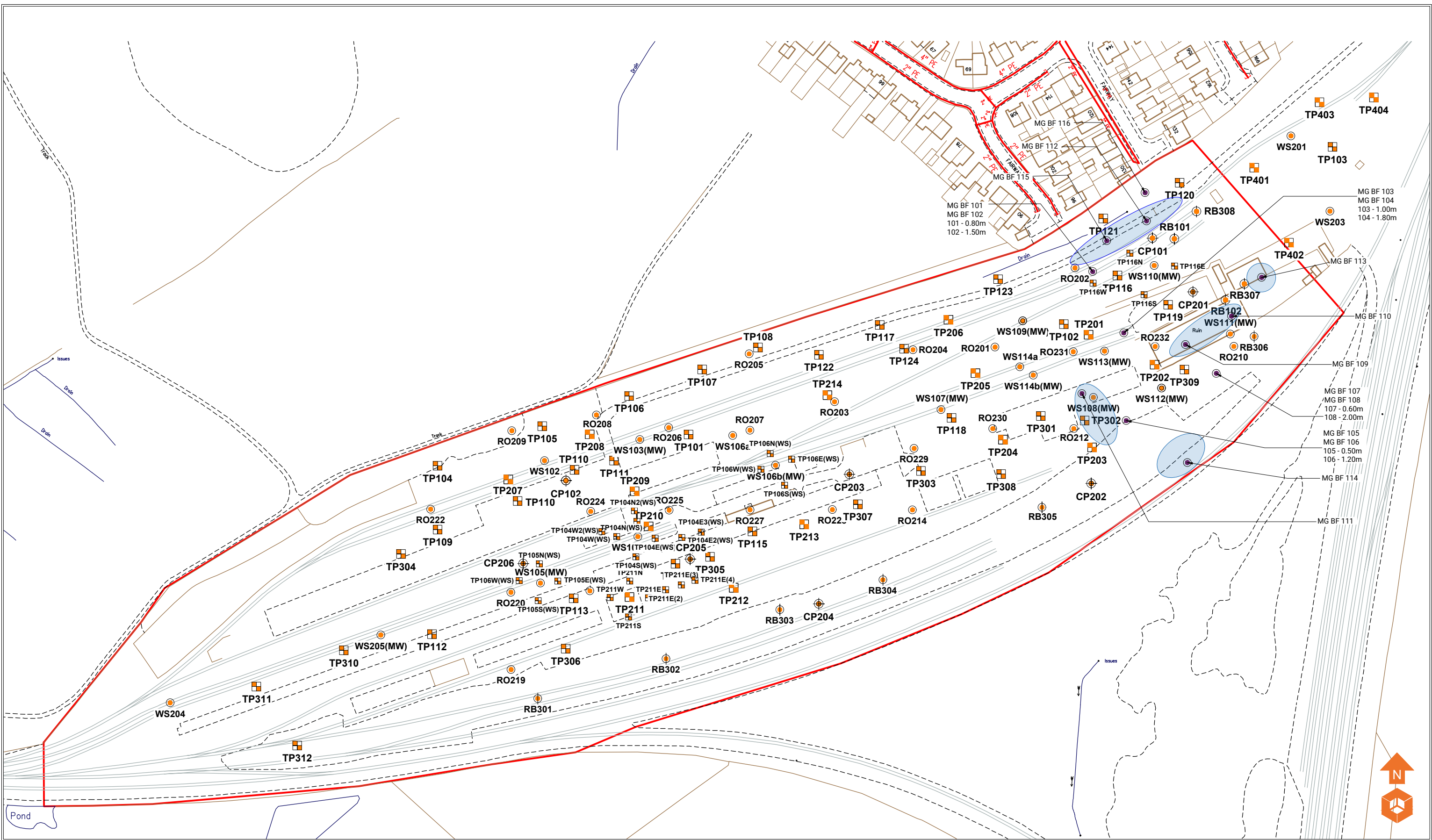


|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>Location Symbols</div> <div><div><div></div><div>WS101</div></div><div>Approximate Window Sample Probehole Location (March 2021)</div></div> <div><div><div></div><div>WS102(MW)</div></div><div>Approximate Window Sample Probehole Location with Install (March 2021)</div></div> <div><div><div></div><div>TP101</div></div><div>Approximate Trial Pit Location (March 2021)</div></div> <div><div><div></div><div>RO101</div></div><div>Approximate Rotary Borehole Location (March 2021)</div></div> <div><div><div></div><div>TP102</div></div><div>Approximate Trial Pit Location (June 2021)</div></div> <div><div><div></div><div>RO103</div></div><div>Approximate Rotary Borehole Location (July 2021)</div></div> <div><div><div></div><div>CP101</div></div><div>Approximate Hand Dug Pit Location (July 2021)</div></div> <div><div><div></div><div>RB101</div></div><div>Approximate Stockpile Sample Location (July 2021)</div></div> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Key

Hotspot





Location Symbols

Approximate Window Sample Probehole Location (March 2021)

Approximate Window Sample Probehole Location with Install (March 2021)

Approximate Trial Pit Location (March 2021)

Approximate Rotary Borehole Location (March 2021)

Approximate Trial Pit Location (June 2021)

Approximate Rotary Borehole Location (July 2021)

Approximate Hand Dug Pit Location (July 2021)

Approximate Stockpile Sample Location (July 2021)

Key

Sample Location

Stockpile

Notes:

|       |       |            |       |         |    |
|-------|-------|------------|-------|---------|----|
| P1    | REVA  | 24.01.2025 | TG    | HM      | HM |
| Phase | Issue | Date       | Drawn | Checked | PM |

Client:

Kellen Homes

Job Title:

Heywood road, Castleton

Job No:

14-768

Drawing No:

033

Job Title:

Made Ground Sample Plan

Date:

24.01.2025

Scale:

NTS

Drawing Title:

Made Ground Sample Plan

Environmental Engineering Partnership Ltd

Taylor Road, Trafford Park

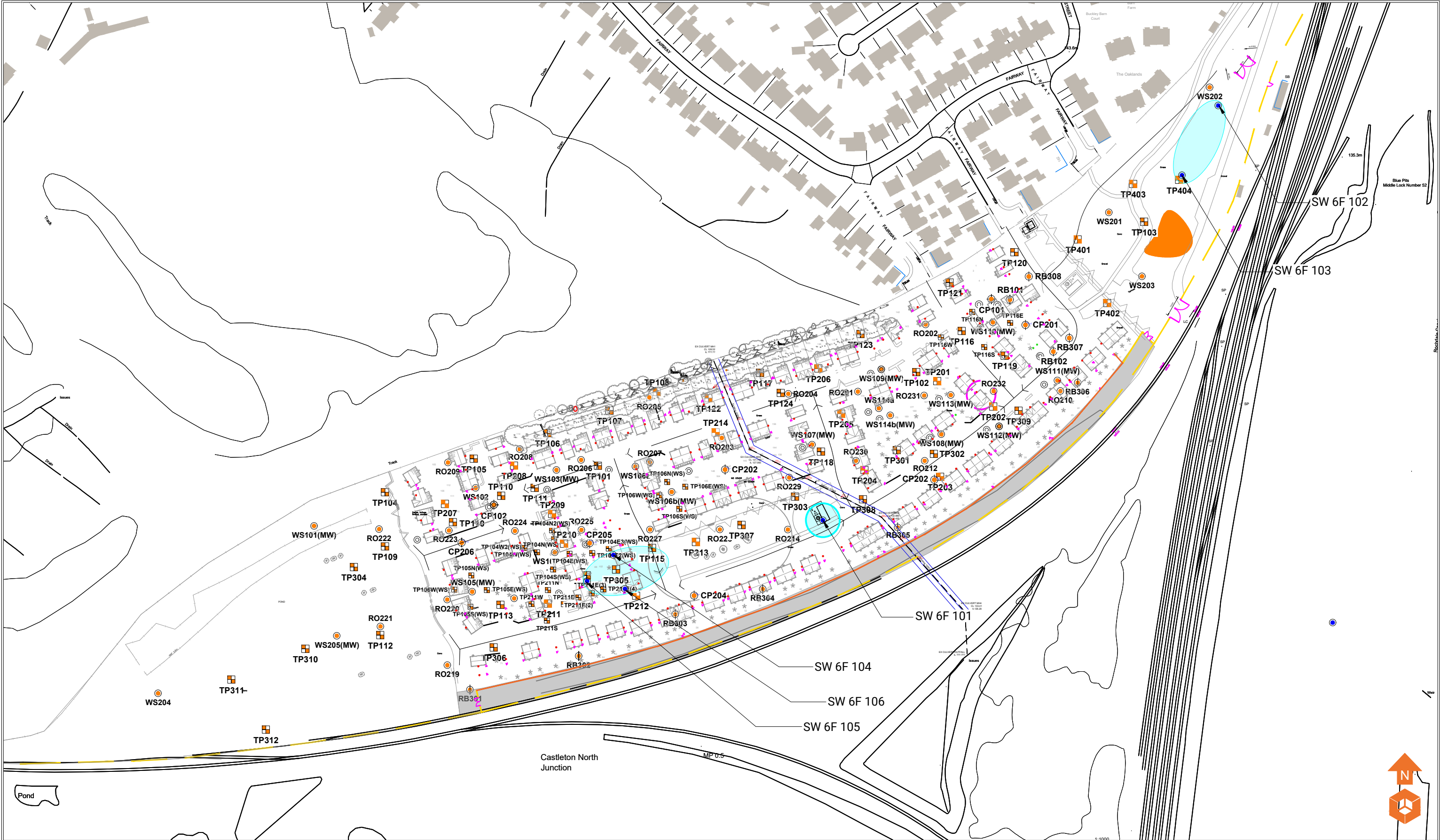
Urmston, Manchester, M41 7JQ

Tel: 0161 707 9612

E-mail: [info@e3p.co.uk](mailto:info@e3p.co.uk)

Website: [www.e3p.co.uk](http://www.e3p.co.uk)

The client must not amend any drawing, design or other intellectual property produced by E3P Ltd without permission in writing from E3P Ltd in advance of any amendments being made. In the event that such written permission is not obtained in advance of the amendments being made, E3P Ltd shall not be liable for any damage and/or losses occurring as a result of the amended drawing, design or intellectual property.



- Location Symbols**
- WS101 (MW) Approximate Window Sample Probehole Location (March 2021)
  - WS102 (MW) Approximate Window Sample Probehole Location with Install (March 2021)
  - TP101 Approximate Trial Pit Location (March 2021)
  - RO101 Approximate Rotary Borehole Location (March 2021)
  - TP102 Approximate Trial Pit Location (June 2021)
  - RO102 Approximate Rotary Borehole Location (July 2021)
  - TP103 Approximate Hand Dug Pit Location (July 2021)
  - WS104 (MW) Approximate Stockpile Sample Location (July 2021)
  - RO104 (MW) Approximate Location of Attempted Rotary Borehole (July 2021 - Not Completed Due to Access Limitations)
  - Sample Location
  - Stockpile Location

Notes:

|       |       |            |       |         |    |
|-------|-------|------------|-------|---------|----|
| P1    | REVA  | 29.01.2025 | TG    | HM      | JS |
| Phase | Issue | Date       | Drawn | Checked | PM |

Client:

Kellen Homes

Job Title:

Heywood Road, Castleton

Job No:

14-768

Drawing No:

034

Date:

29.01.2025

Scale:

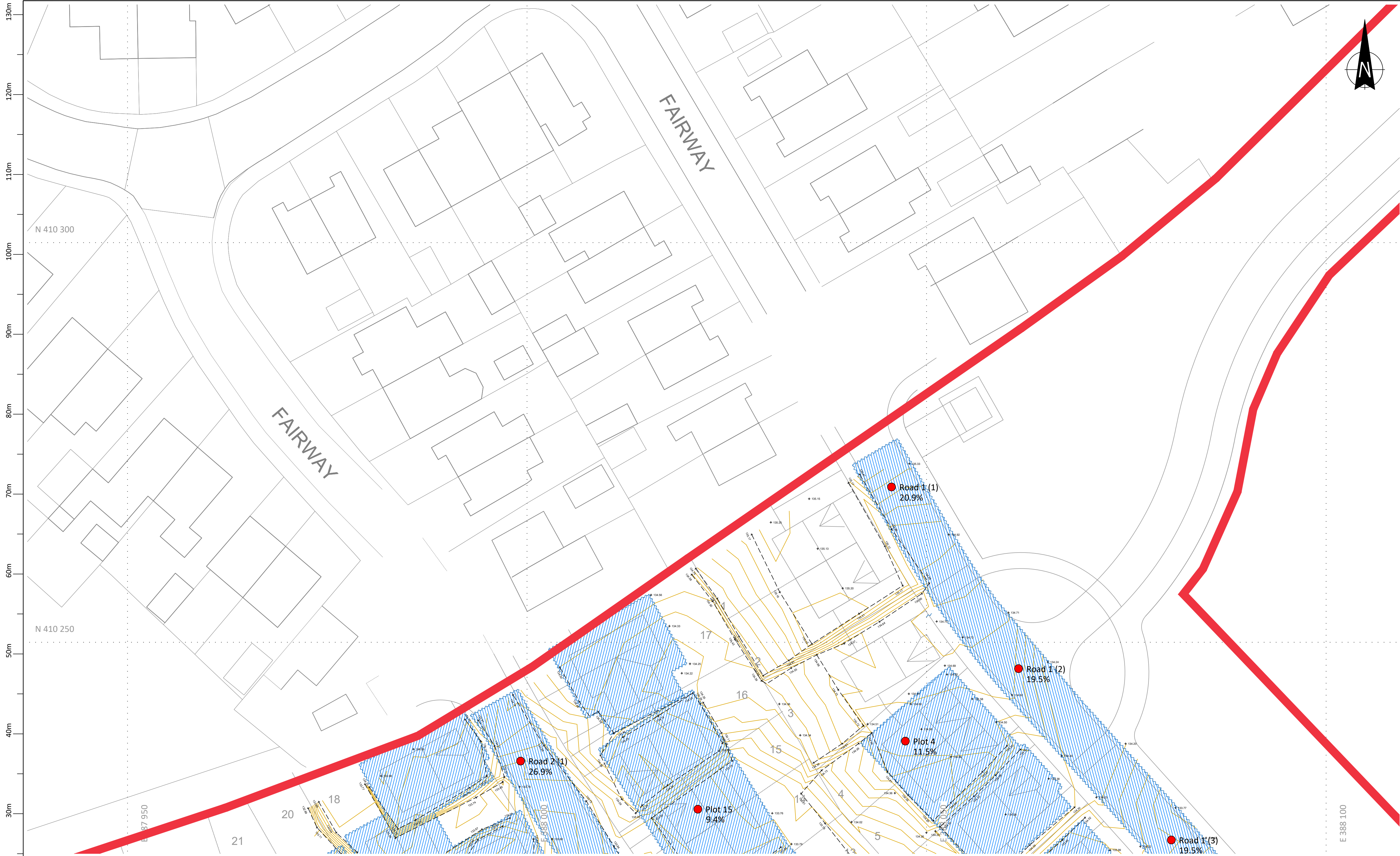
NTS



Environmental Engineering Partnership Ltd  
Taylor Road, Trafford Park  
Urmston, Manchester, M41 7JQ  
Tel: 0161 707 9612  
E-mail: info@e3p.co.uk  
Website: www.e3p.co.uk

The client must not amend any drawing, design or other intellectual property produced by E3P Ltd without permission in writing from E3P Ltd in advance of any amendments being made. In the event that such written permission is not obtained in advance of the amendments being made, E3P Ltd shall not be liable for any damage and/or losses occurring as a result of the amended drawing, design or intellectual property.





**Legend**

- Site boundary
- Spot level
- Top/bottom of bank/break of slope
- Contour - As built (0.1m interval)
- 6F2/6F5 piling mats/road box (approximate extent only)
- CBR location, reference, and value
- Retained piles (see Note 7)
- Shared drive - Trim Specification

**Notes**

- This plan is to be read in conjunction with all other associated reports/drawings/information.
- The development layout depicted on this drawing was extracted from drawing 'Planning Layout - Rev H.dwg' supplied digitally by the Client.
- The required foundation solution is as detailed on drawing 'Remediation Trim Specification.pdf' provided digitally by the Client.
- The site trim specification is as specified/agreed by/with the Client; and as detailed.
- Due to the potential for live services and issues associated with withdrawal of support; remediation works have been carried out to within circa 1m of the site boundary (unless otherwise stated).
- The location of services as detailed are approximate only (unless otherwise stated).
- Piles encountered were broken off below natural ground level. All piles were European I-beam with a parallel flange. With a depth of 200mm and a top and bottom width of 100mm.

**Client responsibilities post handover**

To minimise any impact to the constructed landform, the site is to be suitably managed with the following recommendations considered prior to/during construction activities:

- Up-fill/made-ground/6F2/6F5 materials will degrade if trafficked when saturated, or during wet weather conditions. Any degradation of the materials is likely to require maintenance.
- Due to the potential degradation of materials from trafficking/wet weather, pile mats should be re-assessed to inform temporary works requirements, prior to use.
- When trafficking the site, vehicle movements should be restricted to designated haul routes i.e., site roads.
- To facilitate drainage/drying of the site, any standing water is to be pumped to non-construction areas, or discharged to surface water/drain. Any discharge into surface waters is to be in accordance with Regulatory Position Statement 261 'Temporary de-watering from excavations to surface water', or an associated discharge permit.
- When ponding waters have been removed, the site is to be left for a suitable period of time to allow residual moistures to drain through the materials.
- Excavated materials should be well managed, with different materials stored separately on areas not prone to ponding; the materials being sealed to minimise moisture ingress.

**Survey Information:**

|                |              |                         |                           |
|----------------|--------------|-------------------------|---------------------------|
| Co-ord System: | Co-ord Type: | Primary Survey Control: | Secondary Survey Control: |
| Local          | Grid         | SmartNet                | Site                      |
| Rev            | Date         | Amendment               | Drawn/Checked             |

**Urban Regen**  
ESTABLISHED 2001

Client:

Kellen Homes

Project:

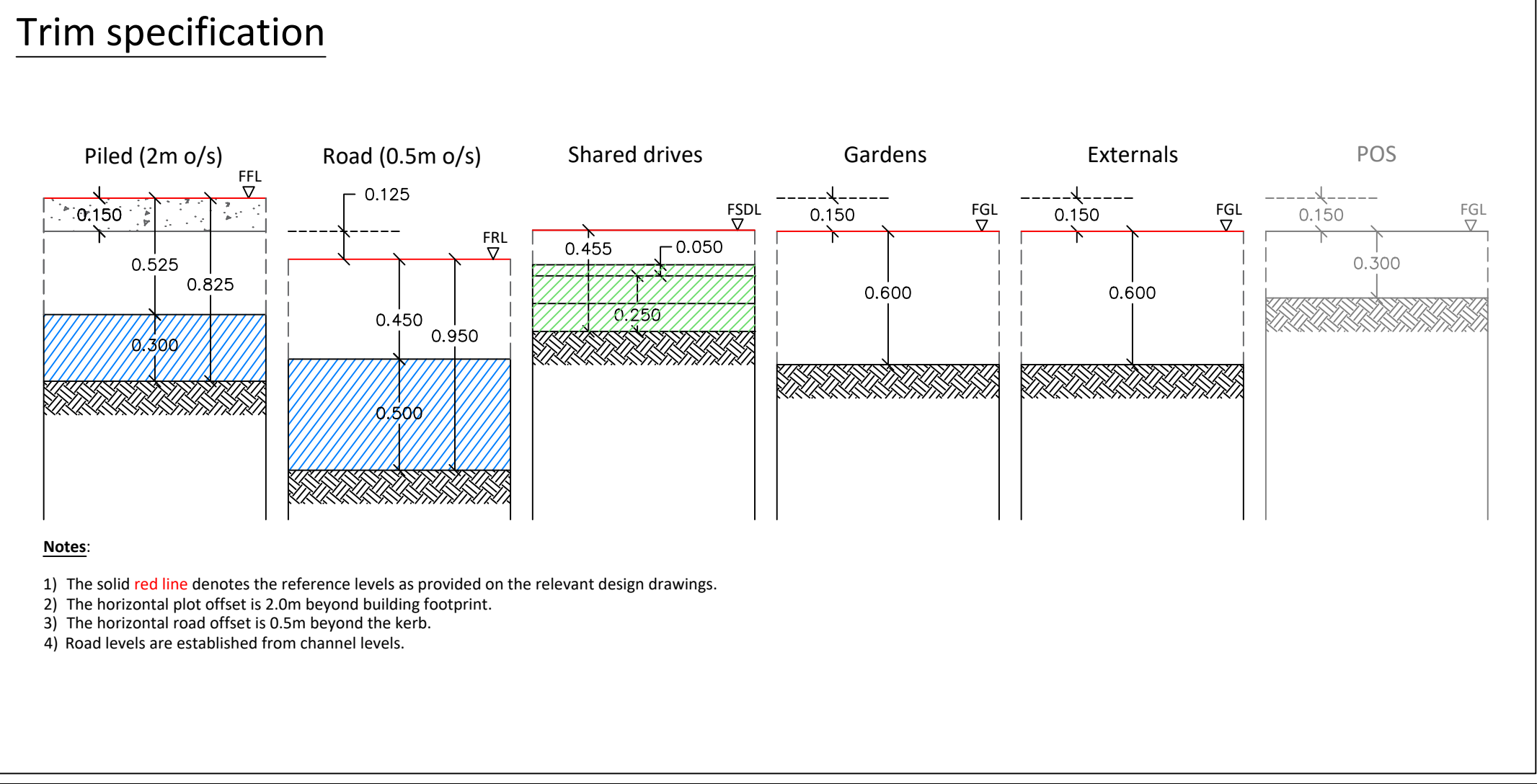
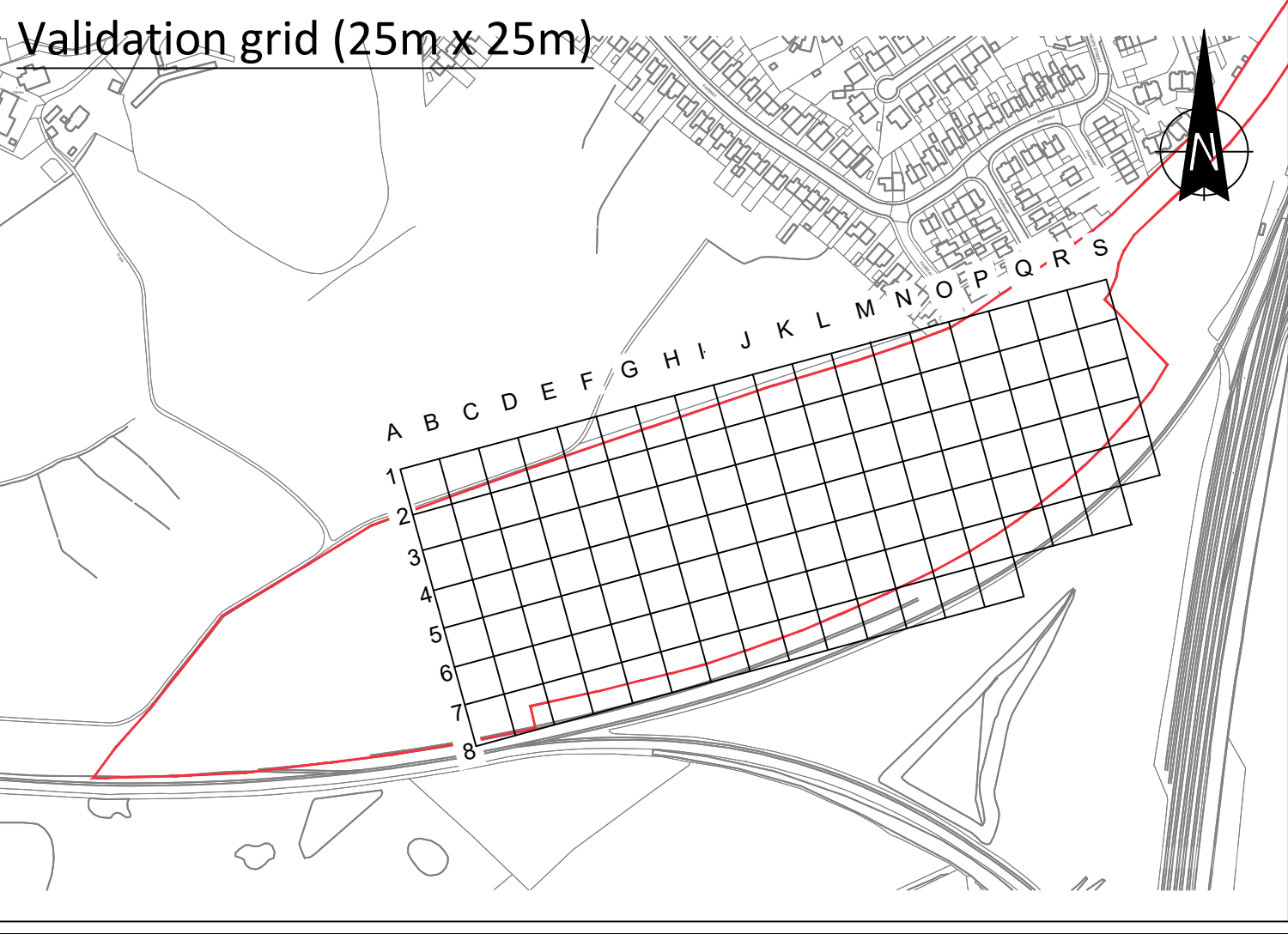
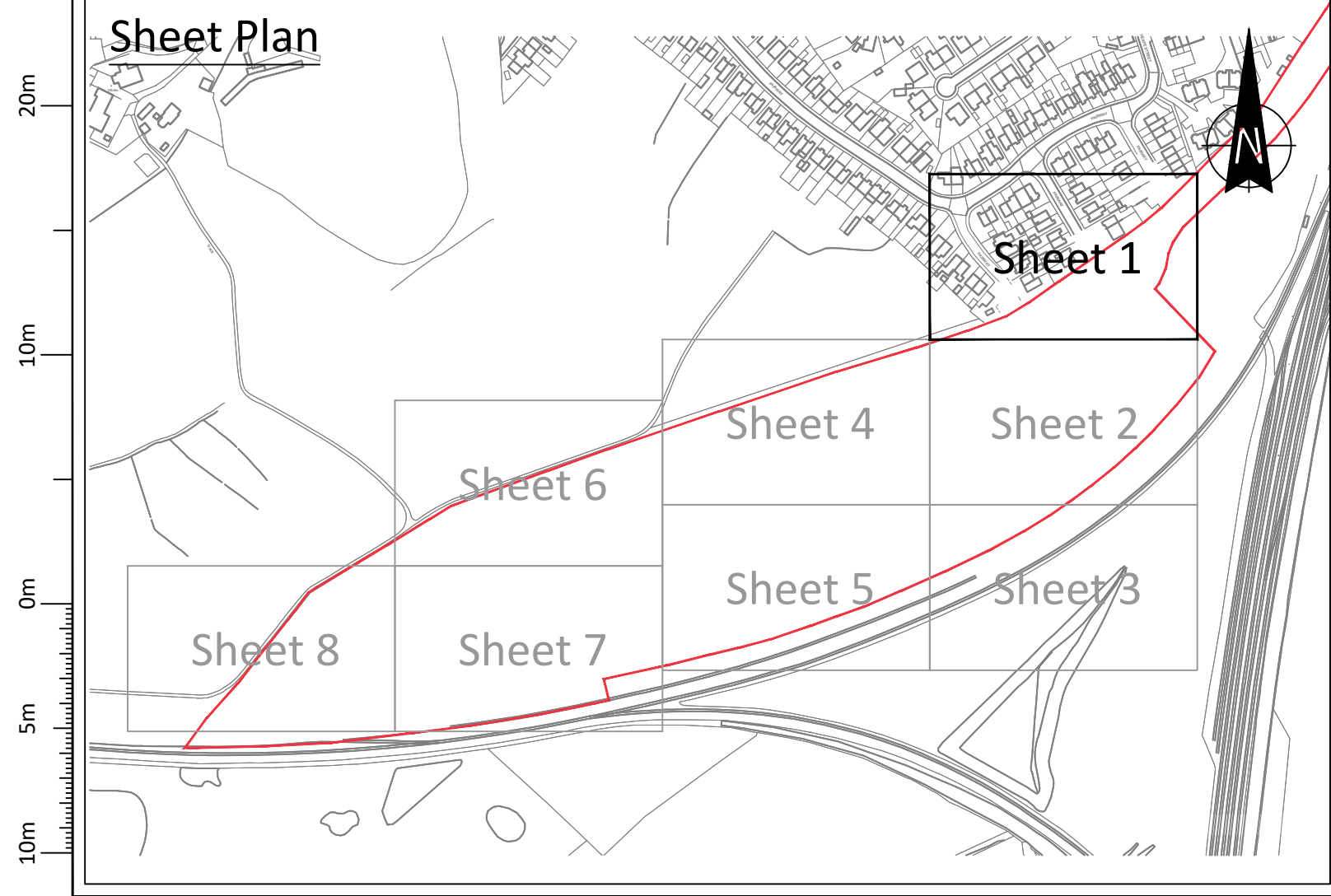
Castleton Sidings  
Rochdale

Title:

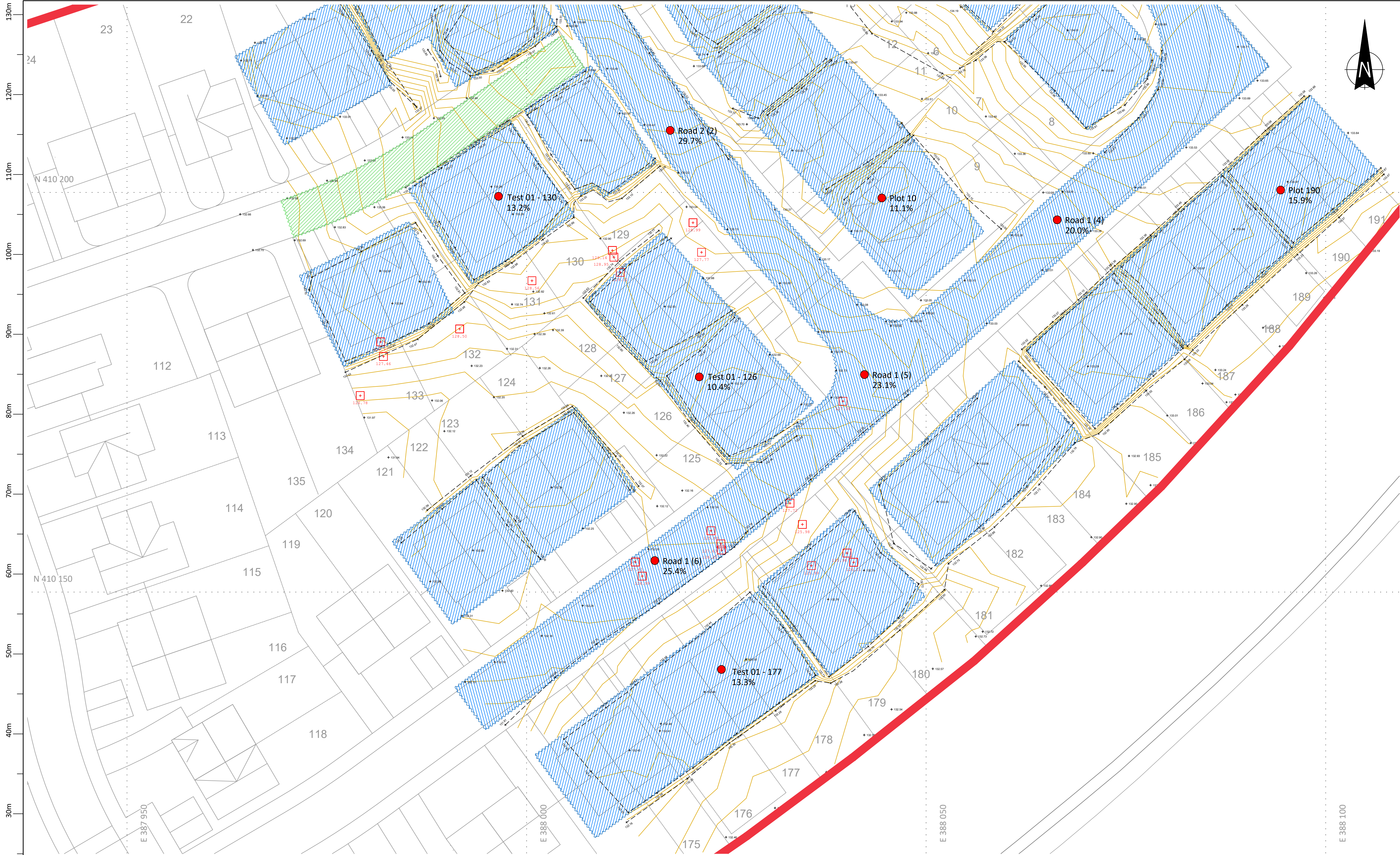
As built topographic survey  
and constraints (Sheet 1 of 8)

|            |              |             |          |
|------------|--------------|-------------|----------|
| Scale:     | First Issue: | Drawn:      | Checked: |
| 1:250 @ A1 | 7th Feb 2024 | R.B.Woodrow | M.Hamed  |

Drawing No: 405-001-001







**Legend**  
Site boundary  
Spot level  
Top/bottom of bank/break of slope  
Contour - As built (0.1m interval)  
6F2/6F5 piling mats/road box (approximate extent only)  
CBR location, reference, and value  
Retained piles (see Note 7)  
Shared drive - Trim Specification

**Notes**  
1. This plan is to be read in conjunction with all other associated reports/drawings/information.  
2. The development layout depicted on this drawing was extracted from drawing 'Planning Layout - Rev H.dwg' supplied digitally by the Client.  
3. The required foundation solution is as detailed on drawing 'Remediation Trim Specification.pdf' provided digitally by the Client.  
4. The site trim specification is as specified/agreed by/with the Client; and as detailed.  
5. Due to the potential for live services and issues associated with withdrawal of support; remediation works have been carried out to within circa 1m of the site boundary (unless otherwise stated).  
6. The location of services as detailed are approximate only (unless otherwise stated).  
7. Piles encountered were broken off below natural ground level. All piles were European I-beam with a parallel flange. With a depth of 200mm and a top and bottom width of 100mm.  
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To minimise any impact to the constructed landform, the site is to be suitably managed with the following recommendations considered prior to/during construction activities:  

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- Excavated materials should be well managed, with different materials stored separately on areas not prone to ponding; the materials being sealed to minimise moisture ingress.

**Survey Information:**

|                |              |                         |                           |
|----------------|--------------|-------------------------|---------------------------|
| Co-ord System: | Co-ord Type: | Primary Survey Control: | Secondary Survey Control: |
| Local          | Grid         | SmartNet                | Site                      |

|     |      |           |       |         |
|-----|------|-----------|-------|---------|
| Rev | Date | Amendment | Drawn | Checked |
|     |      |           |       |         |

**Urban Regen**  
ESTABLISHED 2001

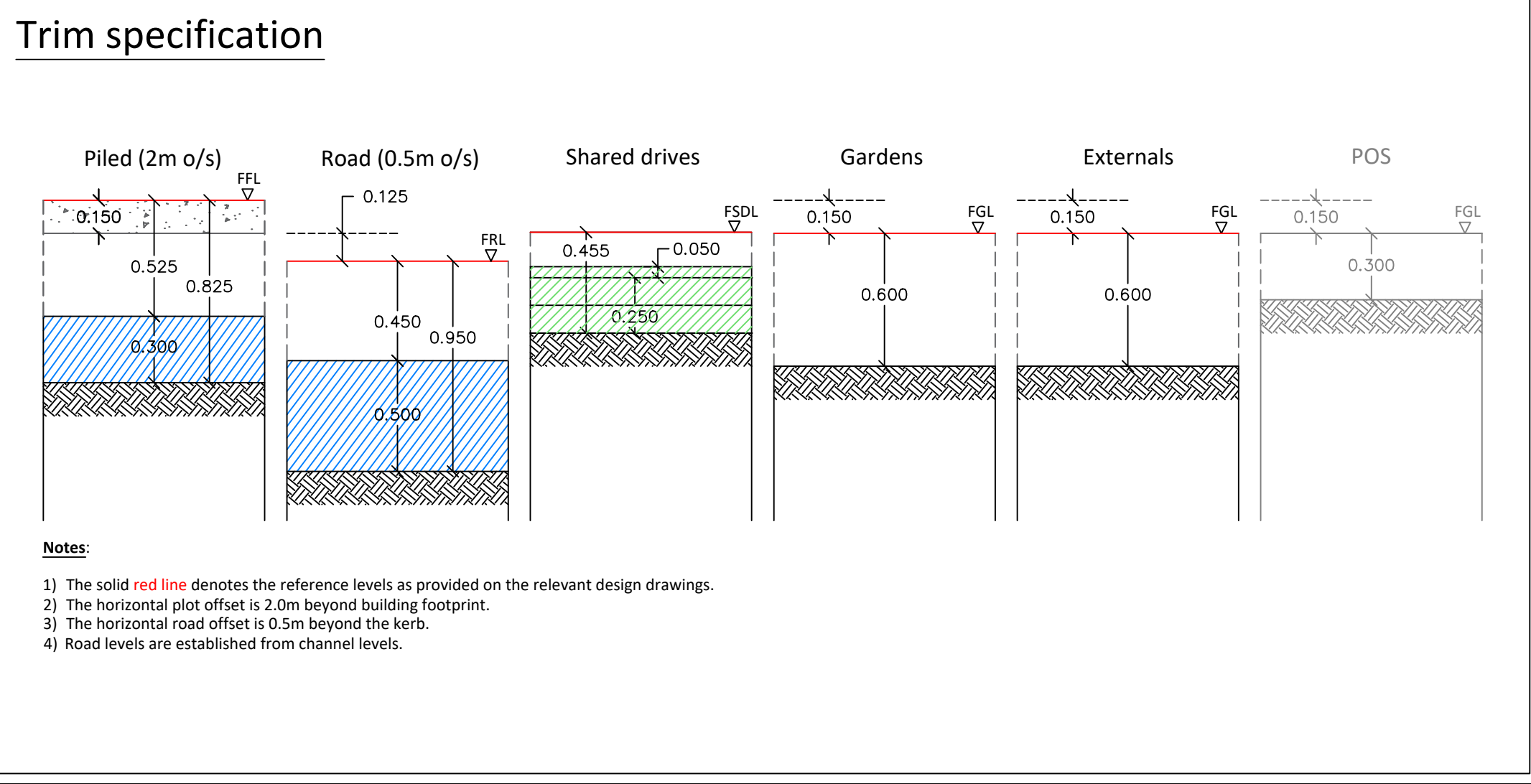
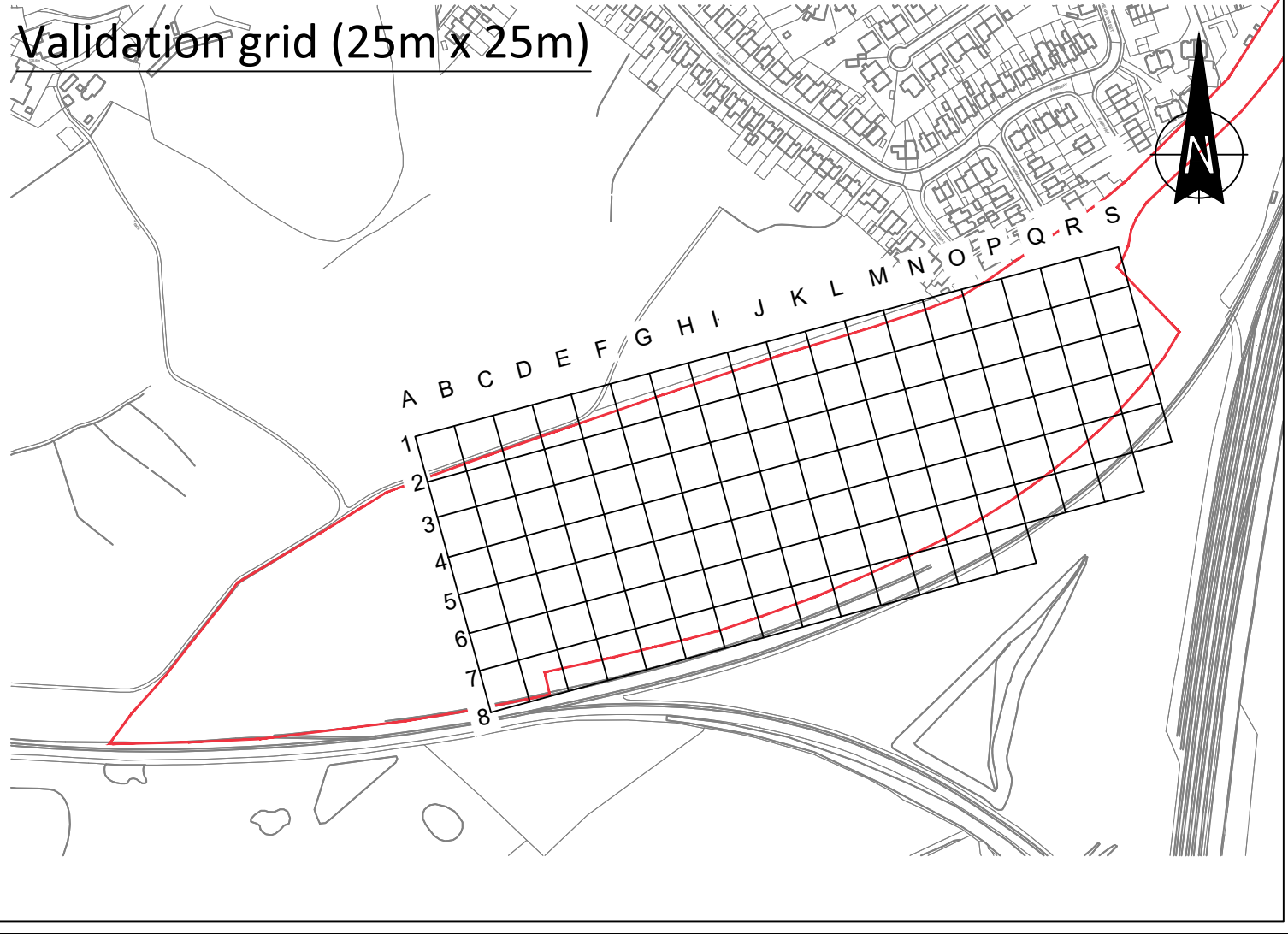
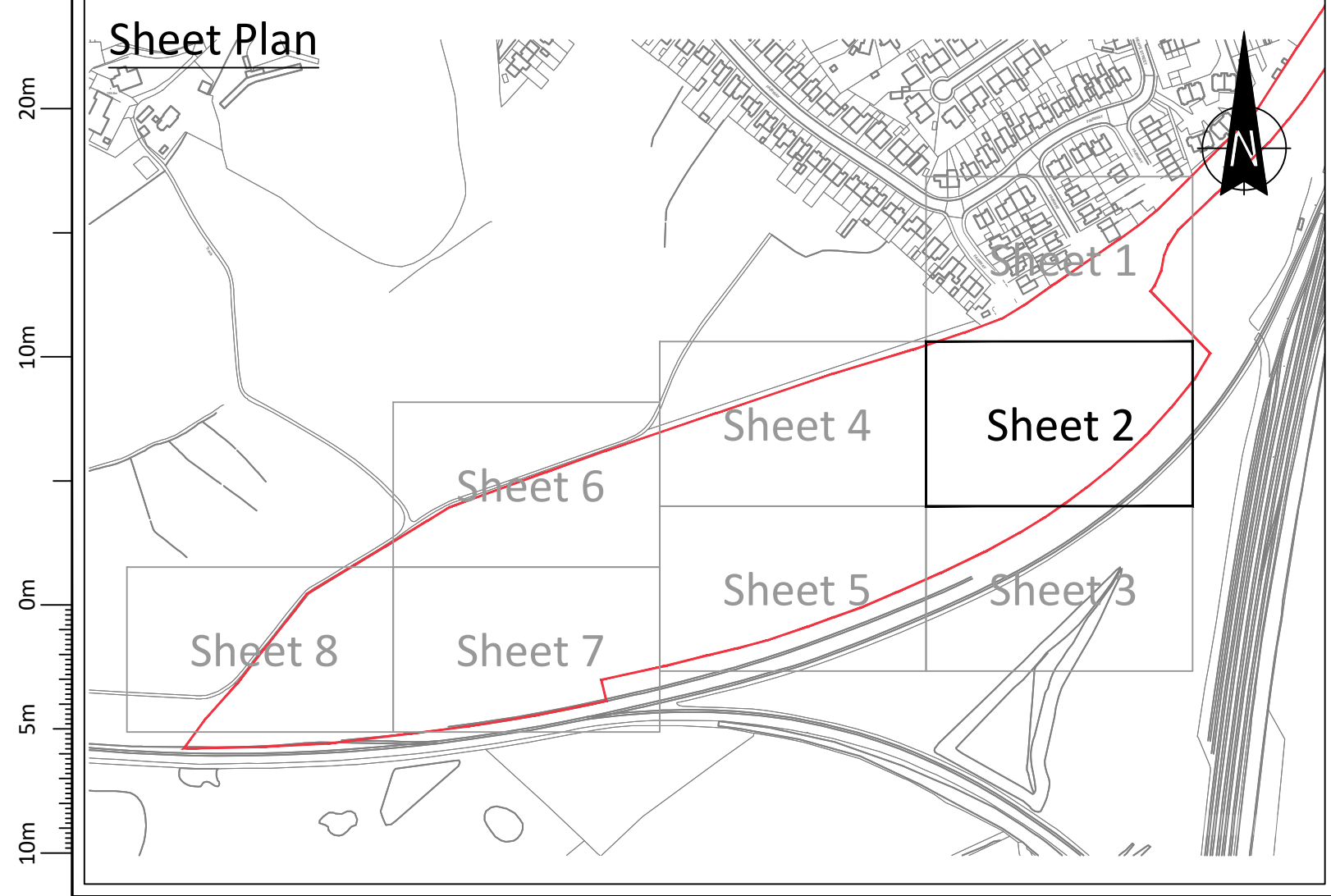
Client:  
**Kellen Homes**

Project:  
**Castleton Sidings  
Rochdale**

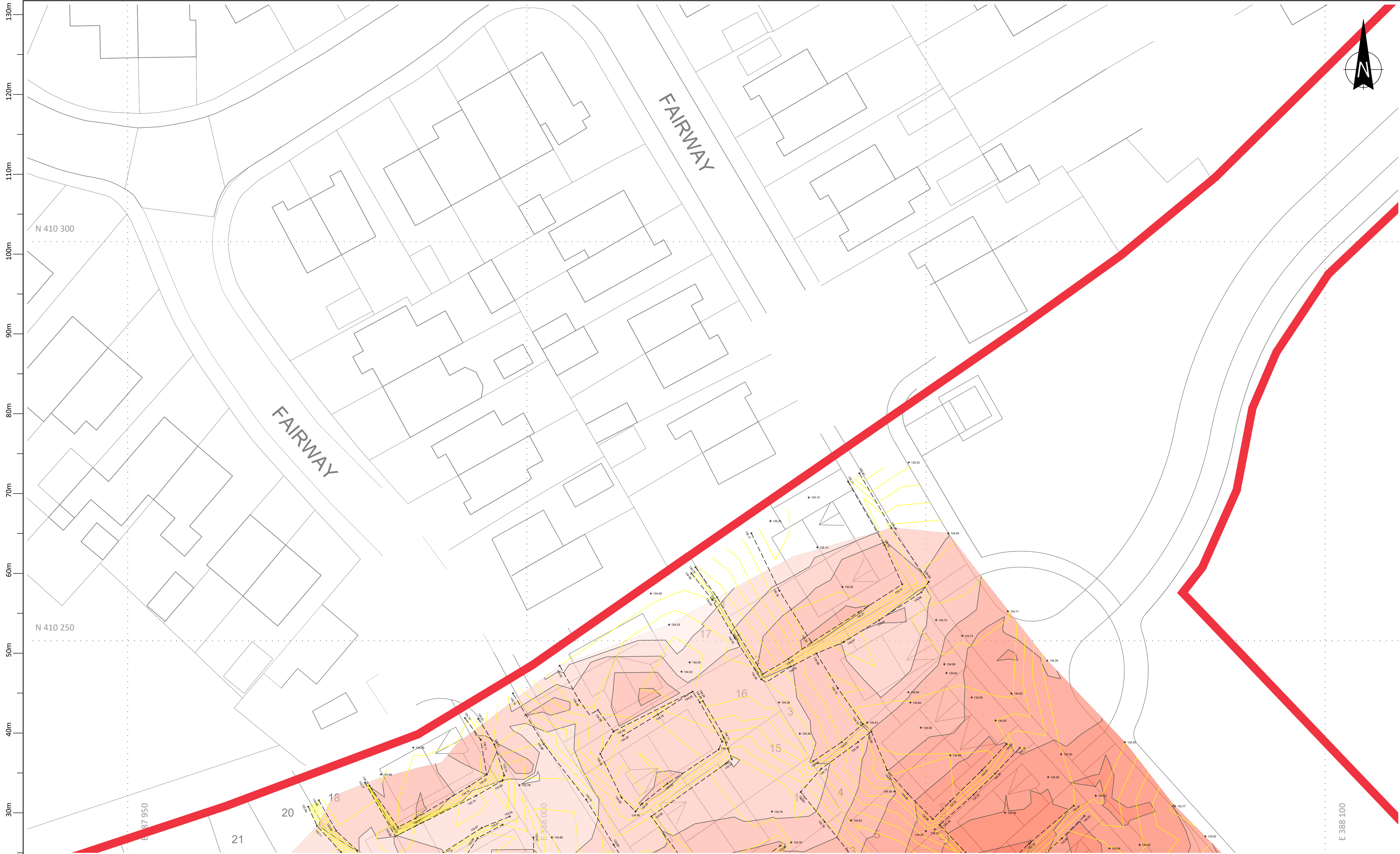
Title:  
**As built topographic survey  
and constraints (Sheet 2 of 8)**

|            |              |             |          |
|------------|--------------|-------------|----------|
| Scale:     | First Issue: | Drawn:      | Checked: |
| 1:250 @ A1 | 7th Feb 2024 | R.B.Woodrow | M.Hamed  |

|             |           |
|-------------|-----------|
| Drawing No: | Revision: |
| 405-001-002 |           |







**Legend**

Site boundary  
Spot level - As built  
Top/bottom of bank/break of slope  
Contour - As built (0.1m interval)  
Contour - Base of excavation (0.5m interval)  
Sub-grade (base of excavation)  
6F2/6F5 pile mat/sub-base  
Shared drive / stone and MOT

**Depth of turnover/engineered ground**

0.00m  
-0.50m  
-1.00m  
-1.50m  
-2.00m  
-2.50m  
-3.00m  
-3.50m  
-4.00m  
-4.50m  
-5.00m  
-5.50m  
-6.00m  
-6.50m  
-7.00m  
-7.50m

**Notes**

- This plan is to be read in conjunction with all other associated reports/drawings/information.
- The development layout depicted on this drawing was extracted from drawing 'Planning Layout - Rev H.dwg' supplied digitally by the Client.
- The required foundation solution is as detailed on drawing 'Remediation Trim Specification.pdf' provided digitally by the Client.
- The site trim specification is as specified/agreed by/with the Client; and as detailed.
- Layer 0 represents the average sub-grade/base of excavation level.
- The spot levels and associated contours detailed on this drawing represent the sub-grade/base of excavation as surveyed.
- The thickness of turnover/engineered ground isopachytes detailed on this drawing are referenced from the base of excavation as detailed, and the as built surface as surveyed.

| Survey Information: |              |                         |                           |
|---------------------|--------------|-------------------------|---------------------------|
| Co-ord System:      | Co-ord Type: | Primary Survey Control: | Secondary Survey Control: |
| Local               | Grid         | SmartNet                | Site                      |
| Rev                 | Date         | Amendment               | Drawn/Checked             |



**Urban Regen**  
ESTABLISHED 2001

Client:

Kellen Homes

Project:

Castleton Sidings  
Rochdale

Title:

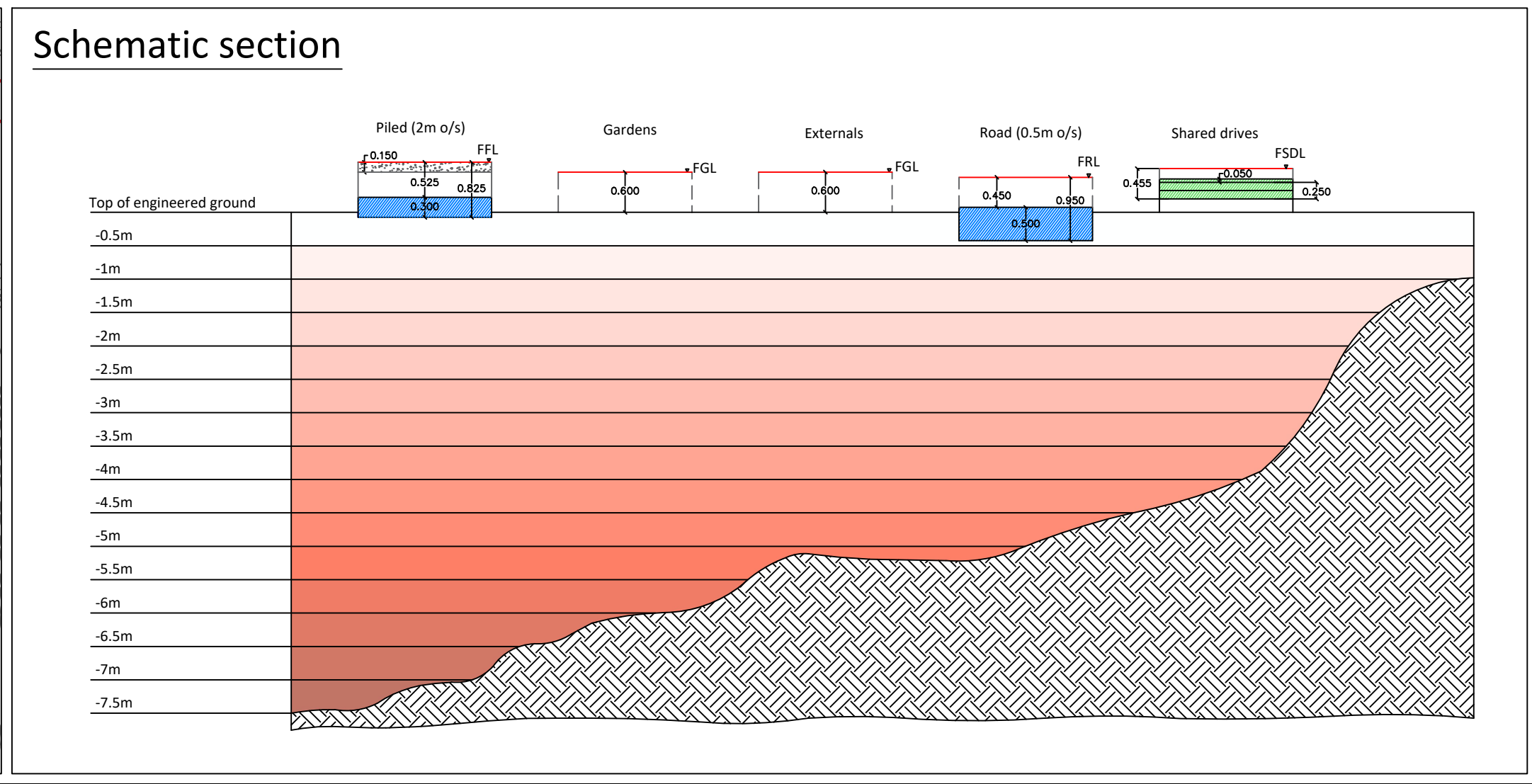
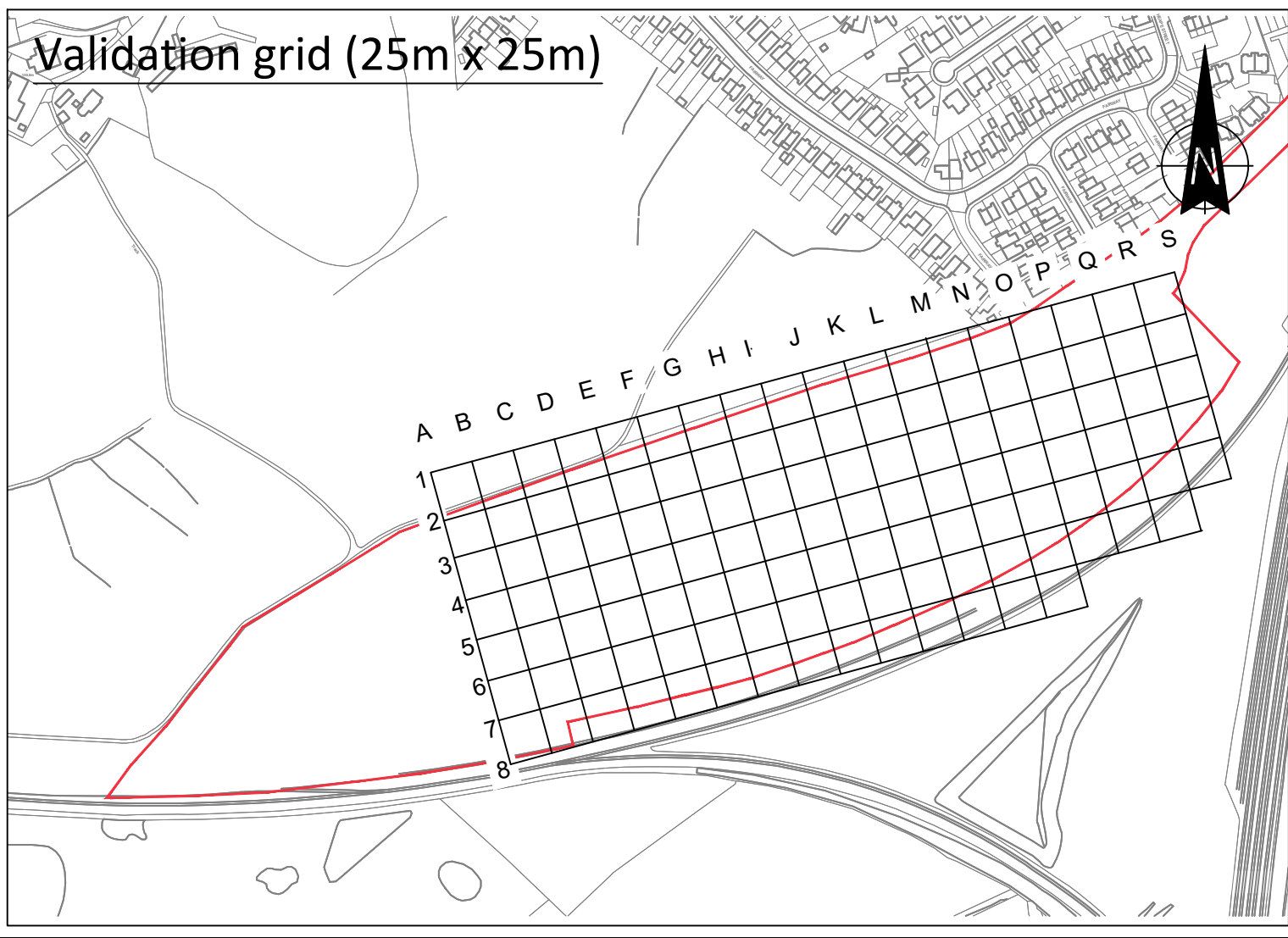
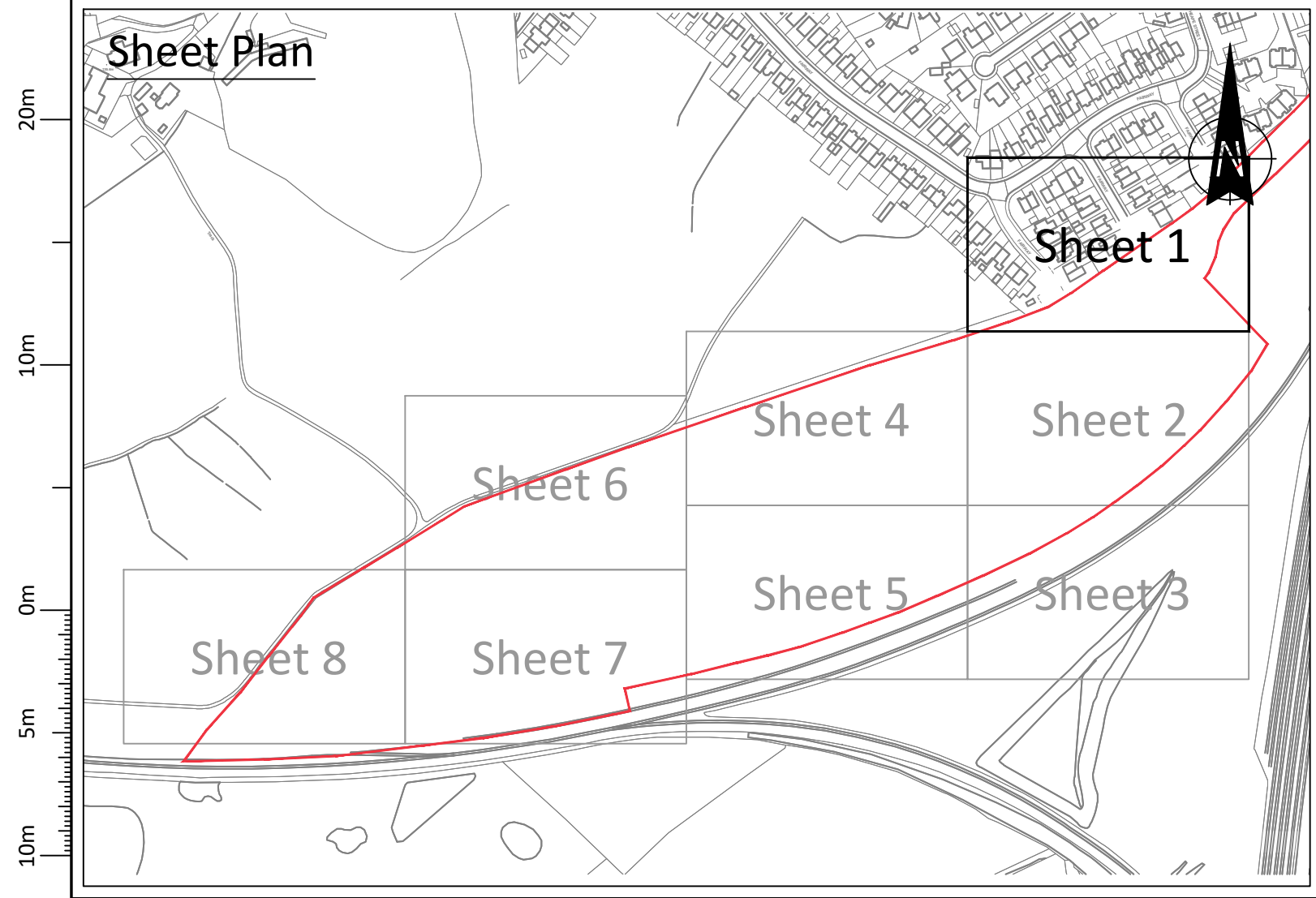
Base of excavation/depth of  
engineered ground (Sheet 1 of 8)

|            |              |             |          |
|------------|--------------|-------------|----------|
| Scale:     | First Issue: | Drawn:      | Checked: |
| 1:250 @ A1 |              | R.B.Woodrow | M.Hamed  |

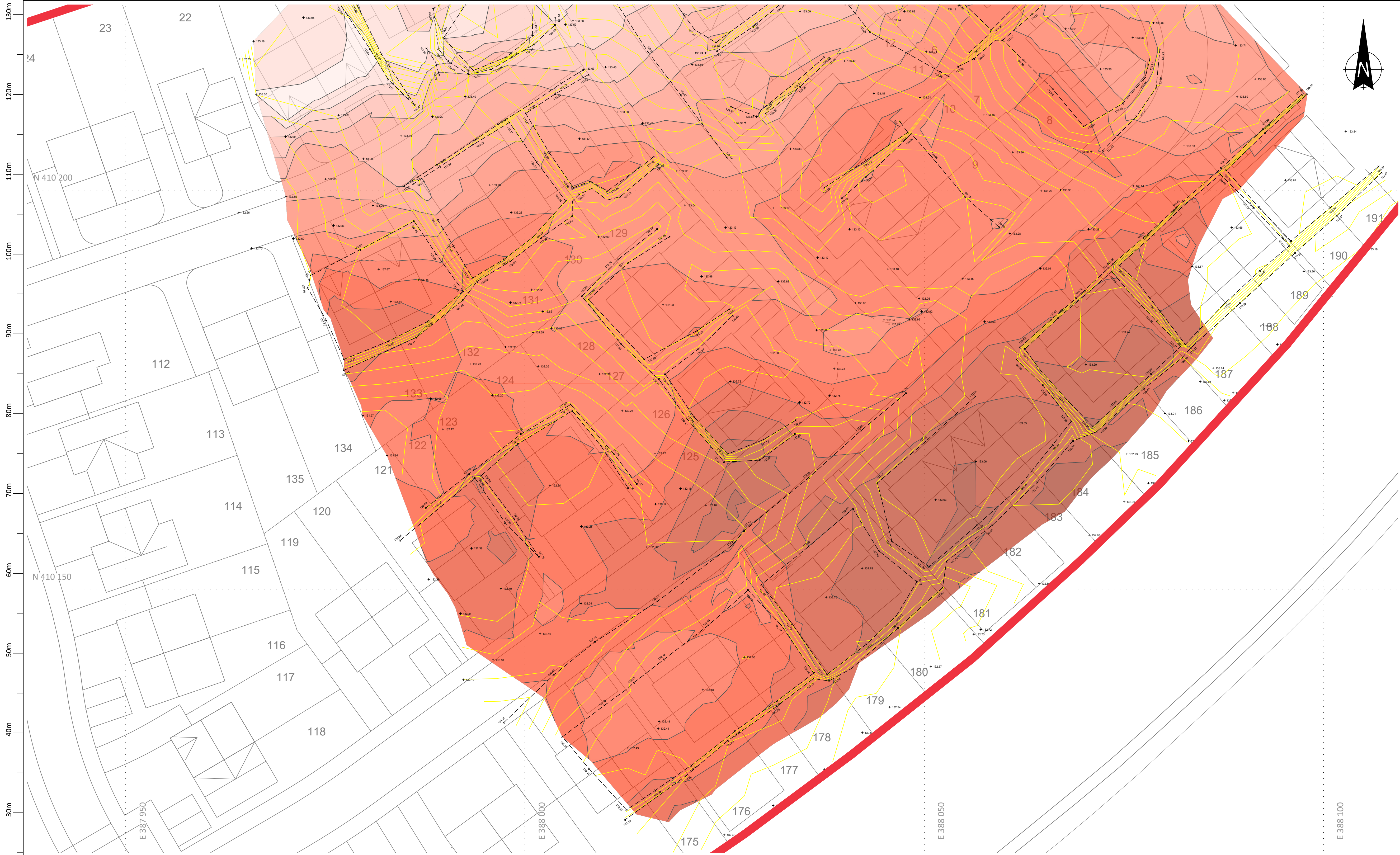
Drawing No:

405-002-001

Revision:







**Legend**

Site boundary

Spot level - As built

Top/bottom of bank/break of slope

Contour - As built (0.1m interval)

Contour - Base of excavation (0.5m interval)

Sub-grade (base of excavation)

6F2/6F5 pile mat/sub-base

Shared drive / stone and MOT

Depth of turnover/engineered ground

0.00m

-0.50m

-1.00m

-1.50m

-2.00m

-2.50m

-3.00m

-3.50m

-4.00m

-4.50m

-5.00m

-5.50m

-6.00m

-6.50m

-7.00m

-7.50m

**Notes**

1. This plan is to be read in conjunction with all other associated reports/drawings/information.
2. The development layout depicted on this drawing was extracted from drawing 'Planning Layout - Rev H.dwg' supplied digitally by the Client.
3. The required foundation solution is as detailed on drawing 'Remediation Trim Specification.pdf' provided digitally by the Client.
4. The site trim specification is as specified/agreed by/with the Client; and as detailed.
5. Layer 0 represents the average sub-grade/base of excavation level.
6. The spot levels and associated contours detailed on this drawing represent the sub-grade/base of excavation as surveyed.
7. The thickness of turnover/engineered ground isopachytes detailed on this drawing are referenced from the base of excavation as detailed, and the as built surface as surveyed.

**Survey Information:**

| Co-ord System: | Co-ord Type: | Primary Survey Control: | Secondary Survey Control: |
|----------------|--------------|-------------------------|---------------------------|
| Local          | Grid         | SmartNet                | Site                      |

| Rev | Date | Amendment | Drawn | Checked |
|-----|------|-----------|-------|---------|
|     |      |           |       |         |

**Urban Regen**  
ESTABLISHED 2001

Client:  
  
Kellen Homes

Project:  
  
Castleton Sidings  
Rochdale

Title:  
  
Base of excavation/depth of  
engineered ground (Sheet 2 of 8)

Scale:  
1:250 @ A1

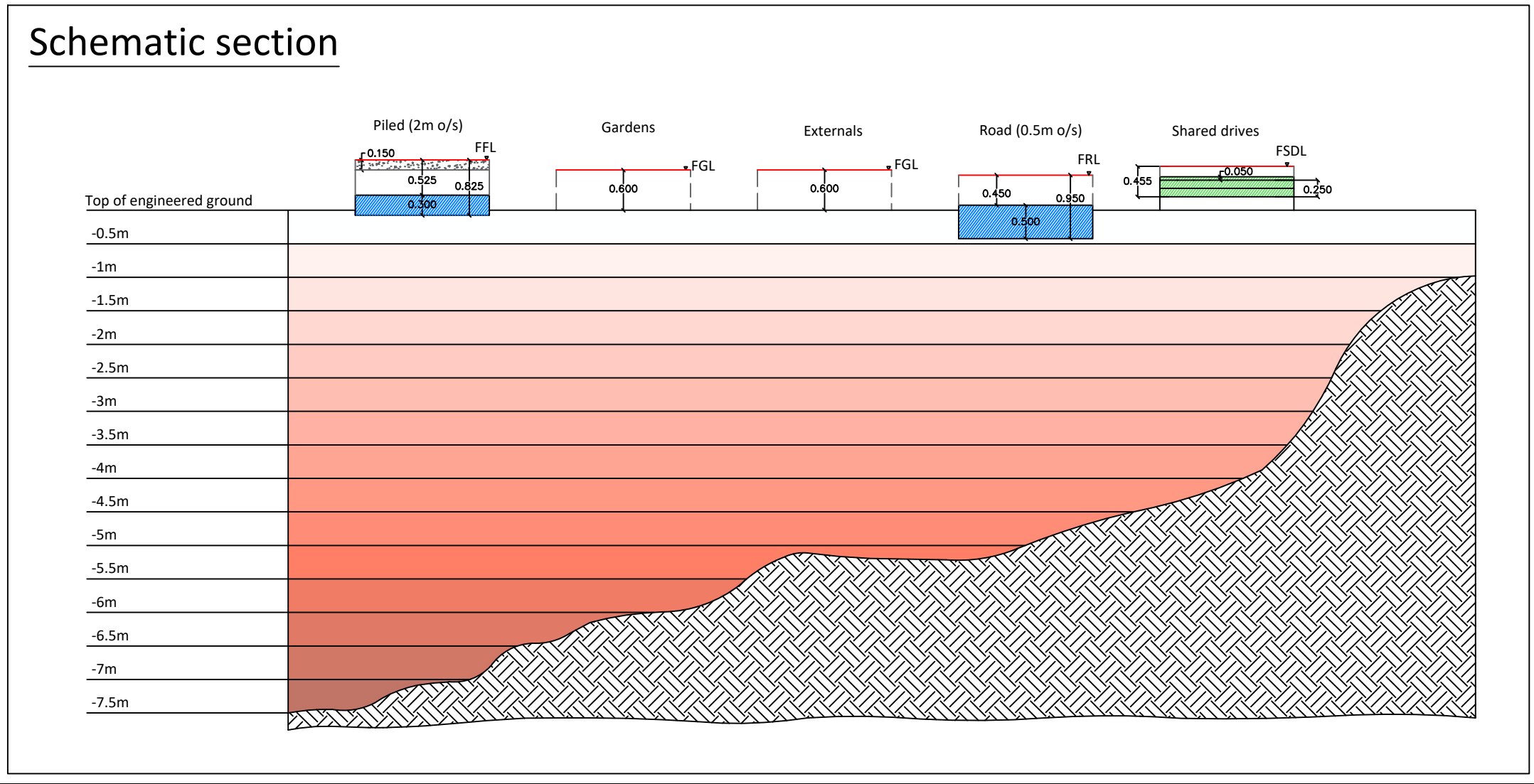
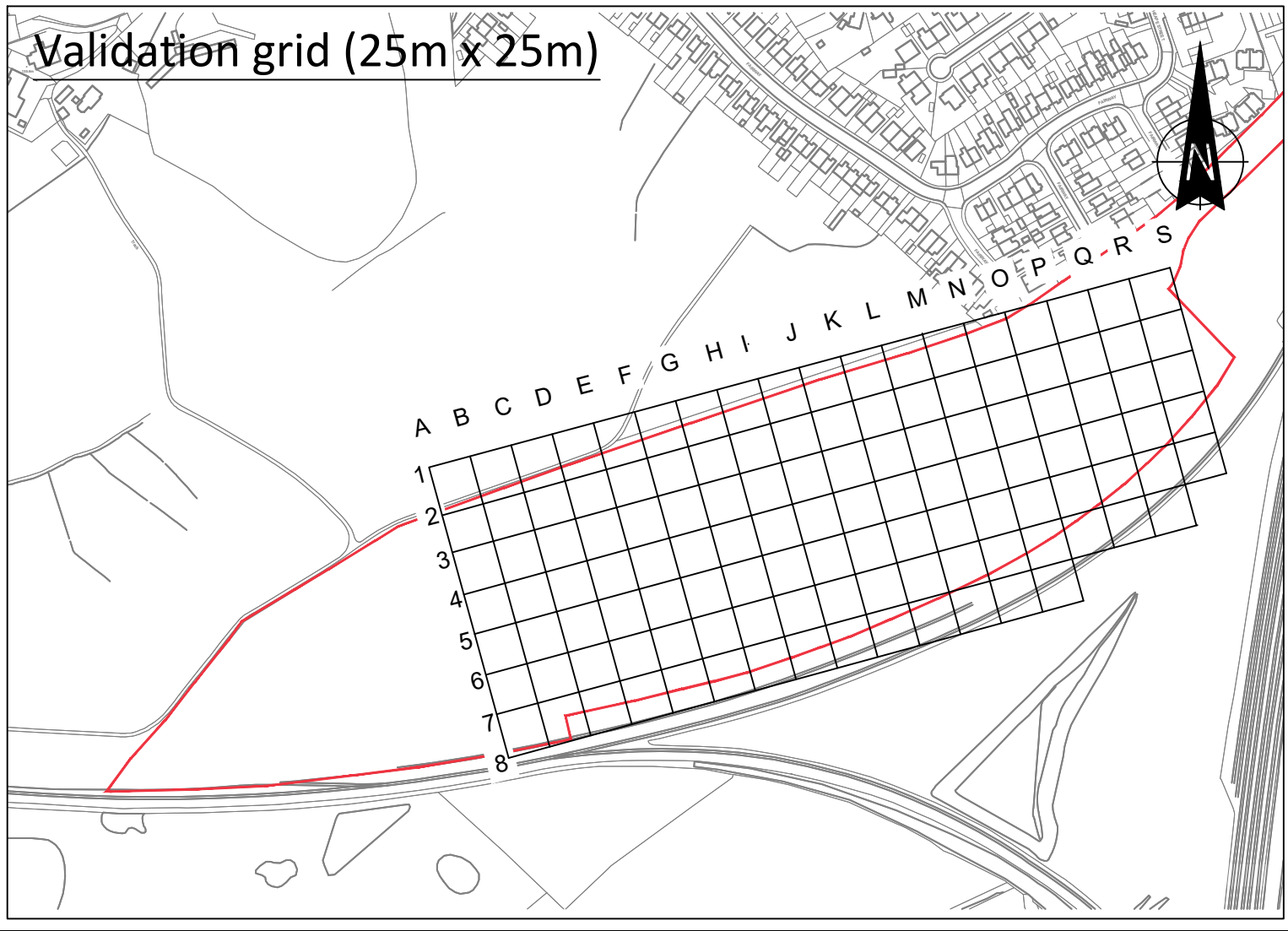
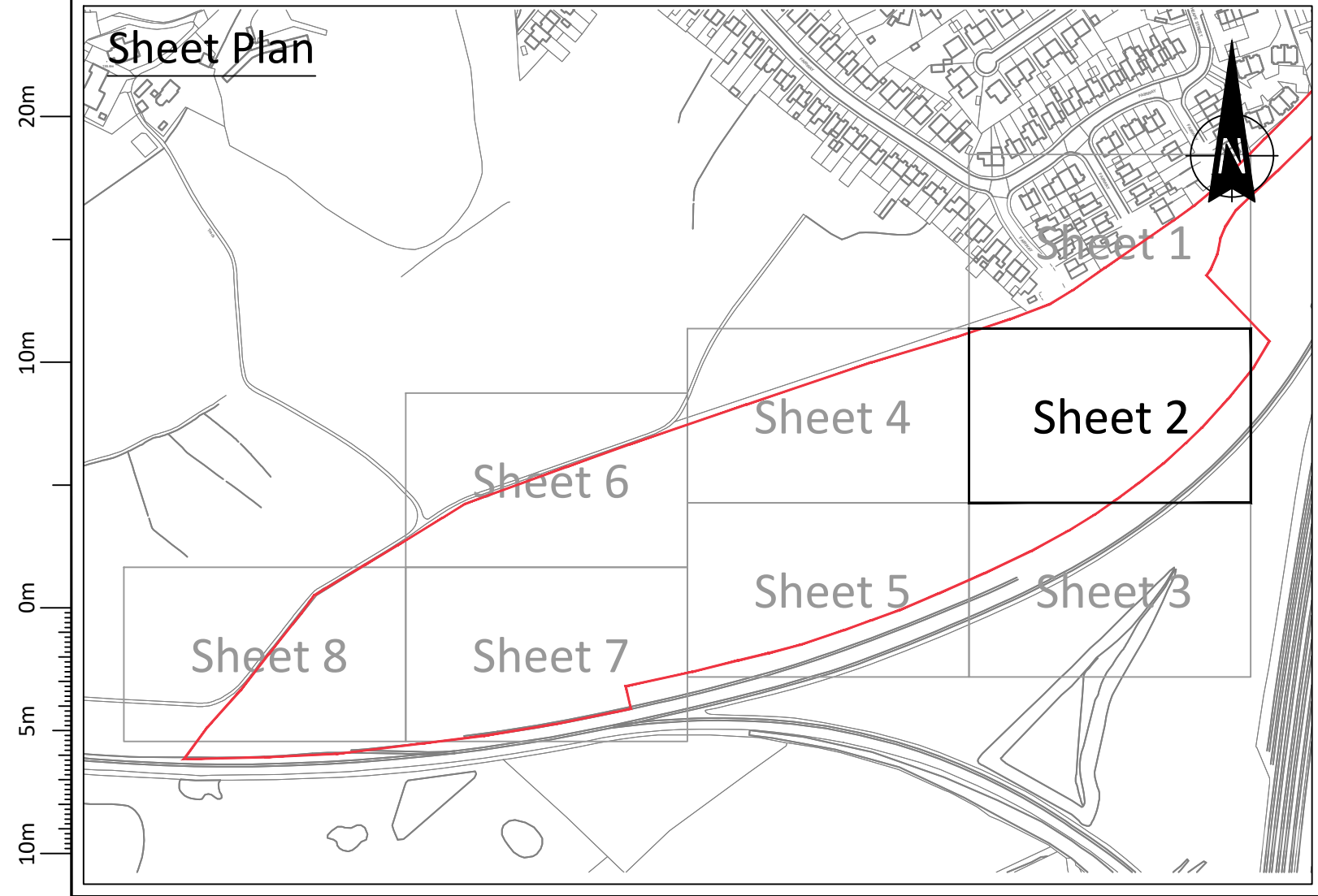
First Issue:

Drawn:  
R.B.Woodrow

Checked:  
M.Hamed

Drawing No:  
  
405-002-002

Revision:





# APPENDIX IV

## CHEMICAL TESTING RESULTS





# Final Report

---

**Report No.:** 24-33890-1

**Initial Date of Issue:** 24-Oct-2024

**Re-Issue Details:**

**Client** E3P

**Client Address:** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contact(s):** jsheridan@e3p.co.uk;  
hmason@e3p.co.uk

**Project** 14-768 Castleton Sidings - MG BF

**Quotation No.:** Q23-31421

**Date Received:** 18-Oct-2024

**Order No.:** 009790

**Date Instructed:** 18-Oct-2024

**No. of Samples:** 10

**Turnaround (Wkdays):** 5

**Results Due:** 24-Oct-2024

**Date Approved:** 24-Oct-2024

**Approved By:**

**Details:** David Smith, Technical Director

**For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report**

---

## Results - Leachate

**Project: 14-768 Castleton Sidings - MG BF**

|                                |                             |            |             |              |            |             |             |             |             |             |
|--------------------------------|-----------------------------|------------|-------------|--------------|------------|-------------|-------------|-------------|-------------|-------------|
| <b>Client: E3P</b>             | <b>Chemtest Job No.:</b>    |            |             |              |            | 24-33890    | 24-33890    | 24-33890    | 24-33890    | 24-33890    |
| Quotation No.: Q23-31421       | <b>Chemtest Sample ID.:</b> |            |             |              |            | 1882913     | 1882915     | 1882917     | 1882919     | 1882921     |
|                                | Client Sample ID.:          |            |             |              |            | MG BF 102   | MG BF 104   | MG BF 106   | MG BF 108   | MG BF 110   |
|                                | Sample Type:                |            |             |              |            | SOIL        | SOIL        | SOIL        | SOIL        | SOIL        |
|                                | Date Sampled:               |            |             |              |            | 18-Oct-2024 | 18-Oct-2024 | 18-Oct-2024 | 18-Oct-2024 | 18-Oct-2024 |
|                                | Time Sampled:               |            |             |              |            | 12:00       | 12:00       | 12:00       | 12:00       | 12:00       |
| <b>Determinand</b>             | <b>Accred.</b>              | <b>SOP</b> | <b>Type</b> | <b>Units</b> | <b>LOD</b> |             |             |             |             |             |
| pH at 20C                      | U                           | 1010       | 2:1         |              | 4.0        | 8.5         | 8.4         | 7.9         | 7.9         | 7.8         |
| Cyanide (Total) Low-Level      | N                           | 1300       | 2:1         | mg/l         | 0.0050     | < 0.0050    | < 0.0050    | < 0.0050    | < 0.0050    | < 0.0050    |
| Arsenic (Dissolved)            | U                           | 1455       | 2:1         | µg/l         | 0.20       | 0.68        | 0.67        | 0.42        | 2.4         | 0.64        |
| Cadmium (Dissolved)            | U                           | 1455       | 2:1         | µg/l         | 0.11       | < 0.11      | < 0.11      | < 0.11      | < 0.11      | < 0.11      |
| Chromium (Dissolved)           | U                           | 1455       | 2:1         | µg/l         | 0.50       | 0.94        | 0.67        | < 0.50      | < 0.50      | < 0.50      |
| Copper (Dissolved)             | U                           | 1455       | 2:1         | µg/l         | 0.50       | 4.2         | 8.5         | 2.2         | 2.7         | 3.3         |
| Mercury (Dissolved)            | U                           | 1455       | 2:1         | µg/l         | 0.05       | < 0.05      | < 0.05      | 0.09        | < 0.05      | < 0.05      |
| Nickel (Dissolved)             | U                           | 1455       | 2:1         | µg/l         | 0.50       | 0.73        | 0.96        | 0.77        | 0.52        | 1.8         |
| Lead (Dissolved)               | U                           | 1455       | 2:1         | µg/l         | 0.50       | 86          | 15          | < 0.50      | 1.2         | 20          |
| Selenium (Dissolved)           | U                           | 1455       | 2:1         | µg/l         | 0.50       | 0.84        | < 0.50      | < 0.50      | 0.85        | 0.73        |
| Zinc (Dissolved)               | U                           | 1455       | 2:1         | µg/l         | 2.5        | 11          | 13          | < 2.5       | < 2.5       | 11          |
| Chromium (Hexavalent)          | U                           | 1490       | 2:1         | µg/l         | 20         | < 20        | < 20        | < 20        | < 20        | < 20        |
| C2 Aliphatic TPH >C5-C6        | N                           | 1675       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| C2 Aliphatic TPH >C6-C8        | N                           | 1675       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| C2 Aliphatic TPH >C8-C10       | N                           | 1675       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| C2 Aliphatic TPH >C10-C12      | N                           | 1675       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| C2 Aliphatic TPH >C12-C16      | N                           | 1675       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| C2 Aliphatic TPH >C16-C21      | N                           | 1675       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| C2 Aliphatic TPH >C21-C35      | N                           | 1675       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| C2 Aliphatic TPH >C35-C44      | N                           | 1675       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Total Aliphatic Hydrocarbons   | N                           | 1675       | 2:1         | µg/l         | 5.0        | < 5.0       | < 5.0       | < 5.0       | < 5.0       | < 5.0       |
| C2 Aromatic TPH >C5-C7         | N                           | 1675       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| C2 Aromatic TPH >C7-C8         | N                           | 1675       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| C2 Aromatic TPH >C8-C10        | N                           | 1675       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| C2 Aromatic TPH >C10-C12       | N                           | 1675       | 2:1         | µg/l         | 0.10       | 40          | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| C2 Aromatic TPH >C12-C16       | N                           | 1675       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| C2 Aromatic TPH >C16-C21       | N                           | 1675       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| C2 Aromatic TPH >C21-C35       | N                           | 1675       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| C2 Aromatic TPH >C35-C44       | N                           | 1675       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| C2 Total Aromatic Hydrocarbons | N                           | 1675       | 2:1         | µg/l         | 5.0        | 40          | < 5.0       | < 5.0       | < 5.0       | < 5.0       |
| Total Petroleum Hydrocarbons   | N                           | 1675       | 2:1         | µg/l         | 10         | 40          | < 10        | < 10        | < 10        | < 10        |
| Benzene                        | U                           | 1760       | 2:1         | µg/l         | 1.0        | < 1.0       | < 1.0       | < 1.0       | < 1.0       | < 1.0       |
| Toluene                        | U                           | 1760       | 2:1         | µg/l         | 1.0        | 1.2         | < 1.0       | < 1.0       | < 1.0       | < 1.0       |
| Ethylbenzene                   | U                           | 1760       | 2:1         | µg/l         | 1.0        | < 1.0       | < 1.0       | < 1.0       | < 1.0       | < 1.0       |
| m & p-Xylene                   | U                           | 1760       | 2:1         | µg/l         | 1.0        | < 1.0       | < 1.0       | < 1.0       | < 1.0       | < 1.0       |
| o-Xylene                       | U                           | 1760       | 2:1         | µg/l         | 1.0        | < 1.0       | < 1.0       | < 1.0       | < 1.0       | < 1.0       |
| Methyl Tert-Butyl Ether        | N                           | 1760       | 2:1         | µg/l         | 1.0        | < 1.0       | < 1.0       | < 1.0       | < 1.0       | < 1.0       |
| Naphthalene                    | U                           | 1800       | 2:1         | µg/l         | 0.10       | 66          | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Acenaphthylene                 | U                           | 1800       | 2:1         | µg/l         | 0.10       | 4.0         | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Acenaphthene                   | U                           | 1800       | 2:1         | µg/l         | 0.10       | 13          | < 0.10      | < 0.10      | < 0.10      | < 0.10      |



## Results - Leachate

**Project: 14-768 Castleton Sidings - MG BF**

|                          |                             |            |             |              |            |             |             |             |             |             |
|--------------------------|-----------------------------|------------|-------------|--------------|------------|-------------|-------------|-------------|-------------|-------------|
| <b>Client: E3P</b>       | <b>Chemtest Job No.:</b>    |            |             |              |            | 24-33890    | 24-33890    | 24-33890    | 24-33890    | 24-33890    |
| Quotation No.: Q23-31421 | <b>Chemtest Sample ID.:</b> |            |             |              |            | 1882913     | 1882915     | 1882917     | 1882919     | 1882921     |
|                          | Client Sample ID.:          |            |             |              |            | MG BF 102   | MG BF 104   | MG BF 106   | MG BF 108   | MG BF 110   |
|                          | Sample Type:                |            |             |              |            | SOIL        | SOIL        | SOIL        | SOIL        | SOIL        |
|                          | Date Sampled:               |            |             |              |            | 18-Oct-2024 | 18-Oct-2024 | 18-Oct-2024 | 18-Oct-2024 | 18-Oct-2024 |
|                          | Time Sampled:               |            |             |              |            | 12:00       | 12:00       | 12:00       | 12:00       | 12:00       |
| <b>Determinand</b>       | <b>Accred.</b>              | <b>SOP</b> | <b>Type</b> | <b>Units</b> | <b>LOD</b> |             |             |             |             |             |
| Fluorene                 | U                           | 1800       | 2:1         | µg/l         | 0.10       | 3.2         | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Phenanthrene             | U                           | 1800       | 2:1         | µg/l         | 0.10       | 6.8         | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Anthracene               | U                           | 1800       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Fluoranthene             | U                           | 1800       | 2:1         | µg/l         | 0.10       | 2.7         | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Pyrene                   | U                           | 1800       | 2:1         | µg/l         | 0.10       | 2.4         | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Benzo[a]anthracene       | U                           | 1800       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Chrysene                 | U                           | 1800       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Benzo[b]fluoranthene     | U                           | 1800       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Benzo[k]fluoranthene     | U                           | 1800       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Benzo[a]pyrene           | U                           | 1800       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Indeno(1,2,3-c,d)Pyrene  | U                           | 1800       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Dibenz(a,h)Anthracene    | U                           | 1800       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Benzo[g,h,i]perylene     | U                           | 1800       | 2:1         | µg/l         | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Total Of 16 PAH's        | U                           | 1800       | 2:1         | µg/l         | 2.0        | 98          | < 2.0       | < 2.0       | < 2.0       | < 2.0       |
| Total Phenols            | U                           | 1920       | 2:1         | mg/l         | 0.030      | < 0.030     | < 0.030     | < 0.030     | < 0.030     | < 0.030     |

## Results - Soil

**Project: 14-768 Castleton Sidings - MG BF**

|                                     |                  |                             |            |              |             |                      |                         |                      |                      |                      |                      |                      |
|-------------------------------------|------------------|-----------------------------|------------|--------------|-------------|----------------------|-------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| <b>Client: E3P</b>                  |                  | <b>Chemtest Job No.:</b>    |            | 24-33890     | 24-33890    | 24-33890             | 24-33890                | 24-33890             | 24-33890             | 24-33890             | 24-33890             | 24-33890             |
| Quotation No.: Q23-31421            |                  | <b>Chemtest Sample ID.:</b> |            | 1882912      | 1882913     | 1882914              | 1882915                 | 1882916              | 1882917              | 1882918              |                      |                      |
|                                     |                  | Client Sample ID.:          |            | MG BF 101    | MG BF 102   | MG BF 103            | MG BF 104               | MG BF 105            | MG BF 106            | MG BF 107            |                      |                      |
|                                     |                  | Sample Type:                |            | SOIL         | SOIL        | SOIL                 | SOIL                    | SOIL                 | SOIL                 | SOIL                 |                      |                      |
|                                     |                  | Date Sampled:               |            | 18-Oct-2024  | 18-Oct-2024 | 18-Oct-2024          | 18-Oct-2024             | 18-Oct-2024          | 18-Oct-2024          | 18-Oct-2024          |                      |                      |
|                                     |                  | Time Sampled:               |            | 12:00        | 12:00       | 12:00                | 12:00                   | 12:00                | 12:00                | 12:00                |                      |                      |
|                                     |                  | Asbestos Lab:               |            | NEW-ASB      | NEW-ASB     | NEW-ASB              | NEW-ASB                 | NEW-ASB              | NEW-ASB              | NEW-ASB              |                      |                      |
| <b>Determinand</b>                  | <b>HWOL Code</b> | <b>Accred.</b>              | <b>SOP</b> | <b>Units</b> | <b>LOD</b>  |                      |                         |                      |                      |                      |                      |                      |
| ACM Type                            |                  | U                           | 2192       |              | N/A         | -                    | -                       | -                    | -                    | -                    | -                    | -                    |
| Asbestos Identification             |                  | U                           | 2192       |              | N/A         | No Asbestos Detected | No Asbestos Detected    | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected |
| Moisture                            |                  | N                           | 2030       | %            | 0.020       | 29                   | 36                      | 39                   | 28                   | 37                   | 22                   | 51                   |
| Soil Colour                         |                  | N                           | 2040       |              | N/A         | Brown                | Brown                   | Brown                | Brown                | Brown                | Brown                | Brown                |
| Other Material                      |                  | N                           | 2040       |              | N/A         | Stones and Roots     | Stones, Roots and Glass | Stones and           | Stones, Glass and    | Stones, and Roots    | Stones, Roots and    | Stones and           |
| Soil Texture                        |                  | N                           | 2040       |              | N/A         | Other                | Clay                    | Other                | Clay                 | Other                | Loam                 | Other                |
| pH at 20C                           |                  | M                           | 2010       |              | 4.0         | 8.5                  | 8.3                     | 7.7                  | 7.8                  | 8.1                  | 7.4                  | 7.6                  |
| Sulphate (2:1 Water Soluble) as SO4 |                  | M                           | 2120       | g/l          | 0.010       | 0.016                | 0.044                   | 0.010                | 0.055                | < 0.010              | 0.053                | < 0.010              |
| Total Sulphur                       |                  | U                           | 2175       | %            | 0.010       | 0.32                 | 0.19                    | 0.49                 | 0.34                 | 0.38                 | 0.34                 | 0.31                 |
| Cyanide (Total)                     |                  | M                           | 2300       | mg/kg        | 0.50        | 6.6                  | 3.7                     | 1.2                  | 0.70                 | < 0.50               | 5.8                  | < 0.50               |
| Sulphide (Easily Liberatable)       |                  | N                           | 2325       | mg/kg        | 0.50        | 2.9                  | 3.2                     | 3.3                  | 2.8                  | 2.4                  | 2.2                  | 3.1                  |
| Sulphate (Total)                    |                  | U                           | 2430       | %            | 0.010       | 0.52                 | 1.6                     | 0.28                 | 0.38                 | 0.37                 | 0.42                 | 0.39                 |
| Arsenic                             |                  | M                           | 2455       | mg/kg        | 0.5         | 34                   | 59                      | 80                   | 37                   | 30                   | 39                   | 390                  |
| Cadmium                             |                  | M                           | 2455       | mg/kg        | 0.10        | 0.99                 | 0.40                    | 0.64                 | 0.90                 | 1.0                  | 0.20                 | 12                   |
| Chromium                            |                  | M                           | 2455       | mg/kg        | 0.5         | 43                   | 44                      | 19                   | 67                   | 20                   | 17                   | 24                   |
| Copper                              |                  | M                           | 2455       | mg/kg        | 0.50        | 180                  | 180                     | 890                  | 870                  | 420                  | 240                  | 180                  |
| Mercury                             |                  | M                           | 2455       | mg/kg        | 0.05        | 0.55                 | 1.4                     | 0.44                 | 41                   | 9.3                  | 6.4                  | 1.3                  |
| Nickel                              |                  | M                           | 2455       | mg/kg        | 0.50        | 51                   | 33                      | 44                   | 42                   | 29                   | 34                   | 71                   |
| Lead                                |                  | M                           | 2455       | mg/kg        | 0.50        | 6000                 | 4400                    | 450                  | 5600                 | 940                  | 400                  | 3300                 |
| Selenium                            |                  | M                           | 2455       | mg/kg        | 0.25        | 1.8                  | 1.4                     | 1.8                  | 2.5                  | 0.85                 | 1.4                  | 2.7                  |
| Zinc                                |                  | M                           | 2455       | mg/kg        | 0.50        | 480                  | 260                     | 290                  | 560                  | 160                  | 160                  | 960                  |
| Chromium (Hexavalent)               |                  | N                           | 2490       | mg/kg        | 0.50        | < 0.50               | < 0.50                  | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               |
| Organic Matter                      |                  | M                           | 2625       | %            | 0.40        | 90                   | 19                      | 100                  | 16                   | 43                   | 43                   | 38                   |
| Total Organic Carbon                |                  | M                           | 2625       | %            | 0.20        | 52                   | 11                      | 60                   | 9.2                  | 25                   | 25                   | 22                   |
| TPH >C6-C8                          | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0         | < 1.0                | < 1.0                   | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                |
| TPH >C8-C10                         | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0         | 16                   | 3.4                     | < 1.0                | 2.5                  | < 1.0                | < 1.0                | 15                   |
| TPH >C10-C12                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0         | 110                  | 38                      | < 1.0                | 49                   | < 1.0                | < 1.0                | 52                   |
| TPH >C12-C16                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0         | 350                  | 100                     | 11                   | 98                   | 31                   | 20                   | 72                   |
| TPH >C16-C21                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0         | 810                  | 310                     | 51                   | 290                  | 85                   | 47                   | 83                   |
| TPH >C21-C25                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0         | 620                  | 350                     | 27                   | 220                  | 160                  | 83                   | 29                   |
| TPH >C25-C35                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0         | 1200                 | 550                     | 99                   | 280                  | 150                  | 65                   | 55                   |
| TPH >C35-C40                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0         | 330                  | 59                      | 11                   | 44                   | 15                   | 9.7                  | 11                   |
| Total TPH >C6-C40                   | EH_1D_Total      | U                           | 2670       | mg/kg        | 10          | 3400                 | 1400                    | 200                  | 990                  | 440                  | 220                  | 320                  |
| Naphthalene                         |                  | M                           | 2800       | mg/kg        | 0.10        | 44                   | 110                     | 2.0                  | 6.4                  | 1.7                  | 2.0                  | 2.8                  |
| Acenaphthylene                      |                  | N                           | 2800       | mg/kg        | 0.10        | 13                   | < 0.10                  | 0.11                 | 0.12                 | < 0.10               | < 0.10               | 0.10                 |
| Acenaphthene                        |                  | M                           | 2800       | mg/kg        | 0.10        | 37                   | 74                      | 0.38                 | 1.3                  | 1.0                  | 0.36                 | 0.56                 |
| Fluorene                            |                  | M                           | 2800       | mg/kg        | 0.10        | 30                   | 38                      | 0.35                 | 0.98                 | 0.63                 | 0.30                 | 0.36                 |

## Results - Soil

**Project: 14-768 Castleton Sidings - MG BF**

|                          |                  |                             |            |              |            |        |             |             |             |             |             |             |             |
|--------------------------|------------------|-----------------------------|------------|--------------|------------|--------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Client: E3P</b>       |                  | <b>Chemtest Job No.:</b>    |            |              |            |        | 24-33890    | 24-33890    | 24-33890    | 24-33890    | 24-33890    | 24-33890    | 24-33890    |
| Quotation No.: Q23-31421 |                  | <b>Chemtest Sample ID.:</b> |            |              |            |        | 1882912     | 1882913     | 1882914     | 1882915     | 1882916     | 1882917     | 1882918     |
|                          |                  | Client Sample ID.:          |            |              |            |        | MG BF 101   | MG BF 102   | MG BF 103   | MG BF 104   | MG BF 105   | MG BF 106   | MG BF 107   |
|                          |                  | Sample Type:                |            |              |            |        | SOIL        | SOIL        | SOIL        | SOIL        | SOIL        | SOIL        | SOIL        |
|                          |                  | Date Sampled:               |            |              |            |        | 18-Oct-2024 | 18-Oct-2024 | 18-Oct-2024 | 18-Oct-2024 | 18-Oct-2024 | 18-Oct-2024 | 18-Oct-2024 |
|                          |                  | Time Sampled:               |            |              |            |        | 12:00       | 12:00       | 12:00       | 12:00       | 12:00       | 12:00       | 12:00       |
|                          |                  | Asbestos Lab:               |            |              |            |        | NEW-ASB     | NEW-ASB     | NEW-ASB     | NEW-ASB     | NEW-ASB     | NEW-ASB     | NEW-ASB     |
| <b>Determinand</b>       | <b>HWOL Code</b> | <b>Accred.</b>              | <b>SOP</b> | <b>Units</b> | <b>LOD</b> |        |             |             |             |             |             |             |             |
| Phenanthrene             |                  | M                           | 2800       | mg/kg        | 0.10       | 200    | 200         | 3.7         | 9.2         | 6.4         | 3.5         | 3.6         |             |
| Anthracene               |                  | M                           | 2800       | mg/kg        | 0.10       | 52     | 36          | 0.79        | 1.7         | 0.91        | 0.60        | 0.70        |             |
| Fluoranthene             |                  | M                           | 2800       | mg/kg        | 0.10       | 150    | 180         | 5.4         | 12          | 6.8         | 4.2         | 3.1         |             |
| Pyrene                   |                  | M                           | 2800       | mg/kg        | 0.10       | 120    | 180         | 5.2         | 11          | 6.9         | 4.0         | 3.1         |             |
| Benzo[a]anthracene       |                  | M                           | 2800       | mg/kg        | 0.10       | 54     | 72          | 2.1         | 5.2         | 2.9         | 2.0         | 1.7         |             |
| Chrysene                 |                  | M                           | 2800       | mg/kg        | 0.10       | 55     | 88          | 2.4         | 5.7         | 4.0         | 2.4         | 2.1         |             |
| Benzo[b]fluoranthene     |                  | M                           | 2800       | mg/kg        | 0.10       | 59     | 87          | 2.6         | 6.8         | 3.8         | 3.2         | 2.4         |             |
| Benzo[k]fluoranthene     |                  | M                           | 2800       | mg/kg        | 0.10       | 21     | 30          | 0.85        | 2.1         | 1.4         | 1.1         | 0.89        |             |
| Benzo[a]pyrene           |                  | M                           | 2800       | mg/kg        | 0.10       | 37     | 71          | 1.9         | 5.5         | 3.0         | 2.7         | 2.0         |             |
| Indeno(1,2,3-c,d)Pyrene  |                  | M                           | 2800       | mg/kg        | 0.10       | 27     | 39          | 1.3         | 3.2         | 1.7         | 2.3         | 1.4         |             |
| Dibenz(a,h)Anthracene    |                  | N                           | 2800       | mg/kg        | 0.10       | < 0.10 | 9.3         | 0.23        | 0.61        | 0.45        | 0.40        | 0.32        |             |
| Benzo[g,h,i]perylene     |                  | M                           | 2800       | mg/kg        | 0.10       | 27     | 44          | 1.3         | 3.2         | 2.0         | 2.4         | 1.5         |             |
| Total Of 16 PAH's        |                  | N                           | 2800       | mg/kg        | 2.0        | 930    | 1300        | 31          | 75          | 44          | 32          | 27          |             |
| Total Phenols            |                  | M                           | 2920       | mg/kg        | 0.10       | < 0.10 | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |             |



## Results - Soil

**Project: 14-768 Castleton Sidings - MG BF**

|                                     |                  |                             |            |              |            |                      |                      |                      |
|-------------------------------------|------------------|-----------------------------|------------|--------------|------------|----------------------|----------------------|----------------------|
| <b>Client: E3P</b>                  |                  | <b>Chemtest Job No.:</b>    |            |              |            | 24-33890             | 24-33890             | 24-33890             |
| Quotation No.: Q23-31421            |                  | <b>Chemtest Sample ID.:</b> |            |              |            | 1882919              | 1882920              | 1882921              |
|                                     |                  | Client Sample ID.:          |            |              |            | MG BF 108            | MG BF 109            | MG BF 110            |
|                                     |                  | Sample Type:                |            |              |            | SOIL                 | SOIL                 | SOIL                 |
|                                     |                  | Date Sampled:               |            |              |            | 18-Oct-2024          | 18-Oct-2024          | 18-Oct-2024          |
|                                     |                  | Time Sampled:               |            |              |            | 12:00                | 12:00                | 12:00                |
|                                     |                  | Asbestos Lab:               |            |              |            | NEW-ASB              | NEW-ASB              | NEW-ASB              |
| <b>Determinand</b>                  | <b>HWOL Code</b> | <b>Accred.</b>              | <b>SOP</b> | <b>Units</b> | <b>LOD</b> |                      |                      |                      |
| ACM Type                            |                  | U                           | 2192       |              | N/A        | -                    | -                    | -                    |
| Asbestos Identification             |                  | U                           | 2192       |              | N/A        | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected |
| Moisture                            |                  | N                           | 2030       | %            | 0.020      | 38                   | 15                   | 36                   |
| Soil Colour                         |                  | N                           | 2040       |              | N/A        | Brown                | Brown                | Brown                |
| Other Material                      |                  | N                           | 2040       |              | N/A        | Stones and           | Stones and           | Stones and           |
| Soil Texture                        |                  | N                           | 2040       |              | N/A        | Sand                 | Other                | Other                |
| pH at 20C                           |                  | M                           | 2010       |              | 4.0        | 7.9                  | 7.8                  | 7.9                  |
| Sulphate (2:1 Water Soluble) as SO4 |                  | M                           | 2120       | g/l          | 0.010      | < 0.010              | 0.13                 | 0.13                 |
| Total Sulphur                       |                  | U                           | 2175       | %            | 0.010      | 0.46                 | 0.45                 | 0.75                 |
| Cyanide (Total)                     |                  | M                           | 2300       | mg/kg        | 0.50       | < 0.50               | 4.3                  | 2.2                  |
| Sulphide (Easily Liberatable)       |                  | N                           | 2325       | mg/kg        | 0.50       | 4.0                  | 4.8                  | 2.9                  |
| Sulphate (Total)                    |                  | U                           | 2430       | %            | 0.010      | 0.43                 | 0.74                 | 0.77                 |
| Arsenic                             |                  | M                           | 2455       | mg/kg        | 0.5        | 59                   | 47                   | 52                   |
| Cadmium                             |                  | M                           | 2455       | mg/kg        | 0.10       | 0.57                 | 0.67                 | 0.70                 |
| Chromium                            |                  | M                           | 2455       | mg/kg        | 0.5        | 17                   | 27                   | 24                   |
| Copper                              |                  | M                           | 2455       | mg/kg        | 0.50       | 380                  | 330                  | 560                  |
| Mercury                             |                  | M                           | 2455       | mg/kg        | 0.05       | 5.4                  | 12                   | 36                   |
| Nickel                              |                  | M                           | 2455       | mg/kg        | 0.50       | 48                   | 47                   | 49                   |
| Lead                                |                  | M                           | 2455       | mg/kg        | 0.50       | 1000                 | 3200                 | 4100                 |
| Selenium                            |                  | M                           | 2455       | mg/kg        | 0.25       | 3.0                  | 2.0                  | 1.7                  |
| Zinc                                |                  | M                           | 2455       | mg/kg        | 0.50       | 230                  | 320                  | 410                  |
| Chromium (Hexavalent)               |                  | N                           | 2490       | mg/kg        | 0.50       | < 0.50               | < 0.50               | < 0.50               |
| Organic Matter                      |                  | M                           | 2625       | %            | 0.40       | 72                   | 29                   | 53                   |
| Total Organic Carbon                |                  | M                           | 2625       | %            | 0.20       | 42                   | 17                   | 31                   |
| TPH >C6-C8                          | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | < 1.0                |
| TPH >C8-C10                         | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | 3.6                  |
| TPH >C10-C12                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | 50                   | 42                   |
| TPH >C12-C16                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | 27                   | 610                  | 65                   |
| TPH >C16-C21                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | 87                   | 3100                 | 140                  |
| TPH >C21-C25                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | 130                  | 2200                 | 180                  |
| TPH >C25-C35                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | 130                  | 3800                 | 250                  |
| TPH >C35-C40                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | 20                   | 1000                 | 36                   |
| Total TPH >C6-C40                   | EH_1D_Total      | U                           | 2670       | mg/kg        | 10         | 390                  | 11000                | 710                  |
| Naphthalene                         |                  | M                           | 2800       | mg/kg        | 0.10       | 2.1                  | 3.4                  | 2.0                  |
| Acenaphthylene                      |                  | N                           | 2800       | mg/kg        | 0.10       | < 0.10               | < 0.10               | 0.15                 |
| Acenaphthene                        |                  | M                           | 2800       | mg/kg        | 0.10       | 0.21                 | 0.91                 | 0.79                 |
| Fluorene                            |                  | M                           | 2800       | mg/kg        | 0.10       | 0.20                 | 0.78                 | 0.58                 |

## Results - Soil

**Project: 14-768 Castleton Sidings - MG BF**

|                          |                  |                             |            |              |            |        |        |             |             |             |
|--------------------------|------------------|-----------------------------|------------|--------------|------------|--------|--------|-------------|-------------|-------------|
| <b>Client: E3P</b>       |                  | <b>Chemtest Job No.:</b>    |            |              |            |        |        | 24-33890    | 24-33890    | 24-33890    |
| Quotation No.: Q23-31421 |                  | <b>Chemtest Sample ID.:</b> |            |              |            |        |        | 1882919     | 1882920     | 1882921     |
|                          |                  | Client Sample ID.:          |            |              |            |        |        | MG BF 108   | MG BF 109   | MG BF 110   |
|                          |                  | Sample Type:                |            |              |            |        |        | SOIL        | SOIL        | SOIL        |
|                          |                  | Date Sampled:               |            |              |            |        |        | 18-Oct-2024 | 18-Oct-2024 | 18-Oct-2024 |
|                          |                  | Time Sampled:               |            |              |            |        |        | 12:00       | 12:00       | 12:00       |
|                          |                  | Asbestos Lab:               |            |              |            |        |        | NEW-ASB     | NEW-ASB     | NEW-ASB     |
| <b>Determinand</b>       | <b>HWOL Code</b> | <b>Accred.</b>              | <b>SOP</b> | <b>Units</b> | <b>LOD</b> |        |        |             |             |             |
| Phenanthrene             |                  | M                           | 2800       | mg/kg        | 0.10       | 2.7    | 7.1    | 6.0         |             |             |
| Anthracene               |                  | M                           | 2800       | mg/kg        | 0.10       | 0.47   | 1.6    | 1.2         |             |             |
| Fluoranthene             |                  | M                           | 2800       | mg/kg        | 0.10       | 4.6    | 10     | 9.2         |             |             |
| Pyrene                   |                  | M                           | 2800       | mg/kg        | 0.10       | 4.4    | 10     | 9.1         |             |             |
| Benzo[a]anthracene       |                  | M                           | 2800       | mg/kg        | 0.10       | 2.6    | 5.7    | 4.6         |             |             |
| Chrysene                 |                  | M                           | 2800       | mg/kg        | 0.10       | 3.2    | 6.8    | 5.2         |             |             |
| Benzo[b]fluoranthene     |                  | M                           | 2800       | mg/kg        | 0.10       | 3.9    | 7.0    | 6.1         |             |             |
| Benzo[k]fluoranthene     |                  | M                           | 2800       | mg/kg        | 0.10       | 1.4    | 3.2    | 2.3         |             |             |
| Benzo[a]pyrene           |                  | M                           | 2800       | mg/kg        | 0.10       | 3.0    | 5.7    | 4.9         |             |             |
| Indeno(1,2,3-c,d)Pyrene  |                  | M                           | 2800       | mg/kg        | 0.10       | 2.0    | 3.9    | 3.1         |             |             |
| Dibenz(a,h)Anthracene    |                  | N                           | 2800       | mg/kg        | 0.10       | 0.54   | 1.5    | 0.74        |             |             |
| Benzo[g,h,i]perylene     |                  | M                           | 2800       | mg/kg        | 0.10       | 2.3    | 4.0    | 3.1         |             |             |
| Total Of 16 PAH's        |                  | N                           | 2800       | mg/kg        | 2.0        | 34     | 72     | 59          |             |             |
| Total Phenols            |                  | M                           | 2920       | mg/kg        | 0.10       | < 0.10 | < 0.10 | < 0.10      |             |             |

## Test Methods

| SOP  | Title                                                                             | Parameters included                                                                                                                                                                                                                                          | Method summary                                                                                                                                                                         | Water Accred.     |
|------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| 1010 | pH Value of Waters                                                                | pH at 20°C                                                                                                                                                                                                                                                   | pH Meter                                                                                                                                                                               |                   |
| 1300 | Cyanides & Thiocyanate in Waters                                                  | Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate                                                                                                                                                                              | Continuous Flow Analysis.                                                                                                                                                              |                   |
| 1455 | Metals in Waters by ICP-MS                                                        | Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc                                                                               | Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).                                                                       | RE PW PL SW DW FW |
| 1490 | Hexavalent Chromium in Waters                                                     | Chromium [VI]                                                                                                                                                                                                                                                | Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.                                                                                        |                   |
| 1675 | TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG) | Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44                                                                              | Pentane extraction / GCxGC FID detection                                                                                                                                               |                   |
| 1760 | Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS                    | Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)                                                                                                                                                      | Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.                                           |                   |
| 1800 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS              | Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene | Pentane extraction / GCMS detection                                                                                                                                                    |                   |
| 1920 | Phenols in Waters by HPLC                                                         | Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.                                                                                                                                                  | Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.                                                                                        |                   |
| 2010 | pH Value of Soils                                                                 | pH at 20°C                                                                                                                                                                                                                                                   | pH Meter                                                                                                                                                                               |                   |
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS)                        | Moisture content                                                                                                                                                                                                                                             | Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.                                                                                   |                   |
| 2040 | Soil Description(Requirement of MCERTS)                                           | Soil description                                                                                                                                                                                                                                             | As received soil is described based upon BS5930                                                                                                                                        |                   |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium                               | Boron; Sulphate; Magnesium; Chromium                                                                                                                                                                                                                         | Aqueous extraction / ICP-OES                                                                                                                                                           |                   |
| 2175 | Total Sulphur in Soils                                                            | Total Sulphur                                                                                                                                                                                                                                                | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.                                                                                             |                   |
| 2192 | Asbestos                                                                          | Asbestos                                                                                                                                                                                                                                                     | Polarised light microscopy / Gravimetry                                                                                                                                                |                   |
| 2300 | Cyanides & Thiocyanate in Soils                                                   | Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate                                                                                                                                                                              | Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.                                                                                    |                   |
| 2325 | Sulphide in Soils                                                                 | Sulphide                                                                                                                                                                                                                                                     | Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.                                                           |                   |
| 2430 | Total Sulphate in soils                                                           | Total Sulphate                                                                                                                                                                                                                                               | Acid digestion followed by determination of sulphate in extract by ICP-OES.                                                                                                            |                   |
| 2455 | Acid Soluble Metals in Soils                                                      | Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc                                                                                                     | Acid digestion followed by determination of metals in extract by ICP-MS.                                                                                                               |                   |
| 2490 | Hexavalent Chromium in Soils                                                      | Chromium [VI]                                                                                                                                                                                                                                                | Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine. |                   |



## Test Methods

| SOP  | Title                                                              | Parameters included                                                                                                                                                                                                                                                       | Method summary                                                                                           | Water Accred. |
|------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|---------------|
| 2625 | Total Organic Carbon in Soils                                      | Total organic Carbon (TOC)                                                                                                                                                                                                                                                | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.               |               |
| 2670 | Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID              | TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40                                                                                                                                                                                            | Dichloromethane extraction / GC-FID                                                                      |               |
| 2800 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS | Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene* | Dichloromethane extraction / GC-MS                                                                       |               |
| 2920 | Phenols in Soils by HPLC                                           | Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.                                                                                                                         | 60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection. |               |
| 640  | Characterisation of Waste (Leaching C10)                           | Waste material including soil, sludges and granular waste                                                                                                                                                                                                                 | ComplianceTest for Leaching of Granular Waste Material and Sludge                                        |               |
| 650  | Characterisation of Waste (Leaching WAC)                           | Waste material including soil, sludges and granular waste                                                                                                                                                                                                                 | ComplianceTest for Leaching of Granular Waste Material and Sludge                                        |               |

## **Report Information**

### **Key**

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|     |                                                                                                               |
|-----|---------------------------------------------------------------------------------------------------------------|
| U   | UKAS accredited                                                                                               |
| M   | MCERTS and UKAS accredited                                                                                    |
| N   | Unaccredited                                                                                                  |
| S   | This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis     |
| SN  | This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis |
| T   | This analysis has been subcontracted to an unaccredited laboratory                                            |
| I/S | Insufficient Sample                                                                                           |
| U/S | Unsuitable Sample                                                                                             |
| N/E | not evaluated                                                                                                 |
| <   | "less than"                                                                                                   |
| >   | "greater than"                                                                                                |
| SOP | Standard operating procedure                                                                                  |
| LOD | Limit of detection                                                                                            |

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at  $\leq 30^{\circ}\text{C}$  prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

### **Sample Deviation Codes**

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- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

### **Sample Retention and Disposal**

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All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Charges may apply to extended sample storage.

### **Water Sample Category Key for Accreditation**

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- DW - Drinking Water
- GW - Ground Water
- LE - Land Leachate
- NA - Not Applicable

## **Report Information**

PL - Prepared Leachate  
PW - Processed Water  
RE - Recreational Water  
SA - Saline Water  
SW - Surface Water  
TE - Treated Effluent  
TS - Treated Sewage  
UL - Unspecified Liquid

### **Clean Up Codes**

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NC - No Clean Up  
MC - Mathematical Clean Up  
FC - Florisil Clean Up

### **HWOL Acronym System**

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HS - Headspace analysis  
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent  
CU - Clean-up – e.g. by Florisil, silica gel  
1D - GC – Single coil gas chromatography  
Total - Aliphatics & Aromatics  
AL - Aliphatics only  
AR - Aromatic only  
2D - GC-GC – Double coil gas chromatography  
#1 - EH\_2D\_Total but with humics mathematically subtracted  
#2 - EH\_2D\_Total but with fatty acids mathematically subtracted  
+ - Operator to indicate cumulative e.g. EH+EH\_Total or EH\_CU+HS\_Total

If you require extended retention of samples, please email your requirements to:  
[customerservices@chemtest.com](mailto:customerservices@chemtest.com)





# Final Report

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**Report No.:** 24-36173-1

**Initial Date of Issue:** 14-Nov-2024

**Re-Issue Details:**

**Client** E3P

**Client Address:** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contact(s):** jsheridan@e3p.co.uk;  
hmason@e3p.co.uk

**Project** 14768 Castleton sidings

**Quotation No.:** Q23-31421

**Date Received:** 07-Nov-2024

**Order No.:** 009965

**Date Instructed:** 07-Nov-2024

**No. of Samples:** 2

**Turnaround (Wkdays):** 5

**Results Due:** 13-Nov-2024

**Date Approved:** 14-Nov-2024

**Approved By:**

**Details:** David Smith, Technical Director

**For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report**

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## Results - Leachate

**Project: 14768 Castleton sidings**

| <b>Client: E3P</b>             | <b>Chemtest Job No.:</b>    |      |      |       | 24-36173    | 24-36173    |
|--------------------------------|-----------------------------|------|------|-------|-------------|-------------|
| Quotation No.: Q23-31421       | <b>Chemtest Sample ID.:</b> |      |      |       | 1891298     | 1891299     |
|                                | Client Sample ID.:          |      |      |       | MG BF 111   | MG BF 112   |
|                                | Sample Type:                |      |      |       | SOIL        | SOIL        |
|                                | Date Sampled:               |      |      |       | 05-Nov-2024 | 05-Nov-2024 |
|                                | Time Sampled:               |      |      |       | 12:00       | 12:00       |
| Determinand                    | Accred.                     | SOP  | Type | Units | LOD         |             |
| pH at 20C                      | U                           | 1010 | 2:1  |       | 4.0         | 7.8         |
| Cyanide (Total) Low-Level      | N                           | 1300 | 2:1  | mg/l  | 0.0050      | < 0.0050    |
| Arsenic (Dissolved)            | U                           | 1455 | 2:1  | µg/l  | 0.20        | 1.4         |
| Cadmium (Dissolved)            | U                           | 1455 | 2:1  | µg/l  | 0.11        | < 0.11      |
| Chromium (Dissolved)           | U                           | 1455 | 2:1  | µg/l  | 0.50        | < 0.50      |
| Copper (Dissolved)             | U                           | 1455 | 2:1  | µg/l  | 0.50        | 4.6         |
| Mercury (Dissolved)            | U                           | 1455 | 2:1  | µg/l  | 0.05        | < 0.05      |
| Nickel (Dissolved)             | U                           | 1455 | 2:1  | µg/l  | 0.50        | < 0.50      |
| Lead (Dissolved)               | U                           | 1455 | 2:1  | µg/l  | 0.50        | 3.1         |
| Selenium (Dissolved)           | U                           | 1455 | 2:1  | µg/l  | 0.50        | 2.0         |
| Zinc (Dissolved)               | U                           | 1455 | 2:1  | µg/l  | 2.5         | 12          |
| Chromium (Hexavalent)          | U                           | 1490 | 2:1  | µg/l  | 20          | < 20        |
| C2 Aliphatic TPH >C5-C6        | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aliphatic TPH >C6-C8        | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aliphatic TPH >C8-C10       | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aliphatic TPH >C10-C12      | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aliphatic TPH >C12-C16      | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aliphatic TPH >C16-C21      | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aliphatic TPH >C21-C35      | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aliphatic TPH >C35-C44      | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| Total Aliphatic Hydrocarbons   | N                           | 1675 | 2:1  | µg/l  | 5.0         | < 5.0       |
| C2 Aromatic TPH >C5-C7         | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aromatic TPH >C7-C8         | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aromatic TPH >C8-C10        | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aromatic TPH >C10-C12       | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aromatic TPH >C12-C16       | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aromatic TPH >C16-C21       | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aromatic TPH >C21-C35       | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aromatic TPH >C35-C44       | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Total Aromatic Hydrocarbons | N                           | 1675 | 2:1  | µg/l  | 5.0         | < 5.0       |
| Total Petroleum Hydrocarbons   | N                           | 1675 | 2:1  | µg/l  | 10          | < 10        |
| Benzene                        | U                           | 1760 | 2:1  | µg/l  | 1.0         | < 1.0       |
| Toluene                        | U                           | 1760 | 2:1  | µg/l  | 1.0         | < 1.0       |
| Ethylbenzene                   | U                           | 1760 | 2:1  | µg/l  | 1.0         | < 1.0       |
| m & p-Xylene                   | U                           | 1760 | 2:1  | µg/l  | 1.0         | < 1.0       |
| o-Xylene                       | U                           | 1760 | 2:1  | µg/l  | 1.0         | < 1.0       |
| Methyl Tert-Butyl Ether        | N                           | 1760 | 2:1  | µg/l  | 1.0         | < 1.0       |
| Naphthalene                    | U                           | 1800 | 2:1  | µg/l  | 0.10        | < 0.10      |
| Acenaphthylene                 | U                           | 1800 | 2:1  | µg/l  | 0.10        | < 0.10      |
| Acenaphthene                   | U                           | 1800 | 2:1  | µg/l  | 0.10        | < 0.10      |

## Results - Leachate

**Project: 14768 Castleton sidings**

| <b>Client: E3P</b>       | <b>Chemtest Job No.:</b>    |      |      |       |       |         | 24-36173    | 24-36173    |
|--------------------------|-----------------------------|------|------|-------|-------|---------|-------------|-------------|
| Quotation No.: Q23-31421 | <b>Chemtest Sample ID.:</b> |      |      |       |       |         | 1891298     | 1891299     |
|                          | Client Sample ID.:          |      |      |       |       |         | MG BF 111   | MG BF 112   |
|                          | Sample Type:                |      |      |       |       |         | SOIL        | SOIL        |
|                          | Date Sampled:               |      |      |       |       |         | 05-Nov-2024 | 05-Nov-2024 |
|                          | Time Sampled:               |      |      |       |       |         | 12:00       | 12:00       |
| Determinand              | Accred.                     | SOP  | Type | Units | LOD   |         |             |             |
| Fluorene                 | U                           | 1800 | 2:1  | µg/l  | 0.10  | < 0.10  | < 0.10      |             |
| Phenanthrene             | U                           | 1800 | 2:1  | µg/l  | 0.10  | < 0.10  | < 0.10      |             |
| Anthracene               | U                           | 1800 | 2:1  | µg/l  | 0.10  | < 0.10  | < 0.10      |             |
| Fluoranthene             | U                           | 1800 | 2:1  | µg/l  | 0.10  | < 0.10  | < 0.10      |             |
| Pyrene                   | U                           | 1800 | 2:1  | µg/l  | 0.10  | < 0.10  | < 0.10      |             |
| Benzo[a]anthracene       | U                           | 1800 | 2:1  | µg/l  | 0.10  | < 0.10  | < 0.10      |             |
| Chrysene                 | U                           | 1800 | 2:1  | µg/l  | 0.10  | < 0.10  | < 0.10      |             |
| Benzo[b]fluoranthene     | U                           | 1800 | 2:1  | µg/l  | 0.10  | < 0.10  | < 0.10      |             |
| Benzo[k]fluoranthene     | U                           | 1800 | 2:1  | µg/l  | 0.10  | < 0.10  | < 0.10      |             |
| Benzo[a]pyrene           | U                           | 1800 | 2:1  | µg/l  | 0.10  | < 0.10  | < 0.10      |             |
| Indeno(1,2,3-c,d)Pyrene  | U                           | 1800 | 2:1  | µg/l  | 0.10  | < 0.10  | < 0.10      |             |
| Dibenz(a,h)Anthracene    | U                           | 1800 | 2:1  | µg/l  | 0.10  | < 0.10  | < 0.10      |             |
| Benzo[g,h,i]perylene     | U                           | 1800 | 2:1  | µg/l  | 0.10  | < 0.10  | < 0.10      |             |
| Total Of 16 PAH's        | U                           | 1800 | 2:1  | µg/l  | 2.0   | < 2.0   | < 2.0       |             |
| Total Phenols            | U                           | 1920 | 2:1  | mg/l  | 0.030 | < 0.030 | < 0.030     |             |



## Results - Soil

**Project: 14768 Castleton sidings**

|                                     |             |                      |      |       |       |                      |                      |
|-------------------------------------|-------------|----------------------|------|-------|-------|----------------------|----------------------|
| Client: E3P                         |             | Chemtest Job No.:    |      |       |       | 24-36173             | 24-36173             |
| Quotation No.: Q23-31421            |             | Chemtest Sample ID.: |      |       |       | 1891298              | 1891299              |
|                                     |             | Client Sample ID.:   |      |       |       | MG BF 111            | MG BF 112            |
|                                     |             | Sample Type:         |      |       |       | SOIL                 | SOIL                 |
|                                     |             | Date Sampled:        |      |       |       | 05-Nov-2024          | 05-Nov-2024          |
|                                     |             | Time Sampled:        |      |       |       | 12:00                | 12:00                |
|                                     |             | Asbestos Lab:        |      |       |       | DURHAM               | DURHAM               |
| Determinand                         | HWOL Code   | Accred.              | SOP  | Units | LOD   |                      |                      |
| ACM Type                            |             | U                    | 2192 |       | N/A   | -                    | -                    |
| Asbestos Identification             |             | U                    | 2192 |       | N/A   | No Asbestos Detected | No Asbestos Detected |
| Moisture                            |             | N                    | 2030 | %     | 0.020 | 17                   | 13                   |
| Soil Colour                         |             | N                    | 2040 |       | N/A   | Brown                | Black                |
| Other Material                      |             | N                    | 2040 |       | N/A   | Stones               | Roots and Stones     |
| Soil Texture                        |             | N                    | 2040 |       | N/A   | Sand                 | Sand                 |
| pH at 20C                           |             | M                    | 2010 |       | 4.0   | 7.9                  | 8.6                  |
| Sulphate (2:1 Water Soluble) as SO4 |             | M                    | 2120 | g/l   | 0.010 | 0.14                 | 0.26                 |
| Total Sulphur                       |             | U                    | 2175 | %     | 0.010 | 0.35                 | 0.56                 |
| Cyanide (Total)                     |             | M                    | 2300 | mg/kg | 0.50  | < 0.50               | 11                   |
| Sulphide (Easily Liberatable)       |             | N                    | 2325 | mg/kg | 0.50  | 3.0                  | 12                   |
| Sulphate (Total)                    |             | U                    | 2430 | %     | 0.010 | 0.29                 | 1.2                  |
| Arsenic                             |             | M                    | 2455 | mg/kg | 0.5   | 36                   | 26                   |
| Cadmium                             |             | M                    | 2455 | mg/kg | 0.10  | 0.50                 | 0.40                 |
| Chromium                            |             | M                    | 2455 | mg/kg | 0.5   | 25                   | 27                   |
| Copper                              |             | M                    | 2455 | mg/kg | 0.50  | 120                  | 170                  |
| Mercury                             |             | M                    | 2455 | mg/kg | 0.05  | 0.72                 | 0.45                 |
| Nickel                              |             | M                    | 2455 | mg/kg | 0.50  | 27                   | 41                   |
| Lead                                |             | M                    | 2455 | mg/kg | 0.50  | 940                  | 1600                 |
| Selenium                            |             | M                    | 2455 | mg/kg | 0.25  | 1.2                  | 2.0                  |
| Zinc                                |             | M                    | 2455 | mg/kg | 0.50  | 280                  | 180                  |
| Chromium (Hexavalent)               |             | N                    | 2490 | mg/kg | 0.50  | < 0.50               | < 0.50               |
| Organic Matter                      |             | M                    | 2625 | %     | 0.40  | 36                   | 22                   |
| Total Organic Carbon                |             | M                    | 2625 | %     | 0.20  | 21                   | 13                   |
| TPH >C6-C8                          | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | < 1.0                | < 1.0                |
| TPH >C8-C10                         | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | < 1.0                | < 1.0                |
| TPH >C10-C12                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | 58                   | 7.0                  |
| TPH >C12-C16                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | 140                  | 36                   |
| TPH >C16-C21                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | 370                  | 140                  |
| TPH >C21-C25                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | 330                  | 150                  |
| TPH >C25-C35                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | 610                  | 250                  |
| TPH >C35-C40                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | 150                  | 56                   |
| Total TPH >C6-C40                   | EH_1D_Total | U                    | 2670 | mg/kg | 10    | 1700                 | 640                  |
| Naphthalene                         |             | M                    | 2800 | mg/kg | 0.10  | 5.7                  | 3.3                  |
| Acenaphthylene                      |             | N                    | 2800 | mg/kg | 0.10  | 0.41                 | 0.40                 |
| Acenaphthene                        |             | M                    | 2800 | mg/kg | 0.10  | 8.8                  | 2.8                  |
| Fluorene                            |             | M                    | 2800 | mg/kg | 0.10  | 5.8                  | 1.3                  |

## Results - Soil

**Project: 14768 Castleton sidings**

|                          |           |                      |      |       |      |             |             |
|--------------------------|-----------|----------------------|------|-------|------|-------------|-------------|
| Client: E3P              |           | Chemtest Job No.:    |      |       |      | 24-36173    | 24-36173    |
| Quotation No.: Q23-31421 |           | Chemtest Sample ID.: |      |       |      | 1891298     | 1891299     |
|                          |           | Client Sample ID.:   |      |       |      | MG BF 111   | MG BF 112   |
|                          |           | Sample Type:         |      |       |      | SOIL        | SOIL        |
|                          |           | Date Sampled:        |      |       |      | 05-Nov-2024 | 05-Nov-2024 |
|                          |           | Time Sampled:        |      |       |      | 12:00       | 12:00       |
|                          |           | Asbestos Lab:        |      |       |      | DURHAM      | DURHAM      |
| Determinand              | HWOL Code | Accred.              | SOP  | Units | LOD  |             |             |
| Phenanthrene             |           | M                    | 2800 | mg/kg | 0.10 | 58          | 17          |
| Anthracene               |           | M                    | 2800 | mg/kg | 0.10 | 13          | 3.9         |
| Fluoranthene             |           | M                    | 2800 | mg/kg | 0.10 | 71          | 25          |
| Pyrene                   |           | M                    | 2800 | mg/kg | 0.10 | 61          | 25          |
| Benzo[a]anthracene       |           | M                    | 2800 | mg/kg | 0.10 | 30          | 13          |
| Chrysene                 |           | M                    | 2800 | mg/kg | 0.10 | 32          | 14          |
| Benzo[b]fluoranthene     |           | M                    | 2800 | mg/kg | 0.10 | 38          | 16          |
| Benzo[k]fluoranthene     |           | M                    | 2800 | mg/kg | 0.10 | 13          | 6.8         |
| Benzo[a]pyrene           |           | M                    | 2800 | mg/kg | 0.10 | 32          | 13          |
| Indeno(1,2,3-c,d)Pyrene  |           | M                    | 2800 | mg/kg | 0.10 | 18          | 8.7         |
| Dibenz(a,h)Anthracene    |           | N                    | 2800 | mg/kg | 0.10 | 4.7         | 3.9         |
| Benzo[g,h,i]perylene     |           | M                    | 2800 | mg/kg | 0.10 | 18          | 8.6         |
| Total Of 16 PAH's        |           | N                    | 2800 | mg/kg | 2.0  | 410         | 160         |
| Total Phenols            |           | M                    | 2920 | mg/kg | 0.10 | 0.30        | < 0.10      |

## Test Methods

| SOP  | Title                                                                             | Parameters included                                                                                                                                                                                                                                          | Method summary                                                                                                                                                                         | Water Accred.     |
|------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| 1010 | pH Value of Waters                                                                | pH at 20°C                                                                                                                                                                                                                                                   | pH Meter                                                                                                                                                                               |                   |
| 1300 | Cyanides & Thiocyanate in Waters                                                  | Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate                                                                                                                                                                              | Continuous Flow Analysis.                                                                                                                                                              |                   |
| 1455 | Metals in Waters by ICP-MS                                                        | Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc                                                                               | Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).                                                                       | RE PW PL SW DW FW |
| 1490 | Hexavalent Chromium in Waters                                                     | Chromium [VI]                                                                                                                                                                                                                                                | Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.                                                                                        |                   |
| 1675 | TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG) | Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44                                                                              | Pentane extraction / GCxGC FID detection                                                                                                                                               |                   |
| 1760 | Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS                    | Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)                                                                                                                                                      | Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.                                           |                   |
| 1800 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS              | Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene | Pentane extraction / GCMS detection                                                                                                                                                    |                   |
| 1920 | Phenols in Waters by HPLC                                                         | Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.                                                                                                                                                  | Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.                                                                                        |                   |
| 2010 | pH Value of Soils                                                                 | pH at 20°C                                                                                                                                                                                                                                                   | pH Meter                                                                                                                                                                               |                   |
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS)                        | Moisture content                                                                                                                                                                                                                                             | Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.                                                                                   |                   |
| 2040 | Soil Description(Requirement of MCERTS)                                           | Soil description                                                                                                                                                                                                                                             | As received soil is described based upon BS5930                                                                                                                                        |                   |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium                               | Boron; Sulphate; Magnesium; Chromium                                                                                                                                                                                                                         | Aqueous extraction / ICP-OES                                                                                                                                                           |                   |
| 2175 | Total Sulphur in Soils                                                            | Total Sulphur                                                                                                                                                                                                                                                | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.                                                                                             |                   |
| 2192 | Asbestos                                                                          | Asbestos                                                                                                                                                                                                                                                     | Polarised light microscopy / Gravimetry                                                                                                                                                |                   |
| 2300 | Cyanides & Thiocyanate in Soils                                                   | Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate                                                                                                                                                                              | Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.                                                                                    |                   |
| 2325 | Sulphide in Soils                                                                 | Sulphide                                                                                                                                                                                                                                                     | Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.                                                           |                   |
| 2430 | Total Sulphate in soils                                                           | Total Sulphate                                                                                                                                                                                                                                               | Acid digestion followed by determination of sulphate in extract by ICP-OES.                                                                                                            |                   |
| 2455 | Acid Soluble Metals in Soils                                                      | Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc                                                                                                     | Acid digestion followed by determination of metals in extract by ICP-MS.                                                                                                               |                   |
| 2490 | Hexavalent Chromium in Soils                                                      | Chromium [VI]                                                                                                                                                                                                                                                | Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine. |                   |



## Test Methods

| SOP  | Title                                                              | Parameters included                                                                                                                                                                                                                                                       | Method summary                                                                                           | Water Accred. |
|------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|---------------|
| 2625 | Total Organic Carbon in Soils                                      | Total organic Carbon (TOC)                                                                                                                                                                                                                                                | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.               |               |
| 2670 | Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID              | TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40                                                                                                                                                                                            | Dichloromethane extraction / GC-FID                                                                      |               |
| 2800 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS | Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene* | Dichloromethane extraction / GC-MS                                                                       |               |
| 2920 | Phenols in Soils by HPLC                                           | Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.                                                                                                                         | 60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection. |               |
| 640  | Characterisation of Waste (Leaching C10)                           | Waste material including soil, sludges and granular waste                                                                                                                                                                                                                 | ComplianceTest for Leaching of Granular Waste Material and Sludge                                        |               |
| 650  | Characterisation of Waste (Leaching WAC)                           | Waste material including soil, sludges and granular waste                                                                                                                                                                                                                 | ComplianceTest for Leaching of Granular Waste Material and Sludge                                        |               |

## **Report Information**

### **Key**

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|     |                                                                                                               |
|-----|---------------------------------------------------------------------------------------------------------------|
| U   | UKAS accredited                                                                                               |
| M   | MCERTS and UKAS accredited                                                                                    |
| N   | Unaccredited                                                                                                  |
| S   | This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis     |
| SN  | This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis |
| T   | This analysis has been subcontracted to an unaccredited laboratory                                            |
| I/S | Insufficient Sample                                                                                           |
| U/S | Unsuitable Sample                                                                                             |
| N/E | not evaluated                                                                                                 |
| <   | "less than"                                                                                                   |
| >   | "greater than"                                                                                                |
| SOP | Standard operating procedure                                                                                  |
| LOD | Limit of detection                                                                                            |

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at  $\leq 30^{\circ}\text{C}$  prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

### **Sample Deviation Codes**

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- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

### **Sample Retention and Disposal**

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All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Charges may apply to extended sample storage.

### **Water Sample Category Key for Accreditation**

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- DW - Drinking Water
- GW - Ground Water
- LE - Land Leachate
- NA - Not Applicable

## **Report Information**

PL - Prepared Leachate  
PW - Processed Water  
RE - Recreational Water  
SA - Saline Water  
SW - Surface Water  
TE - Treated Effluent  
TS - Treated Sewage  
UL - Unspecified Liquid

### **Clean Up Codes**

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NC - No Clean Up  
MC - Mathematical Clean Up  
FC - Florisil Clean Up

### **HWOL Acronym System**

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HS - Headspace analysis  
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent  
CU - Clean-up – e.g. by Florisil, silica gel  
1D - GC – Single coil gas chromatography  
Total - Aliphatics & Aromatics  
AL - Aliphatics only  
AR - Aromatic only  
2D - GC-GC – Double coil gas chromatography  
#1 - EH\_2D\_Total but with humics mathematically subtracted  
#2 - EH\_2D\_Total but with fatty acids mathematically subtracted  
+ - Operator to indicate cumulative e.g. EH+EH\_Total or EH\_CU+HS\_Total

If you require extended retention of samples, please email your requirements to:  
[customerservices@chemtest.com](mailto:customerservices@chemtest.com)





# Final Report

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**Report No.:** 24-39281-1

**Initial Date of Issue:** 09-Dec-2024

**Re-Issue Details:**

**Client** E3P

**Client Address:** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contact(s):** hmason@e3p.co.uk;  
jsheridan@e3p.co.uk

**Project** 14-768 Castleton Sidings

**Quotation No.:** Q23-31421

**Date Received:** 29-Nov-2024

**Order No.:** 010146

**Date Instructed:** 29-Nov-2024

**No. of Samples:** 2

**Turnaround (Wkdays):** 5

**Results Due:** 05-Dec-2024

**Date Approved:** 09-Dec-2024

**Approved By:**

**Details:** David Smith, Technical Director

**For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report**

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## Results - Leachate

**Project: 14-768 Castleton Sidings**

| <b>Client: E3P</b>             | <b>Chemtest Job No.:</b>    |      |      |       | 24-39281    | 24-39281    |
|--------------------------------|-----------------------------|------|------|-------|-------------|-------------|
| Quotation No.: Q23-31421       | <b>Chemtest Sample ID.:</b> |      |      |       | 1903188     | 1903189     |
|                                | Client Sample ID.:          |      |      |       | MGBF 113    | MGBF114     |
|                                | Sample Type:                |      |      |       | SOIL        | SOIL        |
|                                | Date Sampled:               |      |      |       | 28-Nov-2024 | 28-Nov-2024 |
|                                | Time Sampled:               |      |      |       | 12:00       | 12:00       |
| Determinand                    | Accred.                     | SOP  | Type | Units | LOD         |             |
| pH at 20C                      | U                           | 1010 | 2:1  |       | 4.0         | 8.4         |
| Cyanide (Total) Low-Level      | N                           | 1300 | 2:1  | mg/l  | 0.0050      | < 0.0050    |
| Arsenic (Dissolved)            | U                           | 1455 | 2:1  | µg/l  | 0.20        | 0.77        |
| Cadmium (Dissolved)            | U                           | 1455 | 2:1  | µg/l  | 0.11        | < 0.11      |
| Chromium (Dissolved)           | U                           | 1455 | 2:1  | µg/l  | 0.50        | 0.61        |
| Copper (Dissolved)             | U                           | 1455 | 2:1  | µg/l  | 0.50        | 4.6         |
| Mercury (Dissolved)            | U                           | 1455 | 2:1  | µg/l  | 0.05        | < 0.05      |
| Nickel (Dissolved)             | U                           | 1455 | 2:1  | µg/l  | 0.50        | 1.3         |
| Lead (Dissolved)               | U                           | 1455 | 2:1  | µg/l  | 0.50        | 0.57        |
| Selenium (Dissolved)           | U                           | 1455 | 2:1  | µg/l  | 0.50        | 1.4         |
| Zinc (Dissolved)               | U                           | 1455 | 2:1  | µg/l  | 2.5         | 5.7         |
| Chromium (Hexavalent)          | U                           | 1490 | 2:1  | µg/l  | 20          | < 20        |
| C2 Aliphatic TPH >C5-C6        | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aliphatic TPH >C6-C8        | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aliphatic TPH >C8-C10       | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aliphatic TPH >C10-C12      | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aliphatic TPH >C12-C16      | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aliphatic TPH >C16-C21      | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aliphatic TPH >C21-C35      | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aliphatic TPH >C35-C44      | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| Total Aliphatic Hydrocarbons   | N                           | 1675 | 2:1  | µg/l  | 5.0         | < 5.0       |
| C2 Aromatic TPH >C5-C7         | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aromatic TPH >C7-C8         | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aromatic TPH >C8-C10        | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aromatic TPH >C10-C12       | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aromatic TPH >C12-C16       | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aromatic TPH >C16-C21       | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aromatic TPH >C21-C35       | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Aromatic TPH >C35-C44       | N                           | 1675 | 2:1  | µg/l  | 0.10        | < 0.10      |
| C2 Total Aromatic Hydrocarbons | N                           | 1675 | 2:1  | µg/l  | 5.0         | < 5.0       |
| Total Petroleum Hydrocarbons   | N                           | 1675 | 2:1  | µg/l  | 10          | < 10        |
| Benzene                        | U                           | 1760 | 2:1  | µg/l  | 1.0         | < 1.0       |
| Toluene                        | U                           | 1760 | 2:1  | µg/l  | 1.0         | < 1.0       |
| Ethylbenzene                   | U                           | 1760 | 2:1  | µg/l  | 1.0         | < 1.0       |
| m & p-Xylene                   | U                           | 1760 | 2:1  | µg/l  | 1.0         | < 1.0       |
| o-Xylene                       | U                           | 1760 | 2:1  | µg/l  | 1.0         | < 1.0       |
| Methyl Tert-Butyl Ether        | N                           | 1760 | 2:1  | µg/l  | 1.0         | < 1.0       |
| Naphthalene                    | U                           | 1800 | 2:1  | µg/l  | 0.10        | < 0.10      |
| Acenaphthylene                 | U                           | 1800 | 2:1  | µg/l  | 0.10        | < 0.10      |
| Acenaphthene                   | U                           | 1800 | 2:1  | µg/l  | 0.10        | < 0.10      |

## Results - Leachate

**Project: 14-768 Castleton Sidings**

|                          |                      |      |      |       |       |             |             |
|--------------------------|----------------------|------|------|-------|-------|-------------|-------------|
| Client: E3P              | Chemtest Job No.:    |      |      |       |       | 24-39281    | 24-39281    |
| Quotation No.: Q23-31421 | Chemtest Sample ID.: |      |      |       |       | 1903188     | 1903189     |
|                          | Client Sample ID.:   |      |      |       |       | MGBF 113    | MGBF114     |
|                          | Sample Type:         |      |      |       |       | SOIL        | SOIL        |
|                          | Date Sampled:        |      |      |       |       | 28-Nov-2024 | 28-Nov-2024 |
|                          | Time Sampled:        |      |      |       |       | 12:00       | 12:00       |
| Determinand              | Accred.              | SOP  | Type | Units | LOD   |             |             |
| Fluorene                 | U                    | 1800 | 2:1  | µg/l  | 0.10  | < 0.10      | < 0.10      |
| Phenanthrene             | U                    | 1800 | 2:1  | µg/l  | 0.10  | < 0.10      | < 0.10      |
| Anthracene               | U                    | 1800 | 2:1  | µg/l  | 0.10  | < 0.10      | < 0.10      |
| Fluoranthene             | U                    | 1800 | 2:1  | µg/l  | 0.10  | < 0.10      | < 0.10      |
| Pyrene                   | U                    | 1800 | 2:1  | µg/l  | 0.10  | < 0.10      | < 0.10      |
| Benzo[a]anthracene       | U                    | 1800 | 2:1  | µg/l  | 0.10  | < 0.10      | < 0.10      |
| Chrysene                 | U                    | 1800 | 2:1  | µg/l  | 0.10  | < 0.10      | < 0.10      |
| Benzo[b]fluoranthene     | U                    | 1800 | 2:1  | µg/l  | 0.10  | < 0.10      | < 0.10      |
| Benzo[k]fluoranthene     | U                    | 1800 | 2:1  | µg/l  | 0.10  | < 0.10      | < 0.10      |
| Benzo[a]pyrene           | U                    | 1800 | 2:1  | µg/l  | 0.10  | < 0.10      | < 0.10      |
| Indeno(1,2,3-c,d)Pyrene  | U                    | 1800 | 2:1  | µg/l  | 0.10  | < 0.10      | < 0.10      |
| Dibenz(a,h)Anthracene    | U                    | 1800 | 2:1  | µg/l  | 0.10  | < 0.10      | < 0.10      |
| Benzo[g,h,i]perylene     | U                    | 1800 | 2:1  | µg/l  | 0.10  | < 0.10      | < 0.10      |
| Total Of 16 PAH's        | U                    | 1800 | 2:1  | µg/l  | 2.0   | < 2.0       | < 2.0       |
| Total Phenols            | U                    | 1920 | 2:1  | mg/l  | 0.030 | < 0.030     | < 0.030     |

## Results - Soil

**Project: 14-768 Castleton Sidings**

|                                     |             |                      |      |       |       |                      |                      |
|-------------------------------------|-------------|----------------------|------|-------|-------|----------------------|----------------------|
| Client: E3P                         |             | Chemtest Job No.:    |      |       |       | 24-39281             | 24-39281             |
| Quotation No.: Q23-31421            |             | Chemtest Sample ID.: |      |       |       | 1903188              | 1903189              |
|                                     |             | Client Sample ID.:   |      |       |       | MGBF 113             | MGBF114              |
|                                     |             | Sample Type:         |      |       |       | SOIL                 | SOIL                 |
|                                     |             | Date Sampled:        |      |       |       | 28-Nov-2024          | 28-Nov-2024          |
|                                     |             | Time Sampled:        |      |       |       | 12:00                | 12:00                |
|                                     |             | Asbestos Lab:        |      |       |       | NEW-ASB              | NEW-ASB              |
| Determinand                         | HWOL Code   | Accred.              | SOP  | Units | LOD   |                      |                      |
| ACM Type                            |             | U                    | 2192 |       | N/A   | -                    | -                    |
| Asbestos Identification             |             | U                    | 2192 |       | N/A   | No Asbestos Detected | No Asbestos Detected |
| Moisture                            |             | N                    | 2030 | %     | 0.020 | 13                   | 21                   |
| Soil Colour                         |             | N                    | 2040 |       | N/A   | Black                | Black                |
| Other Material                      |             | N                    | 2040 |       | N/A   | Stones and Roots     | Stones and Wood      |
| Soil Texture                        |             | N                    | 2040 |       | N/A   | Sand                 | Loam                 |
| pH at 20C                           |             | M                    | 2010 |       | 4.0   | 8.0                  | 8.1                  |
| Sulphate (2:1 Water Soluble) as SO4 |             | M                    | 2120 | g/l   | 0.010 | 0.088                | 0.21                 |
| Total Sulphur                       |             | U                    | 2175 | %     | 0.010 | 1.3                  | 0.54                 |
| Cyanide (Total)                     |             | M                    | 2300 | mg/kg | 0.50  | 5.7                  | 4.4                  |
| Sulphide (Easily Liberatable)       |             | N                    | 2325 | mg/kg | 0.50  | 1.8                  | 6.7                  |
| Sulphate (Total)                    |             | U                    | 2430 | %     | 0.010 | 0.46                 | 1.3                  |
| Arsenic                             |             | M                    | 2455 | mg/kg | 0.5   | 46                   | 69                   |
| Cadmium                             |             | M                    | 2455 | mg/kg | 0.10  | 0.74                 | 1.2                  |
| Chromium                            |             | M                    | 2455 | mg/kg | 0.5   | 57                   | 32                   |
| Copper                              |             | M                    | 2455 | mg/kg | 0.50  | 400                  | 5400                 |
| Mercury                             |             | M                    | 2455 | mg/kg | 0.05  | 2.2                  | 20                   |
| Nickel                              |             | M                    | 2455 | mg/kg | 0.50  | 84                   | 60                   |
| Lead                                |             | M                    | 2455 | mg/kg | 0.50  | 870                  | 3200                 |
| Selenium                            |             | M                    | 2455 | mg/kg | 0.25  | 2.2                  | 3.2                  |
| Zinc                                |             | M                    | 2455 | mg/kg | 0.50  | 310                  | 980                  |
| Chromium (Hexavalent)               |             | N                    | 2490 | mg/kg | 0.50  | < 0.50               | < 0.50               |
| Organic Matter                      |             | M                    | 2625 | %     | 0.40  | 19                   | 48                   |
| Total Organic Carbon                |             | M                    | 2625 | %     | 0.20  | 11                   | 28                   |
| TPH >C6-C8                          | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | < 1.0                | < 1.0                |
| TPH >C8-C10                         | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | < 1.0                | 5.1                  |
| TPH >C10-C12                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | 3.7                  | 50                   |
| TPH >C12-C16                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | 18                   | 95                   |
| TPH >C16-C21                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | 64                   | 390                  |
| TPH >C21-C25                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | 49                   | 270                  |
| TPH >C25-C35                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | 87                   | 430                  |
| TPH >C35-C40                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | 10                   | 49                   |
| Total TPH >C6-C40                   | EH_1D_Total | U                    | 2670 | mg/kg | 10    | 230                  | 1300                 |
| Naphthalene                         |             | M                    | 2800 | mg/kg | 0.10  | 1.1                  | 3.2                  |
| Acenaphthylene                      |             | N                    | 2800 | mg/kg | 0.10  | < 0.10               | 0.86                 |
| Acenaphthene                        |             | M                    | 2800 | mg/kg | 0.10  | 0.52                 | 0.47                 |
| Fluorene                            |             | M                    | 2800 | mg/kg | 0.10  | 0.50                 | 1.1                  |



## Results - Soil

**Project: 14-768 Castleton Sidings**

|                          |           |                      |      |       |      |             |             |
|--------------------------|-----------|----------------------|------|-------|------|-------------|-------------|
| Client: E3P              |           | Chemtest Job No.:    |      |       |      | 24-39281    | 24-39281    |
| Quotation No.: Q23-31421 |           | Chemtest Sample ID.: |      |       |      | 1903188     | 1903189     |
|                          |           | Client Sample ID.:   |      |       |      | MGBF 113    | MGBF114     |
|                          |           | Sample Type:         |      |       |      | SOIL        | SOIL        |
|                          |           | Date Sampled:        |      |       |      | 28-Nov-2024 | 28-Nov-2024 |
|                          |           | Time Sampled:        |      |       |      | 12:00       | 12:00       |
|                          |           | Asbestos Lab:        |      |       |      | NEW-ASB     | NEW-ASB     |
| Determinand              | HWOL Code | Accred.              | SOP  | Units | LOD  |             |             |
| Phenanthrene             |           | M                    | 2800 | mg/kg | 0.10 | 5.2         | 8.7         |
| Anthracene               |           | M                    | 2800 | mg/kg | 0.10 | 1.1         | 2.2         |
| Fluoranthene             |           | M                    | 2800 | mg/kg | 0.10 | 6.9         | 7.4         |
| Pyrene                   |           | M                    | 2800 | mg/kg | 0.10 | 6.4         | 6.5         |
| Benzo[a]anthracene       |           | M                    | 2800 | mg/kg | 0.10 | 3.0         | 2.9         |
| Chrysene                 |           | M                    | 2800 | mg/kg | 0.10 | 3.5         | 3.0         |
| Benzo[b]fluoranthene     |           | M                    | 2800 | mg/kg | 0.10 | 3.7         | 3.3         |
| Benzo[k]fluoranthene     |           | M                    | 2800 | mg/kg | 0.10 | 1.4         | 1.2         |
| Benzo[a]pyrene           |           | M                    | 2800 | mg/kg | 0.10 | 2.7         | 2.4         |
| Indeno(1,2,3-c,d)Pyrene  |           | M                    | 2800 | mg/kg | 0.10 | 1.6         | 1.6         |
| Dibenz(a,h)Anthracene    |           | N                    | 2800 | mg/kg | 0.10 | < 0.10      | 0.39        |
| Benzo[g,h,i]perylene     |           | M                    | 2800 | mg/kg | 0.10 | 1.6         | 1.5         |
| Total Of 16 PAH's        |           | N                    | 2800 | mg/kg | 2.0  | 39          | 47          |
| Total Phenols            |           | M                    | 2920 | mg/kg | 0.10 | < 0.10      | < 0.10      |

## Test Methods

| SOP  | Title                                                                             | Parameters included                                                                                                                                                                                                                                          | Method summary                                                                                                                                                                         | Water Accred.     |
|------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| 1010 | pH Value of Waters                                                                | pH at 20°C                                                                                                                                                                                                                                                   | pH Meter                                                                                                                                                                               |                   |
| 1300 | Cyanides & Thiocyanate in Waters                                                  | Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate                                                                                                                                                                              | Continuous Flow Analysis.                                                                                                                                                              |                   |
| 1455 | Metals in Waters by ICP-MS                                                        | Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc                                                                               | Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).                                                                       | RE PW PL SW DW FW |
| 1490 | Hexavalent Chromium in Waters                                                     | Chromium [VI]                                                                                                                                                                                                                                                | Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.                                                                                        |                   |
| 1675 | TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG) | Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44                                                                              | Pentane extraction / GCxGC FID detection                                                                                                                                               |                   |
| 1760 | Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS                    | Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)                                                                                                                                                      | Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.                                           |                   |
| 1800 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS              | Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene | Pentane extraction / GCMS detection                                                                                                                                                    |                   |
| 1920 | Phenols in Waters by HPLC                                                         | Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.                                                                                                                                                  | Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.                                                                                        |                   |
| 2010 | pH Value of Soils                                                                 | pH at 20°C                                                                                                                                                                                                                                                   | pH Meter                                                                                                                                                                               |                   |
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS)                        | Moisture content                                                                                                                                                                                                                                             | Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.                                                                                   |                   |
| 2040 | Soil Description(Requirement of MCERTS)                                           | Soil description                                                                                                                                                                                                                                             | As received soil is described based upon BS5930                                                                                                                                        |                   |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium                               | Boron; Sulphate; Magnesium; Chromium                                                                                                                                                                                                                         | Aqueous extraction / ICP-OES                                                                                                                                                           |                   |
| 2175 | Total Sulphur in Soils                                                            | Total Sulphur                                                                                                                                                                                                                                                | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.                                                                                             |                   |
| 2192 | Asbestos                                                                          | Asbestos                                                                                                                                                                                                                                                     | Polarised light microscopy / Gravimetry                                                                                                                                                |                   |
| 2300 | Cyanides & Thiocyanate in Soils                                                   | Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate                                                                                                                                                                              | Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.                                                                                    |                   |
| 2325 | Sulphide in Soils                                                                 | Sulphide                                                                                                                                                                                                                                                     | Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.                                                           |                   |
| 2430 | Total Sulphate in soils                                                           | Total Sulphate                                                                                                                                                                                                                                               | Acid digestion followed by determination of sulphate in extract by ICP-OES.                                                                                                            |                   |
| 2455 | Acid Soluble Metals in Soils                                                      | Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc                                                                                                     | Acid digestion followed by determination of metals in extract by ICP-MS.                                                                                                               |                   |
| 2490 | Hexavalent Chromium in Soils                                                      | Chromium [VI]                                                                                                                                                                                                                                                | Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine. |                   |

## Test Methods

| SOP  | Title                                                              | Parameters included                                                                                                                                                                                                                                                       | Method summary                                                                                           | Water Accred. |
|------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|---------------|
| 2625 | Total Organic Carbon in Soils                                      | Total organic Carbon (TOC)                                                                                                                                                                                                                                                | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.               |               |
| 2670 | Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID              | TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40                                                                                                                                                                                            | Dichloromethane extraction / GC-FID                                                                      |               |
| 2800 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS | Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene* | Dichloromethane extraction / GC-MS                                                                       |               |
| 2920 | Phenols in Soils by HPLC                                           | Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.                                                                                                                         | 60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection. |               |
| 640  | Characterisation of Waste (Leaching C10)                           | Waste material including soil, sludges and granular waste                                                                                                                                                                                                                 | ComplianceTest for Leaching of Granular Waste Material and Sludge                                        |               |
| 650  | Characterisation of Waste (Leaching WAC)                           | Waste material including soil, sludges and granular waste                                                                                                                                                                                                                 | ComplianceTest for Leaching of Granular Waste Material and Sludge                                        |               |

## **Report Information**

### **Key**

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|     |                                                                                                               |
|-----|---------------------------------------------------------------------------------------------------------------|
| U   | UKAS accredited                                                                                               |
| M   | MCERTS and UKAS accredited                                                                                    |
| N   | Unaccredited                                                                                                  |
| S   | This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis     |
| SN  | This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis |
| T   | This analysis has been subcontracted to an unaccredited laboratory                                            |
| I/S | Insufficient Sample                                                                                           |
| U/S | Unsuitable Sample                                                                                             |
| N/E | not evaluated                                                                                                 |
| <   | "less than"                                                                                                   |
| >   | "greater than"                                                                                                |
| SOP | Standard operating procedure                                                                                  |
| LOD | Limit of detection                                                                                            |

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at  $\leq 30^{\circ}\text{C}$  prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

### **Sample Deviation Codes**

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- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

### **Sample Retention and Disposal**

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All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Charges may apply to extended sample storage.

### **Water Sample Category Key for Accreditation**

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- DW - Drinking Water
- GW - Ground Water
- LE - Land Leachate
- NA - Not Applicable



## **Report Information**

PL - Prepared Leachate  
PW - Processed Water  
RE - Recreational Water  
SA - Saline Water  
SW - Surface Water  
TE - Treated Effluent  
TS - Treated Sewage  
UL - Unspecified Liquid

### **Clean Up Codes**

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NC - No Clean Up  
MC - Mathematical Clean Up  
FC - Florisil Clean Up

### **HWOL Acronym System**

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HS - Headspace analysis  
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent  
CU - Clean-up – e.g. by Florisil, silica gel  
1D - GC – Single coil gas chromatography  
Total - Aliphatics & Aromatics  
AL - Aliphatics only  
AR - Aromatic only  
2D - GC-GC – Double coil gas chromatography  
#1 - EH\_2D\_Total but with humics mathematically subtracted  
#2 - EH\_2D\_Total but with fatty acids mathematically subtracted  
+ - Operator to indicate cumulative e.g. EH+EH\_Total or EH\_CU+HS\_Total

If you require extended retention of samples, please email your requirements to:  
[customerservices@chemtest.com](mailto:customerservices@chemtest.com)



# Final Report

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**Report No.:** 24-40956-1

**Initial Date of Issue:** 20-Dec-2024

**Re-Issue Details:**

**Client** E3P

**Client Address:** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contact(s):** hmason@e3p.co.uk;  
jsheridan@e3p.co.uk

**Project** 14-768 Castleton Sidings

**Quotation No.:** Q23-31421

**Date Received:** 12-Dec-2024

**Order No.:** 010220

**Date Instructed:** 12-Dec-2024

**No. of Samples:** 2

**Turnaround (Wkdays):** 5

**Results Due:** 18-Dec-2024

**Date Approved:** 20-Dec-2024

**Approved By:**

**Details:** David Smith, Technical Director

**For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report**

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## Results - Soil

**Project: 14-768 Castleton Sidings**

|                                     |             |                      |      |       |       |                      |                      |
|-------------------------------------|-------------|----------------------|------|-------|-------|----------------------|----------------------|
| Client: E3P                         |             | Chemtest Job No.:    |      |       |       | 24-40956             | 24-40956             |
| Quotation No.: Q23-31421            |             | Chemtest Sample ID.: |      |       |       | 1909124              | 1909125              |
|                                     |             | Client Sample ID.:   |      |       |       | MG BF 115            | MG BF 116            |
|                                     |             | Sample Type:         |      |       |       | SOIL                 | SOIL                 |
|                                     |             | Date Sampled:        |      |       |       | 11-Dec-2024          | 11-Dec-2024          |
|                                     |             | Time Sampled:        |      |       |       | 12:00                | 12:00                |
|                                     |             | Asbestos Lab:        |      |       |       | DURHAM               | DURHAM               |
| Determinand                         | HWOL Code   | Accred.              | SOP  | Units | LOD   |                      |                      |
| ACM Type                            |             | U                    | 2192 |       | N/A   | -                    | -                    |
| Asbestos Identification             |             | U                    | 2192 |       | N/A   | No Asbestos Detected | No Asbestos Detected |
| Moisture                            |             | N                    | 2030 | %     | 0.020 | 12                   | 12                   |
| Soil Colour                         |             | N                    | 2040 |       | N/A   | Brown                | Brown                |
| Other Material                      |             | N                    | 2040 |       | N/A   | Stones and Roots     | Stones               |
| Soil Texture                        |             | N                    | 2040 |       | N/A   | Sand                 | Sand                 |
| pH at 20C                           |             | M                    | 2010 |       | 4.0   | 8.1                  | 8.0                  |
| Sulphate (2:1 Water Soluble) as SO4 |             | M                    | 2120 | g/l   | 0.010 | 0.030                | 0.068                |
| Total Sulphur                       |             | U                    | 2175 | %     | 0.010 | 0.14                 | 0.13                 |
| Cyanide (Total)                     |             | M                    | 2300 | mg/kg | 0.50  | < 0.50               | 0.50                 |
| Sulphide (Easily Liberatable)       |             | N                    | 2325 | mg/kg | 0.50  | 3.0                  | 2.0                  |
| Sulphate (Total)                    |             | U                    | 2430 | %     | 0.010 | 0.21                 | 0.27                 |
| Arsenic                             |             | M                    | 2455 | mg/kg | 0.5   | 8.8                  | 24                   |
| Cadmium                             |             | M                    | 2455 | mg/kg | 0.10  | 0.21                 | 0.34                 |
| Chromium                            |             | M                    | 2455 | mg/kg | 0.5   | 59                   | 20                   |
| Copper                              |             | M                    | 2455 | mg/kg | 0.50  | 42                   | 70                   |
| Mercury                             |             | M                    | 2455 | mg/kg | 0.05  | 0.17                 | 0.14                 |
| Nickel                              |             | M                    | 2455 | mg/kg | 0.50  | 20                   | 17                   |
| Lead                                |             | M                    | 2455 | mg/kg | 0.50  | 90                   | 95                   |
| Selenium                            |             | M                    | 2455 | mg/kg | 0.25  | 0.60                 | 0.70                 |
| Zinc                                |             | M                    | 2455 | mg/kg | 0.50  | 64                   | 70                   |
| Chromium (Hexavalent)               |             | N                    | 2490 | mg/kg | 0.50  | < 0.50               | < 0.50               |
| Organic Matter                      |             | M                    | 2625 | %     | 0.40  | 22                   | 11                   |
| Total Organic Carbon                |             | M                    | 2625 | %     | 0.20  | 13                   | 6.4                  |
| TPH >C6-C8                          | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | < 1.0                | < 1.0                |
| TPH >C8-C10                         | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | < 1.0                | < 1.0                |
| TPH >C10-C12                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | 7.9                  | 9.7                  |
| TPH >C12-C16                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | 15                   | 26                   |
| TPH >C16-C21                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | 19                   | 110                  |
| TPH >C21-C25                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | 30                   | 89                   |
| TPH >C25-C35                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | 52                   | 150                  |
| TPH >C35-C40                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | 5.5                  | 20                   |
| Total TPH >C6-C40                   | EH_1D_Total | U                    | 2670 | mg/kg | 10    | 130                  | 400                  |
| Naphthalene                         |             | M                    | 2800 | mg/kg | 0.10  | 0.47                 | 2.4                  |
| Acenaphthylene                      |             | N                    | 2800 | mg/kg | 0.10  | < 0.10               | < 0.10               |
| Acenaphthene                        |             | M                    | 2800 | mg/kg | 0.10  | < 0.10               | < 0.10               |
| Fluorene                            |             | M                    | 2800 | mg/kg | 0.10  | < 0.10               | < 0.10               |

## Results - Soil

**Project: 14-768 Castleton Sidings**

|                          |           |                      |      |       |      |             |             |
|--------------------------|-----------|----------------------|------|-------|------|-------------|-------------|
| Client: E3P              |           | Chemtest Job No.:    |      |       |      | 24-40956    | 24-40956    |
| Quotation No.: Q23-31421 |           | Chemtest Sample ID.: |      |       |      | 1909124     | 1909125     |
|                          |           | Client Sample ID.:   |      |       |      | MG BF 115   | MG BF 116   |
|                          |           | Sample Type:         |      |       |      | SOIL        | SOIL        |
|                          |           | Date Sampled:        |      |       |      | 11-Dec-2024 | 11-Dec-2024 |
|                          |           | Time Sampled:        |      |       |      | 12:00       | 12:00       |
|                          |           | Asbestos Lab:        |      |       |      | DURHAM      | DURHAM      |
| Determinand              | HWOL Code | Accred.              | SOP  | Units | LOD  |             |             |
| Phenanthrene             |           | M                    | 2800 | mg/kg | 0.10 | 1.2         | 6.1         |
| Anthracene               |           | M                    | 2800 | mg/kg | 0.10 | 0.52        | 1.6         |
| Fluoranthene             |           | M                    | 2800 | mg/kg | 0.10 | 2.1         | 8.5         |
| Pyrene                   |           | M                    | 2800 | mg/kg | 0.10 | 2.0         | 7.5         |
| Benzo[a]anthracene       |           | M                    | 2800 | mg/kg | 0.10 | 1.5         | 4.1         |
| Chrysene                 |           | M                    | 2800 | mg/kg | 0.10 | 1.3         | 4.3         |
| Benzo[b]fluoranthene     |           | M                    | 2800 | mg/kg | 0.10 | 1.7         | 5.2         |
| Benzo[k]fluoranthene     |           | M                    | 2800 | mg/kg | 0.10 | 0.97        | 2.2         |
| Benzo[a]pyrene           |           | M                    | 2800 | mg/kg | 0.10 | 1.3         | 4.0         |
| Indeno(1,2,3-c,d)Pyrene  |           | M                    | 2800 | mg/kg | 0.10 | 1.2         | 2.7         |
| Dibenz(a,h)Anthracene    |           | N                    | 2800 | mg/kg | 0.10 | 0.73        | 0.74        |
| Benzo[g,h,i]perylene     |           | M                    | 2800 | mg/kg | 0.10 | 1.2         | 2.7         |
| Total Of 16 PAH's        |           | N                    | 2800 | mg/kg | 2.0  | 16          | 52          |
| Total Phenols            |           | M                    | 2920 | mg/kg | 0.10 | < 0.10      | < 0.10      |



## Test Methods

| SOP  | Title                                                              | Parameters included                                                                                                                                                                                                                                                       | Method summary                                                                                                                                                                         | Water Accred. |
|------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 2010 | pH Value of Soils                                                  | pH at 20°C                                                                                                                                                                                                                                                                | pH Meter                                                                                                                                                                               |               |
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS)         | Moisture content                                                                                                                                                                                                                                                          | Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.                                                                                   |               |
| 2040 | Soil Description(Requirement of MCERTS)                            | Soil description                                                                                                                                                                                                                                                          | As received soil is described based upon BS5930                                                                                                                                        |               |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium                | Boron; Sulphate; Magnesium; Chromium                                                                                                                                                                                                                                      | Aqueous extraction / ICP-OES                                                                                                                                                           |               |
| 2175 | Total Sulphur in Soils                                             | Total Sulphur                                                                                                                                                                                                                                                             | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.                                                                                             |               |
| 2192 | Asbestos                                                           | Asbestos                                                                                                                                                                                                                                                                  | Polarised light microscopy / Gravimetry                                                                                                                                                |               |
| 2300 | Cyanides & Thiocyanate in Soils                                    | Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate                                                                                                                                                                                           | Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.                                                                                    |               |
| 2325 | Sulphide in Soils                                                  | Sulphide                                                                                                                                                                                                                                                                  | Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.                                                           |               |
| 2430 | Total Sulphate in soils                                            | Total Sulphate                                                                                                                                                                                                                                                            | Acid digestion followed by determination of sulphate in extract by ICP-OES.                                                                                                            |               |
| 2455 | Acid Soluble Metals in Soils                                       | Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc                                                                                                                  | Acid digestion followed by determination of metals in extract by ICP-MS.                                                                                                               |               |
| 2490 | Hexavalent Chromium in Soils                                       | Chromium [VI]                                                                                                                                                                                                                                                             | Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine. |               |
| 2625 | Total Organic Carbon in Soils                                      | Total organic Carbon (TOC)                                                                                                                                                                                                                                                | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.                                                                                             |               |
| 2670 | Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID              | TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40                                                                                                                                                                                            | Dichloromethane extraction / GC-FID                                                                                                                                                    |               |
| 2800 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS | Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene* | Dichloromethane extraction / GC-MS                                                                                                                                                     |               |
| 2920 | Phenols in Soils by HPLC                                           | Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.                                                                                                                         | 60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.                                                                               |               |

## **Report Information**

### **Key**

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|     |                                                                                                               |
|-----|---------------------------------------------------------------------------------------------------------------|
| U   | UKAS accredited                                                                                               |
| M   | MCERTS and UKAS accredited                                                                                    |
| N   | Unaccredited                                                                                                  |
| S   | This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis     |
| SN  | This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis |
| T   | This analysis has been subcontracted to an unaccredited laboratory                                            |
| I/S | Insufficient Sample                                                                                           |
| U/S | Unsuitable Sample                                                                                             |
| N/E | not evaluated                                                                                                 |
| <   | "less than"                                                                                                   |
| >   | "greater than"                                                                                                |
| SOP | Standard operating procedure                                                                                  |
| LOD | Limit of detection                                                                                            |

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at  $\leq 30^{\circ}\text{C}$  prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

### **Sample Deviation Codes**

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- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

### **Sample Retention and Disposal**

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All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Charges may apply to extended sample storage.

### **Water Sample Category Key for Accreditation**

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- DW - Drinking Water
- GW - Ground Water
- LE - Land Leachate
- NA - Not Applicable

## **Report Information**

PL - Prepared Leachate  
PW - Processed Water  
RE - Recreational Water  
SA - Saline Water  
SW - Surface Water  
TE - Treated Effluent  
TS - Treated Sewage  
UL - Unspecified Liquid

### **Clean Up Codes**

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NC - No Clean Up  
MC - Mathematical Clean Up  
FC - Florisil Clean Up

### **HWOL Acronym System**

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HS - Headspace analysis  
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent  
CU - Clean-up – e.g. by Florisil, silica gel  
1D - GC – Single coil gas chromatography  
Total - Aliphatics & Aromatics  
AL - Aliphatics only  
AR - Aromatic only  
2D - GC-GC – Double coil gas chromatography  
#1 - EH\_2D\_Total but with humics mathematically subtracted  
#2 - EH\_2D\_Total but with fatty acids mathematically subtracted  
+ - Operator to indicate cumulative e.g. EH+EH\_Total or EH\_CU+HS\_Total

If you require extended retention of samples, please email your requirements to:  
[customerservices@chemtest.com](mailto:customerservices@chemtest.com)



# Final Report

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**Report No.:** 24-35916-1

**Initial Date of Issue:** 11-Nov-2024

**Re-Issue Details:**

**Client** E3P

**Client Address:** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contact(s):** hmason@e3p.co.uk;  
jsheridan@e3p.co.uk

**Project** 14-768 Castleton Sidings

**Quotation No.:** Q23-31421

**Date Received:** 05-Nov-2024

**Order No.:** 009924

**Date Instructed:** 05-Nov-2024

**No. of Samples:** 1

**Turnaround (Wkdays):** 5

**Results Due:** 11-Nov-2024

**Date Approved:** 11-Nov-2024

**Approved By:**

**Details:** David Smith, Technical Director

**For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report**

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## Results - Soil

### Project: 14-768 Castleton Sidings

| <b>Client: E3P</b>                  |             | <b>Chemtest Job No.:</b>    |      | 24-35916    |       |                      |
|-------------------------------------|-------------|-----------------------------|------|-------------|-------|----------------------|
| Quotation No.: Q23-31421            |             | <b>Chemtest Sample ID.:</b> |      | 1890274     |       |                      |
|                                     |             | Client Sample ID.:          |      | MG 201      |       |                      |
|                                     |             | Sample Type:                |      | SOIL        |       |                      |
|                                     |             | Date Sampled:               |      | 01-Nov-2024 |       |                      |
|                                     |             | Time Sampled:               |      | 12:00       |       |                      |
|                                     |             | Asbestos Lab:               |      | NEW-ASB     |       |                      |
| Determinand                         | HWOL Code   | Accred.                     | SOP  | Units       | LOD   |                      |
| ACM Type                            |             | U                           | 2192 |             | N/A   | -                    |
| Asbestos Identification             |             | U                           | 2192 |             | N/A   | No Asbestos Detected |
| Moisture                            |             | N                           | 2030 | %           | 0.020 | 31                   |
| Soil Colour                         |             | N                           | 2040 |             | N/A   | Brown                |
| Other Material                      |             | N                           | 2040 |             | N/A   | Stones and Roots     |
| Soil Texture                        |             | N                           | 2040 |             | N/A   | Loam                 |
| pH at 20C                           |             | M                           | 2010 |             | 4.0   | 7.2                  |
| Sulphate (2:1 Water Soluble) as SO4 |             | M                           | 2120 | g/l         | 0.010 | 0.24                 |
| Total Sulphur                       |             | U                           | 2175 | %           | 0.010 | 0.46                 |
| Cyanide (Total)                     |             | M                           | 2300 | mg/kg       | 0.50  | 19                   |
| Sulphide (Easily Liberatable)       |             | N                           | 2325 | mg/kg       | 0.50  | 3.8                  |
| Sulphate (Total)                    |             | U                           | 2430 | %           | 0.010 | 1.4                  |
| Arsenic                             |             | M                           | 2455 | mg/kg       | 0.5   | 45                   |
| Cadmium                             |             | M                           | 2455 | mg/kg       | 0.10  | 1.0                  |
| Chromium                            |             | M                           | 2455 | mg/kg       | 0.5   | 24                   |
| Copper                              |             | M                           | 2455 | mg/kg       | 0.50  | 220                  |
| Mercury                             |             | M                           | 2455 | mg/kg       | 0.05  | 1.9                  |
| Nickel                              |             | M                           | 2455 | mg/kg       | 0.50  | 38                   |
| Lead                                |             | M                           | 2455 | mg/kg       | 0.50  | 330                  |
| Selenium                            |             | M                           | 2455 | mg/kg       | 0.25  | 1.2                  |
| Zinc                                |             | M                           | 2455 | mg/kg       | 0.50  | 180                  |
| Chromium (Hexavalent)               |             | N                           | 2490 | mg/kg       | 0.50  | < 0.50               |
| Aliphatic VPH >C5-C6                | HS_2D_AL    | U                           | 2780 | mg/kg       | 0.05  | < 0.05               |
| Aliphatic VPH >C6-C7                | HS_2D_AL    | U                           | 2780 | mg/kg       | 0.05  | < 0.05               |
| Aliphatic VPH >C7-C8                | HS_2D_AL    | U                           | 2780 | mg/kg       | 0.05  | < 0.05               |
| Aliphatic VPH >C8-C10               | HS_2D_AL    | U                           | 2780 | mg/kg       | 0.05  | < 0.05               |
| Total Aliphatic VPH >C5-C10         | HS_2D_AL    | U                           | 2780 | mg/kg       | 0.25  | < 0.25               |
| Aliphatic EPH >C10-C12 MC           | EH_2D_AL #1 | M                           | 2690 | mg/kg       | 2.00  | < 2.0                |
| Aliphatic EPH >C12-C16 MC           | EH_2D_AL #1 | M                           | 2690 | mg/kg       | 1.00  | 15                   |
| Aliphatic EPH >C16-C21 MC           | EH_2D_AL #1 | M                           | 2690 | mg/kg       | 2.00  | 9.1                  |
| Aliphatic EPH >C21-C35 MC           | EH_2D_AL #1 | M                           | 2690 | mg/kg       | 3.00  | 24                   |
| Aliphatic EPH >C35-C40 MC           | EH_2D_AL #1 | N                           | 2690 | mg/kg       | 10.00 | < 10                 |
| Total Aliphatic EPH >C10-C35 MC     | EH_2D_AL #1 | M                           | 2690 | mg/kg       | 5.00  | 49                   |
| Total Aliphatic EPH >C10-C40 MC     | EH_2D_AL #1 | N                           | 2690 | mg/kg       | 10.00 | 49                   |
| Aromatic VPH >C5-C7                 | HS_2D_AR    | U                           | 2780 | mg/kg       | 0.05  | < 0.05               |
| Aromatic VPH >C7-C8                 | HS_2D_AR    | U                           | 2780 | mg/kg       | 0.05  | < 0.05               |
| Aromatic VPH >C8-C10                | HS_2D_AR    | U                           | 2780 | mg/kg       | 0.05  | < 0.05               |

## Results - Soil

**Project: 14-768 Castleton Sidings**

|                                |                  |                             |            |              |            |        |
|--------------------------------|------------------|-----------------------------|------------|--------------|------------|--------|
| <b>Client: E3P</b>             |                  | <b>Chemtest Job No.:</b>    |            | 24-35916     |            |        |
| Quotation No.: Q23-31421       |                  | <b>Chemtest Sample ID.:</b> |            | 1890274      |            |        |
|                                |                  | Client Sample ID.:          |            | MG 201       |            |        |
|                                |                  | Sample Type:                |            | SOIL         |            |        |
|                                |                  | Date Sampled:               |            | 01-Nov-2024  |            |        |
|                                |                  | Time Sampled:               |            | 12:00        |            |        |
|                                |                  | Asbestos Lab:               |            | NEW-ASB      |            |        |
| <b>Determinand</b>             | <b>HWOL Code</b> | <b>Accred.</b>              | <b>SOP</b> | <b>Units</b> | <b>LOD</b> |        |
| Total Aromatic VPH >C5-C10     | HS_2D_AR         | U                           | 2780       | mg/kg        | 0.25       | < 0.25 |
| Aromatic EPH >C10-C12 MC       | EH_2D_AR_#1      | U                           | 2690       | mg/kg        | 1.00       | 32     |
| Aromatic EPH >C12-C16 MC       | EH_2D_AR_#1      | U                           | 2690       | mg/kg        | 1.00       | 95     |
| Aromatic EPH >C16-C21 MC       | EH_2D_AR_#1      | U                           | 2690       | mg/kg        | 2.00       | 240    |
| Aromatic EPH >C21-C35 MC       | EH_2D_AR_#1      | U                           | 2690       | mg/kg        | 2.00       | 120    |
| Aromatic EPH >C35-C40 MC       | EH_2D_AR_#1      | N                           | 2690       | mg/kg        | 1.00       | 45     |
| Total Aromatic EPH >C10-C35 MC | EH_2D_AR_#1      | U                           | 2690       | mg/kg        | 5.00       | 490    |
| Total Aromatic EPH >C10-C40 MC | EH_2D_AR_#1      | N                           | 2690       | mg/kg        | 10.00      | 530    |
| Total VPH >C5-C10              | HS_2D_Total      | U                           | 2780       | mg/kg        | 0.50       | < 0.50 |
| Total EPH >C10-C35 MC          | EH_2D_Total_#1   | U                           | 2690       | mg/kg        | 10.00      | 540    |
| Total EPH >C10-C40 MC          | EH_2D_Total_#1   | N                           | 2690       | mg/kg        | 10.00      | 580    |
| Organic Matter                 |                  | M                           | 2625       | %            | 0.40       | 28     |
| Total Organic Carbon           |                  | M                           | 2625       | %            | 0.20       | 16     |
| TPH >C6-C8                     | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0  |
| TPH >C8-C10                    | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0  |
| TPH >C10-C12                   | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | 14     |
| TPH >C12-C16                   | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | 67     |
| TPH >C16-C21                   | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | 180    |
| TPH >C21-C25                   | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | 110    |
| TPH >C25-C35                   | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | 190    |
| TPH >C35-C40                   | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | 24     |
| Total TPH >C6-C40              | EH_1D_Total      | U                           | 2670       | mg/kg        | 10         | 590    |
| Dichlorodifluoromethane        |                  | U                           | 2760       | µg/kg        | 1.0        | < 1.0  |
| Chloromethane                  |                  | M                           | 2760       | µg/kg        | 1.0        | < 1.0  |
| Vinyl Chloride                 |                  | M                           | 2760       | µg/kg        | 1.0        | < 1.0  |
| Bromomethane                   |                  | M                           | 2760       | µg/kg        | 20         | < 20   |
| Chloroethane                   |                  | U                           | 2760       | µg/kg        | 2.0        | < 2.0  |
| Trichlorofluoromethane         |                  | M                           | 2760       | µg/kg        | 1.0        | < 1.0  |
| 1,1-Dichloroethene             |                  | M                           | 2760       | µg/kg        | 1.0        | < 1.0  |
| Trans 1,2-Dichloroethene       |                  | M                           | 2760       | µg/kg        | 1.0        | < 1.0  |
| 1,1-Dichloroethane             |                  | M                           | 2760       | µg/kg        | 1.0        | < 1.0  |
| cis 1,2-Dichloroethene         |                  | M                           | 2760       | µg/kg        | 1.0        | < 1.0  |
| Bromochloromethane             |                  | U                           | 2760       | µg/kg        | 5.0        | < 5.0  |
| Trichloromethane               |                  | M                           | 2760       | µg/kg        | 1.0        | < 1.0  |
| 1,1,1-Trichloroethane          |                  | M                           | 2760       | µg/kg        | 1.0        | < 1.0  |
| Tetrachloromethane             |                  | M                           | 2760       | µg/kg        | 1.0        | < 1.0  |
| 1,1-Dichloropropene            |                  | U                           | 2760       | µg/kg        | 1.0        | < 1.0  |
| Benzene                        |                  | M                           | 2760       | µg/kg        | 1.0        | < 1.0  |
| 1,2-Dichloroethane             |                  | M                           | 2760       | µg/kg        | 2.0        | < 2.0  |

## Results - Soil

**Project: 14-768 Castleton Sidings**

| <b>Client: E3P</b>          |           | <b>Chemtest Job No.:</b>    |      | 24-35916    |     |       |
|-----------------------------|-----------|-----------------------------|------|-------------|-----|-------|
| Quotation No.: Q23-31421    |           | <b>Chemtest Sample ID.:</b> |      | 1890274     |     |       |
|                             |           | Client Sample ID.:          |      | MG 201      |     |       |
|                             |           | Sample Type:                |      | SOIL        |     |       |
|                             |           | Date Sampled:               |      | 01-Nov-2024 |     |       |
|                             |           | Time Sampled:               |      | 12:00       |     |       |
|                             |           | Asbestos Lab:               |      | NEW-ASB     |     |       |
| Determinand                 | HWOL Code | Accred.                     | SOP  | Units       | LOD |       |
| Trichloroethene             |           | N                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| 1,2-Dichloropropane         |           | M                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| Dibromomethane              |           | M                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| Bromodichloromethane        |           | M                           | 2760 | µg/kg       | 5.0 | < 5.0 |
| cis-1,3-Dichloropropene     |           | N                           | 2760 | µg/kg       | 10  | < 10  |
| Toluene                     |           | M                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| Trans-1,3-Dichloropropene   |           | N                           | 2760 | µg/kg       | 10  | < 10  |
| 1,1,2-Trichloroethane       |           | M                           | 2760 | µg/kg       | 10  | < 10  |
| Tetrachloroethene           |           | M                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| 1,3-Dichloropropane         |           | U                           | 2760 | µg/kg       | 2.0 | < 2.0 |
| Dibromochloromethane        |           | U                           | 2760 | µg/kg       | 10  | < 10  |
| 1,2-Dibromoethane           |           | M                           | 2760 | µg/kg       | 5.0 | < 5.0 |
| Chlorobenzene               |           | M                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| 1,1,1,2-Tetrachloroethane   |           | M                           | 2760 | µg/kg       | 2.0 | < 2.0 |
| Ethylbenzene                |           | M                           | 2760 | µg/kg       | 1.0 | 3.3   |
| m & p-Xylene                |           | M                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| o-Xylene                    |           | M                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| Styrene                     |           | M                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| Tribromomethane             |           | U                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| Isopropylbenzene            |           | M                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| Bromobenzene                |           | M                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| 1,2,3-Trichloropropane      |           | N                           | 2760 | µg/kg       | 50  | < 50  |
| N-Propylbenzene             |           | U                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| 2-Chlorotoluene             |           | M                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| 1,3,5-Trimethylbenzene      |           | M                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| 4-Chlorotoluene             |           | U                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| Tert-Butylbenzene           |           | U                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| 1,2,4-Trimethylbenzene      |           | M                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| Sec-Butylbenzene            |           | U                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| 1,3-Dichlorobenzene         |           | M                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| 4-Isopropyltoluene          |           | U                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| 1,4-Dichlorobenzene         |           | M                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| N-Butylbenzene              |           | U                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| 1,2-Dichlorobenzene         |           | M                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| 1,2-Dibromo-3-Chloropropane |           | U                           | 2760 | µg/kg       | 50  | < 50  |
| 1,2,4-Trichlorobenzene      |           | M                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| Hexachlorobutadiene         |           | N                           | 2760 | µg/kg       | 1.0 | < 1.0 |
| 1,2,3-Trichlorobenzene      |           | U                           | 2760 | µg/kg       | 2.0 | < 2.0 |
| Methyl Tert-Butyl Ether     |           | M                           | 2760 | µg/kg       | 1.0 | < 1.0 |

## Results - Soil

**Project: 14-768 Castleton Sidings**

| <b>Client: E3P</b>          |           | <b>Chemtest Job No.:</b>    |      | 24-35916    |      |        |
|-----------------------------|-----------|-----------------------------|------|-------------|------|--------|
| Quotation No.: Q23-31421    |           | <b>Chemtest Sample ID.:</b> |      | 1890274     |      |        |
|                             |           | Client Sample ID.:          |      | MG 201      |      |        |
|                             |           | Sample Type:                |      | SOIL        |      |        |
|                             |           | Date Sampled:               |      | 01-Nov-2024 |      |        |
|                             |           | Time Sampled:               |      | 12:00       |      |        |
|                             |           | Asbestos Lab:               |      | NEW-ASB     |      |        |
| Determinand                 | HWOL Code | Accred.                     | SOP  | Units       | LOD  |        |
| N-Nitrosodimethylamine      |           | M                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| Phenol                      |           | M                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| 2-Chlorophenol              |           | N                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| Bis-(2-Chloroethyl)Ether    |           | M                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| 1,3-Dichlorobenzene         |           | M                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| 1,4-Dichlorobenzene         |           | N                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| 1,2-Dichlorobenzene         |           | M                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| 2-Methylphenol              |           | M                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| Bis(2-Chloroisopropyl)Ether |           | M                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| Hexachloroethane            |           | N                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| N-Nitrosodi-n-propylamine   |           | M                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| 4-Methylphenol              |           | M                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| Nitrobenzene                |           | N                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| Isophorone                  |           | M                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| 2-Nitrophenol               |           | N                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| 2,4-Dimethylphenol          |           | N                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| Bis(2-Chloroethoxy)Methane  |           | M                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| 2,4-Dichlorophenol          |           | N                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| 1,2,4-Trichlorobenzene      |           | M                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| Naphthalene                 |           | M                           | 2790 | mg/kg       | 0.50 | 2.2    |
| 4-Chloroaniline             |           | N                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| Hexachlorobutadiene         |           | M                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| 4-Chloro-3-Methylphenol     |           | N                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| 2-Methylnaphthalene         |           | M                           | 2790 | mg/kg       | 0.50 | 1.0    |
| 4-Nitrophenol               |           | N                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| 2,4,6-Trichlorophenol       |           | N                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| 2,4,5-Trichlorophenol       |           | N                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| 2-Chloronaphthalene         |           | M                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| 2-Nitroaniline              |           | N                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| Acenaphthylene              |           | M                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| Dimethylphthalate           |           | M                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| 2,6-Dinitrotoluene          |           | N                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| Acenaphthene                |           | M                           | 2790 | mg/kg       | 0.50 | 3.6    |
| 3-Nitroaniline              |           | N                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| Dibenzofuran                |           | M                           | 2790 | mg/kg       | 0.50 | 1.5    |
| 4-Chlorophenylphenylether   |           | M                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| 2,4-Dinitrotoluene          |           | N                           | 2790 | mg/kg       | 0.50 | < 0.50 |
| Fluorene                    |           | M                           | 2790 | mg/kg       | 0.50 | 1.8    |
| Diethyl Phthalate           |           | M                           | 2790 | mg/kg       | 0.50 | < 0.50 |



## Results - Soil

**Project: 14-768 Castleton Sidings**

|                            |                  |                             |            |              |            |        |
|----------------------------|------------------|-----------------------------|------------|--------------|------------|--------|
| <b>Client: E3P</b>         |                  | <b>Chemtest Job No.:</b>    |            | 24-35916     |            |        |
| Quotation No.: Q23-31421   |                  | <b>Chemtest Sample ID.:</b> |            | 1890274      |            |        |
|                            |                  | Client Sample ID.:          |            | MG 201       |            |        |
|                            |                  | Sample Type:                |            | SOIL         |            |        |
|                            |                  | Date Sampled:               |            | 01-Nov-2024  |            |        |
|                            |                  | Time Sampled:               |            | 12:00        |            |        |
|                            |                  | Asbestos Lab:               |            | NEW-ASB      |            |        |
| <b>Determinand</b>         | <b>HWOL Code</b> | <b>Accred.</b>              | <b>SOP</b> | <b>Units</b> | <b>LOD</b> |        |
| 4-Nitroaniline             |                  | N                           | 2790       | mg/kg        | 0.50       | < 0.50 |
| Azobenzene                 |                  | M                           | 2790       | mg/kg        | 0.50       | < 0.50 |
| 4-Bromophenylphenyl Ether  |                  | M                           | 2790       | mg/kg        | 0.50       | < 0.50 |
| Hexachlorobenzene          |                  | M                           | 2790       | mg/kg        | 0.50       | < 0.50 |
| Phenanthrene               |                  | M                           | 2790       | mg/kg        | 0.50       | 8.5    |
| Anthracene                 |                  | M                           | 2790       | mg/kg        | 0.50       | 2.5    |
| Carbazole                  |                  | M                           | 2790       | mg/kg        | 0.50       | 0.84   |
| Di-N-Butyl Phthalate       |                  | N                           | 2790       | mg/kg        | 0.50       | < 0.50 |
| Fluoranthene               |                  | M                           | 2790       | mg/kg        | 0.50       | 15     |
| Pyrene                     |                  | M                           | 2790       | mg/kg        | 0.50       | 14     |
| Butylbenzyl Phthalate      |                  | N                           | 2790       | mg/kg        | 0.50       | < 0.50 |
| Benzo[a]anthracene         |                  | M                           | 2790       | mg/kg        | 0.50       | 6.7    |
| Chrysene                   |                  | M                           | 2790       | mg/kg        | 0.50       | 7.1    |
| Bis(2-Ethylhexyl)Phthalate |                  | N                           | 2790       | mg/kg        | 0.50       | < 0.50 |
| Di-N-Octyl Phthalate       |                  | N                           | 2790       | mg/kg        | 0.50       | < 0.50 |
| Benzo[b]fluoranthene       |                  | M                           | 2790       | mg/kg        | 0.50       | 6.9    |
| Benzo[k]fluoranthene       |                  | M                           | 2790       | mg/kg        | 0.50       | 2.5    |
| Benzo[a]pyrene             |                  | M                           | 2790       | mg/kg        | 0.50       | 5.0    |
| Indeno(1,2,3-c,d)Pyrene    |                  | N                           | 2790       | mg/kg        | 0.50       | 2.2    |
| Dibenz(a,h)Anthracene      |                  | N                           | 2790       | mg/kg        | 0.50       | 0.84   |
| Benzo[g,h,i]perylene       |                  | M                           | 2790       | mg/kg        | 0.50       | 2.6    |
| Naphthalene                |                  | M                           | 2800       | mg/kg        | 0.10       | 3.9    |
| Acenaphthylene             |                  | N                           | 2800       | mg/kg        | 0.10       | 0.59   |
| Acenaphthene               |                  | M                           | 2800       | mg/kg        | 0.10       | 4.7    |
| Fluorene                   |                  | M                           | 2800       | mg/kg        | 0.10       | 4.5    |
| Phenanthrene               |                  | M                           | 2800       | mg/kg        | 0.10       | 14     |
| Anthracene                 |                  | M                           | 2800       | mg/kg        | 0.10       | 4.7    |
| Fluoranthene               |                  | M                           | 2800       | mg/kg        | 0.10       | 24     |
| Pyrene                     |                  | M                           | 2800       | mg/kg        | 0.10       | 21     |
| Benzo[a]anthracene         |                  | M                           | 2800       | mg/kg        | 0.10       | 10     |
| Chrysene                   |                  | M                           | 2800       | mg/kg        | 0.10       | 11     |
| Benzo[b]fluoranthene       |                  | M                           | 2800       | mg/kg        | 0.10       | 12     |
| Benzo[k]fluoranthene       |                  | M                           | 2800       | mg/kg        | 0.10       | 4.5    |
| Benzo[a]pyrene             |                  | M                           | 2800       | mg/kg        | 0.10       | 8.7    |
| Indeno(1,2,3-c,d)Pyrene    |                  | M                           | 2800       | mg/kg        | 0.10       | 5.7    |
| Dibenz(a,h)Anthracene      |                  | N                           | 2800       | mg/kg        | 0.10       | 1.6    |
| Benzo[g,h,i]perylene       |                  | M                           | 2800       | mg/kg        | 0.10       | 5.9    |
| Total Of 16 PAH's          |                  | N                           | 2800       | mg/kg        | 2.0        | 140    |
| Total Phenols              |                  | M                           | 2920       | mg/kg        | 0.10       | < 0.10 |

## Test Methods

| SOP  | Title                                                              | Parameters included                                                                                                                                                                                                                                                       | Method summary                                                                                                                                                                         | Water Accred. |
|------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 2010 | pH Value of Soils                                                  | pH at 20°C                                                                                                                                                                                                                                                                | pH Meter                                                                                                                                                                               |               |
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS)         | Moisture content                                                                                                                                                                                                                                                          | Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.                                                                                   |               |
| 2040 | Soil Description(Requirement of MCERTS)                            | Soil description                                                                                                                                                                                                                                                          | As received soil is described based upon BS5930                                                                                                                                        |               |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium                | Boron; Sulphate; Magnesium; Chromium                                                                                                                                                                                                                                      | Aqueous extraction / ICP-OES                                                                                                                                                           |               |
| 2175 | Total Sulphur in Soils                                             | Total Sulphur                                                                                                                                                                                                                                                             | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.                                                                                             |               |
| 2192 | Asbestos                                                           | Asbestos                                                                                                                                                                                                                                                                  | Polarised light microscopy / Gravimetry                                                                                                                                                |               |
| 2300 | Cyanides & Thiocyanate in Soils                                    | Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate                                                                                                                                                                                           | Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.                                                                                    |               |
| 2325 | Sulphide in Soils                                                  | Sulphide                                                                                                                                                                                                                                                                  | Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.                                                           |               |
| 2430 | Total Sulphate in soils                                            | Total Sulphate                                                                                                                                                                                                                                                            | Acid digestion followed by determination of sulphate in extract by ICP-OES.                                                                                                            |               |
| 2455 | Acid Soluble Metals in Soils                                       | Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc                                                                                                                  | Acid digestion followed by determination of metals in extract by ICP-MS.                                                                                                               |               |
| 2490 | Hexavalent Chromium in Soils                                       | Chromium [VI]                                                                                                                                                                                                                                                             | Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine. |               |
| 2625 | Total Organic Carbon in Soils                                      | Total organic Carbon (TOC)                                                                                                                                                                                                                                                | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.                                                                                             |               |
| 2670 | Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID              | TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40                                                                                                                                                                                            | Dichloromethane extraction / GC-FID                                                                                                                                                    |               |
| 2690 | EPH A/A Split                                                      | Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40<br>Aromatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40                                                                                                                                           | Acetone/Heptane extraction / GCxGC FID detection                                                                                                                                       |               |
| 2760 | Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS      | Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule                                                                                                                                      | Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.                             |               |
| 2780 | VPH A/A Split                                                      | Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8–C10<br>Aromatics: >C5–C7,>C7–C8,>C8–C10                                                                                                                                                                                             | Water extraction / Headspace GCxGC FID detection                                                                                                                                       |               |
| 2790 | Semi-Volatile Organic Compounds (SVOCs) in Soils by GC-MS          | Semi-volatile organic compounds(cf. USEPA Method 8270)                                                                                                                                                                                                                    | Acetone/Hexane extraction / GC-MS                                                                                                                                                      |               |
| 2800 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS | Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene* | Dichloromethane extraction / GC-MS                                                                                                                                                     |               |
| 2920 | Phenols in Soils by HPLC                                           | Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.                                                                                                                         | 60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.                                                                               |               |

## **Report Information**

### **Key**

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|     |                                                                                                               |
|-----|---------------------------------------------------------------------------------------------------------------|
| U   | UKAS accredited                                                                                               |
| M   | MCERTS and UKAS accredited                                                                                    |
| N   | Unaccredited                                                                                                  |
| S   | This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis     |
| SN  | This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis |
| T   | This analysis has been subcontracted to an unaccredited laboratory                                            |
| I/S | Insufficient Sample                                                                                           |
| U/S | Unsuitable Sample                                                                                             |
| N/E | not evaluated                                                                                                 |
| <   | "less than"                                                                                                   |
| >   | "greater than"                                                                                                |
| SOP | Standard operating procedure                                                                                  |
| LOD | Limit of detection                                                                                            |

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at  $\leq 30^{\circ}\text{C}$  prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

### **Sample Deviation Codes**

---

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

### **Sample Retention and Disposal**

---

All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Charges may apply to extended sample storage.

### **Water Sample Category Key for Accreditation**

---

- DW - Drinking Water
- GW - Ground Water
- LE - Land Leachate
- NA - Not Applicable

## **Report Information**

PL - Prepared Leachate  
PW - Processed Water  
RE - Recreational Water  
SA - Saline Water  
SW - Surface Water  
TE - Treated Effluent  
TS - Treated Sewage  
UL - Unspecified Liquid

### **Clean Up Codes**

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NC - No Clean Up  
MC - Mathematical Clean Up  
FC - Florisil Clean Up

### **HWOL Acronym System**

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HS - Headspace analysis  
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent  
CU - Clean-up – e.g. by Florisil, silica gel  
1D - GC – Single coil gas chromatography  
Total - Aliphatics & Aromatics  
AL - Aliphatics only  
AR - Aromatic only  
2D - GC-GC – Double coil gas chromatography  
#1 - EH\_2D\_Total but with humics mathematically subtracted  
#2 - EH\_2D\_Total but with fatty acids mathematically subtracted  
+ - Operator to indicate cumulative e.g. EH+EH\_Total or EH\_CU+HS\_Total

If you require extended retention of samples, please email your requirements to:  
[customerservices@chemtest.com](mailto:customerservices@chemtest.com)



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## **Analytical Report Number : 24-049982**

|                             |                   |                                                        |            |
|-----------------------------|-------------------|--------------------------------------------------------|------------|
| <b>Project / Site name:</b> | Castleton Sidings | <b>Samples received on:</b>                            | 24/10/2024 |
| <b>Your job number:</b>     | 14-768            | <b>Samples instructed on/<br/>Analysis started on:</b> | 25/10/2024 |
| <b>Your order number:</b>   | 009823            | <b>Analysis completed by:</b>                          | 08/11/2024 |
| <b>Report Issue Number:</b> | 1                 | <b>Report issued on:</b>                               | 08/11/2024 |
| <b>Samples Analysed:</b>    | 6 soil samples    |                                                        |            |

**Signed:**



Dominika Liana  
Junior Reporting Specialist  
**For & on behalf of i2 Analytical Ltd.**

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting  
leachates - 2 weeks from reporting  
waters - 2 weeks from reporting  
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.  
Application of uncertainty of measurement would provide a range within which the true result lies.  
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 24-049982  
Project / Site name: Castleton Sidings  
Your Order No: 009823

|                                         |  |  |  |               |                            |                              |               |               |
|-----------------------------------------|--|--|--|---------------|----------------------------|------------------------------|---------------|---------------|
| Lab Sample Number                       |  |  |  | 359554        | 359555                     | 359556                       | 359557        | 359558        |
| Sample Reference                        |  |  |  | HS1 NORTH     | HS1 EAST                   | HS1 SOUTH                    | HS1 WEST      | HS1 BASE      |
| Sample Number                           |  |  |  | None Supplied | None Supplied              | None Supplied                | None Supplied | None Supplied |
| Depth (m)                               |  |  |  | None Supplied | None Supplied              | None Supplied                | None Supplied | None Supplied |
| Date Sampled                            |  |  |  | 21/10/2024    | 21/10/2024                 | 21/10/2024                   | 21/10/2024    | 21/10/2024    |
| Time Taken                              |  |  |  | None Supplied | None Supplied              | None Supplied                | None Supplied | None Supplied |
| Analytical Parameter<br>(Soil Analysis) |  |  |  | Units         | Test Limit of<br>detection | Test Accreditation<br>Status |               |               |

|                               |    |      |      |       |       |      |       |       |
|-------------------------------|----|------|------|-------|-------|------|-------|-------|
| Stone Content                 | %  | 0.1  | NONE | < 0.1 | < 0.1 | 29.6 | < 0.1 | < 0.1 |
| Moisture Content              | %  | 0.01 | NONE | 15    | 16    | 16   | 19    | 18    |
| Total mass of sample received | kg | 0.1  | NONE | 0.8   | 0.8   | 0.8  | 0.8   | 0.8   |

Heavy Metals / Metalloids

|                                  |       |     |        |     |     |     |     |     |
|----------------------------------|-------|-----|--------|-----|-----|-----|-----|-----|
| Mercury (aqua regia extractable) | mg/kg | 0.3 | MCERTS | 2.1 | 3.4 | 2.1 | 0.4 | 1.4 |
|----------------------------------|-------|-----|--------|-----|-----|-----|-----|-----|

Speciated Mercury (Dry Weight)

|                                              |       |       |      |       |       |         |   |       |
|----------------------------------------------|-------|-------|------|-------|-------|---------|---|-------|
| Inorganic Mercury                            | mg/kg | 0.005 | NONE | 1.996 | 1.815 | 1.092   | - | 1.031 |
| Organo-Mercury Species (including Methyl Hg) | mg/kg | 0.005 | NONE | 0.013 | 0.028 | 0.018   | - | 0.008 |
| Elemental Mercury                            | mg/kg | 0.005 | NONE | 0.013 | 0.028 | < 0.005 | - | 0.008 |

|                         |       |       |      |         |         |         |   |         |
|-------------------------|-------|-------|------|---------|---------|---------|---|---------|
| F1 - Water soluble      | mg/kg | 0.005 | NONE | < 0.005 | < 0.005 | < 0.005 | - | < 0.005 |
| F2 - Weak acid          | mg/kg | 0.005 | NONE | < 0.005 | < 0.005 | < 0.005 | - | < 0.005 |
| F3 - Organo- complexed  | mg/kg | 0.005 | NONE | 0.013   | 0.028   | 0.018   | - | 0.008   |
| F4 - Strongly complexed | mg/kg | 0.005 | NONE | 0.005   | 0.192   | < 0.005 | - | 0.005   |
| F5 - Mineral bound      | mg/kg | 0.005 | NONE | 1.994   | 1.809   | 1.09    | - | 1.03    |

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Report Number: 24-049982  
Project / Site name: Castleton Sidings  
Your Order No: 009823

|                                         |       |                            |                              |               |
|-----------------------------------------|-------|----------------------------|------------------------------|---------------|
| Lab Sample Number                       |       |                            |                              | 359559        |
| Sample Reference                        |       |                            |                              | HS1 ARISINGS  |
| Sample Number                           |       |                            |                              | None Supplied |
| Depth (m)                               |       |                            |                              | None Supplied |
| Date Sampled                            |       |                            |                              | 21/10/2024    |
| Time Taken                              |       |                            |                              | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units | Test Limit of<br>detection | Test Accreditation<br>Status |               |

|                               |    |      |      |       |
|-------------------------------|----|------|------|-------|
| Stone Content                 | %  | 0.1  | NONE | < 0.1 |
| Moisture Content              | %  | 0.01 | NONE | 15    |
| Total mass of sample received | kg | 0.1  | NONE | 0.8   |

Heavy Metals / Metalloids

|                                  |       |     |        |     |
|----------------------------------|-------|-----|--------|-----|
| Mercury (aqua regia extractable) | mg/kg | 0.3 | MCERTS | 8.3 |
|----------------------------------|-------|-----|--------|-----|

Speciated Mercury (Dry Weight)

|                                              |       |       |      |       |
|----------------------------------------------|-------|-------|------|-------|
| Inorganic Mercury                            | mg/kg | 0.005 | NONE | 4.687 |
| Organo-Mercury Species (including Methyl Hg) | mg/kg | 0.005 | NONE | 0.014 |
| Elemental Mercury                            | mg/kg | 0.005 | NONE | 0.006 |

|                         |       |       |      |         |
|-------------------------|-------|-------|------|---------|
| F1 - Water soluble      | mg/kg | 0.005 | NONE | < 0.005 |
| F2 - Weak acid          | mg/kg | 0.005 | NONE | < 0.005 |
| F3 - Organo- complexed  | mg/kg | 0.005 | NONE | 0.014   |
| F4 - Strongly complexed | mg/kg | 0.005 | NONE | 0.006   |
| F5 - Mineral bound      | mg/kg | 0.005 | NONE | 4.686   |

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



**Analytical Report Number : 24-049982**  
**Project / Site name: Castleton Sidings**

\* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

| Lab Sample Number | Sample Reference | Sample Number | Depth (m)     | Sample Description *                |
|-------------------|------------------|---------------|---------------|-------------------------------------|
| 359554            | HS1 NORTH        | None Supplied | None Supplied | Brown sand with coal and vegetation |
| 359555            | HS1 EAST         | None Supplied | None Supplied | Brown sand with coal and vegetation |
| 359556            | HS1 SOUTH        | None Supplied | None Supplied | Brown sand with coal and vegetation |
| 359557            | HS1 WEST         | None Supplied | None Supplied | Brown sand with coal                |
| 359558            | HS1 BASE         | None Supplied | None Supplied | Brown sand with coal and vegetation |
| 359559            | HS1 ARISINGS     | None Supplied | None Supplied | Brown sand with coal and vegetation |



Analytical Report Number : 24-049982  
Project / Site name: Castleton Sidings

Water matrix abbreviations:  
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

| Analytical Test Name                       | Analytical Method Description                                                                                              | Analytical Method Reference                                                         | Method number | Wet / Dry Analysis | Accreditation Status |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------|--------------------|----------------------|
| Moisture Content                           | Moisture content, determined gravimetrically (up to 30°C)                                                                  | In-house method                                                                     | L019B         | W                  | NONE                 |
| Stones content of soil                     | Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight | In-house method based on British Standard Methods and MCERTS requirements.          | L019B         | D                  | NONE                 |
| Metals in soil by ICP-OES                  | Determination of metals in soil by aqua-regia digestion followed by ICP-OES                                                | In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil | L038B         | D                  | MCERTS               |
| Speciated Mercury in soil by PSA Millenium | Determination of Speciated Mercury in soil by PSA Millenium                                                                | In-house method                                                                     | L085B         | D                  | NONE                 |

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).  
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).  
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.  
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.  
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.  
The result for sum should be interpreted with caution



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## **Analytical Report Number : 24-051134**

|                             |                            |                                                        |            |
|-----------------------------|----------------------------|--------------------------------------------------------|------------|
| <b>Project / Site name:</b> | Castleton Sidings, Heywood | <b>Samples received on:</b>                            | 30/10/2024 |
| <b>Your job number:</b>     | 14 768                     | <b>Samples instructed on/<br/>Analysis started on:</b> | 30/10/2024 |
| <b>Your order number:</b>   | 009891                     | <b>Analysis completed by:</b>                          | 13/11/2024 |
| <b>Report Issue Number:</b> | 1                          | <b>Report issued on:</b>                               | 14/11/2024 |
| <b>Samples Analysed:</b>    | 3 soil samples             |                                                        |            |

  
**Signed:**

Matthew O'Connell  
Key Account Manager  
**For & on behalf of i2 Analytical Ltd.**

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

|           |                           |
|-----------|---------------------------|
| soils     | - 4 weeks from reporting  |
| leachates | - 2 weeks from reporting  |
| waters    | - 2 weeks from reporting  |
| asbestos  | - 6 months from reporting |

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.  
Application of uncertainty of measurement would provide a range within which the true result lies.  
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 24-051134  
 Project / Site name: Castleton Sidings, Heywood  
 Your Order No: 009891

|                                         |               |                            |                              |
|-----------------------------------------|---------------|----------------------------|------------------------------|
| Lab Sample Number                       | 365532        | 365533                     | 365534                       |
| Sample Reference                        | MG-BF-104     | MG-BF-109                  | MG-BF-110                    |
| Sample Number                           | None Supplied | None Supplied              | None Supplied                |
| Depth (m)                               | None Supplied | None Supplied              | None Supplied                |
| Date Sampled                            | Deviating     | Deviating                  | Deviating                    |
| Time Taken                              | None Supplied | None Supplied              | None Supplied                |
| Analytical Parameter<br>(Soil Analysis) | Units         | Test Limit of<br>detection | Test Accreditation<br>Status |

|                               |    |      |      |      |      |     |
|-------------------------------|----|------|------|------|------|-----|
| Stone Content                 | %  | 0.1  | NONE | 24.6 | 33.5 | 18  |
| Moisture Content              | %  | 0.01 | NONE | 22   | 25   | 29  |
| Total mass of sample received | kg | 0.1  | NONE | 0.3  | 0.2  | 0.3 |

#### Heavy Metals / Metalloids

|                                  |       |     |        |     |     |    |
|----------------------------------|-------|-----|--------|-----|-----|----|
| Mercury (aqua regia extractable) | mg/kg | 0.3 | MCERTS | 3.8 | 9.9 | 15 |
|----------------------------------|-------|-----|--------|-----|-----|----|

#### Speciated Mercury (Dry Weight)

|                                              |       |       |      |       |       |       |
|----------------------------------------------|-------|-------|------|-------|-------|-------|
| Inorganic Mercury                            | mg/kg | 0.005 | NONE | 2.163 | 6.333 | 12.2  |
| Organo-Mercury Species (including Methyl Hg) | mg/kg | 0.005 | NONE | 0.136 | 0.144 | 0.182 |
| Elemental Mercury                            | mg/kg | 0.005 | NONE | 0.261 | 0.496 | 0.852 |

|                         |       |       |      |         |         |         |
|-------------------------|-------|-------|------|---------|---------|---------|
| F1 - Water soluble      | mg/kg | 0.005 | NONE | < 0.005 | < 0.005 | < 0.005 |
| F2 - Weak acid          | mg/kg | 0.005 | NONE | < 0.005 | < 0.005 | < 0.005 |
| F3 - Organo- complexed  | mg/kg | 0.005 | NONE | 0.136   | 0.144   | 0.182   |
| F4 - Strongly complexed | mg/kg | 0.005 | NONE | 0.261   | 0.496   | 0.852   |
| F5 - Mineral bound      | mg/kg | 0.005 | NONE | 2.16    | 6.33    | 12.19   |

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

**Analytical Report Number : 24-051134**

**Project / Site name: Castleton Sidings, Heywood**

\* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

| Lab Sample Number | Sample Reference | Sample Number | Depth (m)     | Sample Description *                          |
|-------------------|------------------|---------------|---------------|-----------------------------------------------|
| 365532            | MG-BF-104        | None Supplied | None Supplied | Brown loam and gravel with clinker and stones |
| 365533            | MG-BF-109        | None Supplied | None Supplied | Brown loam and gravel with clinker and stones |
| 365534            | MG-BF-110        | None Supplied | None Supplied | Brown loam and gravel with clinker and stones |

**Analytical Report Number : 24-051134**  
**Project / Site name: Castleton Sidings, Heywood**

**Water matrix abbreviations:**

**Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)**

| Analytical Test Name                       | Analytical Method Description                                                                                              | Analytical Method Reference                                                         | Method number | Wet / Dry Analysis | Accreditation Status |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------|--------------------|----------------------|
| Moisture Content                           | Moisture content, determined gravimetrically (up to 30°C)                                                                  | In-house method                                                                     | L019B         | W                  | NONE                 |
| Stones content of soil                     | Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight | In-house method based on British Standard Methods and MCERTS requirements.          | L019B         | D                  | NONE                 |
| Metals in soil by ICP-OES                  | Determination of metals in soil by aqua-regia digestion followed by ICP-OES                                                | In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil | L038B         | D                  | MCERTS               |
| Speciated Mercury in soil by PSA Millenium | Determination of Speciated Mercury in soil by PSA Millenium                                                                | In-house method                                                                     | L085B         | D                  | NONE                 |

**For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).**

**For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).**

**For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.**

**Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.**

**Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.**

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

**Analytical Report Number : 24-051134**

**Project / Site name: Castleton Sidings, Heywood**

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

| Sample ID | Other ID | Sample Type | Lab Sample Number | Sample Deviation | Test Name                                  | Test Ref | Test Deviation |
|-----------|----------|-------------|-------------------|------------------|--------------------------------------------|----------|----------------|
| MG-BF-104 | N/A      | S           | 365532            | a                | Metals in soil by ICP-OES                  | L038B    | a              |
| MG-BF-104 | N/A      | S           | 365532            | a                | Speciated Mercury in soil by PSA Millenium | L085B    | a              |
| MG-BF-109 | N/A      | S           | 365533            | a                | Metals in soil by ICP-OES                  | L038B    | a              |
| MG-BF-109 | N/A      | S           | 365533            | a                | Speciated Mercury in soil by PSA Millenium | L085B    | a              |
| MG-BF-110 | N/A      | S           | 365534            | a                | Metals in soil by ICP-OES                  | L038B    | a              |
| MG-BF-110 | N/A      | S           | 365534            | a                | Speciated Mercury in soil by PSA Millenium | L085B    | a              |



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## **Analytical Report Number : 24-052735**

|                             |                   |                                                        |            |
|-----------------------------|-------------------|--------------------------------------------------------|------------|
| <b>Project / Site name:</b> | Castleton Sidings | <b>Samples received on:</b>                            | 08/11/2024 |
| <b>Your job number:</b>     | 14-768            | <b>Samples instructed on/<br/>Analysis started on:</b> | 08/11/2024 |
| <b>Your order number:</b>   | 009986            | <b>Analysis completed by:</b>                          | 22/11/2024 |
| <b>Report Issue Number:</b> | 1                 | <b>Report issued on:</b>                               | 22/11/2024 |
| <b>Samples Analysed:</b>    | 4 soil samples    |                                                        |            |

  
**Signed:**

Trevor Hill  
Customer Service Advisor  
**For & on behalf of i2 Analytical Ltd.**

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting  
leachates - 2 weeks from reporting  
waters - 2 weeks from reporting  
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.  
Application of uncertainty of measurement would provide a range within which the true result lies.  
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 24-052735  
 Project / Site name: Castleton Sidings  
 Your Order No: 009986

| Lab Sample Number                       |  |  |  | 373566        | 373567                     | 373568                       | 373569        |
|-----------------------------------------|--|--|--|---------------|----------------------------|------------------------------|---------------|
| Sample Reference                        |  |  |  | MERCURY 111   | MERCURY 112                | MERCURY 113                  | MERCURY 114   |
| Sample Number                           |  |  |  | None Supplied | None Supplied              | None Supplied                | None Supplied |
| Depth (m)                               |  |  |  | None Supplied | None Supplied              | None Supplied                | None Supplied |
| Date Sampled                            |  |  |  | Deviating     | Deviating                  | Deviating                    | Deviating     |
| Time Taken                              |  |  |  | None Supplied | None Supplied              | None Supplied                | None Supplied |
| Analytical Parameter<br>(Soil Analysis) |  |  |  | Units         | Test Limit of<br>detection | Test Accreditation<br>Status |               |

|                               |    |      |      |       |       |       |      |
|-------------------------------|----|------|------|-------|-------|-------|------|
| Stone Content                 | %  | 0.1  | NONE | < 0.1 | < 0.1 | < 0.1 | 40.8 |
| Moisture Content              | %  | 0.01 | NONE | 18    | 16    | 17    | 11   |
| Total mass of sample received | kg | 0.1  | NONE | 0.7   | 0.7   | 0.6   | 0.7  |

#### Heavy Metals / Metalloids

|                                  |       |     |        |     |       |       |       |
|----------------------------------|-------|-----|--------|-----|-------|-------|-------|
| Mercury (aqua regia extractable) | mg/kg | 0.3 | MCERTS | 1.9 | < 0.3 | < 0.3 | < 0.3 |
|----------------------------------|-------|-----|--------|-----|-------|-------|-------|

#### Speciated Mercury (Dry Weight)

|                                              |       |       |      |       |   |   |   |
|----------------------------------------------|-------|-------|------|-------|---|---|---|
| Inorganic Mercury                            | mg/kg | 0.005 | NONE | 1.492 | - | - | - |
| Organo-Mercury Species (including Methyl Hg) | mg/kg | 0.005 | NONE | 0.029 | - | - | - |
| Elemental Mercury                            | mg/kg | 0.005 | NONE | 0.22  | - | - | - |

|                         |       |       |      |         |   |   |   |
|-------------------------|-------|-------|------|---------|---|---|---|
| F1 - Water soluble      | mg/kg | 0.005 | NONE | < 0.005 | - | - | - |
| F2 - Weak acid          | mg/kg | 0.005 | NONE | < 0.005 | - | - | - |
| F3 - Organo- complexed  | mg/kg | 0.005 | NONE | 0.029   | - | - | - |
| F4 - Strongly complexed | mg/kg | 0.005 | NONE | 0.22    | - | - | - |
| F5 - Mineral bound      | mg/kg | 0.005 | NONE | 1.489   | - | - | - |

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

**Analytical Report Number : 24-052735**

**Project / Site name: Castleton Sidings**

\* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

| Lab Sample Number | Sample Reference | Sample Number | Depth (m)     | Sample Description *                           |
|-------------------|------------------|---------------|---------------|------------------------------------------------|
| 373566            | MERCURY 111      | None Supplied | None Supplied | Brown sand with gravel                         |
| 373567            | MERCURY 112      | None Supplied | None Supplied | Brown sand with gravel                         |
| 373568            | MERCURY 113      | None Supplied | None Supplied | Brown loam and sand with gravel and vegetation |
| 373569            | MERCURY 114      | None Supplied | None Supplied | Brown sand with gravel and stones              |

**Analytical Report Number : 24-052735**

**Project / Site name: Castleton Sidings**

**Water matrix abbreviations:**

**Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)**

| Analytical Test Name                       | Analytical Method Description                                                                                              | Analytical Method Reference                                                         | Method number | Wet / Dry Analysis | Accreditation Status |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------|--------------------|----------------------|
| Moisture Content                           | Moisture content, determined gravimetrically (up to 30°C)                                                                  | In-house method                                                                     | L019B         | W                  | NONE                 |
| Stones content of soil                     | Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight | In-house method based on British Standard Methods and MCERTS requirements.          | L019B         | D                  | NONE                 |
| Metals in soil by ICP-OES                  | Determination of metals in soil by aqua-regia digestion followed by ICP-OES                                                | In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil | L038B         | D                  | MCERTS               |
| Speciated Mercury in soil by PSA Millenium | Determination of Speciated Mercury in soil by PSA Millenium                                                                | In-house method                                                                     | L085B         | D                  | NONE                 |

**For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).**

**For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).**

**For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.**

**Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.**

**Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.**

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

**Analytical Report Number : 24-052735**

**Project / Site name: Castleton Sidings**

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

| Sample ID   | Other ID | Sample Type | Lab Sample Number | Sample Deviation | Test Name                                  | Test Ref | Test Deviation |
|-------------|----------|-------------|-------------------|------------------|--------------------------------------------|----------|----------------|
| MERCURY 111 | N/A      | S           | 373566            | a                | Metals in soil by ICP-OES                  | L038B    | a              |
| MERCURY 111 | N/A      | S           | 373566            | a                | Speciated Mercury in soil by PSA Millenium | L085B    | a              |
| MERCURY 112 | N/A      | S           | 373567            | a                | Metals in soil by ICP-OES                  | L038B    | a              |
| MERCURY 113 | N/A      | S           | 373568            | a                | Metals in soil by ICP-OES                  | L038B    | a              |
| MERCURY 114 | N/A      | S           | 373569            | a                | Metals in soil by ICP-OES                  | L038B    | a              |



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## **Analytical Report Number : 24-056801**

Replaces Analytical Report Number: 24-056801, issue no. 1  
Client references/information amended.  
Sample ID Amended for sample 395126 as per clients request

|                             |                   |                                                        |            |
|-----------------------------|-------------------|--------------------------------------------------------|------------|
| <b>Project / Site name:</b> | Castleton Sidings | <b>Samples received on:</b>                            | 29/11/2024 |
| <b>Your job number:</b>     | 14-768            | <b>Samples instructed on/<br/>Analysis started on:</b> | 29/11/2024 |
| <b>Your order number:</b>   | 010147            | <b>Analysis completed by:</b>                          | 12/12/2024 |
| <b>Report Issue Number:</b> | 2                 | <b>Report issued on:</b>                               | 18/12/2024 |
| <b>Samples Analysed:</b>    | 2 soil samples    |                                                        |            |



**Signed:**

Arslaan Saleem  
Customer Service Advisor  
**For & on behalf of i2 Analytical Ltd.**

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

|           |                                 |
|-----------|---------------------------------|
| soils     | - 4 weeks from reporting        |
| leachates | - 2 weeks from reporting        |
| waters    | - 2 weeks from reporting        |
| asbestos  | - 6 months from reporting       |
| air       | - once the analysis is complete |

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.  
Application of uncertainty of measurement would provide a range within which the true result lies.  
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 24-056801  
Project / Site name: Castleton Sidings  
Your Order No: 010147

|                                         |               |                            |                              |               |  |
|-----------------------------------------|---------------|----------------------------|------------------------------|---------------|--|
| Lab Sample Number                       | 395126        |                            |                              | 395127        |  |
| Sample Reference                        | MERCURY 116   |                            |                              | MERCURY 115   |  |
| Sample Number                           | None Supplied |                            |                              | None Supplied |  |
| Water Matrix                            | N/A           |                            |                              | N/A           |  |
| Depth (m)                               | None Supplied |                            |                              | None Supplied |  |
| Date Sampled                            | 28/11/2024    |                            |                              | 28/11/2024    |  |
| Time Taken                              | None Supplied |                            |                              | None Supplied |  |
| Analytical Parameter<br>(Soil Analysis) | Units         | Test Limit of<br>detection | Test Accreditation<br>Status |               |  |

|                               |    |      |      |      |      |
|-------------------------------|----|------|------|------|------|
| Stone Content                 | %  | 0.1  | NONE | 48.7 | 58.8 |
| Moisture Content              | %  | 0.01 | NONE | 18   | 18   |
| Total mass of sample received | kg | 0.1  | NONE | 0.7  | 0.7  |

#### Heavy Metals / Metalloids

|                                  |       |     |        |   |    |
|----------------------------------|-------|-----|--------|---|----|
| Mercury (aqua regia extractable) | mg/kg | 0.3 | MCERTS | 2 | 13 |
|----------------------------------|-------|-----|--------|---|----|

#### Speciated Mercury (Dry Weight)

|                                              |       |       |      |       |       |
|----------------------------------------------|-------|-------|------|-------|-------|
| Inorganic Mercury                            | mg/kg | 0.005 | NONE | 2.931 | 12.64 |
| Organo-Mercury Species (including Methyl Hg) | mg/kg | 0.005 | NONE | 0.353 | 0.241 |
| Elemental Mercury                            | mg/kg | 0.005 | NONE | 0.159 | 0.301 |

|                         |       |       |      |         |         |
|-------------------------|-------|-------|------|---------|---------|
| F1 - Water soluble      | mg/kg | 0.005 | NONE | < 0.005 | < 0.005 |
| F2 - Weak acid          | mg/kg | 0.005 | NONE | < 0.005 | < 0.005 |
| F3 - Organo- complexed  | mg/kg | 0.005 | NONE | 0.353   | 0.241   |
| F4 - Strongly complexed | mg/kg | 0.005 | NONE | 0.159   | 0.301   |
| F5 - Mineral bound      | mg/kg | 0.005 | NONE | 2.929   | 12.64   |

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

**Analytical Report Number : 24-056801**

**Project / Site name: Castleton Sidings**

\* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

| Lab Sample Number | Sample Reference | Sample Number | Depth (m)     | Sample Description *            |
|-------------------|------------------|---------------|---------------|---------------------------------|
| 395126            | MERCURY 116      | None Supplied | None Supplied | Brown gravelly sand with stones |
| 395127            | MERCURY 115      | None Supplied | None Supplied | Brown gravelly sand with stones |

**Analytical Report Number : 24-056801**

**Project / Site name: Castleton Sidings**

**Water matrix abbreviations:**

**Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)**

**Final Sewage Effluent (FSE) Landfill Leachate (LL)**

| Analytical Test Name                       | Analytical Method Description                                                                                              | Analytical Method Reference                                                         | Method number | Wet / Dry Analysis | Accreditation Status |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------|--------------------|----------------------|
| Moisture Content                           | Moisture content, determined gravimetrically (up to 30°C)                                                                  | In-house method                                                                     | L019B         | W                  | NONE                 |
| Stones content of soil                     | Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight | In-house method based on British Standard Methods and MCERTS requirements.          | L019B         | D                  | NONE                 |
| Metals in soil by ICP-OES                  | Determination of metals in soil by aqua-regia digestion followed by ICP-OES                                                | In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil | L038B         | D                  | MCERTS               |
| Speciated Mercury in soil by PSA Millenium | Determination of Speciated Mercury in soil by PSA Millenium                                                                | In-house method                                                                     | L085B         | D                  | NONE                 |

**For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).**

**For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).**

**For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.**

**Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.**

**Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.**

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

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## **Analytical Report Number : 24-059202**

|                             |                   |                                                        |            |
|-----------------------------|-------------------|--------------------------------------------------------|------------|
| <b>Project / Site name:</b> | Castleton Sidings | <b>Samples received on:</b>                            | 12/12/2024 |
| <b>Your job number:</b>     | 14 768            | <b>Samples instructed on/<br/>Analysis started on:</b> | 12/12/2024 |
| <b>Your order number:</b>   | 010221            | <b>Analysis completed by:</b>                          | 18/12/2024 |
| <b>Report Issue Number:</b> | 1                 | <b>Report issued on:</b>                               | 18/12/2024 |
| <b>Samples Analysed:</b>    | 2 soil samples    |                                                        |            |

**Signed:**



Dominika Liana  
Junior Reporting Specialist  
**For & on behalf of i2 Analytical Ltd.**

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

|           |                                 |
|-----------|---------------------------------|
| soils     | - 4 weeks from reporting        |
| leachates | - 2 weeks from reporting        |
| waters    | - 2 weeks from reporting        |
| asbestos  | - 6 months from reporting       |
| air       | - once the analysis is complete |

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.  
Application of uncertainty of measurement would provide a range within which the true result lies.  
An estimate of measurement uncertainty can be provided on request.





Analytical Report Number: 24-059202  
Project / Site name: Castleton Sidings  
Your Order No: 010221

|                                         |       |                            |                              |               |               |
|-----------------------------------------|-------|----------------------------|------------------------------|---------------|---------------|
| Lab Sample Number                       |       |                            |                              | 406902        | 406903        |
| Sample Reference                        |       |                            |                              | MERCURY 117   | MERCURY 118   |
| Sample Number                           |       |                            |                              | None Supplied | None Supplied |
| Water Matrix                            |       |                            |                              | N/A           | N/A           |
| Depth (m)                               |       |                            |                              | None Supplied | None Supplied |
| Date Sampled                            |       |                            |                              | 11/12/2024    | 11/12/2024    |
| Time Taken                              |       |                            |                              | None Supplied | None Supplied |
| Analytical Parameter<br>(Soil Analysis) | Units | Test Limit of<br>detection | Test Accreditation<br>Status |               |               |

|                               |    |      |      |      |     |
|-------------------------------|----|------|------|------|-----|
| Stone Content                 | %  | 0.1  | NONE | 36.4 | 9.8 |
| Moisture Content              | %  | 0.01 | NONE | 14   | 12  |
| Total mass of sample received | kg | 0.1  | NONE | 0.7  | 0.6 |

Heavy Metals / Metalloids

|                                  |       |     |        |       |       |
|----------------------------------|-------|-----|--------|-------|-------|
| Mercury (aqua regia extractable) | mg/kg | 0.3 | MCERTS | < 0.3 | < 0.3 |
|----------------------------------|-------|-----|--------|-------|-------|

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



**Analytical Report Number : 24-059202**  
**Project / Site name: Castleton Sidings**

\* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

| Lab Sample Number | Sample Reference | Sample Number | Depth (m)     | Sample Description *                       |
|-------------------|------------------|---------------|---------------|--------------------------------------------|
| 406902            | MERCURY 117      | None Supplied | None Supplied | Brown loam with gravel and stones          |
| 406903            | MERCURY 118      | None Supplied | None Supplied | Brown loam and sand with gravel and stones |



Analytical Report Number : 24-059202  
Project / Site name: Castleton Sidings

Water matrix abbreviations:  
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)  
Final Sewage Effluent (FSE) Landfill Leachate (LL)

| Analytical Test Name      | Analytical Method Description                                                                                              | Analytical Method Reference                                                         | Method number | Wet / Dry Analysis | Accreditation Status |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------|--------------------|----------------------|
| Moisture Content          | Moisture content, determined gravimetrically (up to 30°C)                                                                  | In-house method                                                                     | L019B         | W                  | NONE                 |
| Stones content of soil    | Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight | In-house method based on British Standard Methods and MCERTS requirements.          | L019B         | D                  | NONE                 |
| Metals in soil by ICP-OES | Determination of metals in soil by aqua-regia digestion followed by ICP-OES                                                | In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil | L038B         | D                  | MCERTS               |

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).  
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).  
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.  
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.  
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.  
The result for sum should be interpreted with caution



# Final Report

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**Report No.:** 24-36556-1

**Initial Date of Issue:** 14-Nov-2024

**Re-Issue Details:**

**Client** E3P

**Client Address:** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contact(s):** hmason@e3p.co.uk;  
jsheridan@e3p.co.uk

**Project** 14-768 Castleton Sidings - SW 6F

**Quotation No.:** Q23-31421

**Date Received:** 08-Nov-2024

**Order No.:** 009982

**Date Instructed:** 08-Nov-2024

**No. of Samples:** 1

**Turnaround (Wkdays):** 5

**Results Due:** 14-Nov-2024

**Date Approved:** 14-Nov-2024

**Approved By:**

**Details:** David Smith, Technical Director

**For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report**

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## Results - Soil

**Project: 14-768 Castleton Sidings - SW 6F**

| <b>Client: E3P</b>                  |             | <b>Chemtest Job No.:</b>    |      | 24-36556    |       |                      |
|-------------------------------------|-------------|-----------------------------|------|-------------|-------|----------------------|
| Quotation No.: Q23-31421            |             | <b>Chemtest Sample ID.:</b> |      | 1892824     |       |                      |
|                                     |             | Client Sample ID.:          |      | SW 6F 101   |       |                      |
|                                     |             | Sample Type:                |      | SOIL        |       |                      |
|                                     |             | Date Sampled:               |      | 07-Nov-2024 |       |                      |
|                                     |             | Time Sampled:               |      | 12:00       |       |                      |
|                                     |             | Asbestos Lab:               |      | DURHAM      |       |                      |
| Determinand                         | HWOL Code   | Accred.                     | SOP  | Units       | LOD   |                      |
| ACM Type                            |             | U                           | 2192 |             | N/A   | -                    |
| Asbestos Identification             |             | U                           | 2192 |             | N/A   | No Asbestos Detected |
| Moisture                            |             | N                           | 2030 | %           | 0.020 | 5.6                  |
| Soil Colour                         |             | N                           | 2040 |             | N/A   | Brown                |
| Other Material                      |             | N                           | 2040 |             | N/A   | Stones and Roots     |
| Soil Texture                        |             | N                           | 2040 |             | N/A   | Sand                 |
| pH at 20C                           |             | M                           | 2010 |             | 4.0   | > 12.0               |
| Sulphate (2:1 Water Soluble) as SO4 |             | M                           | 2120 | g/l         | 0.010 | 0.21                 |
| Total Sulphur                       |             | U                           | 2175 | %           | 0.010 | 0.13                 |
| Cyanide (Total)                     |             | M                           | 2300 | mg/kg       | 0.50  | < 0.50               |
| Sulphide (Easily Liberatable)       |             | N                           | 2325 | mg/kg       | 0.50  | 5.5                  |
| Sulphate (Total)                    |             | U                           | 2430 | %           | 0.010 | 0.32                 |
| Arsenic                             |             | M                           | 2455 | mg/kg       | 0.5   | 5.4                  |
| Cadmium                             |             | M                           | 2455 | mg/kg       | 0.10  | 0.44                 |
| Chromium                            |             | M                           | 2455 | mg/kg       | 0.5   | 29                   |
| Copper                              |             | M                           | 2455 | mg/kg       | 0.50  | 29                   |
| Mercury                             |             | M                           | 2455 | mg/kg       | 0.05  | 0.41                 |
| Nickel                              |             | M                           | 2455 | mg/kg       | 0.50  | 18                   |
| Lead                                |             | M                           | 2455 | mg/kg       | 0.50  | 67                   |
| Selenium                            |             | M                           | 2455 | mg/kg       | 0.25  | 0.41                 |
| Zinc                                |             | M                           | 2455 | mg/kg       | 0.50  | 64                   |
| Chromium (Hexavalent)               |             | N                           | 2490 | mg/kg       | 0.50  | < 0.50               |
| Organic Matter                      |             | M                           | 2625 | %           | 0.40  | 4.3                  |
| Total Organic Carbon                |             | M                           | 2625 | %           | 0.20  | 2.5                  |
| TPH >C6-C8                          | EH_1D_Total | N                           | 2670 | mg/kg       | 1.0   | < 1.0                |
| TPH >C8-C10                         | EH_1D_Total | N                           | 2670 | mg/kg       | 1.0   | < 1.0                |
| TPH >C10-C12                        | EH_1D_Total | N                           | 2670 | mg/kg       | 1.0   | 6.8                  |
| TPH >C12-C16                        | EH_1D_Total | N                           | 2670 | mg/kg       | 1.0   | 12                   |
| TPH >C16-C21                        | EH_1D_Total | N                           | 2670 | mg/kg       | 1.0   | 28                   |
| TPH >C21-C25                        | EH_1D_Total | N                           | 2670 | mg/kg       | 1.0   | 15                   |
| TPH >C25-C35                        | EH_1D_Total | N                           | 2670 | mg/kg       | 1.0   | 110                  |
| TPH >C35-C40                        | EH_1D_Total | N                           | 2670 | mg/kg       | 1.0   | 44                   |
| Total TPH >C6-C40                   | EH_1D_Total | U                           | 2670 | mg/kg       | 10    | 210                  |
| Naphthalene                         |             | M                           | 2800 | mg/kg       | 0.10  | 0.70                 |
| Acenaphthylene                      |             | N                           | 2800 | mg/kg       | 0.10  | < 0.10               |
| Acenaphthene                        |             | M                           | 2800 | mg/kg       | 0.10  | 0.38                 |
| Fluorene                            |             | M                           | 2800 | mg/kg       | 0.10  | 0.30                 |



## Results - Soil

**Project: 14-768 Castleton Sidings - SW 6F**

| <b>Client: E3P</b>       |           | <b>Chemtest Job No.:</b>    |      | 24-36556    |      |        |
|--------------------------|-----------|-----------------------------|------|-------------|------|--------|
| Quotation No.: Q23-31421 |           | <b>Chemtest Sample ID.:</b> |      | 1892824     |      |        |
|                          |           | Client Sample ID.:          |      | SW 6F 101   |      |        |
|                          |           | Sample Type:                |      | SOIL        |      |        |
|                          |           | Date Sampled:               |      | 07-Nov-2024 |      |        |
|                          |           | Time Sampled:               |      | 12:00       |      |        |
|                          |           | Asbestos Lab:               |      | DURHAM      |      |        |
| Determinand              | HWOL Code | Accred.                     | SOP  | Units       | LOD  |        |
| Phenanthrene             |           | M                           | 2800 | mg/kg       | 0.10 | 2.8    |
| Anthracene               |           | M                           | 2800 | mg/kg       | 0.10 | 0.64   |
| Fluoranthene             |           | M                           | 2800 | mg/kg       | 0.10 | 3.5    |
| Pyrene                   |           | M                           | 2800 | mg/kg       | 0.10 | 3.3    |
| Benzo[a]anthracene       |           | M                           | 2800 | mg/kg       | 0.10 | 1.5    |
| Chrysene                 |           | M                           | 2800 | mg/kg       | 0.10 | 1.8    |
| Benzo[b]fluoranthene     |           | M                           | 2800 | mg/kg       | 0.10 | 2.2    |
| Benzo[k]fluoranthene     |           | M                           | 2800 | mg/kg       | 0.10 | 0.75   |
| Benzo[a]pyrene           |           | M                           | 2800 | mg/kg       | 0.10 | 1.9    |
| Indeno(1,2,3-c,d)Pyrene  |           | M                           | 2800 | mg/kg       | 0.10 | 1.2    |
| Dibenz(a,h)Anthracene    |           | N                           | 2800 | mg/kg       | 0.10 | < 0.10 |
| Benzo[g,h,i]perylene     |           | M                           | 2800 | mg/kg       | 0.10 | 1.4    |
| Total Of 16 PAH's        |           | N                           | 2800 | mg/kg       | 2.0  | 22     |
| Total Phenols            |           | M                           | 2920 | mg/kg       | 0.10 | 0.10   |

## Test Methods

| SOP  | Title                                                              | Parameters included                                                                                                                                                                                                                                                       | Method summary                                                                                                                                                                         | Water Accred. |
|------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 2010 | pH Value of Soils                                                  | pH at 20°C                                                                                                                                                                                                                                                                | pH Meter                                                                                                                                                                               |               |
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS)         | Moisture content                                                                                                                                                                                                                                                          | Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.                                                                                   |               |
| 2040 | Soil Description(Requirement of MCERTS)                            | Soil description                                                                                                                                                                                                                                                          | As received soil is described based upon BS5930                                                                                                                                        |               |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium                | Boron; Sulphate; Magnesium; Chromium                                                                                                                                                                                                                                      | Aqueous extraction / ICP-OES                                                                                                                                                           |               |
| 2175 | Total Sulphur in Soils                                             | Total Sulphur                                                                                                                                                                                                                                                             | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.                                                                                             |               |
| 2192 | Asbestos                                                           | Asbestos                                                                                                                                                                                                                                                                  | Polarised light microscopy / Gravimetry                                                                                                                                                |               |
| 2300 | Cyanides & Thiocyanate in Soils                                    | Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate                                                                                                                                                                                           | Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.                                                                                    |               |
| 2325 | Sulphide in Soils                                                  | Sulphide                                                                                                                                                                                                                                                                  | Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.                                                           |               |
| 2430 | Total Sulphate in soils                                            | Total Sulphate                                                                                                                                                                                                                                                            | Acid digestion followed by determination of sulphate in extract by ICP-OES.                                                                                                            |               |
| 2455 | Acid Soluble Metals in Soils                                       | Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc                                                                                                                  | Acid digestion followed by determination of metals in extract by ICP-MS.                                                                                                               |               |
| 2490 | Hexavalent Chromium in Soils                                       | Chromium [VI]                                                                                                                                                                                                                                                             | Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine. |               |
| 2625 | Total Organic Carbon in Soils                                      | Total organic Carbon (TOC)                                                                                                                                                                                                                                                | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.                                                                                             |               |
| 2670 | Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID              | TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40                                                                                                                                                                                            | Dichloromethane extraction / GC-FID                                                                                                                                                    |               |
| 2800 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS | Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene* | Dichloromethane extraction / GC-MS                                                                                                                                                     |               |
| 2920 | Phenols in Soils by HPLC                                           | Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.                                                                                                                         | 60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.                                                                               |               |

## **Report Information**

### **Key**

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|     |                                                                                                               |
|-----|---------------------------------------------------------------------------------------------------------------|
| U   | UKAS accredited                                                                                               |
| M   | MCERTS and UKAS accredited                                                                                    |
| N   | Unaccredited                                                                                                  |
| S   | This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis     |
| SN  | This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis |
| T   | This analysis has been subcontracted to an unaccredited laboratory                                            |
| I/S | Insufficient Sample                                                                                           |
| U/S | Unsuitable Sample                                                                                             |
| N/E | not evaluated                                                                                                 |
| <   | "less than"                                                                                                   |
| >   | "greater than"                                                                                                |
| SOP | Standard operating procedure                                                                                  |
| LOD | Limit of detection                                                                                            |

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at  $\leq 30^{\circ}\text{C}$  prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

### **Sample Deviation Codes**

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- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

### **Sample Retention and Disposal**

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All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Charges may apply to extended sample storage.

### **Water Sample Category Key for Accreditation**

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- DW - Drinking Water
- GW - Ground Water
- LE - Land Leachate
- NA - Not Applicable

## **Report Information**

PL - Prepared Leachate  
PW - Processed Water  
RE - Recreational Water  
SA - Saline Water  
SW - Surface Water  
TE - Treated Effluent  
TS - Treated Sewage  
UL - Unspecified Liquid

### **Clean Up Codes**

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NC - No Clean Up  
MC - Mathematical Clean Up  
FC - Florisil Clean Up

### **HWOL Acronym System**

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HS - Headspace analysis  
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent  
CU - Clean-up – e.g. by Florisil, silica gel  
1D - GC – Single coil gas chromatography  
Total - Aliphatics & Aromatics  
AL - Aliphatics only  
AR - Aromatic only  
2D - GC-GC – Double coil gas chromatography  
#1 - EH\_2D\_Total but with humics mathematically subtracted  
#2 - EH\_2D\_Total but with fatty acids mathematically subtracted  
+ - Operator to indicate cumulative e.g. EH+EH\_Total or EH\_CU+HS\_Total

If you require extended retention of samples, please email your requirements to:  
[customerservices@chemtest.com](mailto:customerservices@chemtest.com)



# Final Report

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**Report No.:** 24-37744-1

**Initial Date of Issue:** 26-Nov-2024

**Re-Issue Details:**

**Client** E3P

**Client Address:** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contact(s):** jsheridan@e3p.co.uk;  
hmason@e3p.co.uk

**Project** 14-768 Castleton Sidings - SW 6f 102 -  
103

**Quotation No.:** Q23-31421

**Date Received:** 18-Nov-2024

**Order No.:** 010048

**Date Instructed:** 18-Nov-2024

**No. of Samples:** 2

**Turnaround (Wkdays):** 5

**Results Due:** 22-Nov-2024

**Date Approved:** 26-Nov-2024

**Approved By:**

**Details:** David Smith, Technical Director

**For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report**

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## Results - Soil

**Project: 14-768 Castleton Sidings - SW 6f 102 - 103**

|                                     |             |                      |      |       |       |                      |                      |
|-------------------------------------|-------------|----------------------|------|-------|-------|----------------------|----------------------|
| Client: E3P                         |             | Chemtest Job No.:    |      |       |       | 24-37744             | 24-37744             |
| Quotation No.: Q23-31421            |             | Chemtest Sample ID.: |      |       |       | 1897050              | 1897051              |
|                                     |             | Client Sample ID.:   |      |       |       | SW 6F 102            | SW 6F 103            |
|                                     |             | Sample Type:         |      |       |       | SOIL                 | SOIL                 |
|                                     |             | Date Sampled:        |      |       |       | 15-Nov-2024          | 15-Nov-2024          |
|                                     |             | Time Sampled:        |      |       |       | 12:00                | 12:00                |
|                                     |             | Asbestos Lab:        |      |       |       | DURHAM               | DURHAM               |
| Determinand                         | HWOL Code   | Accred.              | SOP  | Units | LOD   |                      |                      |
| ACM Type                            |             | U                    | 2192 |       | N/A   | -                    | -                    |
| Asbestos Identification             |             | U                    | 2192 |       | N/A   | No Asbestos Detected | No Asbestos Detected |
| Moisture                            |             | N                    | 2030 | %     | 0.020 | 1.1                  | 1.5                  |
| Soil Colour                         |             | N                    | 2040 |       | N/A   | Brown                | Brown                |
| Other Material                      |             | N                    | 2040 |       | N/A   | Stones               | Stones               |
| Soil Texture                        |             | N                    | 2040 |       | N/A   | Other                | Other                |
| pH at 20C                           |             | M                    | 2010 |       | 4.0   | 10.9                 | 11.3                 |
| Sulphate (2:1 Water Soluble) as SO4 |             | M                    | 2120 | g/l   | 0.010 | 0.23                 | 0.13                 |
| Total Sulphur                       |             | U                    | 2175 | %     | 0.010 | 0.12                 | 0.10                 |
| Cyanide (Total)                     |             | M                    | 2300 | mg/kg | 0.50  | < 0.50               | < 0.50               |
| Sulphide (Easily Liberatable)       |             | N                    | 2325 | mg/kg | 0.50  | 1.9                  | 2.0                  |
| Sulphate (Total)                    |             | U                    | 2430 | %     | 0.010 | 0.35                 | 0.26                 |
| Arsenic                             |             | M                    | 2455 | mg/kg | 0.5   | 4.6                  | 7.2                  |
| Cadmium                             |             | M                    | 2455 | mg/kg | 0.10  | 0.25                 | 0.24                 |
| Chromium                            |             | M                    | 2455 | mg/kg | 0.5   | 18                   | 18                   |
| Copper                              |             | M                    | 2455 | mg/kg | 0.50  | 19                   | 36                   |
| Mercury                             |             | M                    | 2455 | mg/kg | 0.05  | 0.05                 | 0.13                 |
| Nickel                              |             | M                    | 2455 | mg/kg | 0.50  | 18                   | 16                   |
| Lead                                |             | M                    | 2455 | mg/kg | 0.50  | 21                   | 56                   |
| Selenium                            |             | M                    | 2455 | mg/kg | 0.25  | 0.41                 | 0.40                 |
| Zinc                                |             | M                    | 2455 | mg/kg | 0.50  | 63                   | 83                   |
| Chromium (Hexavalent)               |             | N                    | 2490 | mg/kg | 0.50  | < 0.50               | < 0.50               |
| Organic Matter                      |             | M                    | 2625 | %     | 0.40  | 1.1                  | 4.7                  |
| Total Organic Carbon                |             | M                    | 2625 | %     | 0.20  | 0.61                 | 2.7                  |
| TPH >C6-C8                          | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | < 1.0                | < 1.0                |
| TPH >C8-C10                         | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | < 1.0                | < 1.0                |
| TPH >C10-C12                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | < 1.0                | < 1.0                |
| TPH >C12-C16                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | < 1.0                | < 1.0                |
| TPH >C16-C21                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | 5.3                  | < 1.0                |
| TPH >C21-C25                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | 6.9                  | < 1.0                |
| TPH >C25-C35                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | 6.7                  | < 1.0                |
| TPH >C35-C40                        | EH_1D_Total | N                    | 2670 | mg/kg | 1.0   | < 1.0                | < 1.0                |
| Total TPH >C6-C40                   | EH_1D_Total | U                    | 2670 | mg/kg | 10    | 19                   | < 10                 |
| Naphthalene                         |             | M                    | 2800 | mg/kg | 0.10  | 0.11                 | 0.14                 |
| Acenaphthylene                      |             | N                    | 2800 | mg/kg | 0.10  | < 0.10               | < 0.10               |
| Acenaphthene                        |             | M                    | 2800 | mg/kg | 0.10  | < 0.10               | < 0.10               |
| Fluorene                            |             | M                    | 2800 | mg/kg | 0.10  | < 0.10               | < 0.10               |
| Phenanthrene                        |             | M                    | 2800 | mg/kg | 0.10  | 0.45                 | 0.35                 |

## Results - Soil

**Project: 14-768 Castleton Sidings - SW 6f 102 - 103**

| Client: E3P              |           | Chemtest Job No.:    |      |       |      | 24-37744    | 24-37744    |
|--------------------------|-----------|----------------------|------|-------|------|-------------|-------------|
| Quotation No.: Q23-31421 |           | Chemtest Sample ID.: |      |       |      | 1897050     | 1897051     |
|                          |           | Client Sample ID.:   |      |       |      | SW 6F 102   | SW 6F 103   |
|                          |           | Sample Type:         |      |       |      | SOIL        | SOIL        |
|                          |           | Date Sampled:        |      |       |      | 15-Nov-2024 | 15-Nov-2024 |
|                          |           | Time Sampled:        |      |       |      | 12:00       | 12:00       |
|                          |           | Asbestos Lab:        |      |       |      | DURHAM      | DURHAM      |
| Determinand              | HWOL Code | Accred.              | SOP  | Units | LOD  |             |             |
| Anthracene               |           | M                    | 2800 | mg/kg | 0.10 | 0.14        | < 0.10      |
| Fluoranthene             |           | M                    | 2800 | mg/kg | 0.10 | 0.58        | 0.60        |
| Pyrene                   |           | M                    | 2800 | mg/kg | 0.10 | 0.52        | 0.58        |
| Benzo[a]anthracene       |           | M                    | 2800 | mg/kg | 0.10 | 0.24        | < 0.10      |
| Chrysene                 |           | M                    | 2800 | mg/kg | 0.10 | 0.23        | < 0.10      |
| Benzo[b]fluoranthene     |           | M                    | 2800 | mg/kg | 0.10 | < 0.10      | < 0.10      |
| Benzo[k]fluoranthene     |           | M                    | 2800 | mg/kg | 0.10 | < 0.10      | < 0.10      |
| Benzo[a]pyrene           |           | M                    | 2800 | mg/kg | 0.10 | < 0.10      | < 0.10      |
| Indeno(1,2,3-c,d)Pyrene  |           | M                    | 2800 | mg/kg | 0.10 | < 0.10      | < 0.10      |
| Dibenz(a,h)Anthracene    |           | N                    | 2800 | mg/kg | 0.10 | < 0.10      | < 0.10      |
| Benzo[g,h,i]perylene     |           | M                    | 2800 | mg/kg | 0.10 | < 0.10      | < 0.10      |
| Total Of 16 PAH's        |           | N                    | 2800 | mg/kg | 2.0  | 2.3         | < 2.0       |
| Total Phenols            |           | M                    | 2920 | mg/kg | 0.10 | < 0.10      | < 0.10      |

## Test Methods

| SOP  | Title                                                              | Parameters included                                                                                                                                                                                                                                                       | Method summary                                                                                                                                                                         | Water Accred. |
|------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 2010 | pH Value of Soils                                                  | pH at 20°C                                                                                                                                                                                                                                                                | pH Meter                                                                                                                                                                               |               |
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS)         | Moisture content                                                                                                                                                                                                                                                          | Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.                                                                                   |               |
| 2040 | Soil Description(Requirement of MCERTS)                            | Soil description                                                                                                                                                                                                                                                          | As received soil is described based upon BS5930                                                                                                                                        |               |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium                | Boron; Sulphate; Magnesium; Chromium                                                                                                                                                                                                                                      | Aqueous extraction / ICP-OES                                                                                                                                                           |               |
| 2175 | Total Sulphur in Soils                                             | Total Sulphur                                                                                                                                                                                                                                                             | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.                                                                                             |               |
| 2192 | Asbestos                                                           | Asbestos                                                                                                                                                                                                                                                                  | Polarised light microscopy / Gravimetry                                                                                                                                                |               |
| 2300 | Cyanides & Thiocyanate in Soils                                    | Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate                                                                                                                                                                                           | Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.                                                                                    |               |
| 2325 | Sulphide in Soils                                                  | Sulphide                                                                                                                                                                                                                                                                  | Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.                                                           |               |
| 2430 | Total Sulphate in soils                                            | Total Sulphate                                                                                                                                                                                                                                                            | Acid digestion followed by determination of sulphate in extract by ICP-OES.                                                                                                            |               |
| 2455 | Acid Soluble Metals in Soils                                       | Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc                                                                                                                  | Acid digestion followed by determination of metals in extract by ICP-MS.                                                                                                               |               |
| 2490 | Hexavalent Chromium in Soils                                       | Chromium [VI]                                                                                                                                                                                                                                                             | Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine. |               |
| 2625 | Total Organic Carbon in Soils                                      | Total organic Carbon (TOC)                                                                                                                                                                                                                                                | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.                                                                                             |               |
| 2670 | Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID              | TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40                                                                                                                                                                                            | Dichloromethane extraction / GC-FID                                                                                                                                                    |               |
| 2800 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS | Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene* | Dichloromethane extraction / GC-MS                                                                                                                                                     |               |
| 2920 | Phenols in Soils by HPLC                                           | Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.                                                                                                                         | 60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.                                                                               |               |

## **Report Information**

### **Key**

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|     |                                                                                                               |
|-----|---------------------------------------------------------------------------------------------------------------|
| U   | UKAS accredited                                                                                               |
| M   | MCERTS and UKAS accredited                                                                                    |
| N   | Unaccredited                                                                                                  |
| S   | This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis     |
| SN  | This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis |
| T   | This analysis has been subcontracted to an unaccredited laboratory                                            |
| I/S | Insufficient Sample                                                                                           |
| U/S | Unsuitable Sample                                                                                             |
| N/E | not evaluated                                                                                                 |
| <   | "less than"                                                                                                   |
| >   | "greater than"                                                                                                |
| SOP | Standard operating procedure                                                                                  |
| LOD | Limit of detection                                                                                            |

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at  $\leq 30^{\circ}\text{C}$  prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

### **Sample Deviation Codes**

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- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

### **Sample Retention and Disposal**

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All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Charges may apply to extended sample storage.

### **Water Sample Category Key for Accreditation**

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- DW - Drinking Water
- GW - Ground Water
- LE - Land Leachate
- NA - Not Applicable

## **Report Information**

PL - Prepared Leachate  
PW - Processed Water  
RE - Recreational Water  
SA - Saline Water  
SW - Surface Water  
TE - Treated Effluent  
TS - Treated Sewage  
UL - Unspecified Liquid

### **Clean Up Codes**

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NC - No Clean Up  
MC - Mathematical Clean Up  
FC - Florisil Clean Up

### **HWOL Acronym System**

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HS - Headspace analysis  
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent  
CU - Clean-up – e.g. by Florisil, silica gel  
1D - GC – Single coil gas chromatography  
Total - Aliphatics & Aromatics  
AL - Aliphatics only  
AR - Aromatic only  
2D - GC-GC – Double coil gas chromatography  
#1 - EH\_2D\_Total but with humics mathematically subtracted  
#2 - EH\_2D\_Total but with fatty acids mathematically subtracted  
+ - Operator to indicate cumulative e.g. EH+EH\_Total or EH\_CU+HS\_Total

If you require extended retention of samples, please email your requirements to:  
[customerservices@chemtest.com](mailto:customerservices@chemtest.com)



# Final Report

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**Report No.:** 24-41129-1

**Initial Date of Issue:** 23-Dec-2024

**Re-Issue Details:**

**Client** E3P

**Client Address:** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contact(s):** jsheridan@e3p.co.uk;  
hmason@e3p.co.uk

**Project** 14-768 Castleton Sidings

**Quotation No.:** Q23-31421

**Date Received:** 13-Dec-2024

**Order No.:** 010242

**Date Instructed:** 13-Dec-2024

**No. of Samples:** 3

**Turnaround (Wkdays):** 5

**Results Due:** 19-Dec-2024

**Date Approved:** 23-Dec-2024

**Approved By:**

**Details:** David Smith, Technical Director

**For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report**

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## Results - Soil

**Project: 14-768 Castleton Sidings**

|                                     |                  |                             |            |              |            |                      |                         |                      |
|-------------------------------------|------------------|-----------------------------|------------|--------------|------------|----------------------|-------------------------|----------------------|
| <b>Client: E3P</b>                  |                  | <b>Chemtest Job No.:</b>    |            |              |            | 24-41129             | 24-41129                | 24-41129             |
| Quotation No.: Q23-31421            |                  | <b>Chemtest Sample ID.:</b> |            |              |            | 1909808              | 1909809                 | 1909810              |
|                                     |                  | Client Sample ID.:          |            |              |            | SW 6F 104            | SW 6F 105               | SW 6F 106            |
|                                     |                  | Sample Type:                |            |              |            | SOIL                 | SOIL                    | SOIL                 |
|                                     |                  | Date Sampled:               |            |              |            | 12-Dec-2024          | 12-Dec-2024             | 12-Dec-2024          |
|                                     |                  | Time Sampled:               |            |              |            | 12:00                | 12:00                   | 12:00                |
|                                     |                  | Asbestos Lab:               |            |              |            | DURHAM               | DURHAM                  | DURHAM               |
| <b>Determinand</b>                  | <b>HWOL Code</b> | <b>Accred.</b>              | <b>SOP</b> | <b>Units</b> | <b>LOD</b> |                      |                         |                      |
| ACM Type                            |                  | U                           | 2192       |              | N/A        | -                    | -                       | -                    |
| Asbestos Identification             |                  | U                           | 2192       |              | N/A        | No Asbestos Detected | No Asbestos Detected    | No Asbestos Detected |
| Moisture                            |                  | N                           | 2030       | %            | 0.020      | 6.7                  | 9.5                     | 8.4                  |
| Soil Colour                         |                  | N                           | 2040       |              | N/A        | Brown                | Brown                   | Brown                |
| Other Material                      |                  | N                           | 2040       |              | N/A        | Stones, Roots and    | Stones, Roots, Wood and | Stones, Roots and    |
| Soil Texture                        |                  | N                           | 2040       |              | N/A        | Sand                 | Sand                    | Sand                 |
| pH at 20C                           |                  | M                           | 2010       |              | 4.0        | 12.0                 | 11.5                    | 11.1                 |
| Sulphate (2:1 Water Soluble) as SO4 |                  | M                           | 2120       | g/l          | 0.010      | 0.17                 | 0.32                    | 0.98                 |
| Total Sulphur                       |                  | U                           | 2175       | %            | 0.010      | 0.080                | 0.24                    | 0.31                 |
| Cyanide (Total)                     |                  | M                           | 2300       | mg/kg        | 0.50       | < 0.50               | < 0.50                  | < 0.50               |
| Sulphide (Easily Liberatable)       |                  | N                           | 2325       | mg/kg        | 0.50       | 3.3                  | 1.5                     | 3.5                  |
| Sulphate (Total)                    |                  | U                           | 2430       | %            | 0.010      | 0.44                 | 0.53                    | 0.72                 |
| Arsenic                             |                  | M                           | 2455       | mg/kg        | 0.5        | 15                   | 18                      | 25                   |
| Cadmium                             |                  | M                           | 2455       | mg/kg        | 0.10       | 0.75                 | 0.76                    | 0.76                 |
| Chromium                            |                  | M                           | 2455       | mg/kg        | 0.5        | 30                   | 31                      | 45                   |
| Copper                              |                  | M                           | 2455       | mg/kg        | 0.50       | 100                  | 120                     | 130                  |
| Mercury                             |                  | M                           | 2455       | mg/kg        | 0.05       | 0.47                 | 0.61                    | 1.4                  |
| Nickel                              |                  | M                           | 2455       | mg/kg        | 0.50       | 28                   | 31                      | 48                   |
| Lead                                |                  | M                           | 2455       | mg/kg        | 0.50       | 240                  | 240                     | 240                  |
| Selenium                            |                  | M                           | 2455       | mg/kg        | 0.25       | 0.75                 | 0.81                    | 1.2                  |
| Zinc                                |                  | M                           | 2455       | mg/kg        | 0.50       | 110                  | 170                     | 230                  |
| Chromium (Hexavalent)               |                  | N                           | 2490       | mg/kg        | 0.50       | < 0.50               | < 0.50                  | < 0.50               |
| Organic Matter                      |                  | M                           | 2625       | %            | 0.40       | 7.6                  | 12                      | 7.4                  |
| Total Organic Carbon                |                  | M                           | 2625       | %            | 0.20       | 4.4                  | 7.1                     | 4.3                  |
| TPH >C6-C8                          | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                   | < 1.0                |
| TPH >C8-C10                         | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                   | < 1.0                |
| TPH >C10-C12                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                   | 2.1                  |
| TPH >C12-C16                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | 2.1                  | 4.7                     | 8.7                  |
| TPH >C16-C21                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | 10                   | 24                      | 50                   |
| TPH >C21-C25                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | 13                   | 21                      | 50                   |
| TPH >C25-C35                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | 19                   | 69                      | 110                  |
| TPH >C35-C40                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | 3.1                  | 11                      | 16                   |
| Total TPH >C6-C40                   | EH_1D_Total      | U                           | 2670       | mg/kg        | 10         | 47                   | 130                     | 230                  |
| Naphthalene                         |                  | M                           | 2800       | mg/kg        | 0.10       | 0.64                 | 0.96                    | 0.54                 |
| Acenaphthylene                      |                  | N                           | 2800       | mg/kg        | 0.10       | 0.13                 | 0.13                    | 0.10                 |
| Acenaphthene                        |                  | M                           | 2800       | mg/kg        | 0.10       | 0.12                 | 0.69                    | 0.41                 |

## Results - Soil

**Project: 14-768 Castleton Sidings**

|                          |           |                      |      |       |      |             |             |             |
|--------------------------|-----------|----------------------|------|-------|------|-------------|-------------|-------------|
| Client: E3P              |           | Chemtest Job No.:    |      |       |      | 24-41129    | 24-41129    | 24-41129    |
| Quotation No.: Q23-31421 |           | Chemtest Sample ID.: |      |       |      | 1909808     | 1909809     | 1909810     |
|                          |           | Client Sample ID.:   |      |       |      | SW 6F 104   | SW 6F 105   | SW 6F 106   |
|                          |           | Sample Type:         |      |       |      | SOIL        | SOIL        | SOIL        |
|                          |           | Date Sampled:        |      |       |      | 12-Dec-2024 | 12-Dec-2024 | 12-Dec-2024 |
|                          |           | Time Sampled:        |      |       |      | 12:00       | 12:00       | 12:00       |
|                          |           | Asbestos Lab:        |      |       |      | DURHAM      | DURHAM      | DURHAM      |
| Determinand              | HWOL Code | Accred.              | SOP  | Units | LOD  |             |             |             |
| Fluorene                 |           | M                    | 2800 | mg/kg | 0.10 | 0.36        | 0.58        | 0.38        |
| Phenanthrene             |           | M                    | 2800 | mg/kg | 0.10 | 3.0         | 4.1         | 3.0         |
| Anthracene               |           | M                    | 2800 | mg/kg | 0.10 | 1.1         | 1.9         | 1.8         |
| Fluoranthene             |           | M                    | 2800 | mg/kg | 0.10 | 4.8         | 12          | 14          |
| Pyrene                   |           | M                    | 2800 | mg/kg | 0.10 | 5.5         | 10          | 13          |
| Benzo[a]anthracene       |           | M                    | 2800 | mg/kg | 0.10 | 3.4         | 5.4         | 5.3         |
| Chrysene                 |           | M                    | 2800 | mg/kg | 0.10 | 3.7         | 5.2         | 5.7         |
| Benzo[b]fluoranthene     |           | M                    | 2800 | mg/kg | 0.10 | 5.0         | 5.9         | 6.0         |
| Benzo[k]fluoranthene     |           | M                    | 2800 | mg/kg | 0.10 | 1.8         | 2.6         | 2.5         |
| Benzo[a]pyrene           |           | M                    | 2800 | mg/kg | 0.10 | 5.1         | 4.8         | 5.0         |
| Indeno(1,2,3-c,d)Pyrene  |           | M                    | 2800 | mg/kg | 0.10 | 3.8         | 3.5         | 2.9         |
| Dibenz(a,h)Anthracene    |           | N                    | 2800 | mg/kg | 0.10 | 0.69        | 1.2         | 0.55        |
| Benzo[g,h,i]perylene     |           | M                    | 2800 | mg/kg | 0.10 | 4.5         | 3.2         | 2.7         |
| Total Of 16 PAH's        |           | N                    | 2800 | mg/kg | 2.0  | 44          | 62          | 64          |
| Total Phenols            |           | M                    | 2920 | mg/kg | 0.10 | < 0.10      | 0.29        | < 0.10      |

## Test Methods

| SOP  | Title                                                              | Parameters included                                                                                                                                                                                                                                                       | Method summary                                                                                                                                                                         | Water Accred. |
|------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 2010 | pH Value of Soils                                                  | pH at 20°C                                                                                                                                                                                                                                                                | pH Meter                                                                                                                                                                               |               |
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS)         | Moisture content                                                                                                                                                                                                                                                          | Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.                                                                                   |               |
| 2040 | Soil Description(Requirement of MCERTS)                            | Soil description                                                                                                                                                                                                                                                          | As received soil is described based upon BS5930                                                                                                                                        |               |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium                | Boron; Sulphate; Magnesium; Chromium                                                                                                                                                                                                                                      | Aqueous extraction / ICP-OES                                                                                                                                                           |               |
| 2175 | Total Sulphur in Soils                                             | Total Sulphur                                                                                                                                                                                                                                                             | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.                                                                                             |               |
| 2192 | Asbestos                                                           | Asbestos                                                                                                                                                                                                                                                                  | Polarised light microscopy / Gravimetry                                                                                                                                                |               |
| 2300 | Cyanides & Thiocyanate in Soils                                    | Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate                                                                                                                                                                                           | Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.                                                                                    |               |
| 2325 | Sulphide in Soils                                                  | Sulphide                                                                                                                                                                                                                                                                  | Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.                                                           |               |
| 2430 | Total Sulphate in soils                                            | Total Sulphate                                                                                                                                                                                                                                                            | Acid digestion followed by determination of sulphate in extract by ICP-OES.                                                                                                            |               |
| 2455 | Acid Soluble Metals in Soils                                       | Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc                                                                                                                  | Acid digestion followed by determination of metals in extract by ICP-MS.                                                                                                               |               |
| 2490 | Hexavalent Chromium in Soils                                       | Chromium [VI]                                                                                                                                                                                                                                                             | Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine. |               |
| 2625 | Total Organic Carbon in Soils                                      | Total organic Carbon (TOC)                                                                                                                                                                                                                                                | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.                                                                                             |               |
| 2670 | Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID              | TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40                                                                                                                                                                                            | Dichloromethane extraction / GC-FID                                                                                                                                                    |               |
| 2800 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS | Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene* | Dichloromethane extraction / GC-MS                                                                                                                                                     |               |
| 2920 | Phenols in Soils by HPLC                                           | Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.                                                                                                                         | 60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.                                                                               |               |

## **Report Information**

### **Key**

---

|     |                                                                                                               |
|-----|---------------------------------------------------------------------------------------------------------------|
| U   | UKAS accredited                                                                                               |
| M   | MCERTS and UKAS accredited                                                                                    |
| N   | Unaccredited                                                                                                  |
| S   | This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis     |
| SN  | This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis |
| T   | This analysis has been subcontracted to an unaccredited laboratory                                            |
| I/S | Insufficient Sample                                                                                           |
| U/S | Unsuitable Sample                                                                                             |
| N/E | not evaluated                                                                                                 |
| <   | "less than"                                                                                                   |
| >   | "greater than"                                                                                                |
| SOP | Standard operating procedure                                                                                  |
| LOD | Limit of detection                                                                                            |

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

Uncertainty of measurement for the determinands tested are available upon request .

None of the results in this report have been recovery corrected.

All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at  $\leq 30^{\circ}\text{C}$  prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

### **Sample Deviation Codes**

---

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

### **Sample Retention and Disposal**

---

All soil samples will be retained for a period of 30 days from the date of receipt.

All water samples will be retained for 14 days from the date of receipt.

Charges may apply to extended sample storage.

### **Water Sample Category Key for Accreditation**

---

- DW - Drinking Water
- GW - Ground Water
- LE - Land Leachate
- NA - Not Applicable

## **Report Information**

PL - Prepared Leachate  
PW - Processed Water  
RE - Recreational Water  
SA - Saline Water  
SW - Surface Water  
TE - Treated Effluent  
TS - Treated Sewage  
UL - Unspecified Liquid

### **Clean Up Codes**

---

NC - No Clean Up  
MC - Mathematical Clean Up  
FC - Florisil Clean Up

### **HWOL Acronym System**

---

HS - Headspace analysis  
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent  
CU - Clean-up – e.g. by Florisil, silica gel  
1D - GC – Single coil gas chromatography  
Total - Aliphatics & Aromatics  
AL - Aliphatics only  
AR - Aromatic only  
2D - GC-GC – Double coil gas chromatography  
#1 - EH\_2D\_Total but with humics mathematically subtracted  
#2 - EH\_2D\_Total but with fatty acids mathematically subtracted  
+ - Operator to indicate cumulative e.g. EH+EH\_Total or EH\_CU+HS\_Total

If you require extended retention of samples, please email your requirements to:  
[customerservices@chemtest.com](mailto:customerservices@chemtest.com)

# APPENDIX V

## PHOTOGRAPHS





**Plate 1 Heras Fencing and Site Signage**



**Plate 2 Tree/Vegetation Stockpile**



**Plate 3 Waste Materials Awaiting Removal**



**Plate 4 Vegetation Clearance Stockpile**



**Plate 5 Stockpile Containing Visible ACM Fragments Awaiting Handpicking**



**Plate 6 Stockpiled Visual/Olfactory Impacted Arisings**





**Plate 7 PID Screening of Odorous Soils**



**Plate 8 PID Screening of Odorous Soils**



**Plate 9 Hotspot 1 (WS112) Southern and Western Walls**



**Plate 10 Oversize Material Stockpiled for Crushing**



**Plate 11 Crusher Producing 6F2**



**Plate 12 Crush/6F2 Stockpile**





**Plate 13 Obstruction Being Removed**



**Plate 14 Excavation of Organic Deposits/Peat**



**Plate 15 Stockpiled Organic Material/Peat in POS Area**



**Plate 16 Stockpiled Organic Material/Peat in POS Area**



**Plate 17 Made Ground Turnover**



**Plate 18 Made Ground Turnover**





**Plate 19 Upfill of Made Ground**



**Plate 20 Paused Earthworks During Wet Weather**



**Plate 21 Placement of Final Layer (Formation)**



**Plate 22 Placement of Pile Mat**



**Plate 23 Placement of Pile Mat**



**Plate 24 Placement of Made Ground**



**Plate 25 Replacement of Made Ground**



**Plate 26 Timber For Off Site Disposal**



**Plate 27 Scrap Metal For Off Site Disposal**



**Plate 28 Vegetation Chippings for Off-Site Disposal**



# APPENDIX VI

## GEOTECHNICAL TESTING RESULTS





## TEST REPORT

**Client** e3p

**Address** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contract** 14-768 -  
Castleton Sidings

**Job Number** MRN 24005/310  
**Date of Issue** 29 November 2024  
**Page** 1 of 2

Approved Signatories

S J Hutchings, O P Davies

### Notes

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Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

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**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**  
BS EN ISO 17892-4:2016

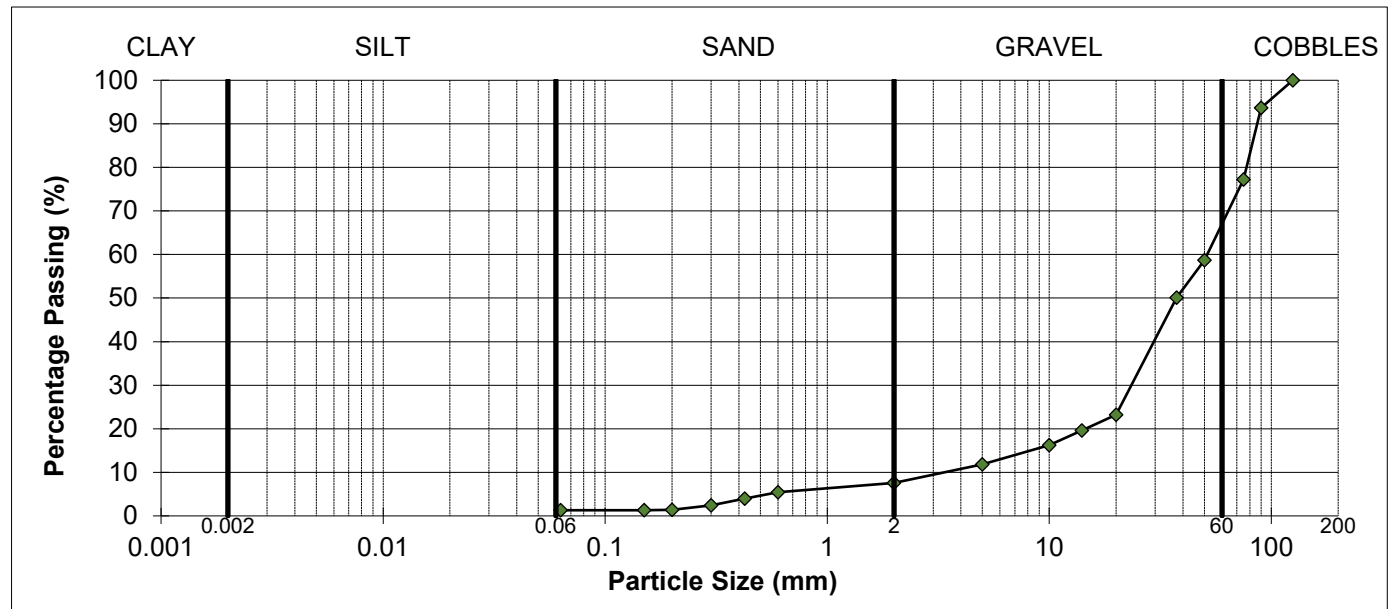
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                            |
|------------|----------------------------|
| CLIENT     | e3p                        |
| SITE       | 14-768 - Castleton Sidings |
| JOB NUMBER | MRN 24005/310              |

|               |           |               |             |
|---------------|-----------|---------------|-------------|
| SAMPLE LABEL  | SW 6F 101 | DATE SAMPLED  | Not advised |
| LAB SAMPLE No | 596201    | DATE RECEIVED | 07-Nov-24   |
| DATE TESTED   | 15-Nov-24 | SAMPLED BY    | Client      |

|                |          |
|----------------|----------|
| MATERIAL       | Crush    |
| ADVISED SOURCE | Site Won |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 12            | 10-45             |
| 90              | 94            | 80-100            | 2               | 8             |                   |
| 75              | 77            | 65-100            | 0.6             | 5             | 0-25              |
| 50              | 59            |                   | 0.425           | 4             |                   |
| 37.5            | 50            | 45-100            | 0.3             | 2             |                   |
| 20              | 23            |                   | 0.2             | 1             |                   |
| 14              | 20            |                   | 0.15            | 1             |                   |
| 10              | 16            | 15-60             | 0.063           | 1             | 0-12              |



| SOIL FRACTIONS            |     |             |    |
|---------------------------|-----|-------------|----|
| COBBLES                   | 32% | SAND        | 6% |
| GRAVEL                    | 60% | SILT / CLAY | 1% |
| As received water content |     | 6.4%        |    |

REMARKS

Sample complies with the advised grading specification for a 6F2 material (SHW, Feb 2017)

SIGNED  
NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 29-Nov-24

## TEST REPORT

**Client** e3p

**Address** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contract** 14-768 -  
Castleton Sidings

**Job Number** MRN 24005/319  
**Date of Issue** 11 December 2024  
**Page** 1 of 3

Approved Signatories

S J Hutchings, O P Davies

### Notes

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BS EN ISO 17892-4:2016

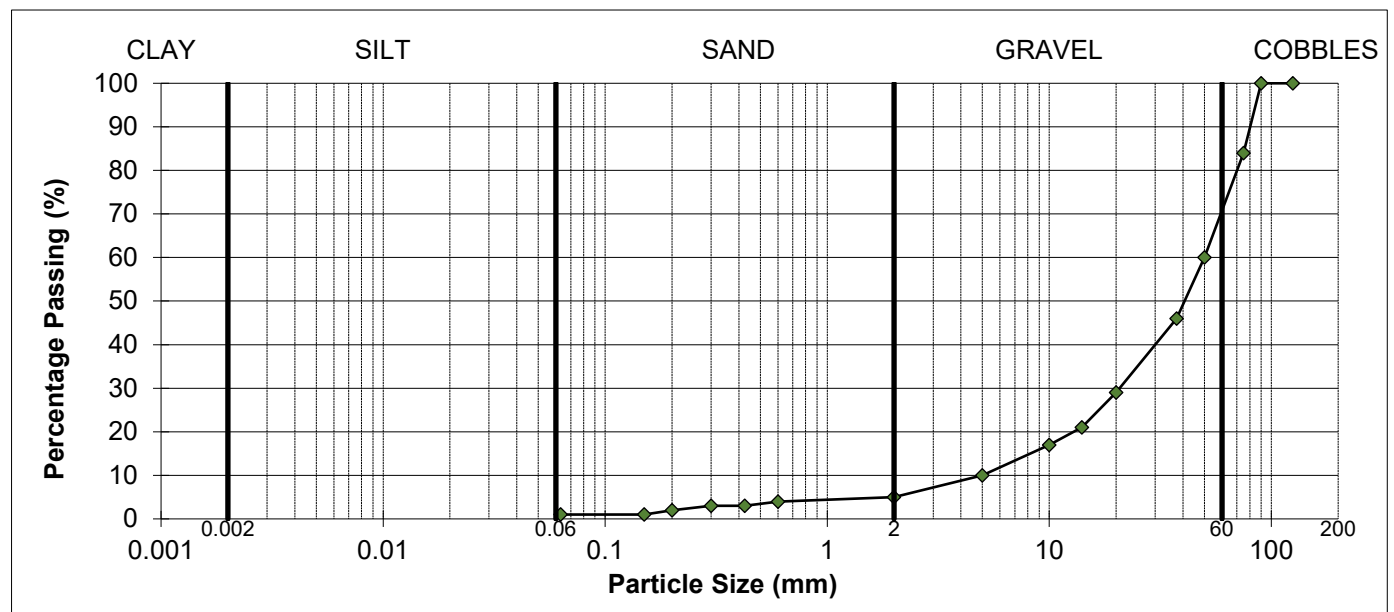
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                            |
|------------|----------------------------|
| CLIENT     | e3p                        |
| SITE       | 14-768 - Castleton Sidings |
| JOB NUMBER | MRN 24005/319              |

|               |            |               |             |
|---------------|------------|---------------|-------------|
| SAMPLE LABEL  | SW 6F2 102 | DATE SAMPLED  | Not advised |
| LAB SAMPLE No | 600201     | DATE RECEIVED | 20-Nov-24   |
| DATE TESTED   | 21-Nov-24  | SAMPLED BY    | Client      |

|                |                |
|----------------|----------------|
| MATERIAL       | Recycled Crush |
| ADVISED SOURCE | Site won       |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 10            | 10-45             |
| 90              | 100           | 80-100            | 2               | 5             |                   |
| 75              | 84            | 65-100            | 0.6             | 4             | 0-25              |
| 50              | 60            |                   | 0.425           | 3             |                   |
| 37.5            | 46            | 45-100            | 0.3             | 3             |                   |
| 20              | 29            |                   | 0.2             | 2             |                   |
| 14              | 21            |                   | 0.15            | 1             |                   |
| 10              | 17            | 15-60             | 0.063           | 1             | 0-12              |



| SOIL FRACTIONS            |     |             |    |
|---------------------------|-----|-------------|----|
| COBBLES                   | 28% | SAND        | 4% |
| GRAVEL                    | 67% | SILT / CLAY | 1% |
| As received water content |     | 6.0%        |    |

**REMARKS**

Sample complies with the advised grading specification for a 6F2 material (SHW, Feb. 2017)

**SIGNED**



**NAME**

O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

**DATE**

11-Dec-24

**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**  
BS EN ISO 17892-4:2016

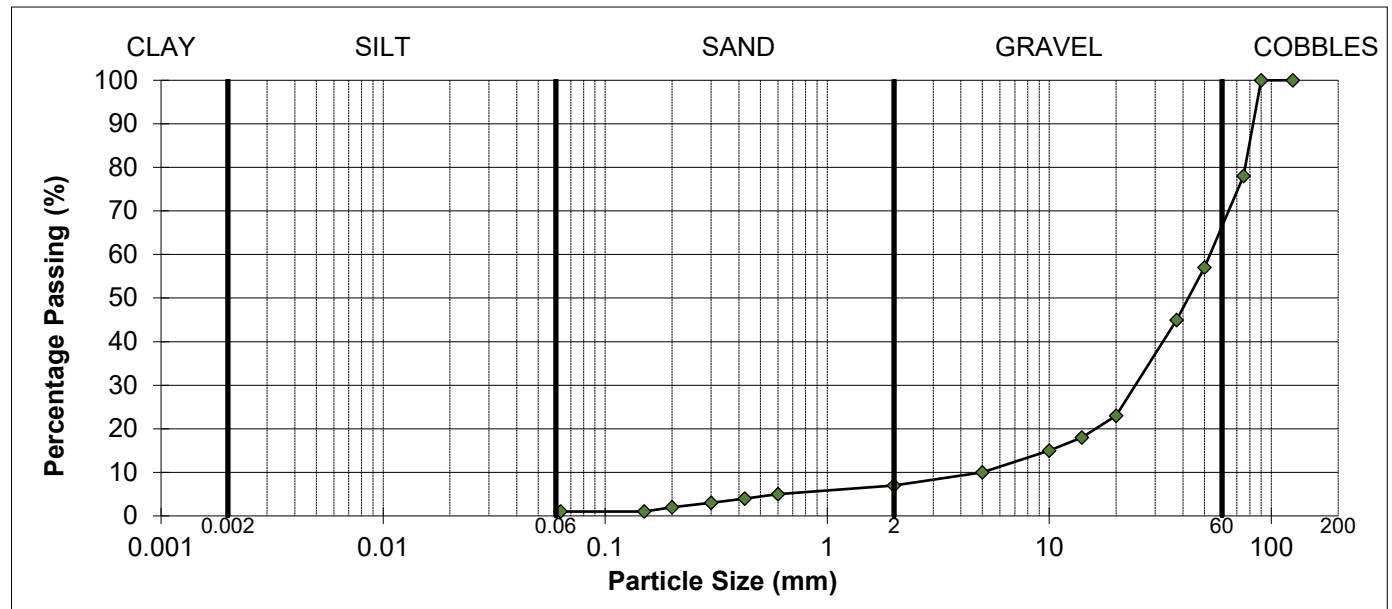
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                            |
|------------|----------------------------|
| CLIENT     | e3p                        |
| SITE       | 14-768 - Castleton Sidings |
| JOB NUMBER | MRN 24005/319              |

|               |            |               |             |
|---------------|------------|---------------|-------------|
| SAMPLE LABEL  | SW 6F2 103 | DATE SAMPLED  | Not advised |
| LAB SAMPLE No | 600201     | DATE RECEIVED | 20-Nov-24   |
| DATE TESTED   | 21-Nov-24  | SAMPLED BY    | Client      |

|                |                |
|----------------|----------------|
| MATERIAL       | Recycled Crush |
| ADVISED SOURCE | Site won       |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 10            | 10-45             |
| 90              | 100           | 80-100            | 2               | 7             |                   |
| 75              | 78            | 65-100            | 0.6             | 5             | 0-25              |
| 50              | 57            |                   | 0.425           | 4             |                   |
| 37.5            | 45            | 45-100            | 0.3             | 3             |                   |
| 20              | 23            |                   | 0.2             | 2             |                   |
| 14              | 18            |                   | 0.15            | 1             |                   |
| 10              | 15            | 15-60             | 0.063           | 1             | 0-12              |



| SOIL FRACTIONS            |     |             |    |
|---------------------------|-----|-------------|----|
| COBBLES                   | 33% | SAND        | 6% |
| GRAVEL                    | 61% | SILT / CLAY | 1% |
| As received water content |     | 5.8%        |    |

REMARKS

Sample complies with the advised grading specification for a 6F2 material (SHW, Feb. 2017)

SIGNED 

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE

11-Dec-24



## TEST REPORT

**Client** e3p

**Address** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contract** 14-768 -  
Castleton Sidings

**Job Number** MRN 25005/13  
**Date of Issue** 20 January 2025  
**Page** 1 of 3

Approved Signatories

S J Hutchings, O P Davies

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**PARTICLE SIZE DISTRIBUTION**

BS EN ISO 17892-4:2016

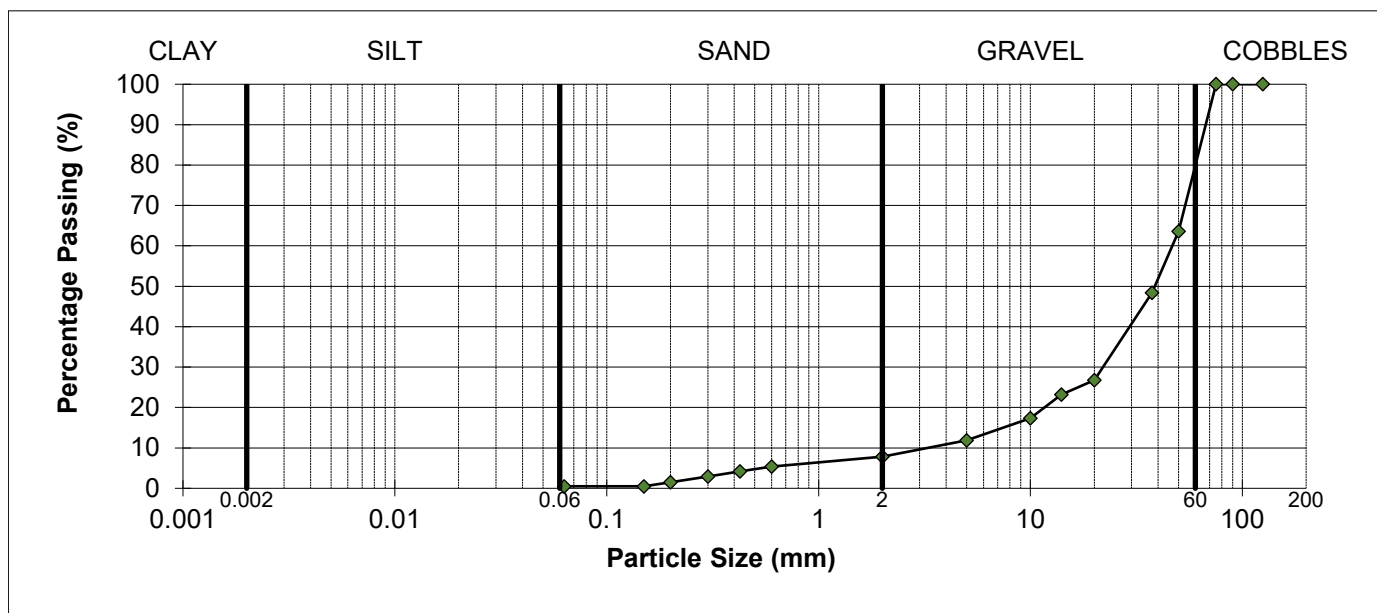
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                            |
|------------|----------------------------|
| CLIENT     | e3p                        |
| SITE       | 14-768 - Castleton Sidings |
| JOB NUMBER | MRN 25005/13               |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | SW 6F 104 | DATE SAMPLED  | 12-Dec-24 |
| LAB SAMPLE No | 618201    | DATE RECEIVED | 18-Dec-24 |
| DATE TESTED   | 19-Dec-24 | SAMPLED BY    | Client    |

|                |                          |
|----------------|--------------------------|
| MATERIAL       | Crush                    |
| ADVISED SOURCE | As client and site above |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 12            | 10-45             |
| 90              | 100           | 80-100            | 2               | 8             |                   |
| 75              | 100           | 65-100            | 0.6             | 5             | 0-25              |
| 50              | 64            |                   | 0.425           | 4             |                   |
| 37.5            | 48            | 45-100            | 0.3             | 3             |                   |
| 20              | 27            |                   | 0.2             | 2             |                   |
| 14              | 23            |                   | 0.15            | 1             |                   |
| 10              | 17            | 15-60             | 0.063           | 1             | 0-12              |



**REMARKS**

Sample complies with the advised grading specification for a 6F2 material (SHW, Feb. 2017)

SIGNED



NAME

O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE

20-Jan-25

**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**

BS EN ISO 17892-4:2016

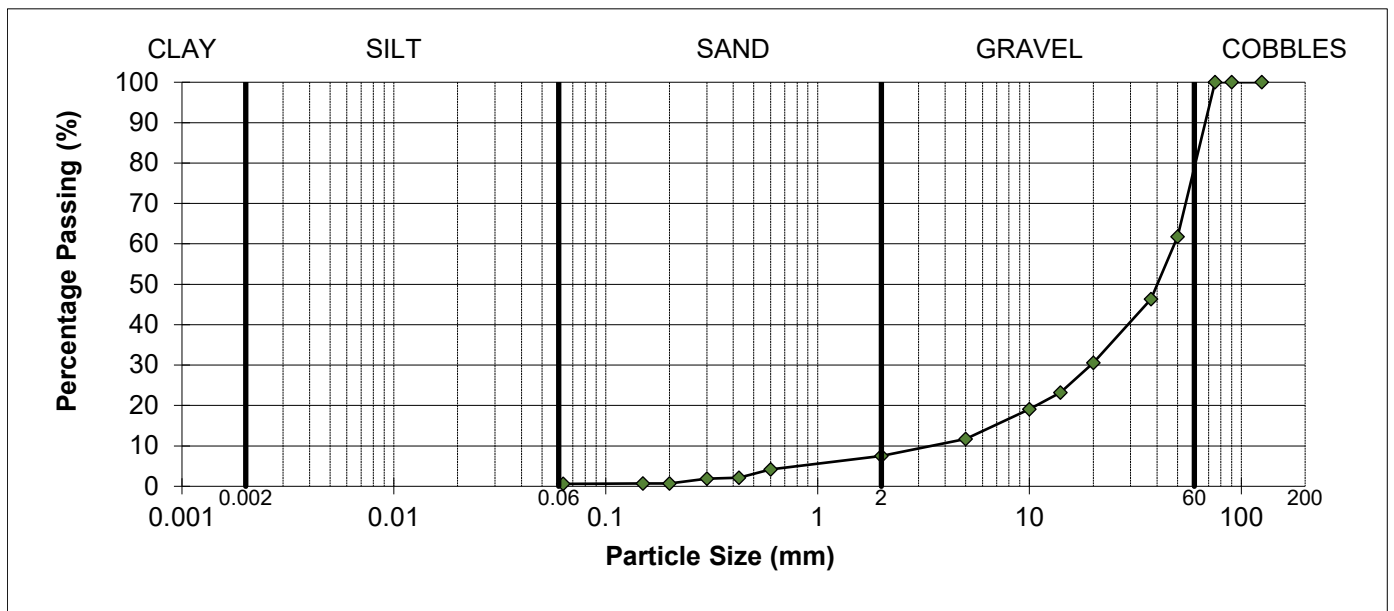
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                            |
|------------|----------------------------|
| CLIENT     | e3p                        |
| SITE       | 14-768 - Castleton Sidings |
| JOB NUMBER | MRN 25005/13               |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | SW 6F 105 | DATE SAMPLED  | 12-Dec-24 |
| LAB SAMPLE No | 618202    | DATE RECEIVED | 18-Dec-24 |
| DATE TESTED   | 19-Dec-24 | SAMPLED BY    | Client    |

|                |                          |
|----------------|--------------------------|
| MATERIAL       | Crush                    |
| ADVISED SOURCE | As client and site above |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 12            | 10-45             |
| 90              | 100           | 80-100            | 2               | 8             |                   |
| 75              | 100           | 65-100            | 0.6             | 4             | 0-25              |
| 50              | 62            |                   | 0.425           | 2             |                   |
| 37.5            | 46            | 45-100            | 0.3             | 2             |                   |
| 20              | 31            |                   | 0.2             | 1             |                   |
| 14              | 23            |                   | 0.15            | 1             |                   |
| 10              | 19            | 15-60             | 0.063           | 1             | 0-12              |



**REMARKS**

Sample complies with the advised grading specification for a 6F2 material (SHW, Feb. 2017)

SIGNED



NAME

O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE

20-Jan-25

## TEST REPORT

**Client** e3p

**Address** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contract** 14-768  
Castleton Sidings

**Job Number** MRN 24005/268  
**Date of Issue** 01 November 2024  
**Page** 1 of 11

Approved Signatories

S J Hutchings, O P Davies

Notes

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Also at: London: 020 8523 1999

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**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**

BS EN ISO 17892-4:2016

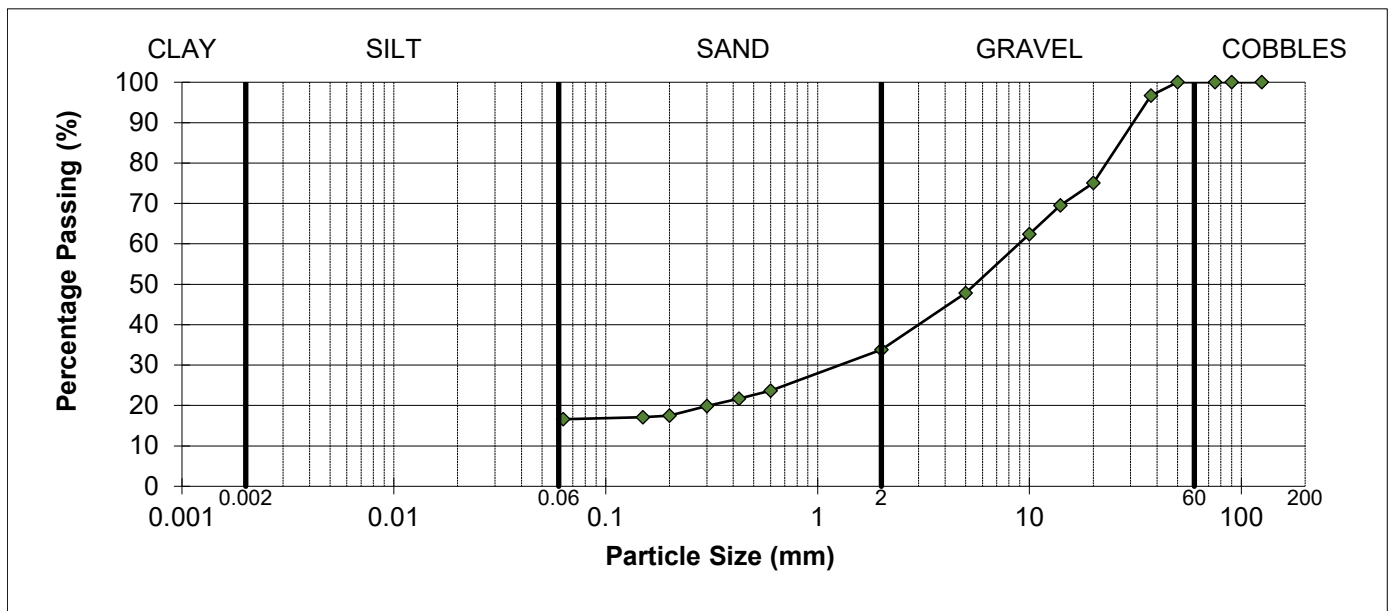
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                          |
|------------|--------------------------|
| CLIENT     | e3p                      |
| SITE       | 14-768 Castleton Sidings |
| JOB NUMBER | MRN 24005/268            |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | MG BF 101 | DATE SAMPLED  | 16-Oct-24 |
| LAB SAMPLE No | 577201    | DATE RECEIVED | 18-Oct-24 |
| DATE TESTED   | 23-Oct-24 | SAMPLED BY    | Client    |

|                |                          |
|----------------|--------------------------|
| MATERIAL       | Made Ground              |
| ADVISED SOURCE | As client and site above |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 48            |                   |
| 90              | 100           |                   | 2               | 34            | 15-80             |
| 75              | 100           |                   | 0.6             | 24            |                   |
| 50              | 100           |                   | 0.425           | 22            |                   |
| 37.5            | 97            |                   | 0.3             | 20            |                   |
| 20              | 75            |                   | 0.2             | 18            |                   |
| 14              | 70            |                   | 0.15            | 17            |                   |
| 10              | 62            |                   | 0.063           | 17            | 15-80             |



**REMARKS**

As received water content = 21.2%

Sample complies with the grading specification for a 2C material in accordance with the SHW (Feb 2017)

**SIGNED**

**NAME**

S.J. Hutchings  
(Director)

**DATE**

01-Nov-24



**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**

BS EN ISO 17892-4:2016

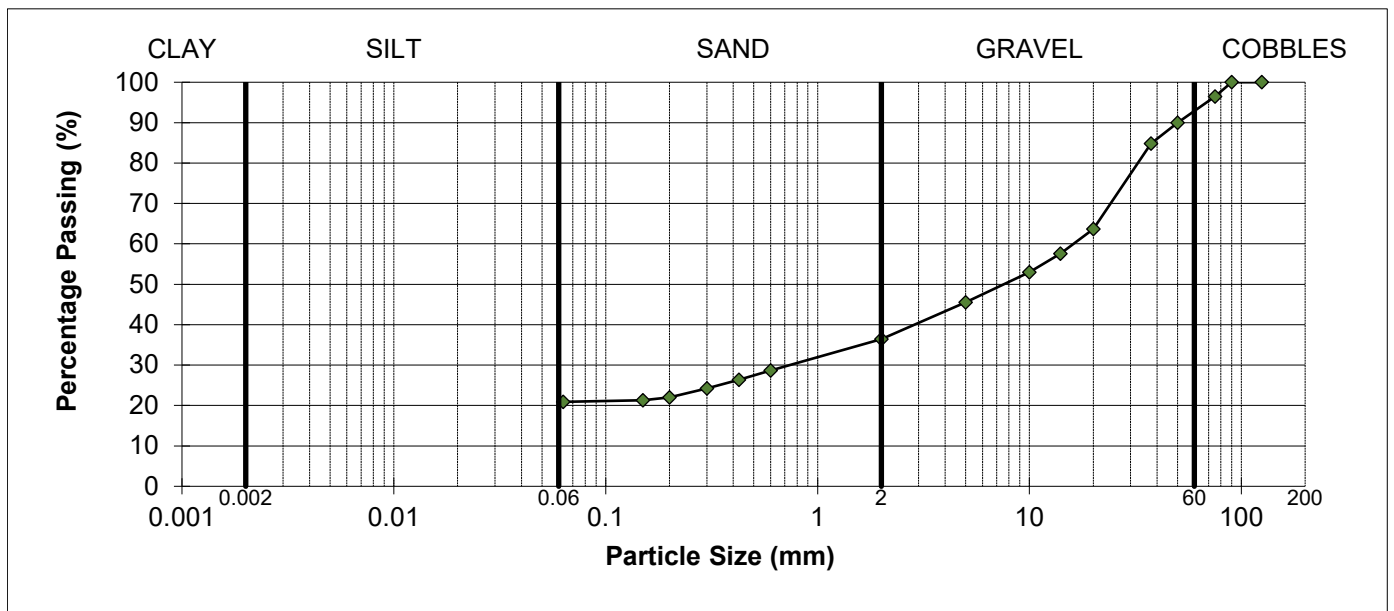
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                          |
|------------|--------------------------|
| CLIENT     | e3p                      |
| SITE       | 14-768 Castleton Sidings |
| JOB NUMBER | MRN 24005/268            |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | MG BF 102 | DATE SAMPLED  | 16-Oct-24 |
| LAB SAMPLE No | 577202    | DATE RECEIVED | 18-Oct-24 |
| DATE TESTED   | 23-Oct-24 | SAMPLED BY    | Client    |

|                |                          |
|----------------|--------------------------|
| MATERIAL       | Made Ground              |
| ADVISED SOURCE | As client and site above |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 46            |                   |
| 90              | 100           |                   | 2               | 36            | 15-80             |
| 75              | 97            |                   | 0.6             | 29            |                   |
| 50              | 90            |                   | 0.425           | 26            |                   |
| 37.5            | 85            |                   | 0.3             | 24            |                   |
| 20              | 64            |                   | 0.2             | 22            |                   |
| 14              | 58            |                   | 0.15            | 21            |                   |
| 10              | 53            |                   | 0.063           | 21            | 15-80             |



**REMARKS**

As received water content = 22.5%

Sample complies with the grading specification for a 2C material in accordance with the SHW (Feb 2017)

**SIGNED**

**NAME**

S.J. Hutchings  
(Director)

**DATE**

01-Nov-24

**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**

BS EN ISO 17892-4:2016

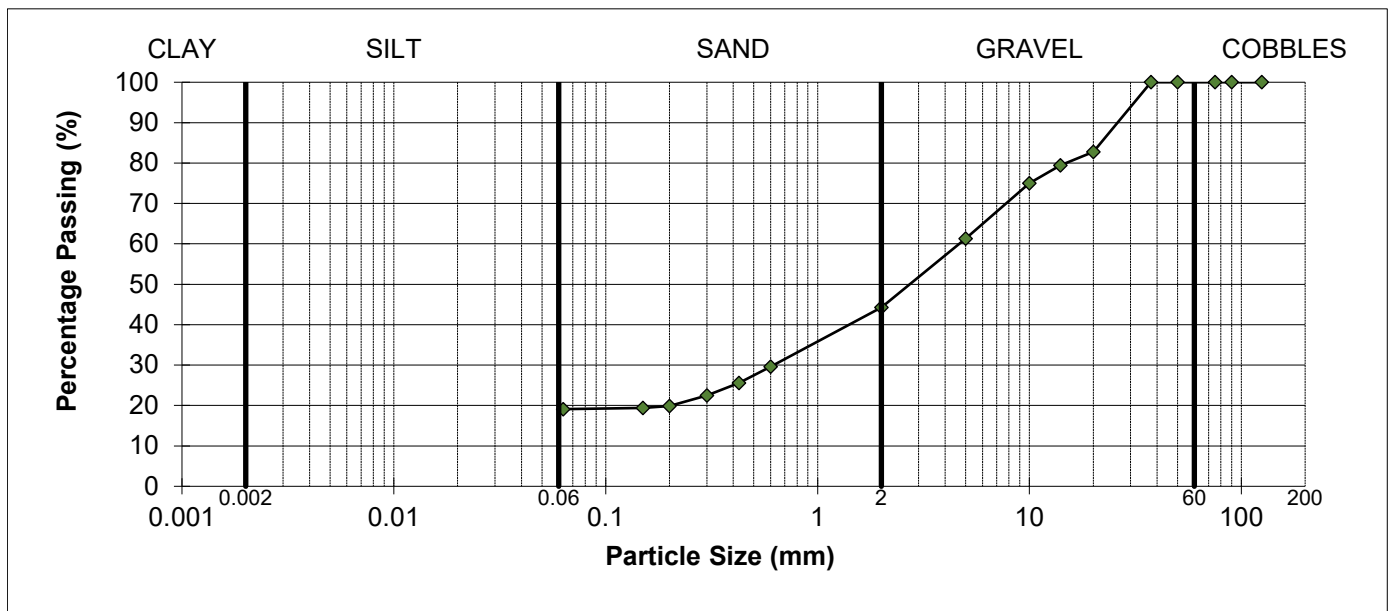
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                          |
|------------|--------------------------|
| CLIENT     | e3p                      |
| SITE       | 14-768 Castleton Sidings |
| JOB NUMBER | MRN 24005/268            |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | MG BF 103 | DATE SAMPLED  | 16-Oct-24 |
| LAB SAMPLE No | 577203    | DATE RECEIVED | 18-Oct-24 |
| DATE TESTED   | 23-Oct-24 | SAMPLED BY    | Client    |

|                |                          |
|----------------|--------------------------|
| MATERIAL       | Made Ground              |
| ADVISED SOURCE | As client and site above |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 61            |                   |
| 90              | 100           |                   | 2               | 44            | 15-80             |
| 75              | 100           |                   | 0.6             | 30            |                   |
| 50              | 100           |                   | 0.425           | 26            |                   |
| 37.5            | 100           |                   | 0.3             | 23            |                   |
| 20              | 83            |                   | 0.2             | 20            |                   |
| 14              | 79            |                   | 0.15            | 19            |                   |
| 10              | 75            |                   | 0.063           | 19            | 15-80             |



**REMARKS**

As received water content = 21.0%

Sample complies with the grading specification for a 2C material in accordance with the SHW (Feb 2017)

**SIGNED**

**NAME**

S.J. Hutchings  
(Director)

**DATE**

01-Nov-24

**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**

BS EN ISO 17892-4:2016

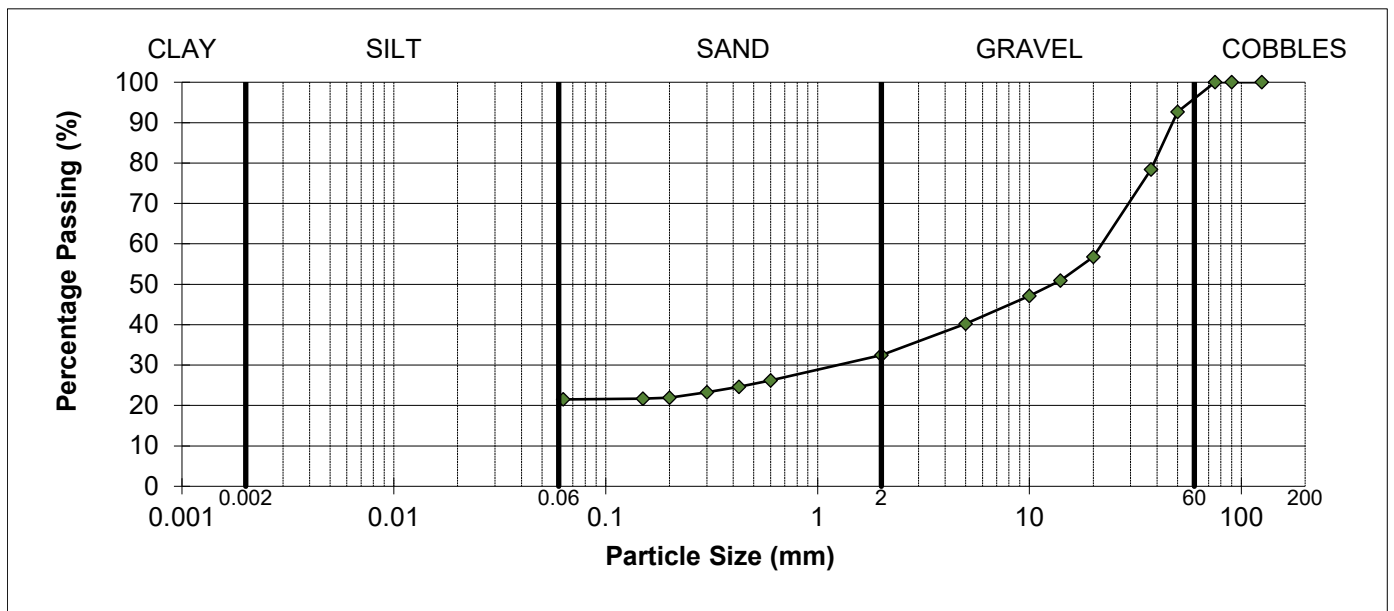
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                          |
|------------|--------------------------|
| CLIENT     | e3p                      |
| SITE       | 14-768 Castleton Sidings |
| JOB NUMBER | MRN 24005/268            |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | MG BF 104 | DATE SAMPLED  | 16-Oct-24 |
| LAB SAMPLE No | 577204    | DATE RECEIVED | 18-Oct-24 |
| DATE TESTED   | 23-Oct-24 | SAMPLED BY    | Client    |

|                |                          |
|----------------|--------------------------|
| MATERIAL       | Made Ground              |
| ADVISED SOURCE | As client and site above |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 40            |                   |
| 90              | 100           |                   | 2               | 33            | 15-80             |
| 75              | 100           |                   | 0.6             | 26            |                   |
| 50              | 93            |                   | 0.425           | 25            |                   |
| 37.5            | 78            |                   | 0.3             | 23            |                   |
| 20              | 57            |                   | 0.2             | 22            |                   |
| 14              | 51            |                   | 0.15            | 22            |                   |
| 10              | 47            |                   | 0.063           | 22            | 15-80             |



**REMARKS**

As received water content = 24.6%

Sample complies with the grading specification for a 2C material in accordance with the SHW (Feb 2017)

**SIGNED**

**NAME**

S.J. Hutchings  
(Director)

**DATE**

01-Nov-24

**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**

BS EN ISO 17892-4:2016

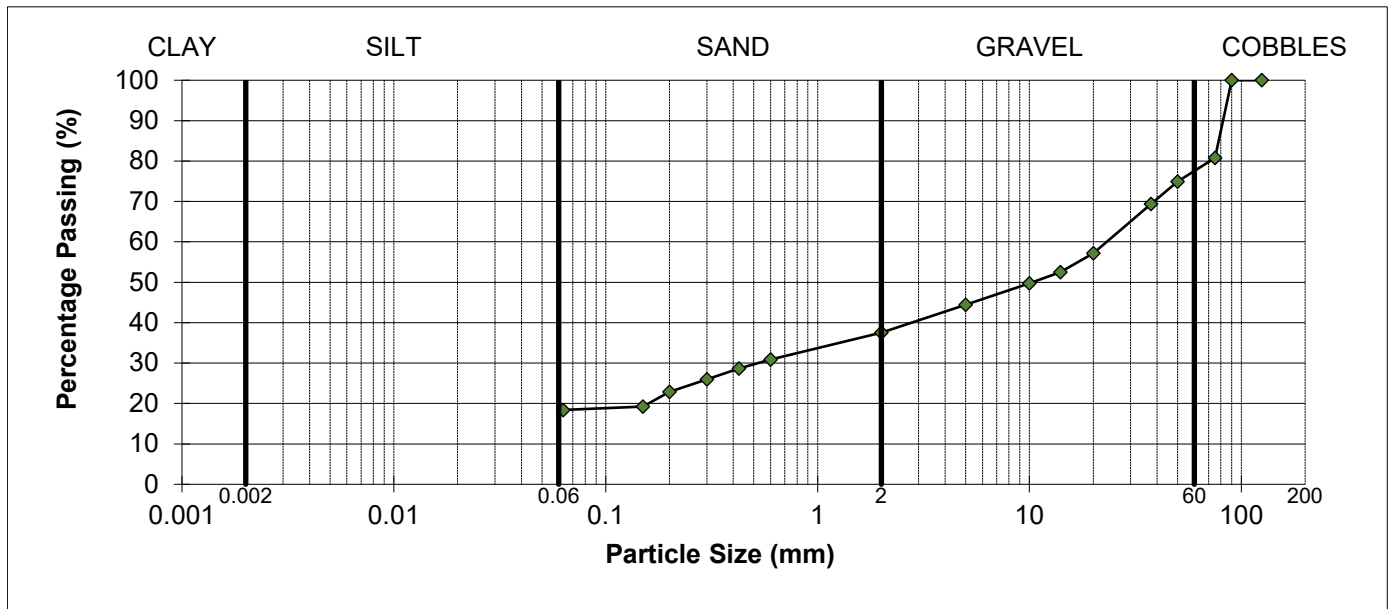
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                          |
|------------|--------------------------|
| CLIENT     | e3p                      |
| SITE       | 14-768 Castleton Sidings |
| JOB NUMBER | MRN 24005/268            |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | MG BF 105 | DATE SAMPLED  | 16-Oct-24 |
| LAB SAMPLE No | 577205    | DATE RECEIVED | 18-Oct-24 |
| DATE TESTED   | 23-Oct-24 | SAMPLED BY    | Client    |

|                |                          |
|----------------|--------------------------|
| MATERIAL       | Made Ground              |
| ADVISED SOURCE | As client and site above |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 44            |                   |
| 90              | 100           |                   | 2               | 38            | 15-80             |
| 75              | 81            |                   | 0.6             | 31            |                   |
| 50              | 75            |                   | 0.425           | 29            |                   |
| 37.5            | 69            |                   | 0.3             | 26            |                   |
| 20              | 57            |                   | 0.2             | 23            |                   |
| 14              | 53            |                   | 0.15            | 19            |                   |
| 10              | 50            |                   | 0.063           | 18            | 15-80             |



**REMARKS**

As received water content = 17.6%

Sample complies with the grading specification for a 2C material in accordance with the SHW (Feb 2017)

**SIGNED**

NAME S.J. Hutchings  
(Director)

DATE

01-Nov-24

**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**

BS EN ISO 17892-4:2016

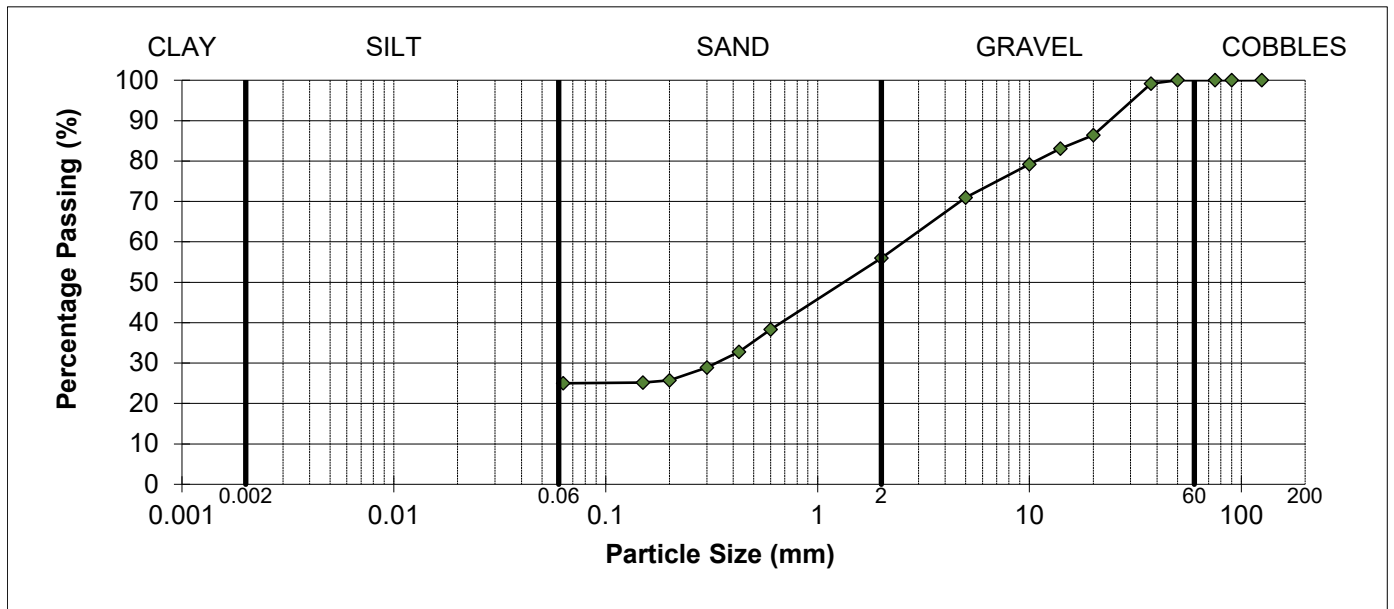
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                          |
|------------|--------------------------|
| CLIENT     | e3p                      |
| SITE       | 14-768 Castleton Sidings |
| JOB NUMBER | MRN 24005/268            |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | MG BF 106 | DATE SAMPLED  | 16-Oct-24 |
| LAB SAMPLE No | 577206    | DATE RECEIVED | 18-Oct-24 |
| DATE TESTED   | 23-Oct-24 | SAMPLED BY    | Client    |

|                |                          |
|----------------|--------------------------|
| MATERIAL       | Made Ground              |
| ADVISED SOURCE | As client and site above |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 71            |                   |
| 90              | 100           |                   | 2               | 56            | 15-80             |
| 75              | 100           |                   | 0.6             | 38            |                   |
| 50              | 100           |                   | 0.425           | 33            |                   |
| 37.5            | 99            |                   | 0.3             | 29            |                   |
| 20              | 86            |                   | 0.2             | 26            |                   |
| 14              | 83            |                   | 0.15            | 25            |                   |
| 10              | 79            |                   | 0.063           | 25            | 15-80             |



**REMARKS**

As received water content = 19.6%

Sample complies with the grading specification for a 2C material in accordance with the SHW (Feb 2017)

**SIGNED**

**NAME**

S.J. Hutchings  
(Director)

**DATE**

01-Nov-24

**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**

BS EN ISO 17892-4:2016

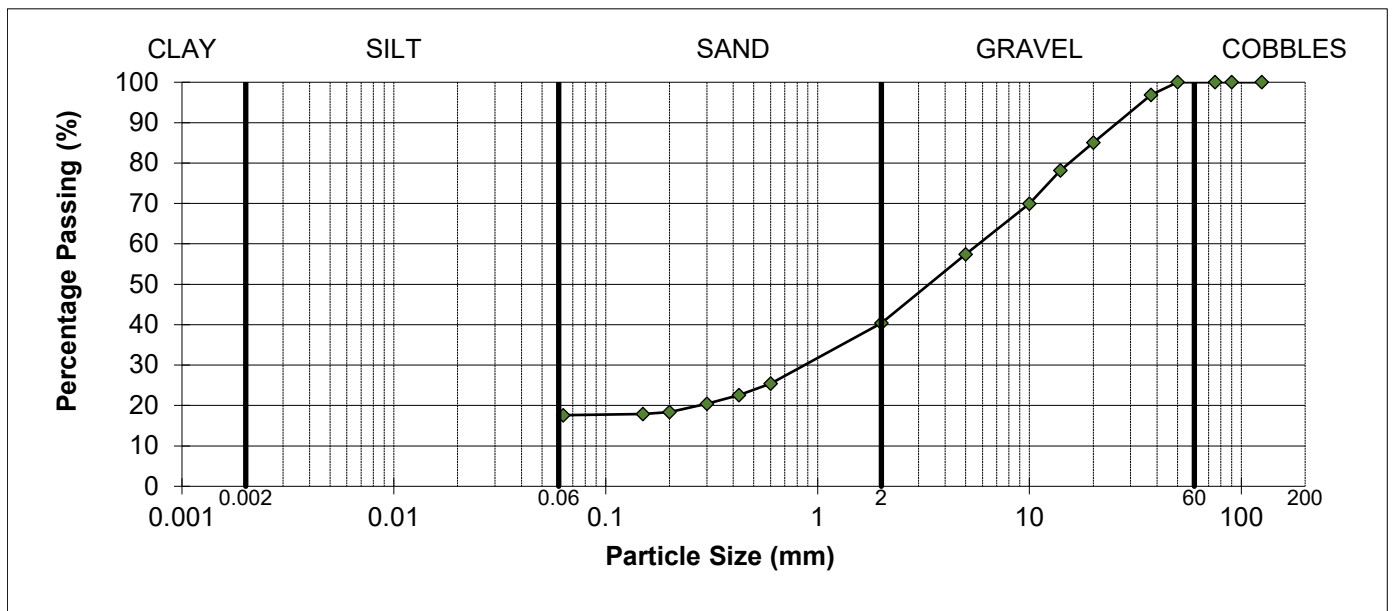
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                          |
|------------|--------------------------|
| CLIENT     | e3p                      |
| SITE       | 14-768 Castleton Sidings |
| JOB NUMBER | MRN 24005/268            |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | MG BF 107 | DATE SAMPLED  | 16-Oct-24 |
| LAB SAMPLE No | 577207    | DATE RECEIVED | 18-Oct-24 |
| DATE TESTED   | 23-Oct-24 | SAMPLED BY    | Client    |

|                |                          |
|----------------|--------------------------|
| MATERIAL       | Made Ground              |
| ADVISED SOURCE | As client and site above |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 57            |                   |
| 90              | 100           |                   | 2               | 40            | 15-80             |
| 75              | 100           |                   | 0.6             | 25            |                   |
| 50              | 100           |                   | 0.425           | 23            |                   |
| 37.5            | 97            |                   | 0.3             | 20            |                   |
| 20              | 85            |                   | 0.2             | 18            |                   |
| 14              | 78            |                   | 0.15            | 18            |                   |
| 10              | 70            |                   | 0.063           | 18            | 15-80             |



**REMARKS**

As received water content = 24.7%

Sample complies with the grading specification for a 2C material in accordance with the SHW (Feb 2017)

**SIGNED**

**NAME**

S.J. Hutchings  
(Director)

**DATE**

01-Nov-24



**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**

BS EN ISO 17892-4:2016

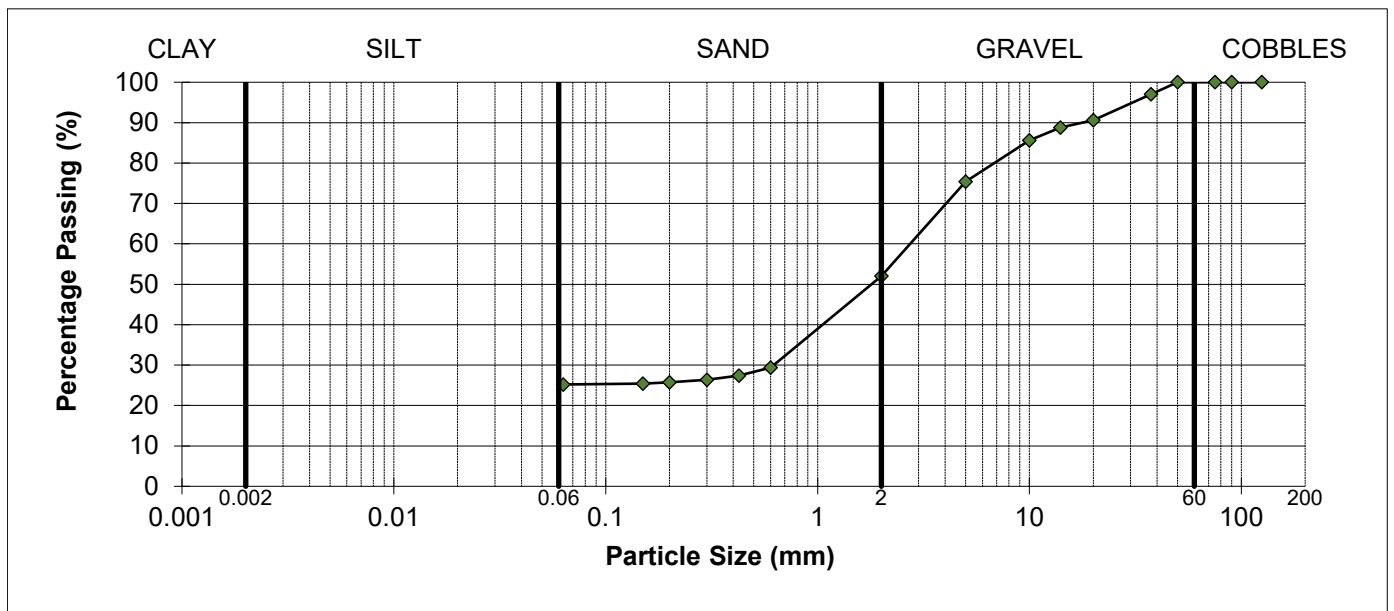
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                          |
|------------|--------------------------|
| CLIENT     | e3p                      |
| SITE       | 14-768 Castleton Sidings |
| JOB NUMBER | MRN 24005/268            |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | MG BF 108 | DATE SAMPLED  | 16-Oct-24 |
| LAB SAMPLE No | 577208    | DATE RECEIVED | 18-Oct-24 |
| DATE TESTED   | 23-Oct-24 | SAMPLED BY    | Client    |

|                |                          |
|----------------|--------------------------|
| MATERIAL       | Made Ground              |
| ADVISED SOURCE | As client and site above |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 75            |                   |
| 90              | 100           |                   | 2               | 52            | 15-80             |
| 75              | 100           |                   | 0.6             | 29            |                   |
| 50              | 100           |                   | 0.425           | 27            |                   |
| 37.5            | 97            |                   | 0.3             | 26            |                   |
| 20              | 91            |                   | 0.2             | 26            |                   |
| 14              | 89            |                   | 0.15            | 25            |                   |
| 10              | 86            |                   | 0.063           | 25            | 15-80             |



**REMARKS**

As received water content = 30.7%

Sample complies with the grading specification for a 2C material in accordance with the SHW (Feb 2017)

**SIGNED**

**NAME**

S.J. Hutchings  
(Director)

**DATE**

01-Nov-24

**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**

BS EN ISO 17892-4:2016

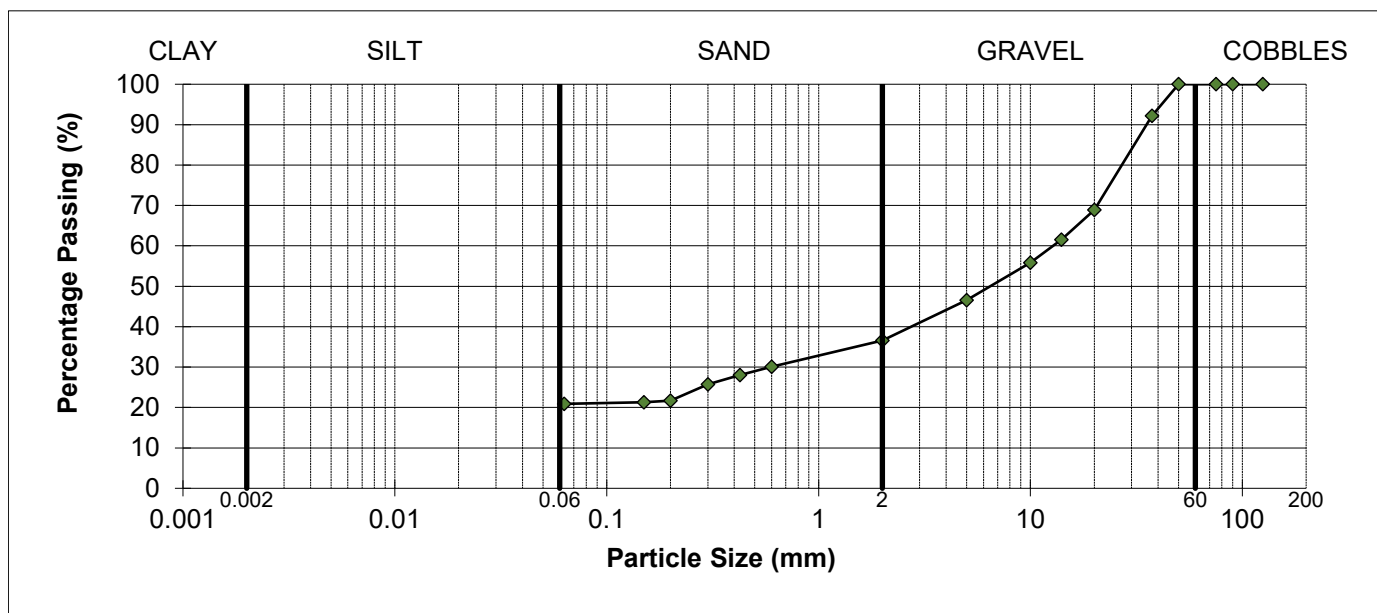
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                          |
|------------|--------------------------|
| CLIENT     | e3p                      |
| SITE       | 14-768 Castleton Sidings |
| JOB NUMBER | MRN 24005/268            |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | MG BF 109 | DATE SAMPLED  | 16-Oct-24 |
| LAB SAMPLE No | 577209    | DATE RECEIVED | 18-Oct-24 |
| DATE TESTED   | 23-Oct-24 | SAMPLED BY    | Client    |

|                |                          |
|----------------|--------------------------|
| MATERIAL       | Made Ground              |
| ADVISED SOURCE | As client and site above |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 47            |                   |
| 90              | 100           |                   | 2               | 37            | 15-80             |
| 75              | 100           |                   | 0.6             | 30            |                   |
| 50              | 100           |                   | 0.425           | 28            |                   |
| 37.5            | 92            |                   | 0.3             | 26            |                   |
| 20              | 69            |                   | 0.2             | 22            |                   |
| 14              | 62            |                   | 0.15            | 21            |                   |
| 10              | 56            |                   | 0.063           | 21            | 15-80             |



**REMARKS**

As received water content = 24.6%

Sample complies with the grading specification for a 2C material in accordance with the SHW (Feb 2017)

SIGNED

NAME

S.J. Hutchings  
(Director)

DATE

01-Nov-24

**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**

BS EN ISO 17892-4:2016

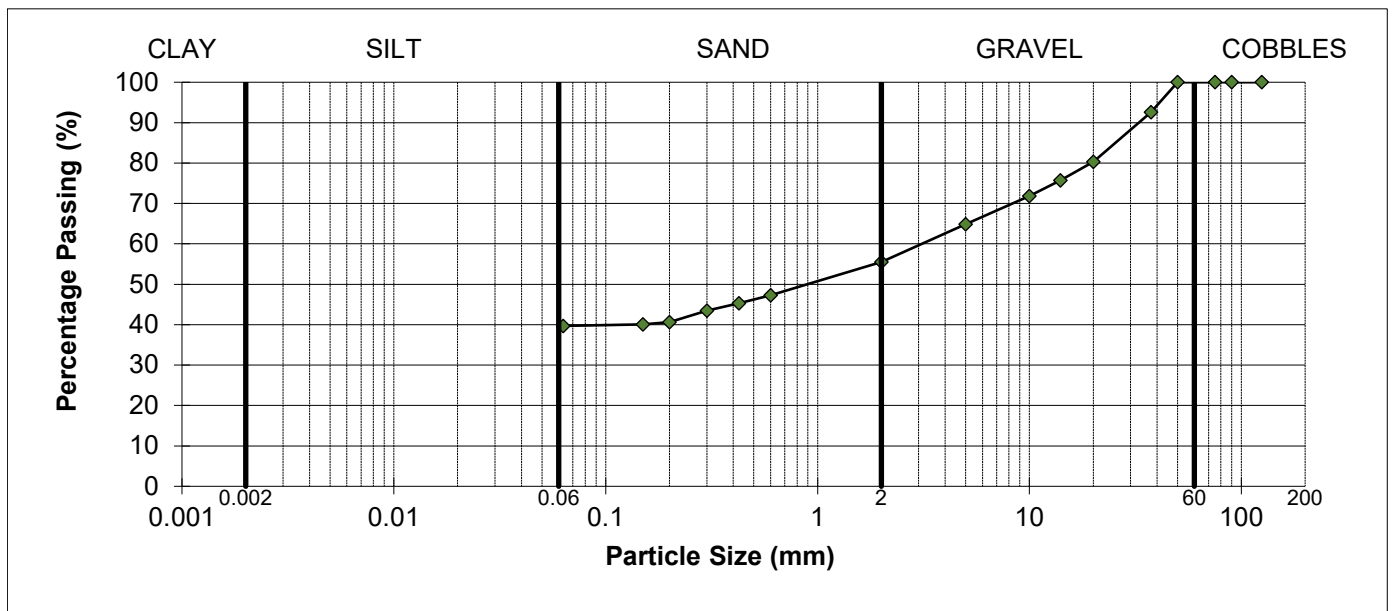
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                          |
|------------|--------------------------|
| CLIENT     | e3p                      |
| SITE       | 14-768 Castleton Sidings |
| JOB NUMBER | MRN 24005/268            |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | MG BF 110 | DATE SAMPLED  | 16-Oct-24 |
| LAB SAMPLE No | 577210    | DATE RECEIVED | 18-Oct-24 |
| DATE TESTED   | 23-Oct-24 | SAMPLED BY    | Client    |

|                |                          |
|----------------|--------------------------|
| MATERIAL       | Made Ground              |
| ADVISED SOURCE | As client and site above |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 65            |                   |
| 90              | 100           |                   | 2               | 56            | 15-80             |
| 75              | 100           |                   | 0.6             | 47            |                   |
| 50              | 100           |                   | 0.425           | 45            |                   |
| 37.5            | 93            |                   | 0.3             | 44            |                   |
| 20              | 80            |                   | 0.2             | 41            |                   |
| 14              | 76            |                   | 0.15            | 40            |                   |
| 10              | 72            |                   | 0.063           | 40            | 15-80             |



**REMARKS**

As received water content = 20.4%

Sample complies with the grading specification for a 2C material in accordance with the SHW (Feb 2017)

**SIGNED**

**NAME**

S.J. Hutchings  
(Director)

**DATE**

01-Nov-24

## TEST REPORT

**Client** e3p

**Address** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contract** 14-768 -  
Castleton Sidings

**Job Number** MRN 24005/309  
**Date of Issue** 29 November 2024  
**Page** 1 of 7

Approved Signatories

S J Hutchings, O P Davies

### Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870  
Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

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**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**  
BS EN ISO 17892-4:2016

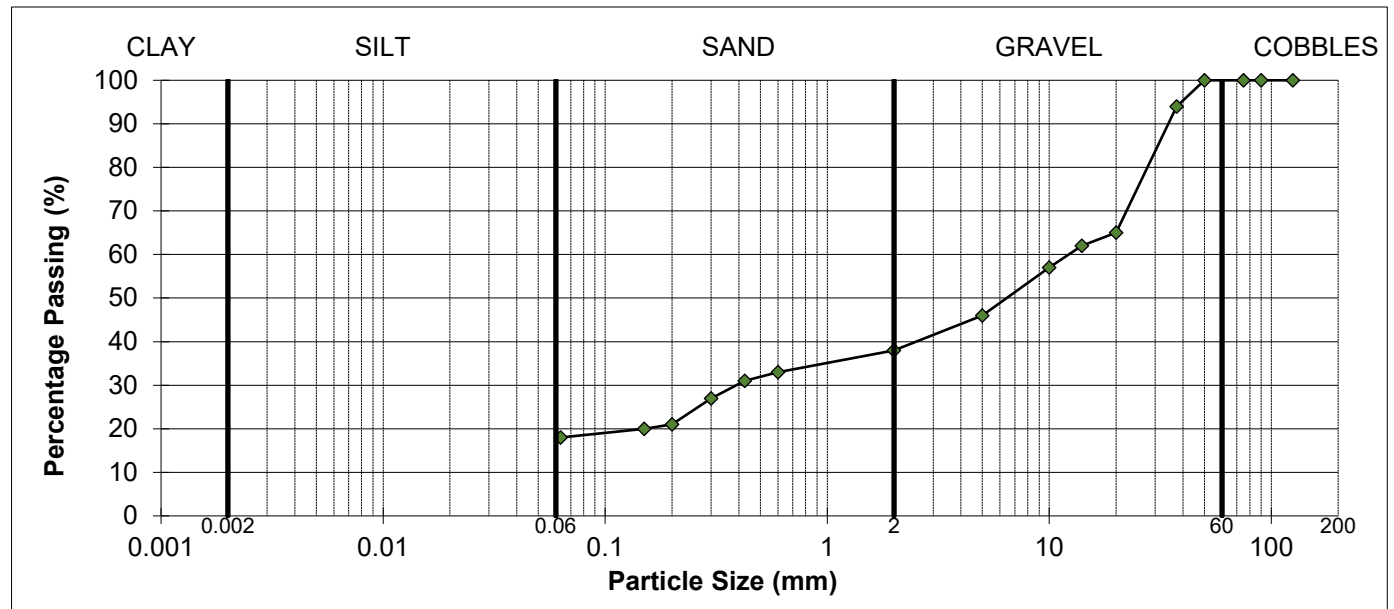
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                            |
|------------|----------------------------|
| CLIENT     | e3p                        |
| SITE       | 14-768 - Castleton Sidings |
| JOB NUMBER | MRN 24005/309              |

|               |           |               |             |
|---------------|-----------|---------------|-------------|
| SAMPLE LABEL  | MG BF 111 | DATE SAMPLED  | Not advised |
| LAB SAMPLE No | 596101    | DATE RECEIVED | 06-Nov-24   |
| DATE TESTED   | 07-Nov-24 | SAMPLED BY    | Client      |

|                |                           |
|----------------|---------------------------|
| MATERIAL       | Made Ground               |
| ADVISED SOURCE | Site Investigation Sample |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 46            |                   |
| 90              | 100           |                   | 2               | 38            | 15-80             |
| 75              | 100           |                   | 0.6             | 33            |                   |
| 50              | 100           |                   | 0.425           | 31            |                   |
| 37.5            | 94            |                   | 0.3             | 27            |                   |
| 20              | 65            |                   | 0.2             | 21            |                   |
| 14              | 62            |                   | 0.15            | 20            |                   |
| 10              | 57            |                   | 0.063           | 18            | 15-80             |



| SOIL FRACTIONS            |     |             |     |
|---------------------------|-----|-------------|-----|
| COBBLES                   | 0%  | SAND        | 20% |
| GRAVEL                    | 62% | SILT / CLAY | 18% |
| As received water content |     | 15.2%       |     |

REMARKS

Sample complies with the advised grading specification for a 2C material (SHW, Feb 2017)

SIGNED   
NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 29-Nov-24

**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**  
BS EN ISO 17892-4:2016

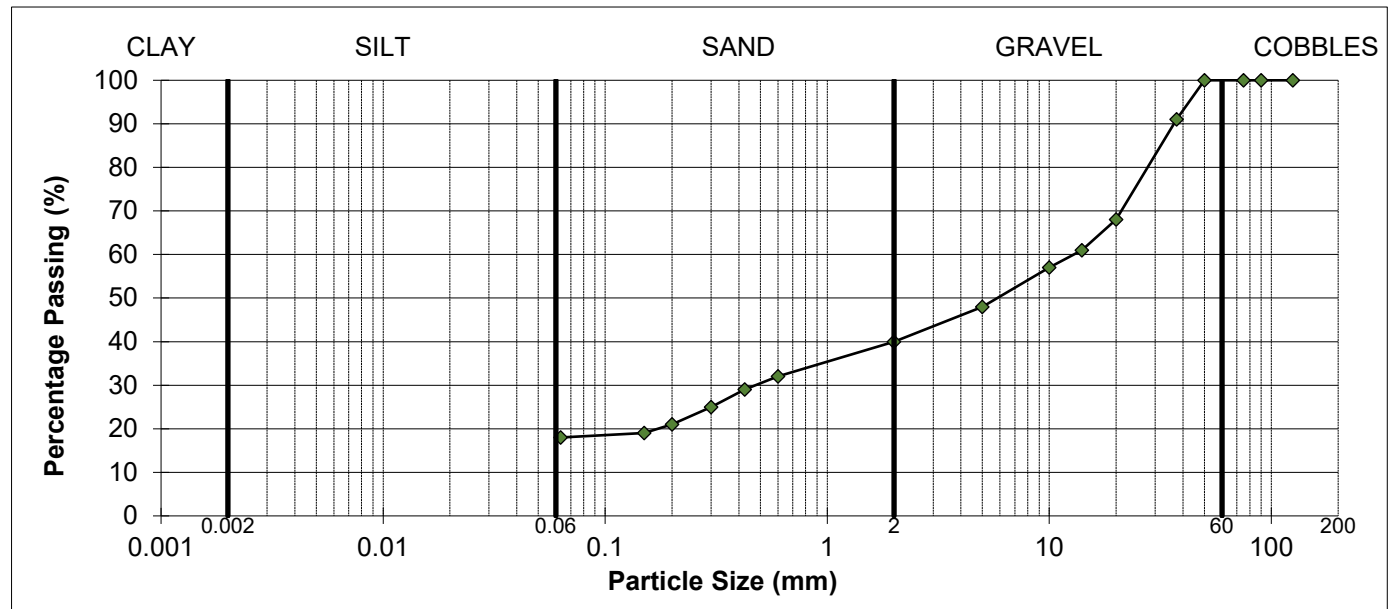
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                            |
|------------|----------------------------|
| CLIENT     | e3p                        |
| SITE       | 14-768 - Castleton Sidings |
| JOB NUMBER | MRN 24005/309              |

|               |           |               |             |
|---------------|-----------|---------------|-------------|
| SAMPLE LABEL  | MG BF 112 | DATE SAMPLED  | Not advised |
| LAB SAMPLE No | 589402    | DATE RECEIVED | 06-Nov-24   |
| DATE TESTED   | 07-Nov-24 | SAMPLED BY    | Client      |

|                |                           |
|----------------|---------------------------|
| MATERIAL       | Made Ground               |
| ADVISED SOURCE | Site Investigation Sample |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 48            |                   |
| 90              | 100           |                   | 2               | 40            | 15-80             |
| 75              | 100           |                   | 0.6             | 32            |                   |
| 50              | 100           |                   | 0.425           | 29            |                   |
| 37.5            | 91            |                   | 0.3             | 25            |                   |
| 20              | 68            |                   | 0.2             | 21            |                   |
| 14              | 61            |                   | 0.15            | 19            |                   |
| 10              | 57            |                   | 0.063           | 18            | 15-80             |



| SOIL FRACTIONS            |     |             |     |
|---------------------------|-----|-------------|-----|
| COBBLES                   | 0%  | SAND        | 22% |
| GRAVEL                    | 60% | SILT / CLAY | 18% |
| As received water content |     | 17.5%       |     |

REMARKS

Sample complies with the advised grading specification for a 2C material (SHW, Feb 2017)

SIGNED 

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 29-Nov-24



# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

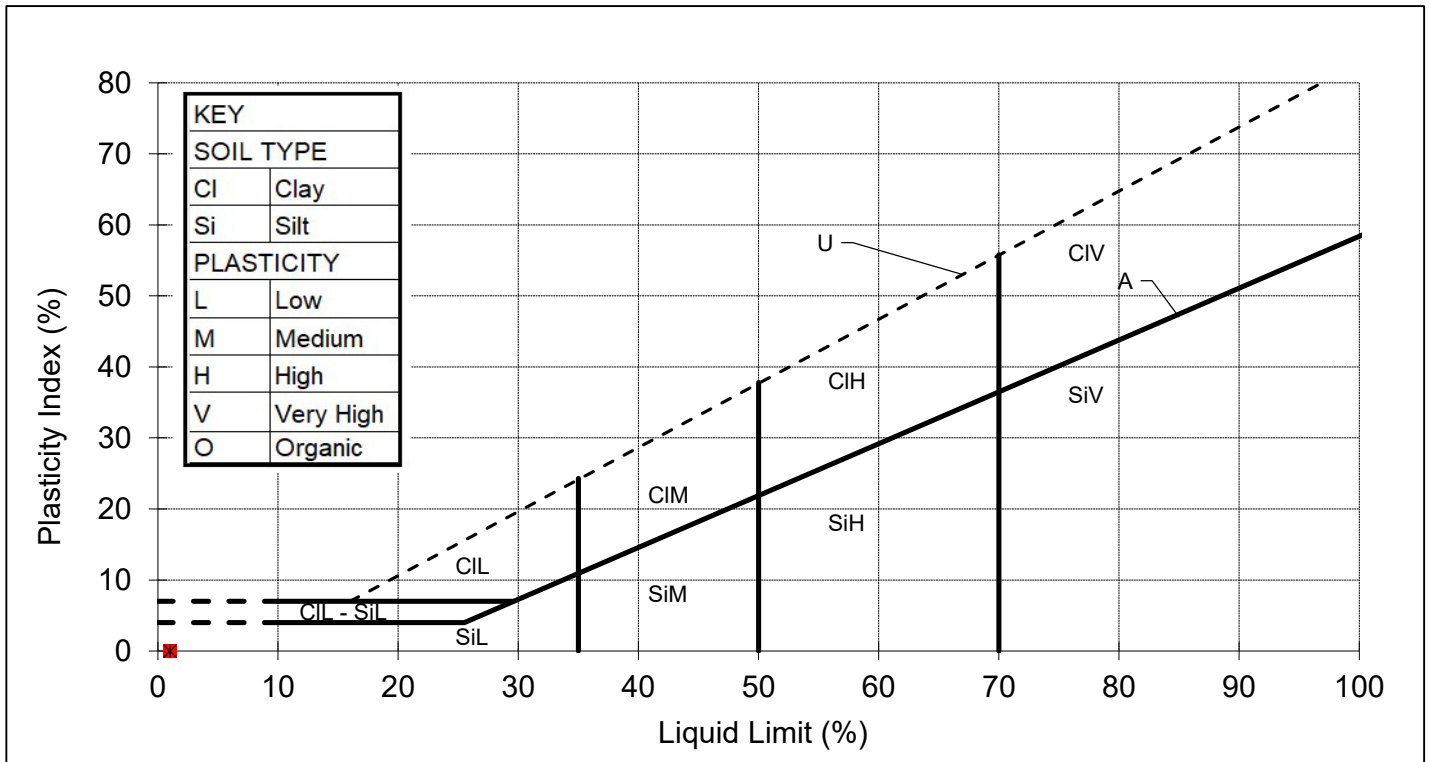
|            |                            |
|------------|----------------------------|
| CLIENT     | e3p                        |
| SITE       | 14-768 - Castleton Sidings |
| JOB NUMBER | MRN 24005/309              |

|              |           |               |             |
|--------------|-----------|---------------|-------------|
| SAMPLE LABEL | MG BF 111 | DATE SAMPLED  | Not advised |
| SAMPLE No.   | 596101    | DATE RECEIVED | 06-Nov-24   |
| DATE TESTED  | 07-Nov-24 | SAMPLED BY    | Client      |

|                |                           |                 |            |
|----------------|---------------------------|-----------------|------------|
| MATERIAL       | Made Ground               |                 |            |
| ADVISED SOURCE | Site Investigation Sample | WATER CONTENT   | Increasing |
| SAMPLE HISTORY | Natural State             | % RET. 425um BY | Wet Sieved |

| Test Readings mm (average) |     | Water Content % | Correction Factor | Correction factor from Clayton and Jukes 1978 |
|----------------------------|-----|-----------------|-------------------|-----------------------------------------------|
| Determination 1 (avg)      | N/A | N/A             | N/A               |                                               |
| Determination 2 (avg)      | N/A | N/A             |                   |                                               |

| Natural Water Content (%) | Liquid Limit (%) | Plastic Limit (%) | Plasticity Index (%) | Passing 425 micron (%) |
|---------------------------|------------------|-------------------|----------------------|------------------------|
| 15.2                      | N/A              | Non Plastic       | N/A                  | 31                     |



REMARKS

SIGNED

NAME

S.J. Hutchings  
(Director)

DATE

29-Nov-24

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

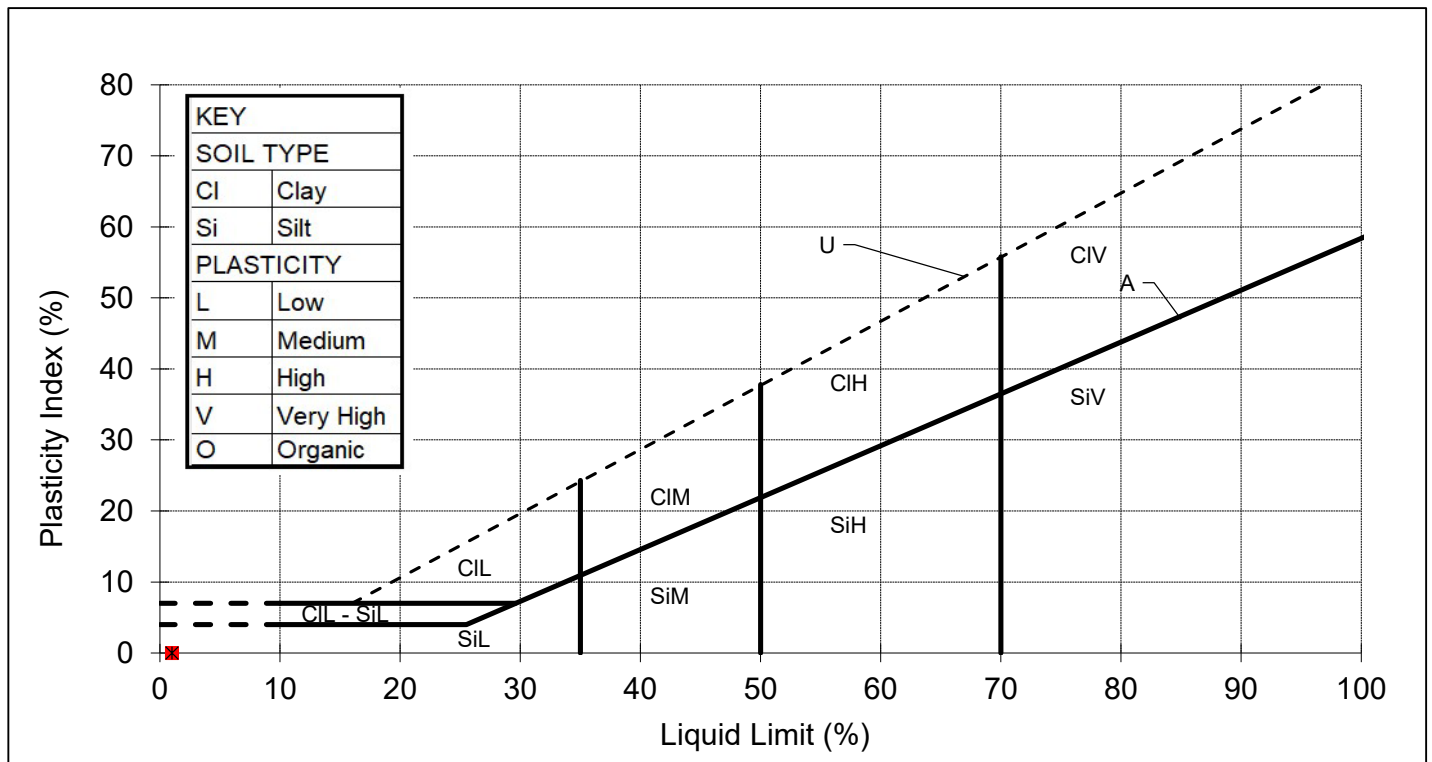
|            |                            |
|------------|----------------------------|
| CLIENT     | e3p                        |
| SITE       | 14-768 - Castleton Sidings |
| JOB NUMBER | MRN 24005/309              |

|              |           |               |             |
|--------------|-----------|---------------|-------------|
| SAMPLE LABEL | MG BF 112 | DATE SAMPLED  | Not advised |
| SAMPLE No.   | 589402    | DATE RECEIVED | 06-Nov-24   |
| DATE TESTED  | 07-Nov-24 | SAMPLED BY    | Client      |

|                |                           |                 |            |
|----------------|---------------------------|-----------------|------------|
| MATERIAL       | Made Ground               |                 |            |
| ADVISED SOURCE | Site Investigation Sample | WATER CONTENT   | Increasing |
| SAMPLE HISTORY | Natural State             | % RET. 425um BY | Wet Sieved |

| Test Readings mm (average) |     | Water Content % | Correction Factor | Correction factor from Clayton and Jukes 1978 |
|----------------------------|-----|-----------------|-------------------|-----------------------------------------------|
| Determination 1 (avg)      | N/A | N/A             | N/A               |                                               |
| Determination 2 (avg)      | N/A | N/A             |                   |                                               |

| Natural Water Content (%) | Liquid Limit (%) | Plastic Limit (%) | Plasticity Index (%) | Passing 425 micron (%) |
|---------------------------|------------------|-------------------|----------------------|------------------------|
| 17.5                      | N/A              | Non Plastic       | N/A                  | 29                     |



REMARKS

SIGNED

NAME

S.J. Hutchings  
(Director)

DATE

29-Nov-24

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP 2.5kg RAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

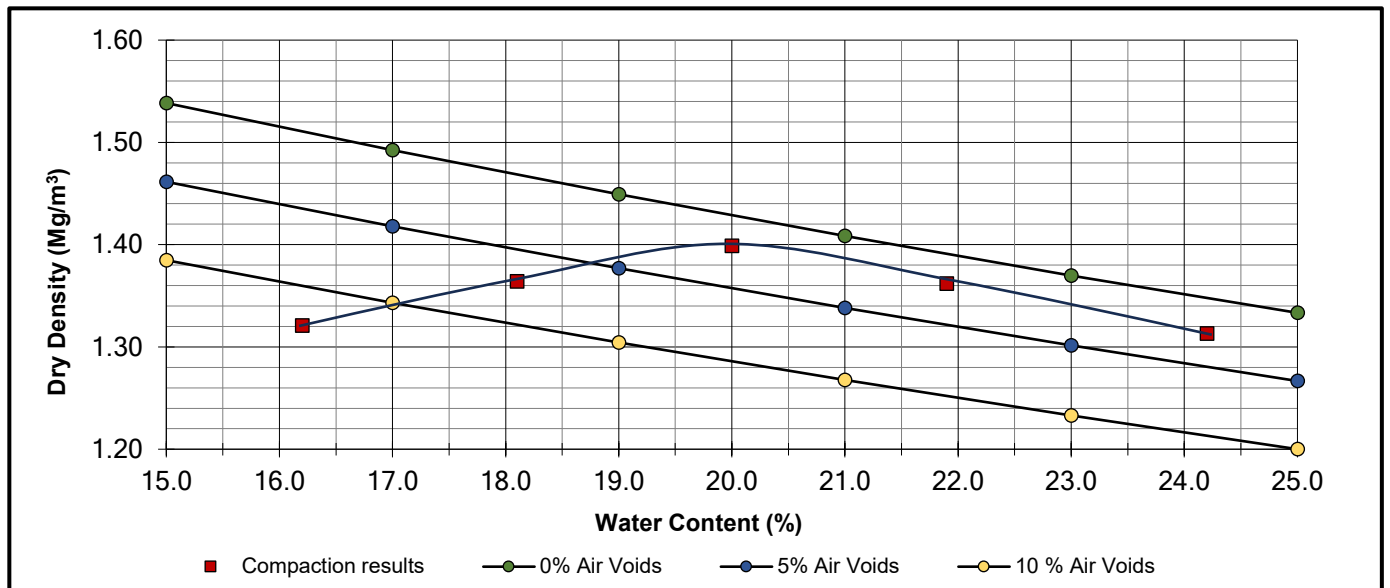
|            |                            |
|------------|----------------------------|
| CLIENT     | e3p                        |
| SITE       | 14-768 - Castleton Sidings |
| JOB NUMBER | MRN 24005/309              |

|               |           |               |             |
|---------------|-----------|---------------|-------------|
| SAMPLE LABEL  | MG BF 111 | DATE SAMPLED  | Not advised |
| SAMPLE NUMBER | 596101    | DATE RECEIVED | 06-Nov-24   |
| DATE TESTED   | 07-Nov-24 | SAMPLED BY    | Client      |

|                |                              |
|----------------|------------------------------|
| MATERIAL       | Made Ground                  |
| ADVISED SOURCE | Site Investigation Sample    |
| PRE TREATMENT  | Air Dried / Separate Batches |

|                 |      |                  |                                  |
|-----------------|------|------------------|----------------------------------|
| RETAINED 37.5mm | 6 %  | GRADING ZONE     | Zone X                           |
| RETAINED 20mm   | 35 % | PARTICLE DENSITY | 2.00 Mg/m <sup>3</sup> (Assumed) |

| POINT NUMBER | WATER CONTENT (%) | DRY DENSITY (Mg/m <sup>3</sup> ) |
|--------------|-------------------|----------------------------------|
| 1            | 16.2              | 1.321                            |
| 2            | 18.1              | 1.364                            |
| 3            | 20.0              | 1.399                            |
| 4            | 21.9              | 1.362                            |
| 5            | 24.2              | 1.313                            |



|                       |      |                      |
|-----------------------|------|----------------------|
| OPTIMUM WATER CONTENT | 20   | (%)                  |
| MAXIMUM DRY DENSITY   | 1.40 | (Mg/m <sup>3</sup> ) |

REMARKS

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

SIGNED

DATE 29-Nov-24

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP 2.5kg RAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

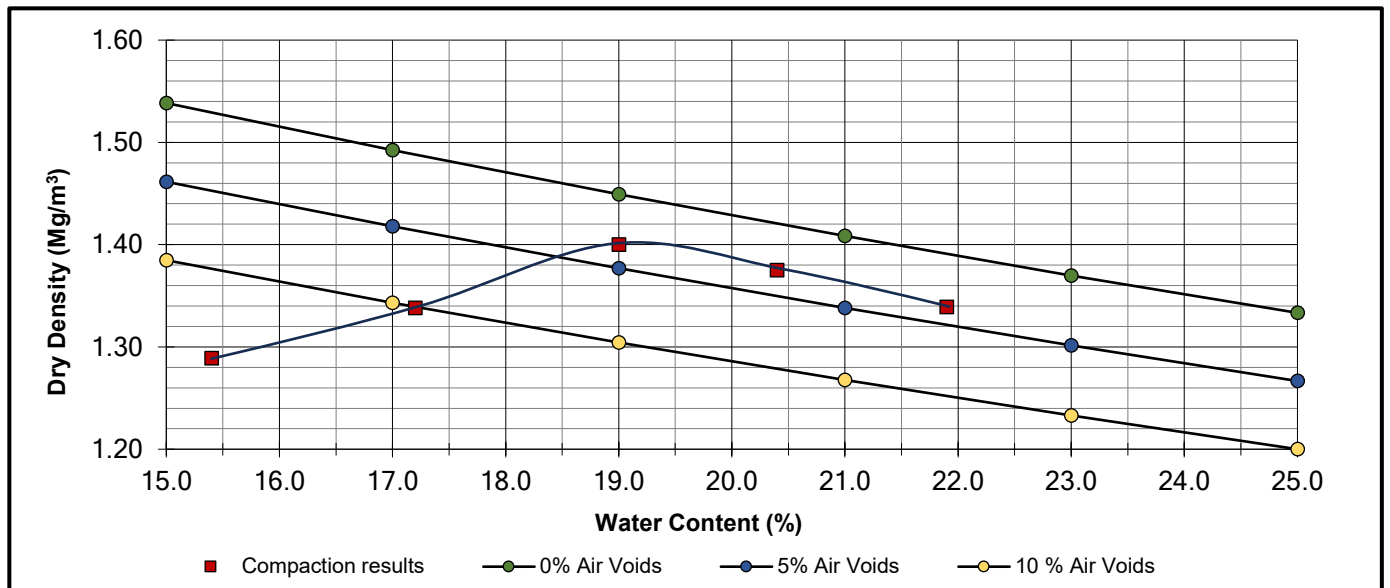
|            |                            |
|------------|----------------------------|
| CLIENT     | e3p                        |
| SITE       | 14-768 - Castleton Sidings |
| JOB NUMBER | MRN 24005/309              |

|               |           |               |             |
|---------------|-----------|---------------|-------------|
| SAMPLE LABEL  | MG BF 112 | DATE SAMPLED  | Not advised |
| SAMPLE NUMBER | 589402    | DATE RECEIVED | 06-Nov-24   |
| DATE TESTED   | 07-Nov-24 | SAMPLED BY    | Client      |

|                |                              |
|----------------|------------------------------|
| MATERIAL       | Made Ground                  |
| ADVISED SOURCE | Site Investigation Sample    |
| PRE TREATMENT  | Air Dried / Separate Batches |

|                 |      |                  |                                  |
|-----------------|------|------------------|----------------------------------|
| RETAINED 37.5mm | 9 %  | GRADING ZONE     | Zone X                           |
| RETAINED 20mm   | 32 % | PARTICLE DENSITY | 2.00 Mg/m <sup>3</sup> (Assumed) |

| POINT NUMBER | WATER CONTENT (%) | DRY DENSITY (Mg/m <sup>3</sup> ) |
|--------------|-------------------|----------------------------------|
| 1            | 15.4              | 1.289                            |
| 2            | 17.2              | 1.338                            |
| 3            | 19.0              | 1.400                            |
| 4            | 20.4              | 1.375                            |
| 5            | 21.9              | 1.339                            |



|                       |                           |
|-----------------------|---------------------------|
| OPTIMUM WATER CONTENT | 19 (%)                    |
| MAXIMUM DRY DENSITY   | 1.40 (Mg/m <sup>3</sup> ) |

REMARKS

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

SIGNED

DATE 29-Nov-24

## TEST REPORT

**Client** e3p

**Address** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contract** 14-768 -  
Castleton Sidings

**Job Number** MRN 25005/3  
**Date of Issue** 06 January 2025  
**Page** 1 of 7

Approved Signatories

S J Hutchings, O P Davies

### Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870  
Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

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**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**  
BS EN ISO 17892-4:2016

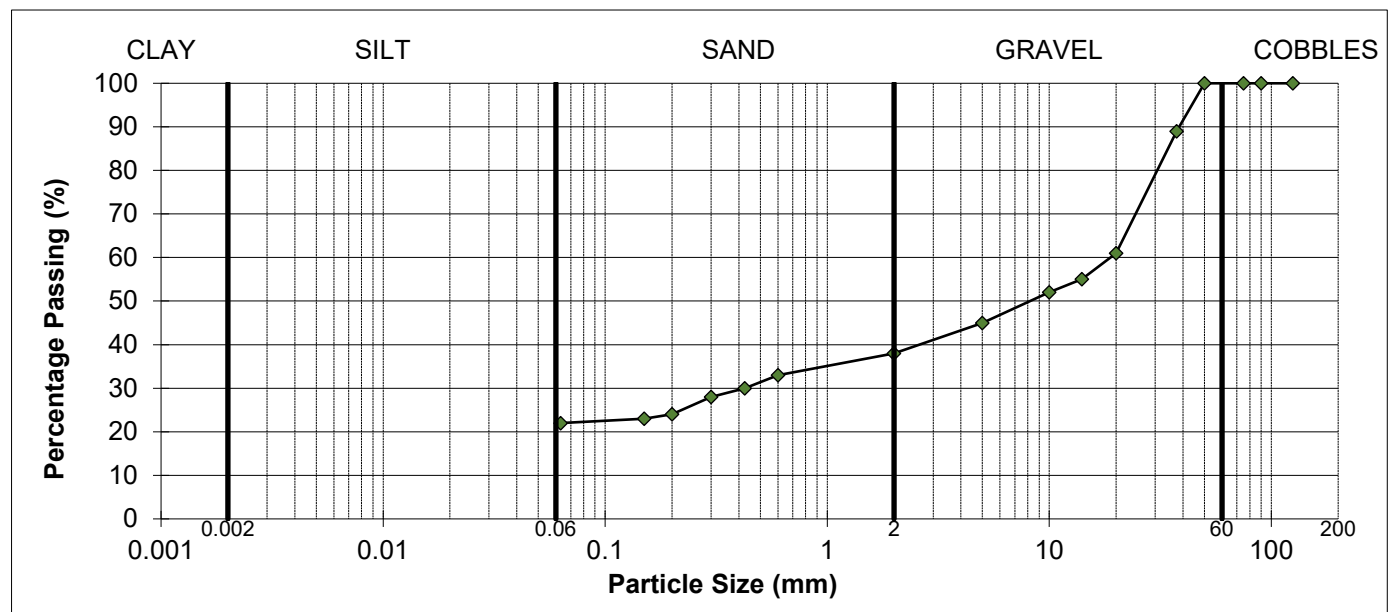
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                            |
|------------|----------------------------|
| CLIENT     | e3p                        |
| SITE       | 14-768 - Castleton Sidings |
| JOB NUMBER | MRN 25005/3                |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | MG BF 113 | DATE SAMPLED  | 27-Nov-24 |
| LAB SAMPLE No | 609301    | DATE RECEIVED | 04-Dec-24 |
| DATE TESTED   | 09-Dec-24 | SAMPLED BY    | Client    |

|                |             |
|----------------|-------------|
| MATERIAL       | Made Ground |
| ADVISED SOURCE | Site Won    |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 45            |                   |
| 90              | 100           |                   | 2               | 38            | 15-80             |
| 75              | 100           |                   | 0.6             | 33            |                   |
| 50              | 100           |                   | 0.425           | 30            |                   |
| 37.5            | 89            |                   | 0.3             | 28            |                   |
| 20              | 61            |                   | 0.2             | 24            |                   |
| 14              | 55            |                   | 0.15            | 23            |                   |
| 10              | 52            |                   | 0.063           | 22            | 15-80             |



| SOIL FRACTIONS            |     |             |     |
|---------------------------|-----|-------------|-----|
| COBBLES                   | 0%  | SAND        | 16% |
| GRAVEL                    | 62% | SILT / CLAY | 22% |
| As received water content |     | 18.2%       |     |

REMARKS

Sample complies with the advised grading specification for a 2C material (SHW, Feb 2017)

SIGNED



NAME

O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE

06-Jan-25



# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

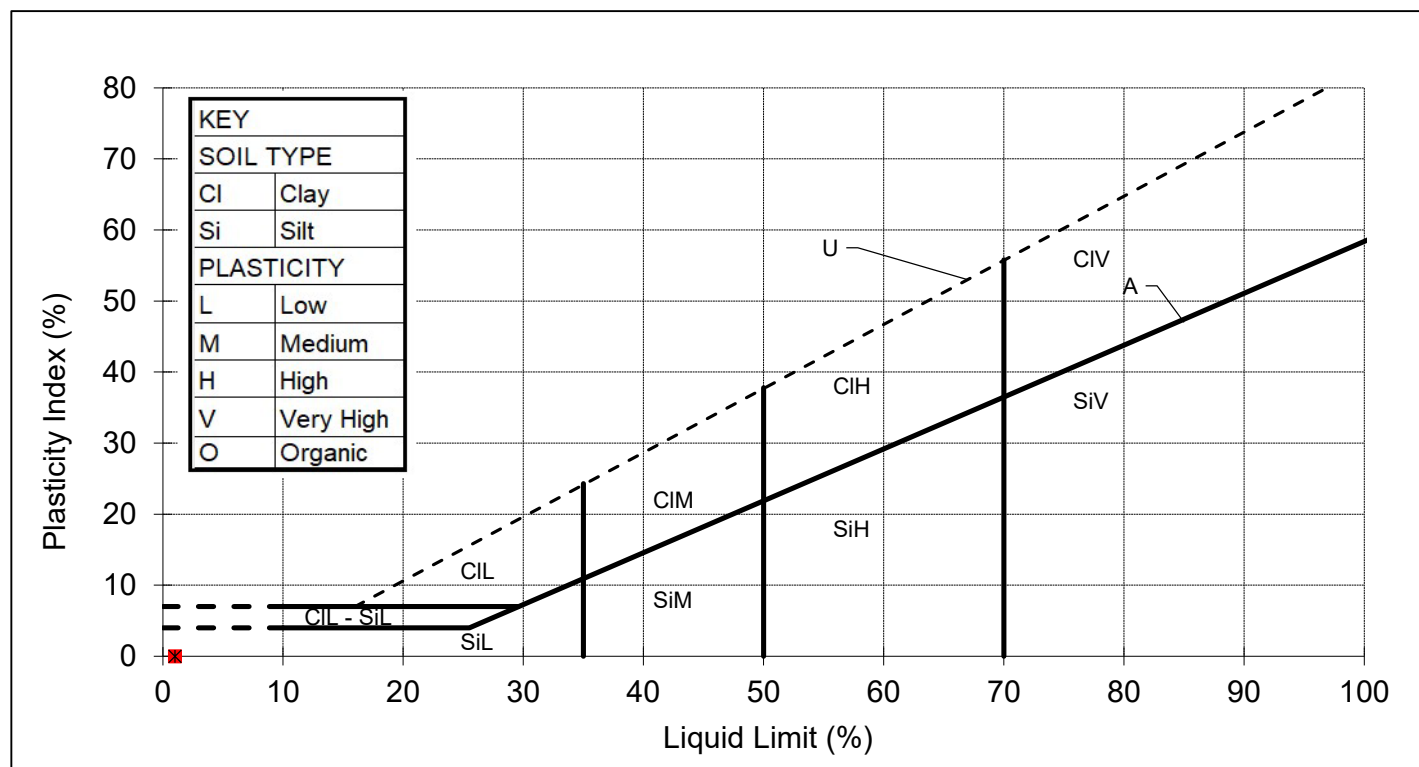
|            |                            |
|------------|----------------------------|
| CLIENT     | e3p                        |
| SITE       | 14-768 - Castleton Sidings |
| JOB NUMBER | MRN 25005/3                |

|              |           |               |           |
|--------------|-----------|---------------|-----------|
| SAMPLE LABEL | MG BF 113 | DATE SAMPLED  | 27-Nov-24 |
| SAMPLE No.   | 609301    | DATE RECEIVED | 04-Dec-24 |
| DATE TESTED  | 09-Dec-24 | SAMPLED BY    | Client    |

|                |                           |                 |            |
|----------------|---------------------------|-----------------|------------|
| MATERIAL       | Made Ground               |                 |            |
| ADVISED SOURCE | Site Investigation Sample | WATER CONTENT   | Increasing |
| SAMPLE HISTORY | Natural State             | % RET. 425um BY | Wet Sieved |

| Test Readings mm (average) |     | Water Content % | Correction Factor | Correction factor from Clayton and Jukes 1978 |
|----------------------------|-----|-----------------|-------------------|-----------------------------------------------|
| Determination 1 (avg)      | N/A | N/A             | N/A               |                                               |
| Determination 2 (avg)      | N/A | N/A             |                   |                                               |

| Natural Water Content (%) | Liquid Limit (%) | Plastic Limit (%) | Plasticity Index (%) | Passing 425 micron (%) |
|---------------------------|------------------|-------------------|----------------------|------------------------|
| 18.2                      | N/A              | Non Plastic       | N/A                  | 30                     |



REMARKS

SIGNED

NAME

O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE

06-Jan-25

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP 2.5kg RAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

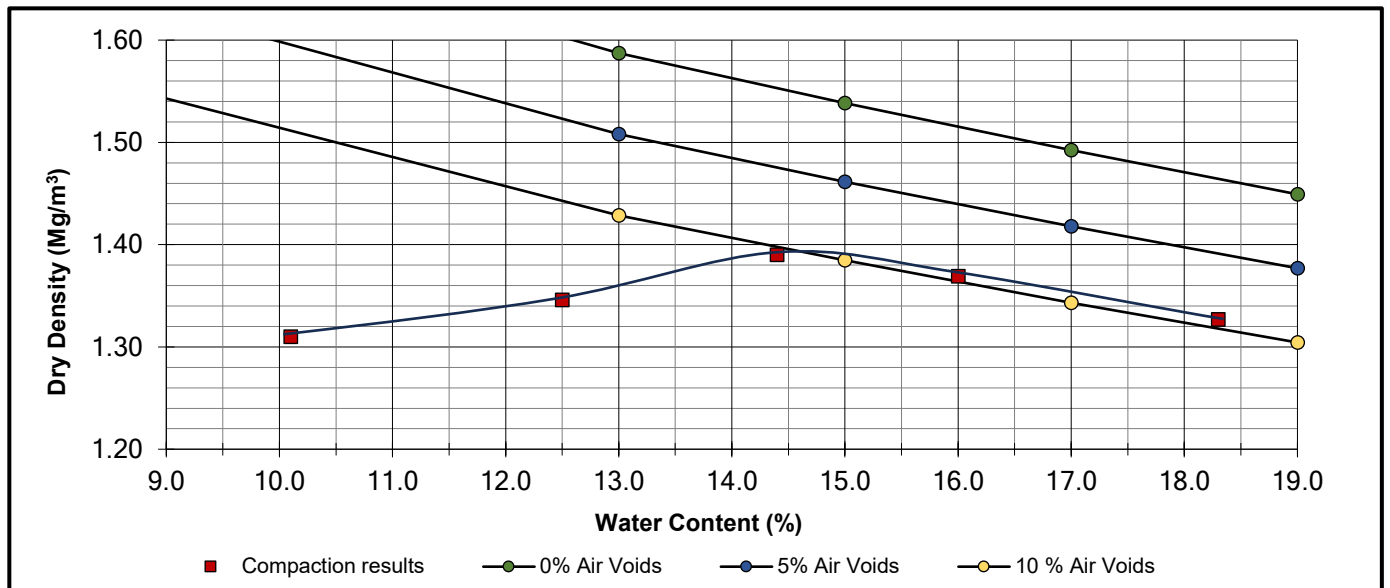
|            |                            |
|------------|----------------------------|
| CLIENT     | e3p                        |
| SITE       | 14-768 - Castleton Sidings |
| JOB NUMBER | MRN 25005/3                |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | MG BF 113 | DATE SAMPLED  | 27-Nov-24 |
| SAMPLE NUMBER | 609301    | DATE RECEIVED | 04-Dec-24 |
| DATE TESTED   | 09-Dec-24 | SAMPLED BY    | Client    |

|                |                              |
|----------------|------------------------------|
| MATERIAL       | Made Ground                  |
| ADVISED SOURCE | Site Won                     |
| PRE TREATMENT  | Air Dried / Separate Batches |

|                 |      |                  |                                  |
|-----------------|------|------------------|----------------------------------|
| RETAINED 37.5mm | 11 % | GRADING ZONE     | Zone X                           |
| RETAINED 20mm   | 39 % | PARTICLE DENSITY | 2.00 Mg/m <sup>3</sup> (Assumed) |

| POINT NUMBER | WATER CONTENT (%) | DRY DENSITY (Mg/m <sup>3</sup> ) |
|--------------|-------------------|----------------------------------|
| 1            | 10.1              | 1.310                            |
| 2            | 12.5              | 1.346                            |
| 3            | 14.4              | 1.390                            |
| 4            | 16.0              | 1.369                            |
| 5            | 18.3              | 1.327                            |



|                       |      |                      |
|-----------------------|------|----------------------|
| OPTIMUM WATER CONTENT | 15   | (%)                  |
| MAXIMUM DRY DENSITY   | 1.39 | (Mg/m <sup>3</sup> ) |

REMARKS

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

SIGNED

DATE 06-Jan-25

**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**  
BS EN ISO 17892-4:2016

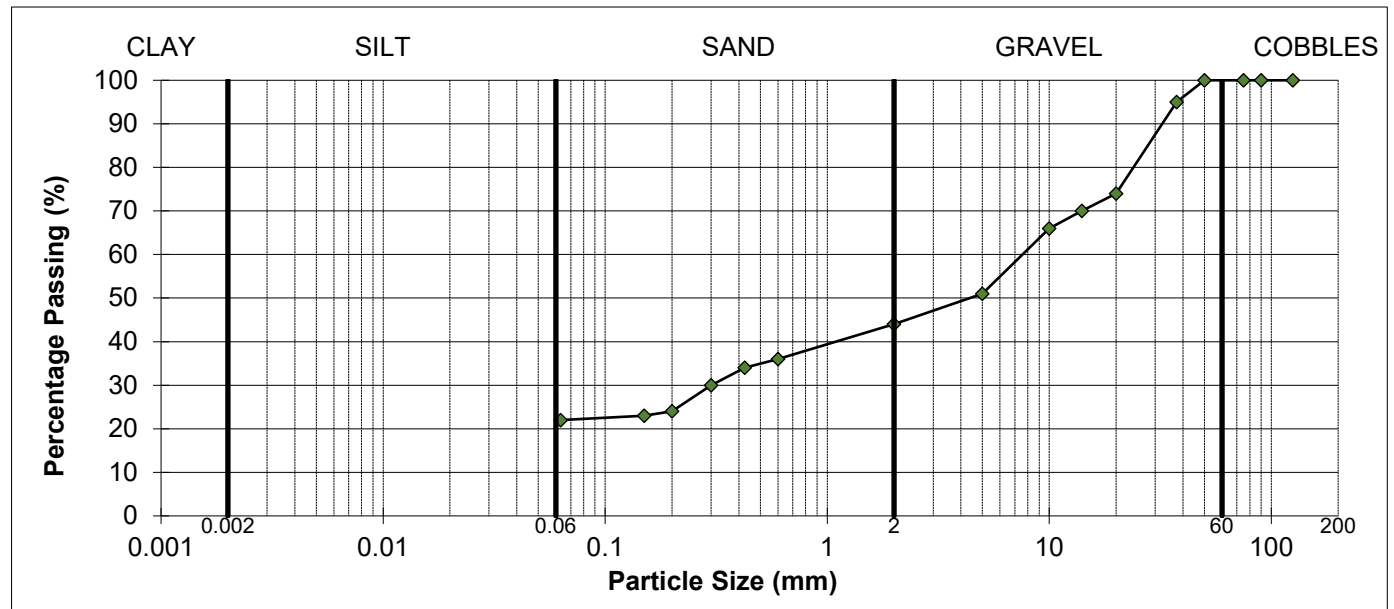
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                            |
|------------|----------------------------|
| CLIENT     | e3p                        |
| SITE       | 14-768 - Castleton Sidings |
| JOB NUMBER | MRN 25005/3                |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | MG BF 114 | DATE SAMPLED  | 27-Nov-24 |
| LAB SAMPLE No | 609302    | DATE RECEIVED | 04-Dec-24 |
| DATE TESTED   | 09-Dec-24 | SAMPLED BY    | Client    |

|                |             |
|----------------|-------------|
| MATERIAL       | Made Ground |
| ADVISED SOURCE | Site Won    |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 51            |                   |
| 90              | 100           |                   | 2               | 44            | 15-80             |
| 75              | 100           |                   | 0.6             | 36            |                   |
| 50              | 100           |                   | 0.425           | 34            |                   |
| 37.5            | 95            |                   | 0.3             | 30            |                   |
| 20              | 74            |                   | 0.2             | 24            |                   |
| 14              | 70            |                   | 0.15            | 23            |                   |
| 10              | 66            |                   | 0.063           | 22            | 15-80             |



| SOIL FRACTIONS            |     |             |     |
|---------------------------|-----|-------------|-----|
| COBBLES                   | 0%  | SAND        | 22% |
| GRAVEL                    | 56% | SILT / CLAY | 22% |
| As received water content |     | 24.5%       |     |

REMARKS

Sample complies with the advised grading specification for a 2C material (SHW, Feb 2017)

SIGNED   
NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 06-Jan-25

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

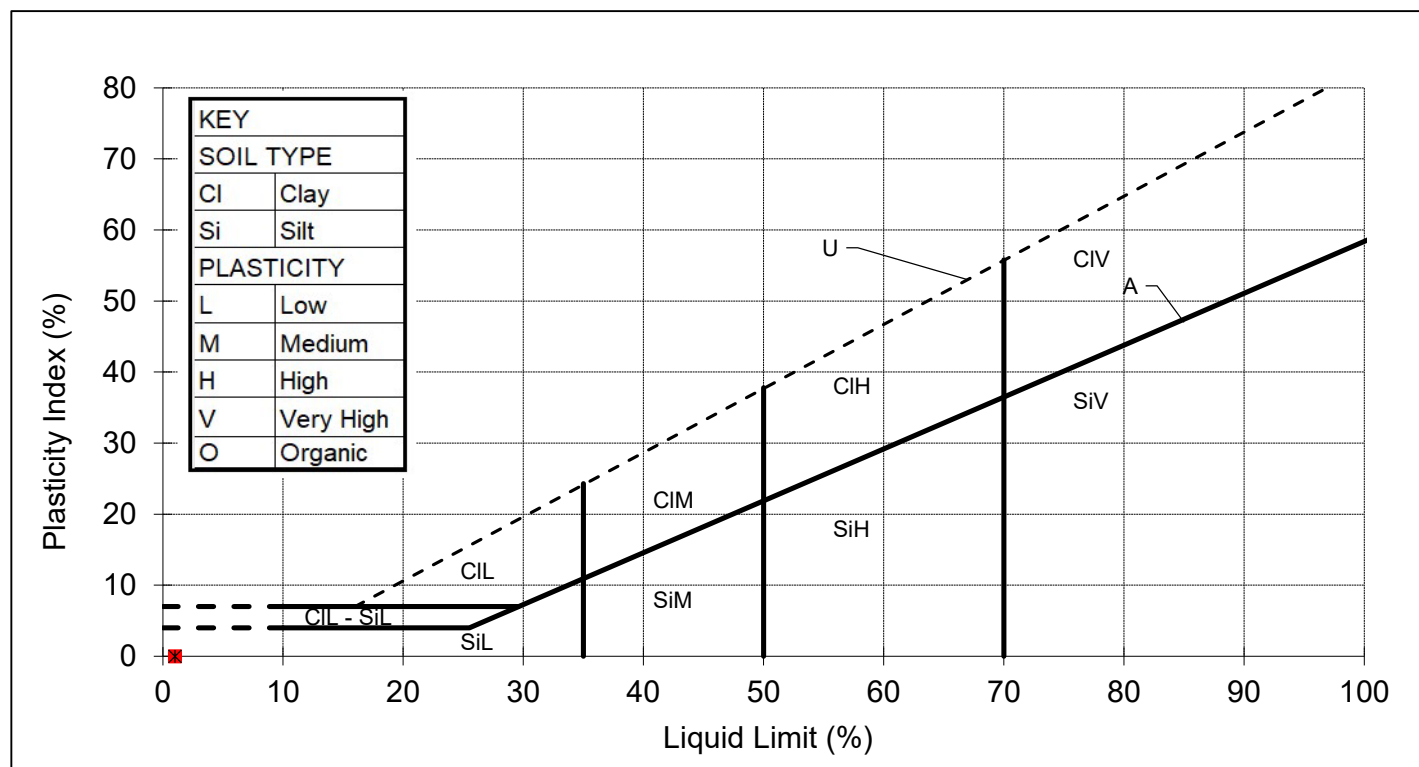
|            |                            |
|------------|----------------------------|
| CLIENT     | e3p                        |
| SITE       | 14-768 - Castleton Sidings |
| JOB NUMBER | MRN 25005/3                |

|              |           |               |           |
|--------------|-----------|---------------|-----------|
| SAMPLE LABEL | MG BF 114 | DATE SAMPLED  | 27-Nov-24 |
| SAMPLE No.   | 609302    | DATE RECEIVED | 04-Dec-24 |
| DATE TESTED  | 09-Dec-24 | SAMPLED BY    | Client    |

|                |                           |                 |            |
|----------------|---------------------------|-----------------|------------|
| MATERIAL       | Made Ground               |                 |            |
| ADVISED SOURCE | Site Investigation Sample | WATER CONTENT   | Increasing |
| SAMPLE HISTORY | Natural State             | % RET. 425um BY | Wet Sieved |

| Test Readings mm (average) |     | Water Content % | Correction Factor | Correction factor from Clayton and Jukes 1978 |
|----------------------------|-----|-----------------|-------------------|-----------------------------------------------|
| Determination 1 (avg)      | N/A | N/A             | N/A               |                                               |
| Determination 2 (avg)      | N/A | N/A             |                   |                                               |

| Natural Water Content (%) | Liquid Limit (%) | Plastic Limit (%) | Plasticity Index (%) | Passing 425 micron (%) |
|---------------------------|------------------|-------------------|----------------------|------------------------|
| 24.5                      | N/A              | Non Plastic       | N/A                  | 34                     |



REMARKS

SIGNED

NAME

O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE

06-Jan-25

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP 2.5kg RAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

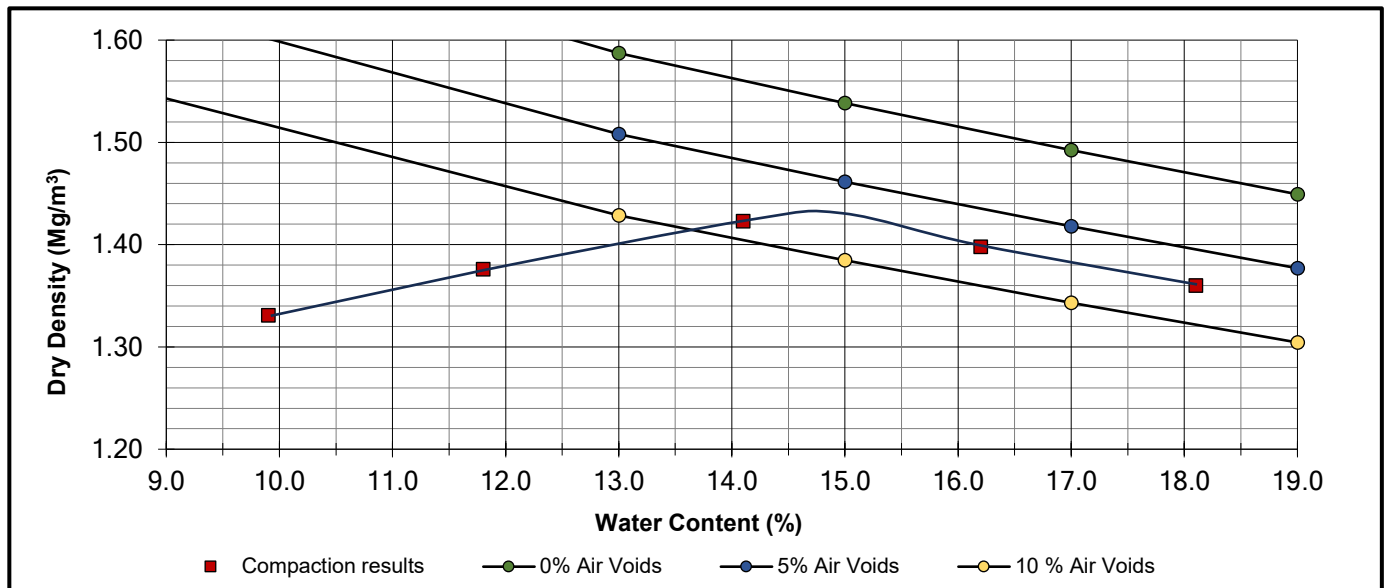
|            |                            |
|------------|----------------------------|
| CLIENT     | e3p                        |
| SITE       | 14-768 - Castleton Sidings |
| JOB NUMBER | MRN 25005/3                |

|               |           |               |           |
|---------------|-----------|---------------|-----------|
| SAMPLE LABEL  | MG BF 114 | DATE SAMPLED  | 27-Nov-24 |
| SAMPLE NUMBER | 609302    | DATE RECEIVED | 04-Dec-24 |
| DATE TESTED   | 09-Dec-24 | SAMPLED BY    | Client    |

|                |                              |
|----------------|------------------------------|
| MATERIAL       | Made Ground                  |
| ADVISED SOURCE | Site Won                     |
| PRE TREATMENT  | Air Dried / Separate Batches |

|                 |      |                  |                                  |
|-----------------|------|------------------|----------------------------------|
| RETAINED 37.5mm | 5 %  | GRADING ZONE     | Zone 4                           |
| RETAINED 20mm   | 26 % | PARTICLE DENSITY | 2.00 Mg/m <sup>3</sup> (Assumed) |

| POINT NUMBER | WATER CONTENT (%) | DRY DENSITY (Mg/m <sup>3</sup> ) |
|--------------|-------------------|----------------------------------|
| 1            | 9.9               | 1.331                            |
| 2            | 11.8              | 1.376                            |
| 3            | 14.1              | 1.423                            |
| 4            | 16.2              | 1.398                            |
| 5            | 18.1              | 1.360                            |



|                       |                           |
|-----------------------|---------------------------|
| OPTIMUM WATER CONTENT | 15 (%)                    |
| MAXIMUM DRY DENSITY   | 1.43 (Mg/m <sup>3</sup> ) |

REMARKS

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

SIGNED

DATE 06-Jan-25

## TEST REPORT

**Client** e3p

**Address** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contract** 14-768 -  
Castleton Sidings

**Job Number** MRN 25005/12  
**Date of Issue** 16 January 2025  
**Page** 1 of 7

Approved Signatories

S J Hutchings, O P Davies

### Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870  
Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

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**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**  
BS EN ISO 17892-4:2016

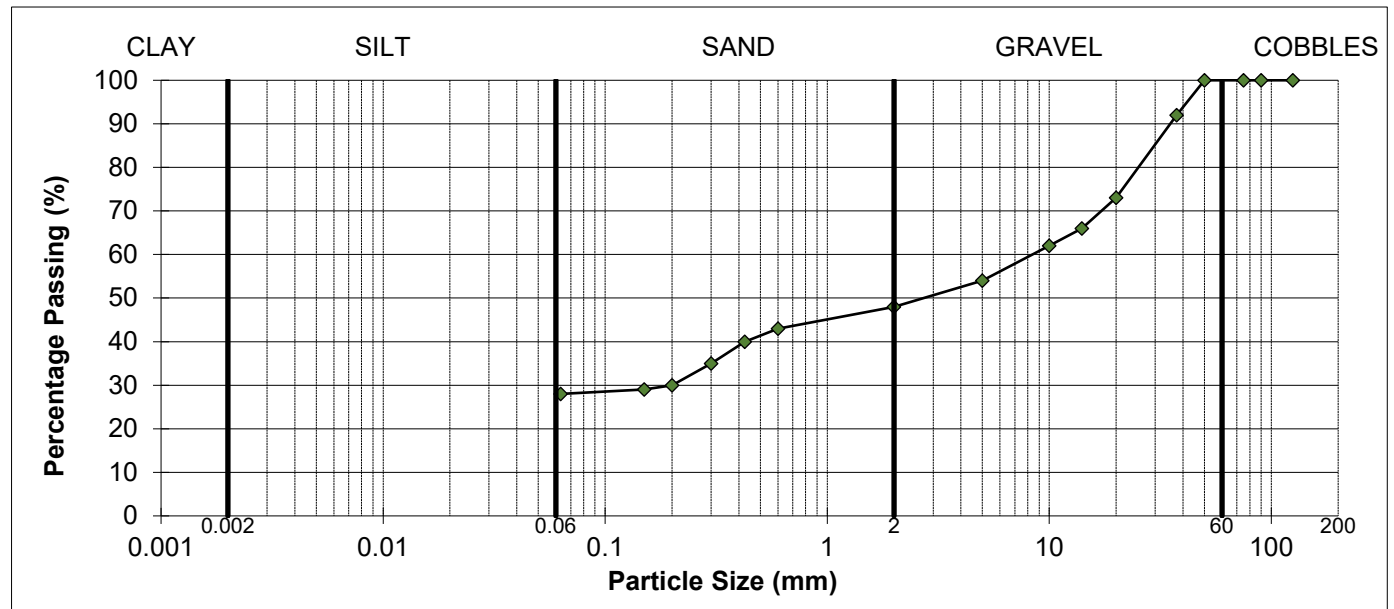
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                            |
|------------|----------------------------|
| CLIENT     | e3p                        |
| SITE       | 14-768 - Castleton Sidings |
| JOB NUMBER | MRN 25005/12               |

|               |           |               |             |
|---------------|-----------|---------------|-------------|
| SAMPLE LABEL  | MG BF 115 | DATE SAMPLED  | Not advised |
| LAB SAMPLE No | 613801    | DATE RECEIVED | 11-Dec-24   |
| DATE TESTED   | 16-Dec-24 | SAMPLED BY    | Client      |

|                |                           |
|----------------|---------------------------|
| MATERIAL       | Made Ground               |
| ADVISED SOURCE | Site Investigation Sample |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 54            |                   |
| 90              | 100           |                   | 2               | 48            | 15-80             |
| 75              | 100           |                   | 0.6             | 43            |                   |
| 50              | 100           |                   | 0.425           | 40            |                   |
| 37.5            | 92            |                   | 0.3             | 35            |                   |
| 20              | 73            |                   | 0.2             | 30            |                   |
| 14              | 66            |                   | 0.15            | 29            |                   |
| 10              | 62            |                   | 0.063           | 28            | 15-80             |



| SOIL FRACTIONS            |     |             |     |
|---------------------------|-----|-------------|-----|
| COBBLES                   | 0%  | SAND        | 20% |
| GRAVEL                    | 52% | SILT / CLAY | 28% |
| As received water content |     | 18.0%       |     |

REMARKS

Sample complies with the advised grading specification for a 2C material (SHW, Feb 2017)

SIGNED   
NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 16-Jan-25

**TEST CERTIFICATE**  
**PARTICLE SIZE DISTRIBUTION**  
BS EN ISO 17892-4:2016

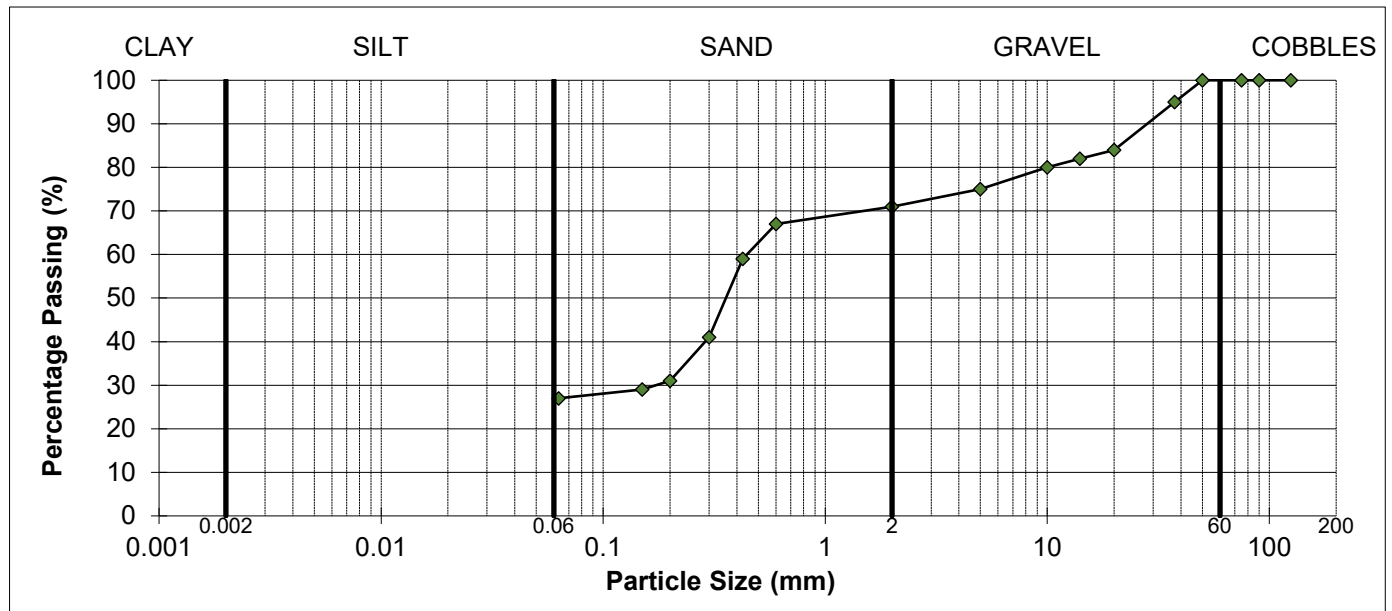
Determination of Water Content in accordance with BS EN ISO 17892-1:2014+A1:2022 (Oven Dry)

|            |                            |
|------------|----------------------------|
| CLIENT     | e3p                        |
| SITE       | 14-768 - Castleton Sidings |
| JOB NUMBER | MRN 25005/12               |

|               |           |               |             |
|---------------|-----------|---------------|-------------|
| SAMPLE LABEL  | MG BF 116 | DATE SAMPLED  | Not advised |
| LAB SAMPLE No | 613802    | DATE RECEIVED | 11-Dec-24   |
| DATE TESTED   | 16-Dec-24 | SAMPLED BY    | Client      |

|                |                           |
|----------------|---------------------------|
| MATERIAL       | Made Ground               |
| ADVISED SOURCE | Site Investigation Sample |

| Sieve Size (mm) | % Passing (%) | Specification (%) | Sieve Size (mm) | % Passing (%) | Specification (%) |
|-----------------|---------------|-------------------|-----------------|---------------|-------------------|
| 125             | 100           | 100               | 5               | 75            |                   |
| 90              | 100           |                   | 2               | 71            | 15-80             |
| 75              | 100           |                   | 0.6             | 67            |                   |
| 50              | 100           |                   | 0.425           | 59            |                   |
| 37.5            | 95            |                   | 0.3             | 41            |                   |
| 20              | 84            |                   | 0.2             | 31            |                   |
| 14              | 82            |                   | 0.15            | 29            |                   |
| 10              | 80            |                   | 0.063           | 27            | 15-80             |



| SOIL FRACTIONS            |     |             |     |
|---------------------------|-----|-------------|-----|
| COBBLES                   | 0%  | SAND        | 44% |
| GRAVEL                    | 29% | SILT / CLAY | 27% |
| As received water content |     | 15.1%       |     |

REMARKS

Sample complies with the advised grading specification for a 2C material (SHW, Feb 2017)

SIGNED



NAME

O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE

16-Jan-25

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

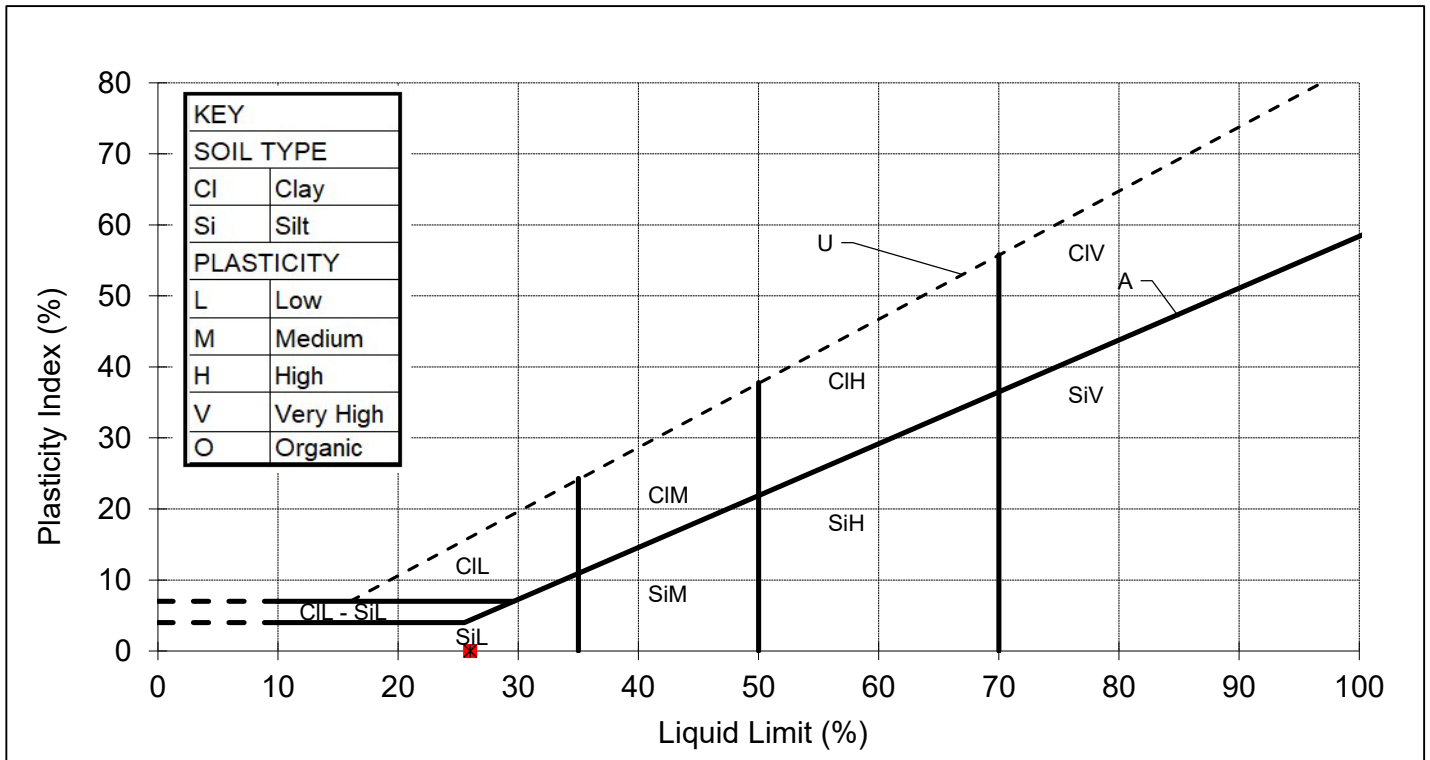
|            |                            |
|------------|----------------------------|
| CLIENT     | e3p                        |
| SITE       | 14-768 - Castleton Sidings |
| JOB NUMBER | MRN 25005/12               |

|              |           |               |             |
|--------------|-----------|---------------|-------------|
| SAMPLE LABEL | MG BF 115 | DATE SAMPLED  | Not advised |
| SAMPLE No.   | 613801    | DATE RECEIVED | 11-Dec-24   |
| DATE TESTED  | 16-Dec-24 | SAMPLED BY    | Client      |

|                |                           |                 |            |
|----------------|---------------------------|-----------------|------------|
| MATERIAL       | Made Ground               |                 |            |
| ADVISED SOURCE | Site Investigation Sample | WATER CONTENT   | Increasing |
| SAMPLE HISTORY | Natural State             | % RET. 425um BY | Wet Sieved |

| Test Readings mm (average) |      | Water Content % | Correction Factor | Correction factor from Clayton and Jukes 1978 |
|----------------------------|------|-----------------|-------------------|-----------------------------------------------|
| Determination 1 (avg)      | 20.0 | N/A             | 1.000             |                                               |
| Determination 2 (avg)      | 20.0 | N/A             |                   |                                               |

| Natural Water Content (%) | Liquid Limit (%) | Plastic Limit (%) | Plasticity Index (%) | Passing 425 micron (%) |
|---------------------------|------------------|-------------------|----------------------|------------------------|
| 18.0                      | 26               | Non Plastic       | #VALUE!              | 40                     |



REMARKS

SIGNED

NAME

O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE

16-Jan-25

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

LIQUID LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.3 (30° FALL CONE) 1 POINT METHOD

PLASTIC LIMIT BS EN ISO 17892-12:2018+A2:2022 Clause 5.5

WATER CONTENT METHOD BS EN ISO 17892-1:2014+A1:2022

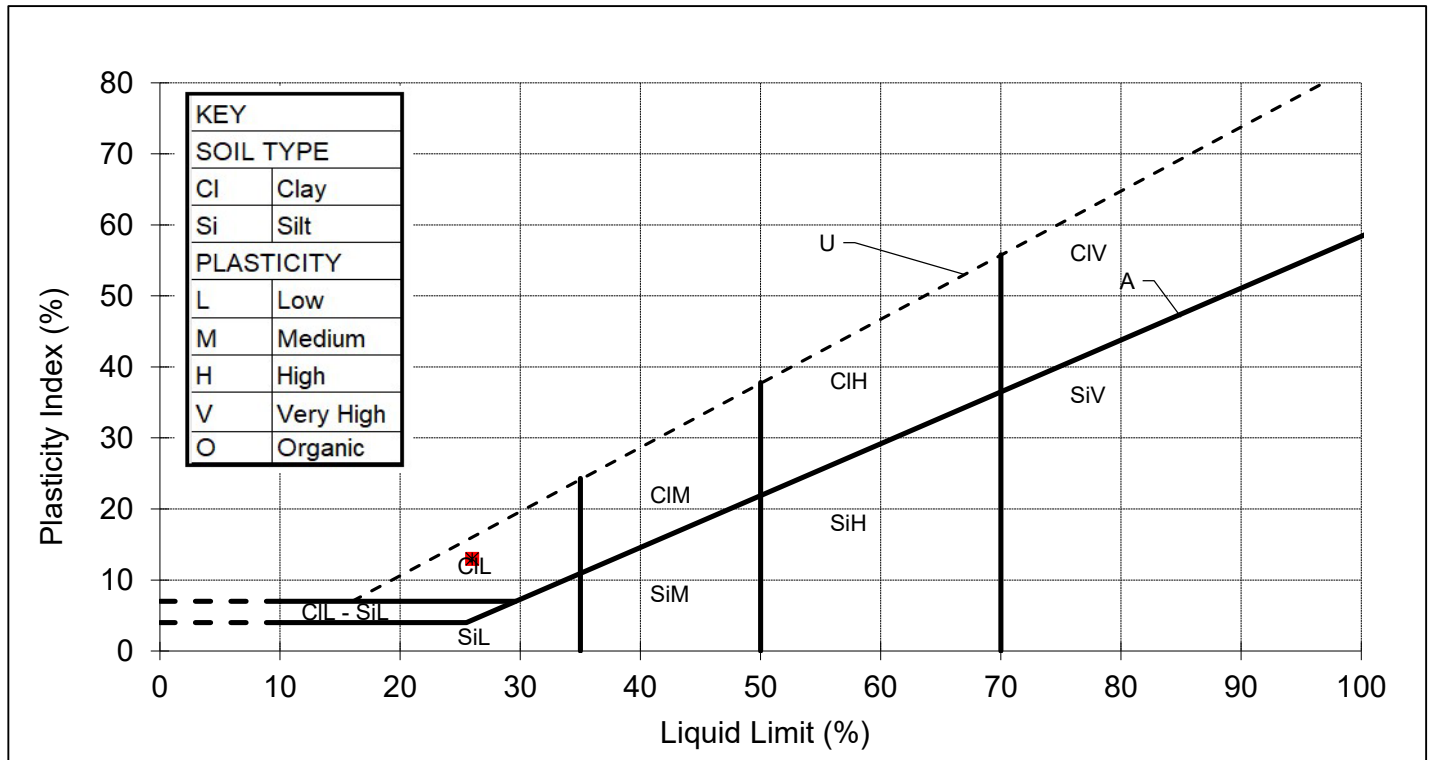
|            |                            |
|------------|----------------------------|
| CLIENT     | e3p                        |
| SITE       | 14-768 - Castleton Sidings |
| JOB NUMBER | MRN 25005/12               |

|              |           |               |             |
|--------------|-----------|---------------|-------------|
| SAMPLE LABEL | MG BF 116 | DATE SAMPLED  | Not advised |
| SAMPLE No.   | 613802    | DATE RECEIVED | 11-Dec-24   |
| DATE TESTED  | 16-Dec-24 | SAMPLED BY    | Client      |

|                |                           |                 |            |
|----------------|---------------------------|-----------------|------------|
| MATERIAL       | Made Ground               |                 |            |
| ADVISED SOURCE | Site Investigation Sample | WATER CONTENT   | Increasing |
| SAMPLE HISTORY | Natural State             | % RET. 425um BY | Wet Sieved |

| Test Readings mm (average) |      | Water Content % | Correction Factor | Correction factor from Clayton and Jukes 1978 |
|----------------------------|------|-----------------|-------------------|-----------------------------------------------|
| Determination 1 (avg)      | 20.0 | 25.6            | 1.000             |                                               |
| Determination 2 (avg)      | 20.0 | 25.4            |                   |                                               |

| Natural Water Content (%) | Liquid Limit (%) | Plastic Limit (%) | Plasticity Index (%) | Passing 425 micron (%) |
|---------------------------|------------------|-------------------|----------------------|------------------------|
| 15.1                      | 26               | 13                | 13                   | 59                     |



REMARKS

SIGNED

NAME

O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE

16-Jan-25

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP 2.5kg RAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

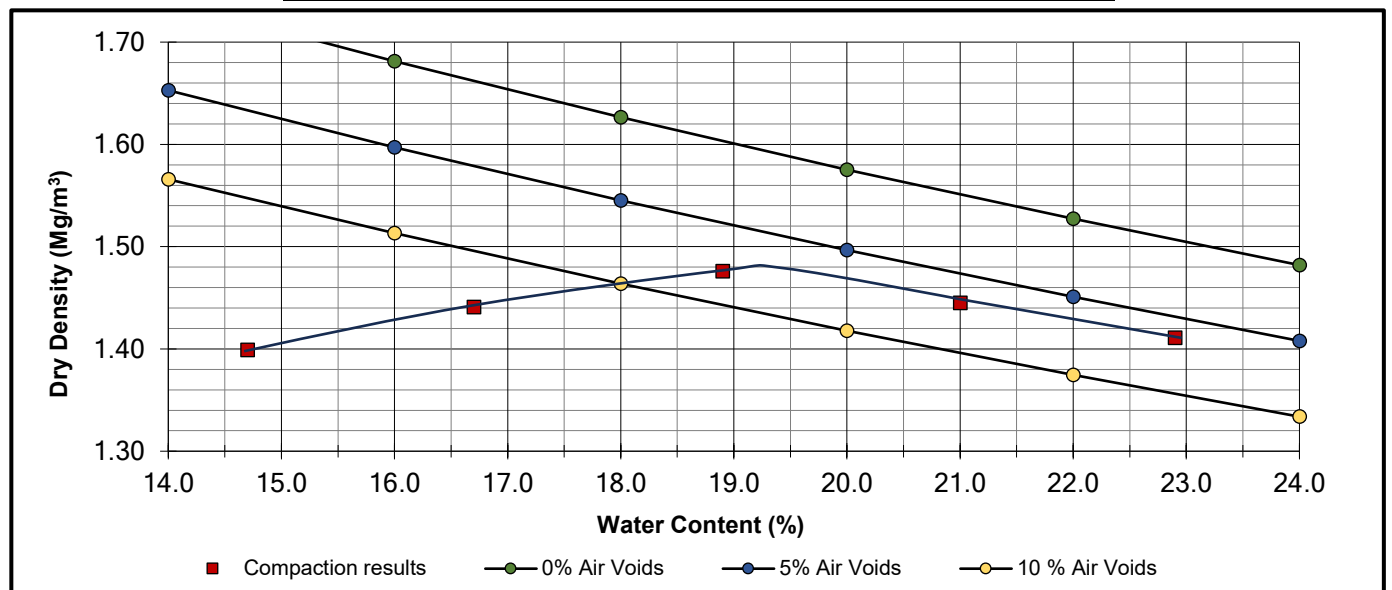
|            |                            |
|------------|----------------------------|
| CLIENT     | e3p                        |
| SITE       | 14-768 - Castleton Sidings |
| JOB NUMBER | MRN 25005/12               |

|               |           |               |             |
|---------------|-----------|---------------|-------------|
| SAMPLE LABEL  | MG BF 115 | DATE SAMPLED  | Not advised |
| SAMPLE NUMBER | 613801    | DATE RECEIVED | 11-Dec-24   |
| DATE TESTED   | 16-Dec-24 | SAMPLED BY    | Client      |

|                |                              |
|----------------|------------------------------|
| MATERIAL       | Made Ground                  |
| ADVISED SOURCE | Site Investigation Sample    |
| PRE TREATMENT  | Air Dried / Separate Batches |

|                 |      |                  |                                  |
|-----------------|------|------------------|----------------------------------|
| RETAINED 37.5mm | 8 %  | GRADING ZONE     | Zone 5                           |
| RETAINED 20mm   | 27 % | PARTICLE DENSITY | 2.30 Mg/m <sup>3</sup> (Assumed) |

| POINT NUMBER | WATER CONTENT (%) | DRY DENSITY (Mg/m <sup>3</sup> ) |
|--------------|-------------------|----------------------------------|
| 1            | 14.7              | 1.399                            |
| 2            | 16.7              | 1.441                            |
| 3            | 18.9              | 1.476                            |
| 4            | 21.0              | 1.445                            |
| 5            | 22.9              | 1.411                            |



|                       |                           |
|-----------------------|---------------------------|
| OPTIMUM WATER CONTENT | 19 (%)                    |
| MAXIMUM DRY DENSITY   | 1.48 (Mg/m <sup>3</sup> ) |

REMARKS

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

SIGNED

DATE 16-Jan-25

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DRY DENSITY/WATER CONTENT RELATIONSHIP 2.5kg RAMMER

BS 1377-2:2022 Cl.11

PARTICLE DENSITY METHOD BS 1377-2:2022 Cl.9.2

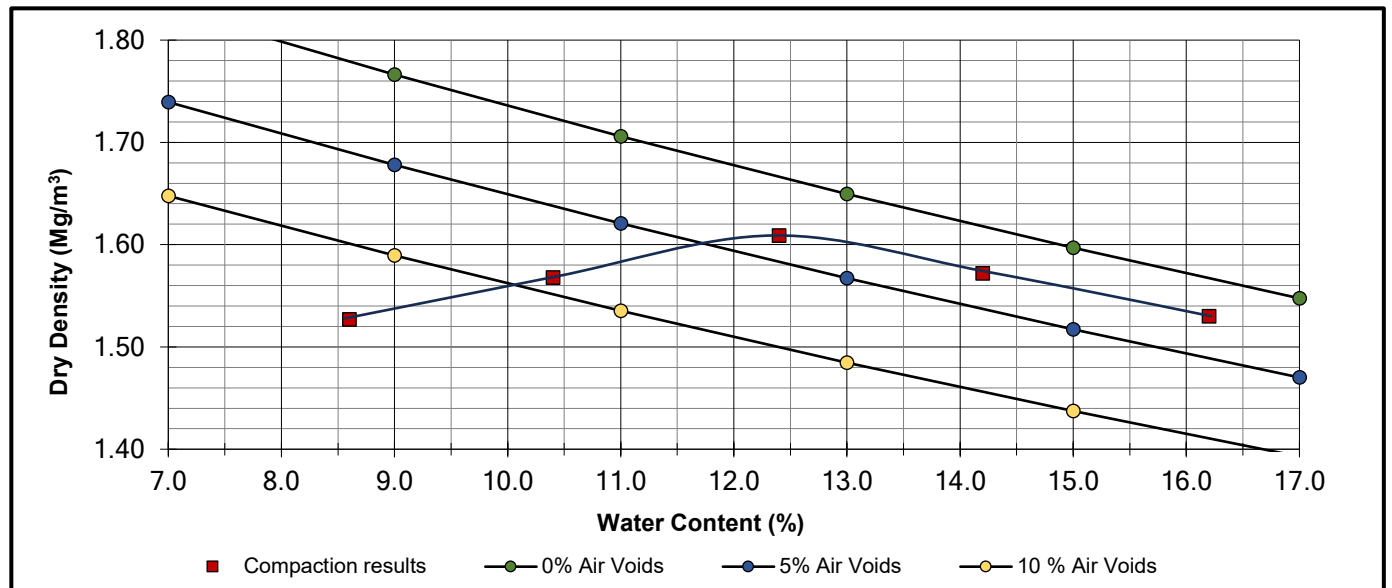
|            |                            |
|------------|----------------------------|
| CLIENT     | e3p                        |
| SITE       | 14-768 - Castleton Sidings |
| JOB NUMBER | MRN 25005/12               |

|               |           |               |             |
|---------------|-----------|---------------|-------------|
| SAMPLE LABEL  | MG BF 116 | DATE SAMPLED  | Not advised |
| SAMPLE NUMBER | 613802    | DATE RECEIVED | 11-Dec-24   |
| DATE TESTED   | 16-Dec-24 | SAMPLED BY    | Client      |

|                |                              |
|----------------|------------------------------|
| MATERIAL       | Made Ground                  |
| ADVISED SOURCE | Site Investigation Sample    |
| PRE TREATMENT  | Air Dried / Separate Batches |

|                 |      |                  |                                  |
|-----------------|------|------------------|----------------------------------|
| RETAINED 37.5mm | 5 %  | GRADING ZONE     | Zone 4                           |
| RETAINED 20mm   | 16 % | PARTICLE DENSITY | 2.10 Mg/m <sup>3</sup> (Assumed) |

| POINT NUMBER | WATER CONTENT (%) | DRY DENSITY (Mg/m <sup>3</sup> ) |
|--------------|-------------------|----------------------------------|
| 1            | 8.6               | 1.527                            |
| 2            | 10.4              | 1.568                            |
| 3            | 12.4              | 1.609                            |
| 4            | 14.2              | 1.572                            |
| 5            | 16.2              | 1.530                            |



|                       |      |                      |
|-----------------------|------|----------------------|
| OPTIMUM WATER CONTENT | 12   | (%)                  |
| MAXIMUM DRY DENSITY   | 1.61 | (Mg/m <sup>3</sup> ) |

### REMARKS

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

SIGNED

DATE 16-Jan-25



# APPENDIX VII CONTRACTOR COMPLETION CHECK SHEET





## GEOTECHNICAL ENABLING WORKS COMPLETION FORM – PHASE 1

Upon completion of all site remediation and enabling works, this form will be completed by E3P, in the presence of the appointed contractor, to ensure that all pertinent geotechnical enabling works activities are complete or, where a deviation from the specification has occurred, all future limitations and issues are documented for the client's records.

| ACTIVITY                                                                                                   | COMPLETE |     |     | SIGNATURE<br>(INITIAL) |
|------------------------------------------------------------------------------------------------------------|----------|-----|-----|------------------------|
|                                                                                                            | YES      | NO  | N/A |                        |
| Eradication of all invasive plant species                                                                  |          |     | ✓   |                        |
| Removal of all vegetation                                                                                  | ✓        |     |     | HM/JS                  |
| Removal of all root bulbs and root networks                                                                | ✓        |     |     | HM/JS                  |
| Stockpiling of topsoil and certification of suitability for reuse                                          |          |     | ✓   |                        |
| Stockpiling of subsoil and certification of suitability for reuse                                          |          |     | ✓   |                        |
| Stockpile all recycled aggregate with geotechnical and chemical validation testing                         | ✓        |     |     | HM/JS                  |
| Removal of all relict foundations and infrastructure in their entirety                                     | ✓        |     |     | HM/JS                  |
| Decommission of all redundant drainage infrastructure                                                      | ✓        |     |     | HM/JS                  |
| Decommission of all former interceptors                                                                    |          |     | ✓   |                        |
| Decommission of all former above- and below-ground tanks                                                   |          |     | ✓   |                        |
| Removal of all waste materials to a licensed facility                                                      |          | TBC |     |                        |
| Removal of all asbestos to a licensed facility                                                             | ✓        |     |     | HM/JS                  |
| Engineering of all plots for shallow spread foundation in accordance with E3P Geotechnical Specification   |          |     | ✓   |                        |
| Engineering of all plots for VSC in accordance with E3P Geotechnical Specification                         |          |     | ✓   |                        |
| Engineering of all plots for pile foundation in accordance with E3P Geotechnical Specification             | ✓        |     |     | HM/JS                  |
| Engineering of all plots for raft foundation in accordance with E3P Geotechnical Specification             |          |     | ✓   |                        |
| Engineering of highways bulk upfill in accordance with E3P Specification with compliant validation testing | ✓        |     |     | HM/JS                  |
| Engineering of highways subgrade in accordance with E3P Specification with compliant validation testing    | ✓        |     |     | HM/JS                  |
| Engineering of highways capping in accordance with E3P Specification with compliant validation testing     | ✓        |     |     | HM/JS                  |
| Cut-and-fill the development site to client's required elevation with as-built survey                      | ✓        |     |     | HM/JS                  |

# APPENDIX VIII

## IN SITU TESTING RESULTS



## TEST REPORT

**Client** e3p

**Address** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contract** Castleton Sidings

**Job Number** MRN 25005/1  
**Date of Issue** 03 January 2025  
**Page** 1 of 4

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870  
Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

Murray Rix is the trading name of Murray Rix (Northern) Limited. Registered in England 2878361

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX

TEL 0161 475 0870

## TEST CERTIFICATE

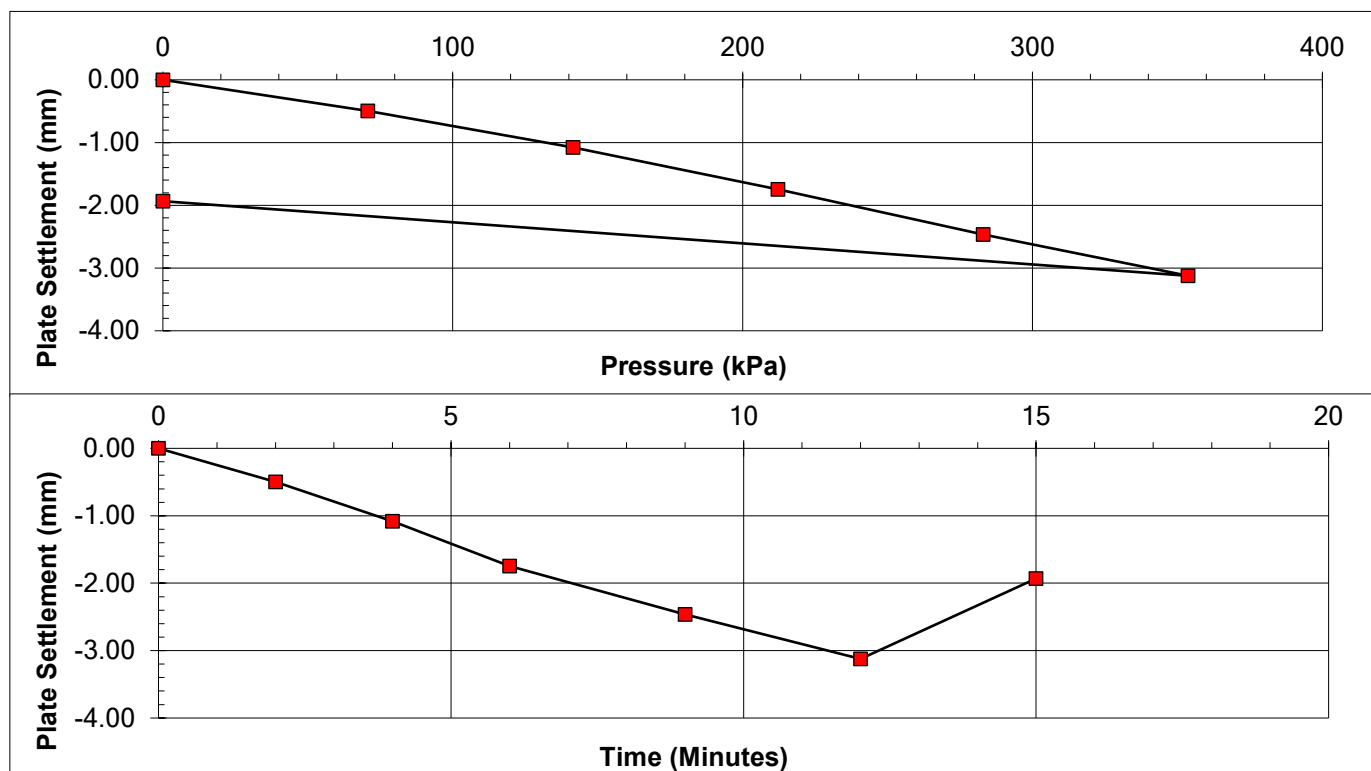
PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)



|                     |                   |       |                    |  |                       |  |              |
|---------------------|-------------------|-------|--------------------|--|-----------------------|--|--------------|
| CLIENT              | e3p               |       |                    |  |                       |  |              |
| SITE                | Castleton Sidings |       |                    |  |                       |  |              |
| JOB NUMBER          | MRN 25005/1       |       |                    |  |                       |  |              |
| TEST LOCATION       | Test 01 - 126     |       | LOADING DEVICE     |  | 20 Tonne Enerpac Jack |  |              |
| TEST DATE           | 03-Jan-25         |       | PLATE SIZE (mm)    |  | 300 diameter          |  |              |
| TEST DEPTH          | Surface           |       | REACTION LOAD USED |  | Site Plant            |  |              |
| MATERIAL UNDER TEST |                   | Crush |                    |  | MOISTURE CONTENT      |  | Not Required |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 3161                     | 2138                     | 2512                     | 2604                   | 0.00                    | 0.00         | 0.0               |
| 3112                     | 2092                     | 2458                     | 2554                   | -0.50                   | 5.00         | 70.7              |
| 3051                     | 2031                     | 2405                     | 2496                   | -1.08                   | 10.00        | 141.5             |
| 2961                     | 2011                     | 2315                     | 2429                   | -1.75                   | 15.00        | 212.2             |
| 2871                     | 1943                     | 2258                     | 2357                   | -2.46                   | 20.00        | 282.9             |
| 2801                     | 1872                     | 2201                     | 2291                   | -3.12                   | 25.00        | 353.7             |
| 2918                     | 1998                     | 2315                     | 2410                   | -1.93                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflection =   | 160 kPa   |
| Modulus of subgrade reaction (k) = | 128 MPa/m |
| Equivalent 762 mm plate reaction = | 56 MPa/m  |
| Equivalent CBR =                   | 10.4 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 03-Jan-25

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX

TEL 0161 475 0870

## TEST CERTIFICATE

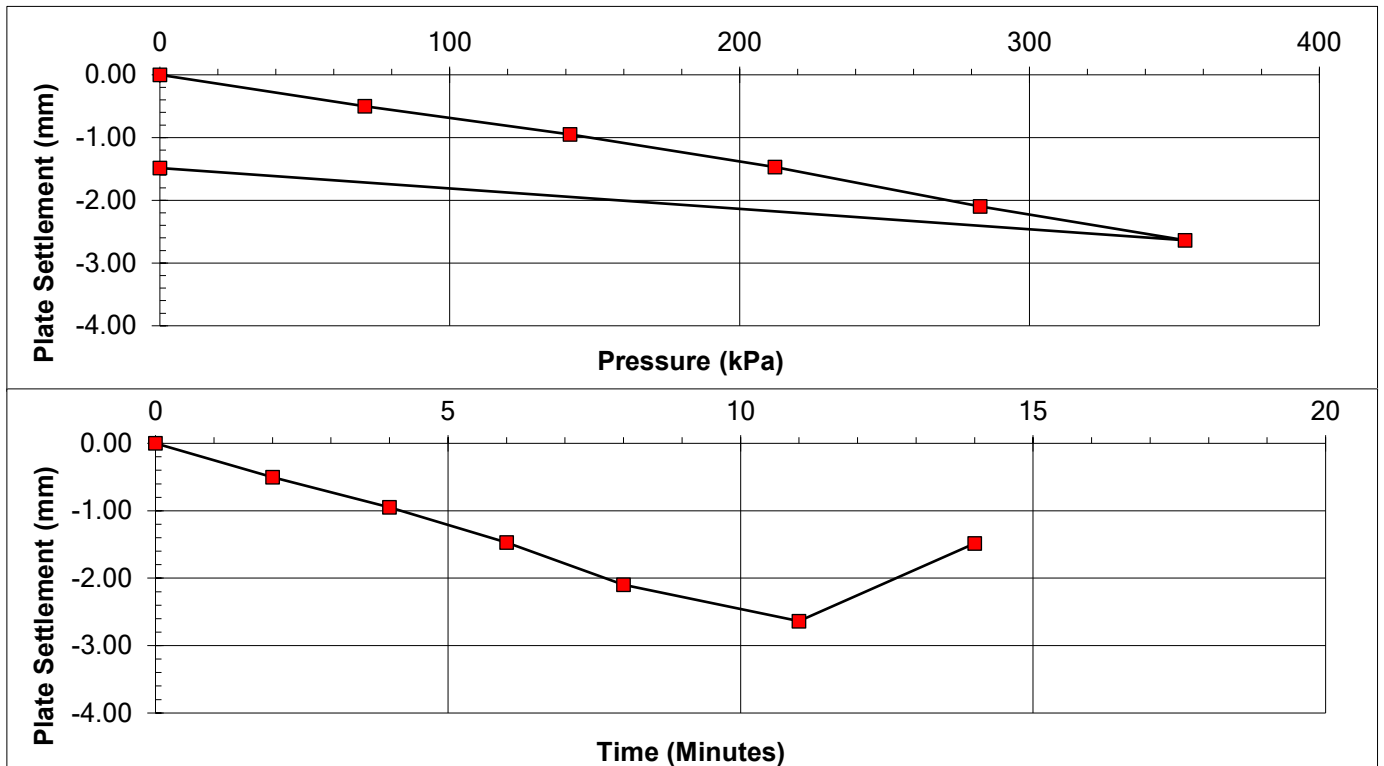
PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)



|                     |                   |                    |  |                       |              |  |
|---------------------|-------------------|--------------------|--|-----------------------|--------------|--|
| CLIENT              | e3p               |                    |  |                       |              |  |
| SITE                | Castleton Sidings |                    |  |                       |              |  |
| JOB NUMBER          | MRN 25005/1       |                    |  |                       |              |  |
| TEST LOCATION       | Test 02 - 130     | LOADING DEVICE     |  | 20 Tonne Enerpac Jack |              |  |
| TEST DATE           | 03-Jan-25         | PLATE SIZE (mm)    |  | 300 diameter          |              |  |
| TEST DEPTH          | Surface           | REACTION LOAD USED |  | Site Plant            |              |  |
| MATERIAL UNDER TEST |                   | Crush              |  | MOISTURE CONTENT      | Not Required |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 3465                     | 4278                     | 4632                     | 4125                   | 0.00                    | 0.00         | 0.0               |
| 3411                     | 4241                     | 4572                     | 4075                   | -0.50                   | 5.00         | 70.7              |
| 3361                     | 4211                     | 4518                     | 4030                   | -0.95                   | 10.00        | 141.5             |
| 3301                     | 4152                     | 4481                     | 3978                   | -1.47                   | 15.00        | 212.2             |
| 3231                     | 4092                     | 4423                     | 3915                   | -2.10                   | 20.00        | 282.9             |
| 3161                     | 4042                     | 4381                     | 3861                   | -2.64                   | 25.00        | 353.7             |
| 3271                     | 4161                     | 4498                     | 3977                   | -1.48                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflection =   | 182 kPa   |
| Modulus of subgrade reaction (k) = | 146 MPa/m |
| Equivalent 762 mm plate reaction = | 64 MPa/m  |
| Equivalent CBR =                   | 13.2 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 03-Jan-25



# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX

TEL 0161 475 0870

## TEST CERTIFICATE

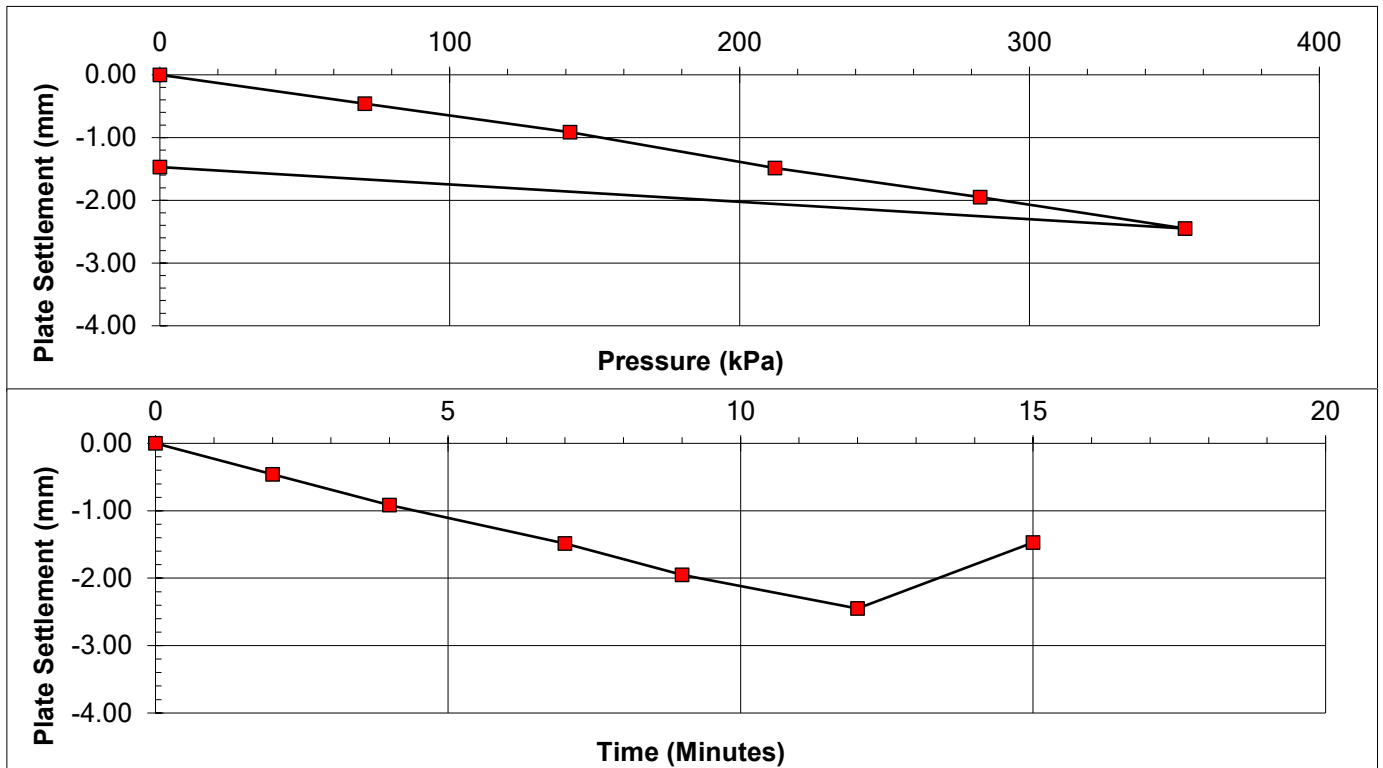
PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)



|                     |                   |                    |                       |  |  |
|---------------------|-------------------|--------------------|-----------------------|--|--|
| CLIENT              | e3p               |                    |                       |  |  |
| SITE                | Castleton Sidings |                    |                       |  |  |
| JOB NUMBER          | MRN 25005/1       |                    |                       |  |  |
| TEST LOCATION       | Test 03 - 177     | LOADING DEVICE     | 20 Tonne Enerpac Jack |  |  |
| TEST DATE           | 03-Jan-25         | PLATE SIZE (mm)    | 300 diameter          |  |  |
| TEST DEPTH          | Surface           | REACTION LOAD USED | Site Plant            |  |  |
| MATERIAL UNDER TEST | Crush             | MOISTURE CONTENT   | Not Required          |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 2598                     | 4243                     | 4828                     | 3890                   | 0.00                    | 0.00         | 0.0               |
| 2558                     | 4201                     | 4772                     | 3844                   | -0.46                   | 5.00         | 70.7              |
| 2501                     | 4161                     | 4732                     | 3798                   | -0.92                   | 10.00        | 141.5             |
| 2442                     | 4101                     | 4681                     | 3741                   | -1.48                   | 15.00        | 212.2             |
| 2401                     | 4052                     | 4631                     | 3695                   | -1.95                   | 20.00        | 282.9             |
| 2351                     | 4011                     | 4572                     | 3645                   | -2.45                   | 25.00        | 353.7             |
| 2465                     | 4095                     | 4668                     | 3743                   | -1.47                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflection =   | 183 kPa   |
| Modulus of subgrade reaction (k) = | 146 MPa/m |
| Equivalent 762 mm plate reaction = | 65 MPa/m  |
| Equivalent CBR =                   | 13.3 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 03-Jan-25

## TEST REPORT

**Client** e3p

**Address** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contract** Castleton Sidings

**Job Number** MRN 24005/324  
**Date of Issue** 12 December 2024  
**Page** 1 of 8

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
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Also at: London: 020 8523 1999

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TEL 0161 475 0870



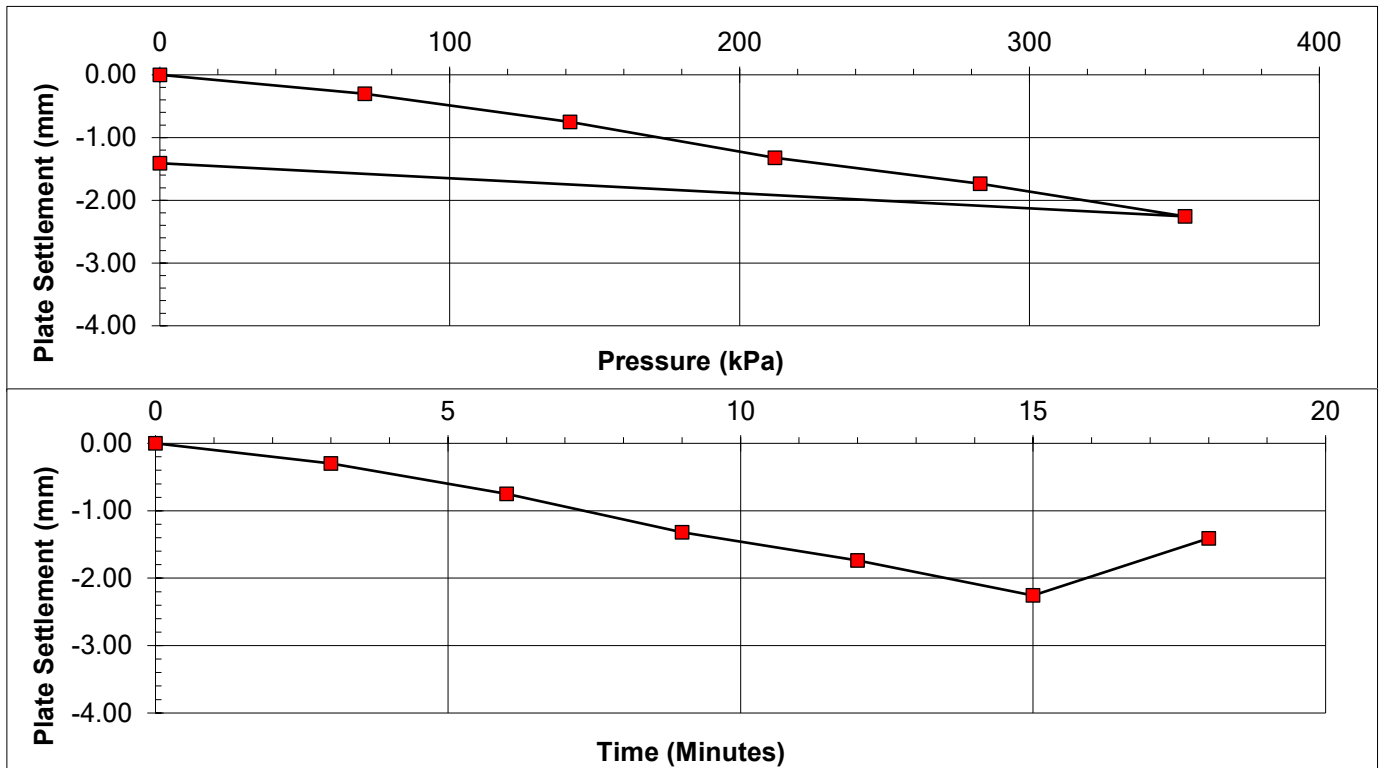
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                   |                    |  |                       |              |  |
|---------------------|-------------------|--------------------|--|-----------------------|--------------|--|
| CLIENT              | e3p               |                    |  |                       |              |  |
| SITE                | Castleton Sidings |                    |  |                       |              |  |
| JOB NUMBER          | MRN 24005/324     |                    |  |                       |              |  |
| TEST LOCATION       | Plot 190          | LOADING DEVICE     |  | 20 Tonne Enerpac Jack |              |  |
| TEST DATE           | 11-Dec-24         | PLATE SIZE (mm)    |  | 300 diameter          |              |  |
| TEST DEPTH          | Surface           | REACTION LOAD USED |  | Site Plant            |              |  |
| MATERIAL UNDER TEST |                   | Crush              |  | MOISTURE CONTENT      | Not Required |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 3223                     | 4165                     | 4613                     | 4000                   | 0.00                    | 0.00         | 0.0               |
| 3188                     | 4131                     | 4592                     | 3970                   | -0.30                   | 5.00         | 70.7              |
| 3141                     | 4092                     | 4543                     | 3925                   | -0.75                   | 10.00        | 141.5             |
| 3092                     | 4021                     | 4492                     | 3868                   | -1.32                   | 15.00        | 212.2             |
| 3058                     | 3972                     | 4450                     | 3827                   | -1.74                   | 20.00        | 282.9             |
| 3011                     | 3921                     | 4392                     | 3775                   | -2.26                   | 25.00        | 353.7             |
| 3095                     | 4015                     | 4468                     | 3859                   | -1.41                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflexion =    | 204 kPa   |
| Modulus of subgrade reaction (k) = | 163 MPa/m |
| Equivalent 762 mm plate reaction = | 72 MPa/m  |
| Equivalent CBR =                   | 15.9 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 12-Dec-24

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX

TEL 0161 475 0870

## TEST CERTIFICATE

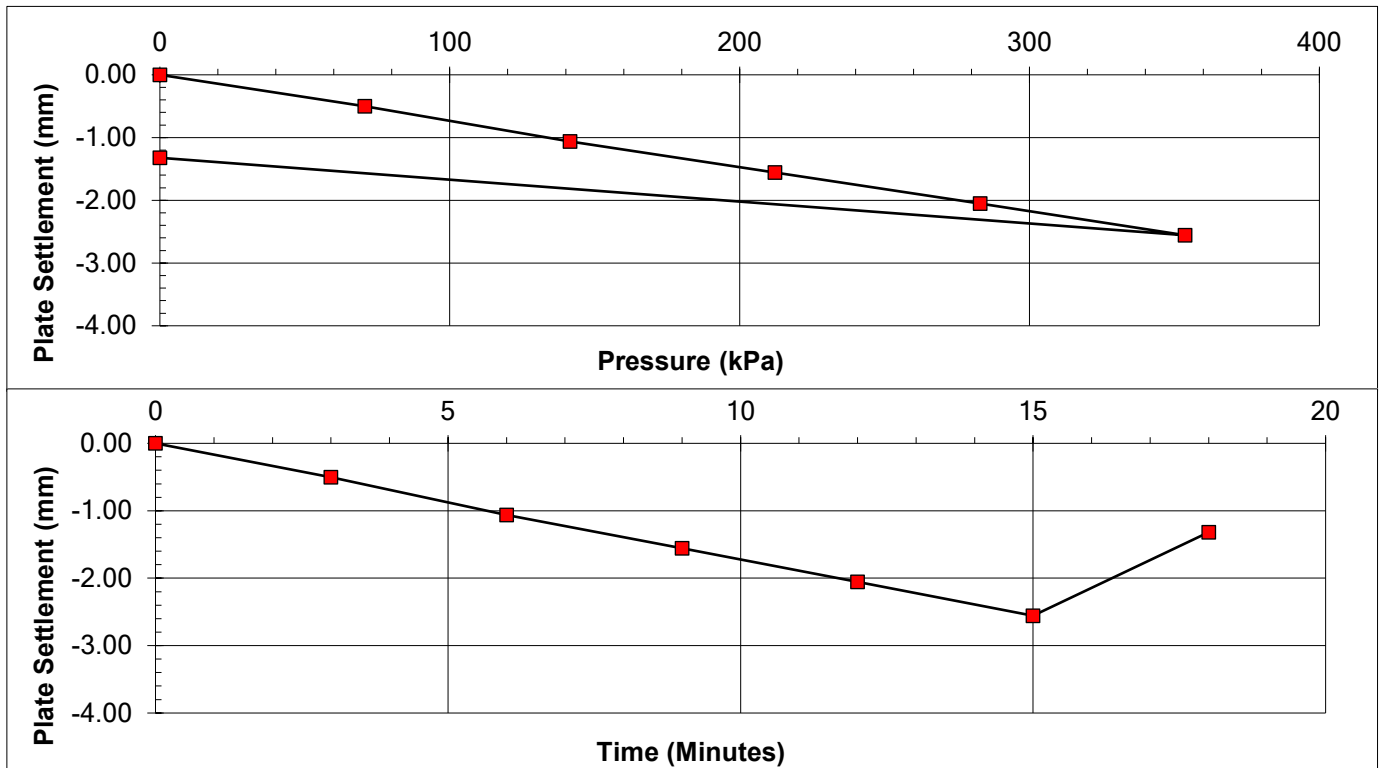
PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)



|                     |                   |                    |  |                       |              |  |
|---------------------|-------------------|--------------------|--|-----------------------|--------------|--|
| CLIENT              | e3p               |                    |  |                       |              |  |
| SITE                | Castleton Sidings |                    |  |                       |              |  |
| JOB NUMBER          | MRN 24005/324     |                    |  |                       |              |  |
| TEST LOCATION       | Plot 4            | LOADING DEVICE     |  | 20 Tonne Enerpac Jack |              |  |
| TEST DATE           | 11-Dec-24         | PLATE SIZE (mm)    |  | 300 diameter          |              |  |
| TEST DEPTH          | Surface           | REACTION LOAD USED |  | Site Plant            |              |  |
| MATERIAL UNDER TEST |                   | Crush              |  | MOISTURE CONTENT      | Not Required |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 3161                     | 2268                     | 3598                     | 3009                   | 0.00                    | 0.00         | 0.0               |
| 3112                     | 2213                     | 3551                     | 2959                   | -0.50                   | 5.00         | 70.7              |
| 3061                     | 2152                     | 3495                     | 2903                   | -1.06                   | 10.00        | 141.5             |
| 3008                     | 2101                     | 3451                     | 2853                   | -1.56                   | 15.00        | 212.2             |
| 2952                     | 2058                     | 3401                     | 2804                   | -2.05                   | 20.00        | 282.9             |
| 2901                     | 2001                     | 3358                     | 2753                   | -2.56                   | 25.00        | 353.7             |
| 3038                     | 2121                     | 3472                     | 2877                   | -1.32                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflexion =    | 168 kPa   |
| Modulus of subgrade reaction (k) = | 135 MPa/m |
| Equivalent 762 mm plate reaction = | 59 MPa/m  |
| Equivalent CBR =                   | 11.5 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 12-Dec-24

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



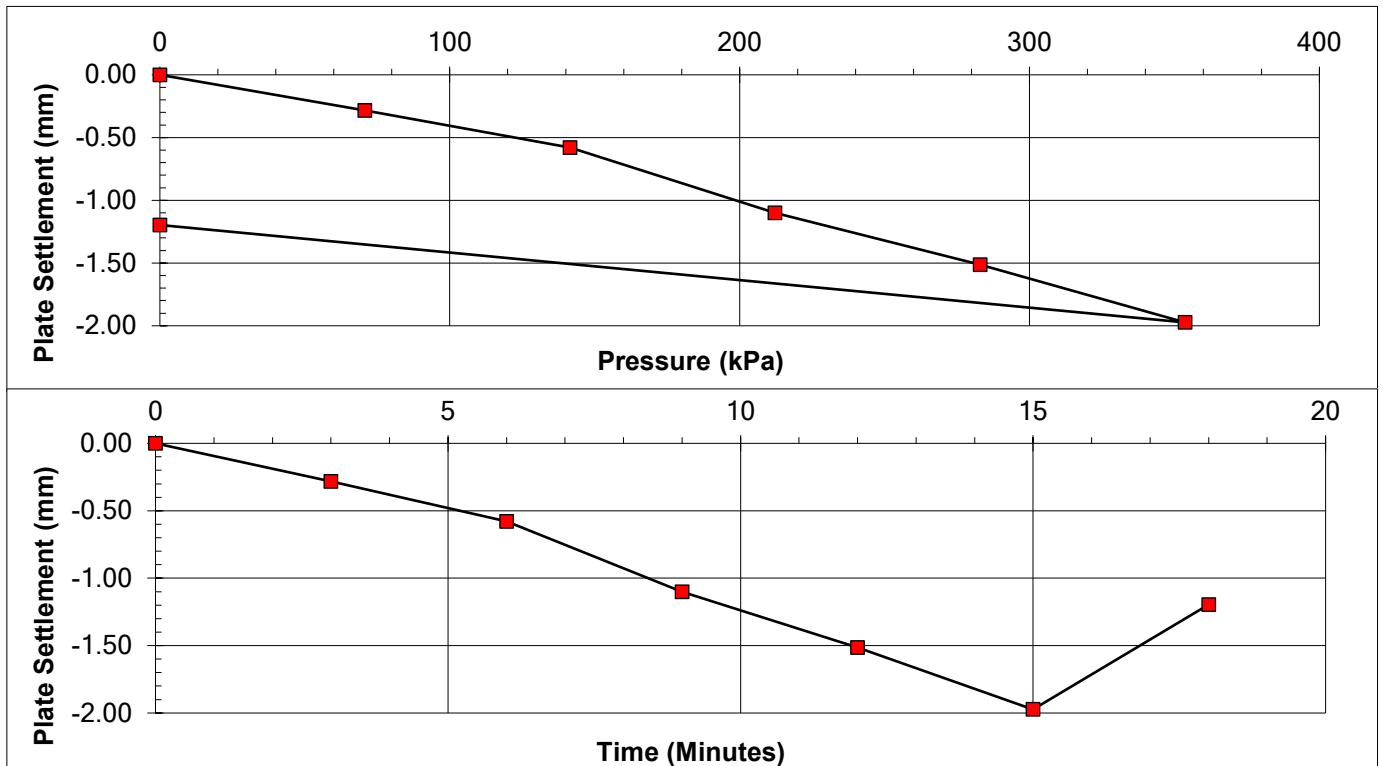
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                   |                    |                       |              |  |  |
|---------------------|-------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | e3p               |                    |                       |              |  |  |
| SITE                | Castleton Sidings |                    |                       |              |  |  |
| JOB NUMBER          | MRN 24005/324     |                    |                       |              |  |  |
| TEST LOCATION       | Road 1 (1)        | LOADING DEVICE     | 20 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 11-Dec-24         | PLATE SIZE (mm)    | 300 diameter          |              |  |  |
| TEST DEPTH          | Surface           | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush             |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 2623                     | 3132                     | 3653                     | 3136                   | 0.00                    | 0.00         | 0.0               |
| 2592                     | 3110                     | 3621                     | 3108                   | -0.28                   | 5.00         | 70.7              |
| 2561                     | 3081                     | 3592                     | 3078                   | -0.58                   | 10.00        | 141.5             |
| 2515                     | 3021                     | 3542                     | 3026                   | -1.10                   | 15.00        | 212.2             |
| 2472                     | 2981                     | 3501                     | 2985                   | -1.51                   | 20.00        | 282.9             |
| 2431                     | 2942                     | 3443                     | 2939                   | -1.97                   | 25.00        | 353.7             |
| 2518                     | 3013                     | 3518                     | 3016                   | -1.20                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflexion =    | 238 kPa   |
| Modulus of subgrade reaction (k) = | 190 MPa/m |
| Equivalent 762 mm plate reaction = | 84 MPa/m  |
| Equivalent CBR =                   | 20.9 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 12-Dec-24



# MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



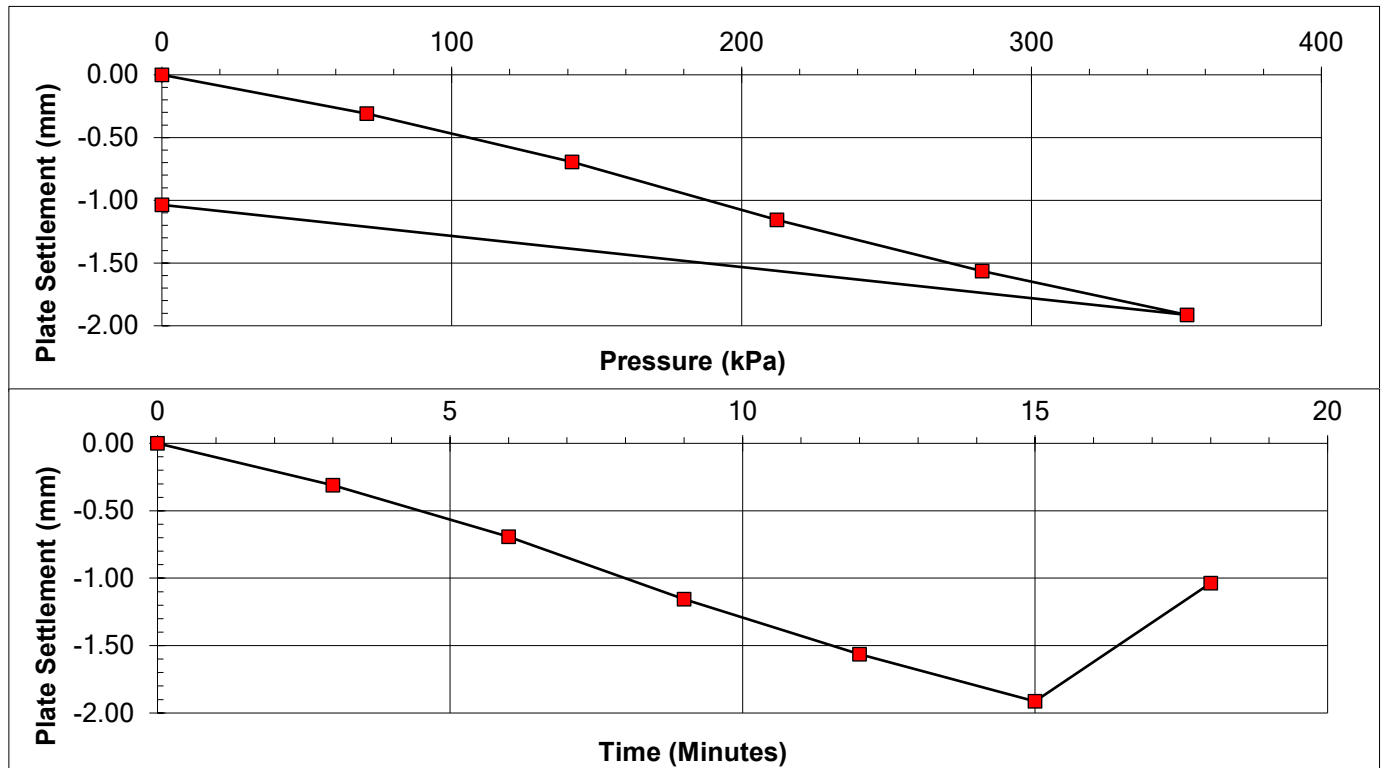
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                   |                    |                       |              |  |  |
|---------------------|-------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | e3p               |                    |                       |              |  |  |
| SITE                | Castleton Sidings |                    |                       |              |  |  |
| JOB NUMBER          | MRN 24005/324     |                    |                       |              |  |  |
| TEST LOCATION       | Road 1 (2)        | LOADING DEVICE     | 20 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 11-Dec-24         | PLATE SIZE (mm)    | 300 diameter          |              |  |  |
| TEST DEPTH          | Surface           | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush             |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 3143                     | 4223                     | 3598                     | 3655                   | 0.00                    | 0.00         | 0.0               |
| 3118                     | 4192                     | 3561                     | 3624                   | -0.31                   | 5.00         | 70.7              |
| 3080                     | 4158                     | 3518                     | 3585                   | -0.69                   | 10.00        | 141.5             |
| 3028                     | 4108                     | 3481                     | 3539                   | -1.16                   | 15.00        | 212.2             |
| 2981                     | 4072                     | 3442                     | 3498                   | -1.56                   | 20.00        | 282.9             |
| 2951                     | 4038                     | 3401                     | 3463                   | -1.91                   | 25.00        | 353.7             |
| 3021                     | 4121                     | 3511                     | 3551                   | -1.04                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflexion =    | 228 kPa   |
| Modulus of subgrade reaction (k) = | 183 MPa/m |
| Equivalent 762 mm plate reaction = | 81 MPa/m  |
| Equivalent CBR =                   | 19.5 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 12-Dec-24

# MURRAY RIX

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TEL 0161 475 0870



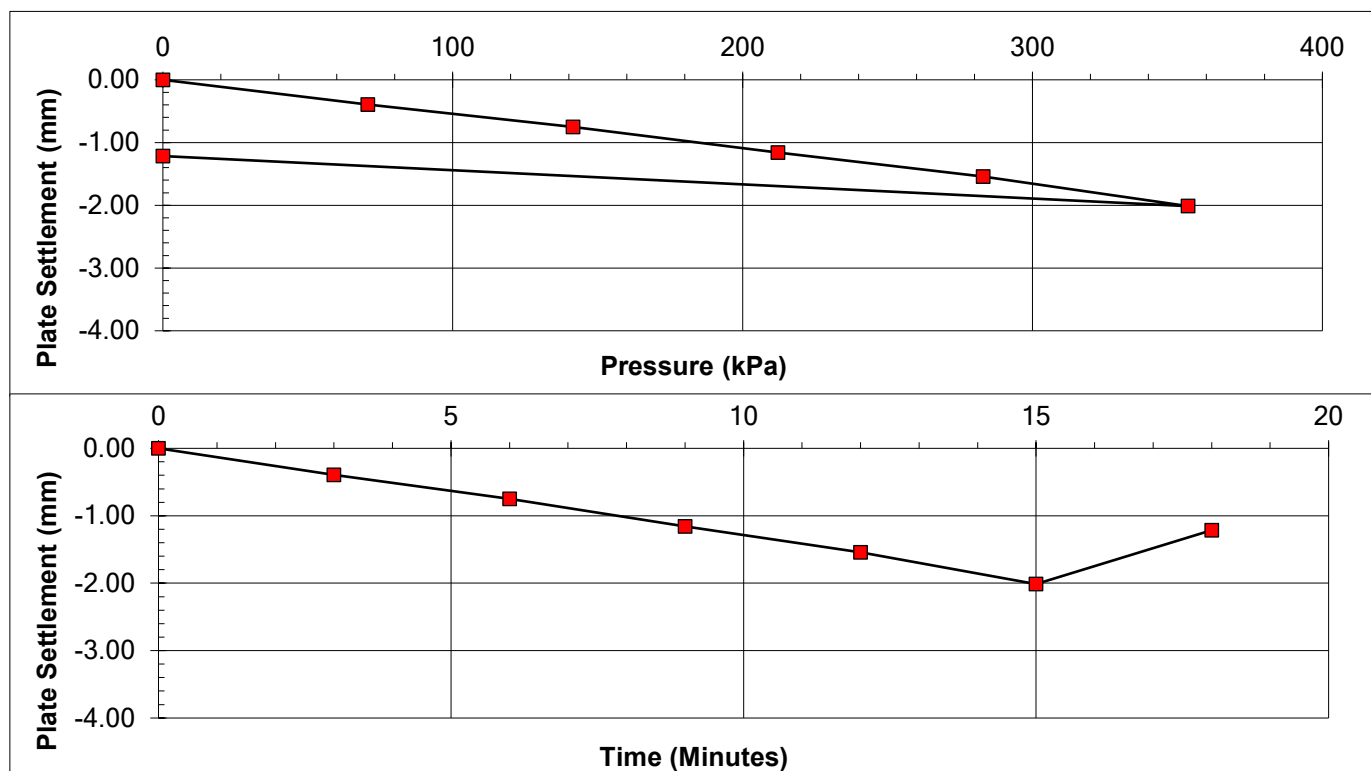
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                   |                    |                       |              |  |  |
|---------------------|-------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | e3p               |                    |                       |              |  |  |
| SITE                | Castleton Sidings |                    |                       |              |  |  |
| JOB NUMBER          | MRN 24005/324     |                    |                       |              |  |  |
| TEST LOCATION       | Road 1 (3)        | LOADING DEVICE     | 20 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 11-Dec-24         | PLATE SIZE (mm)    | 300 diameter          |              |  |  |
| TEST DEPTH          | Surface           | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush             |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 2623                     | 3183                     | 3061                     | 2956                   | 0.00                    | 0.00         | 0.0               |
| 2592                     | 3145                     | 3012                     | 2916                   | -0.39                   | 5.00         | 70.7              |
| 2558                     | 3112                     | 2972                     | 2881                   | -0.75                   | 10.00        | 141.5             |
| 2505                     | 3072                     | 2942                     | 2840                   | -1.16                   | 15.00        | 212.2             |
| 2472                     | 3031                     | 2901                     | 2801                   | -1.54                   | 20.00        | 282.9             |
| 2431                     | 2981                     | 2851                     | 2754                   | -2.01                   | 25.00        | 353.7             |
| 2521                     | 3051                     | 2931                     | 2834                   | -1.21                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflexion =    | 229 kPa   |
| Modulus of subgrade reaction (k) = | 183 MPa/m |
| Equivalent 762 mm plate reaction = | 81 MPa/m  |
| Equivalent CBR =                   | 19.5 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 12-Dec-24

# MURRAY RIX

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TEL 0161 475 0870



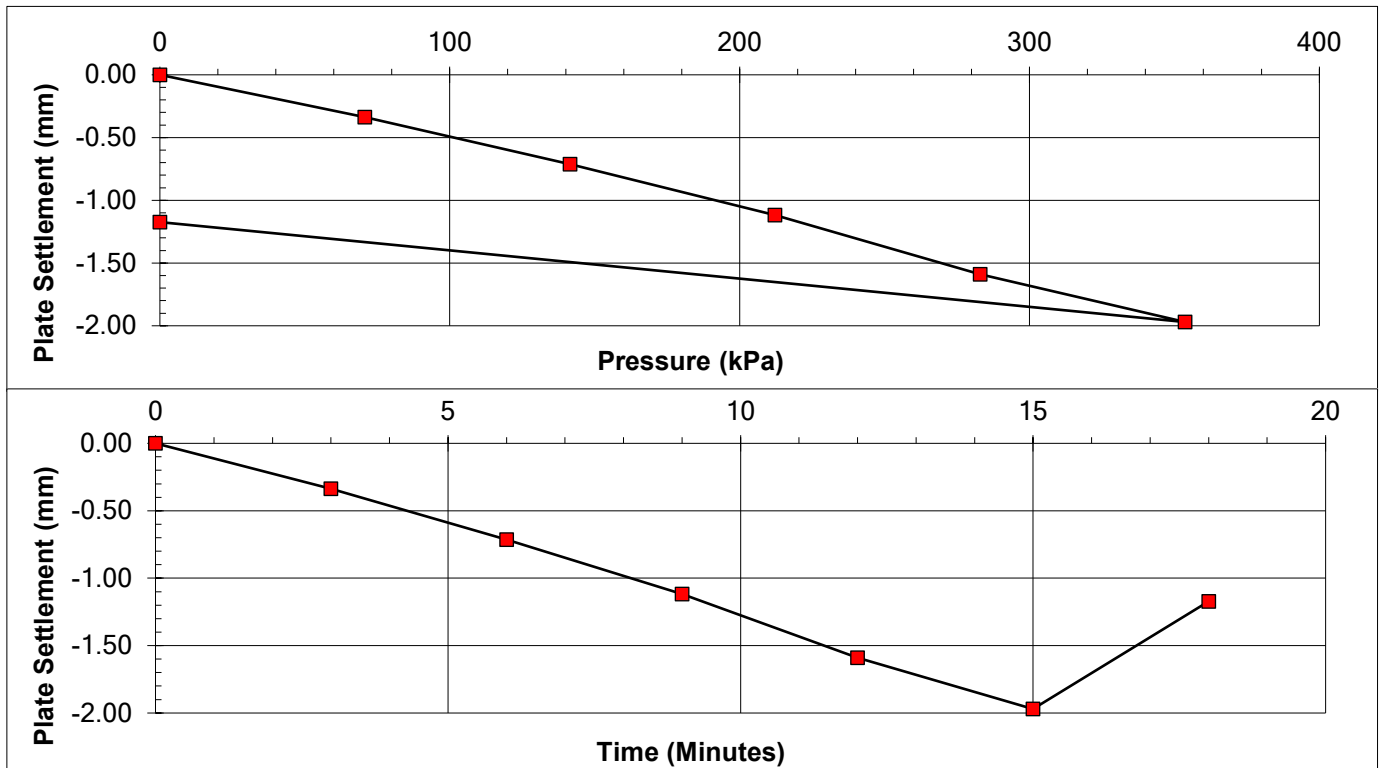
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                   |                    |                       |              |  |  |
|---------------------|-------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | e3p               |                    |                       |              |  |  |
| SITE                | Castleton Sidings |                    |                       |              |  |  |
| JOB NUMBER          | MRN 24005/324     |                    |                       |              |  |  |
| TEST LOCATION       | Road 1 (4)        | LOADING DEVICE     | 20 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 11-Dec-24         | PLATE SIZE (mm)    | 300 diameter          |              |  |  |
| TEST DEPTH          | Surface           | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush             |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 2243                     | 3523                     | 3045                     | 2937                   | 0.00                    | 0.00         | 0.0               |
| 2210                     | 3492                     | 3008                     | 2903                   | -0.34                   | 5.00         | 70.7              |
| 2181                     | 3451                     | 2965                     | 2866                   | -0.71                   | 10.00        | 141.5             |
| 2130                     | 3415                     | 2931                     | 2825                   | -1.12                   | 15.00        | 212.2             |
| 2081                     | 3361                     | 2892                     | 2778                   | -1.59                   | 20.00        | 282.9             |
| 2058                     | 3311                     | 2851                     | 2740                   | -1.97                   | 25.00        | 353.7             |
| 2121                     | 3392                     | 2946                     | 2820                   | -1.17                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflexion =    | 232 kPa   |
| Modulus of subgrade reaction (k) = | 186 MPa/m |
| Equivalent 762 mm plate reaction = | 82 MPa/m  |
| Equivalent CBR =                   | 20.0 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 12-Dec-24

## TEST REPORT

**Client** e3p

**Address** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contract** Castleton Sidings

**Job Number** MRN 24005/330  
**Date of Issue** 18 December 2024  
**Page** 1 of 8

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



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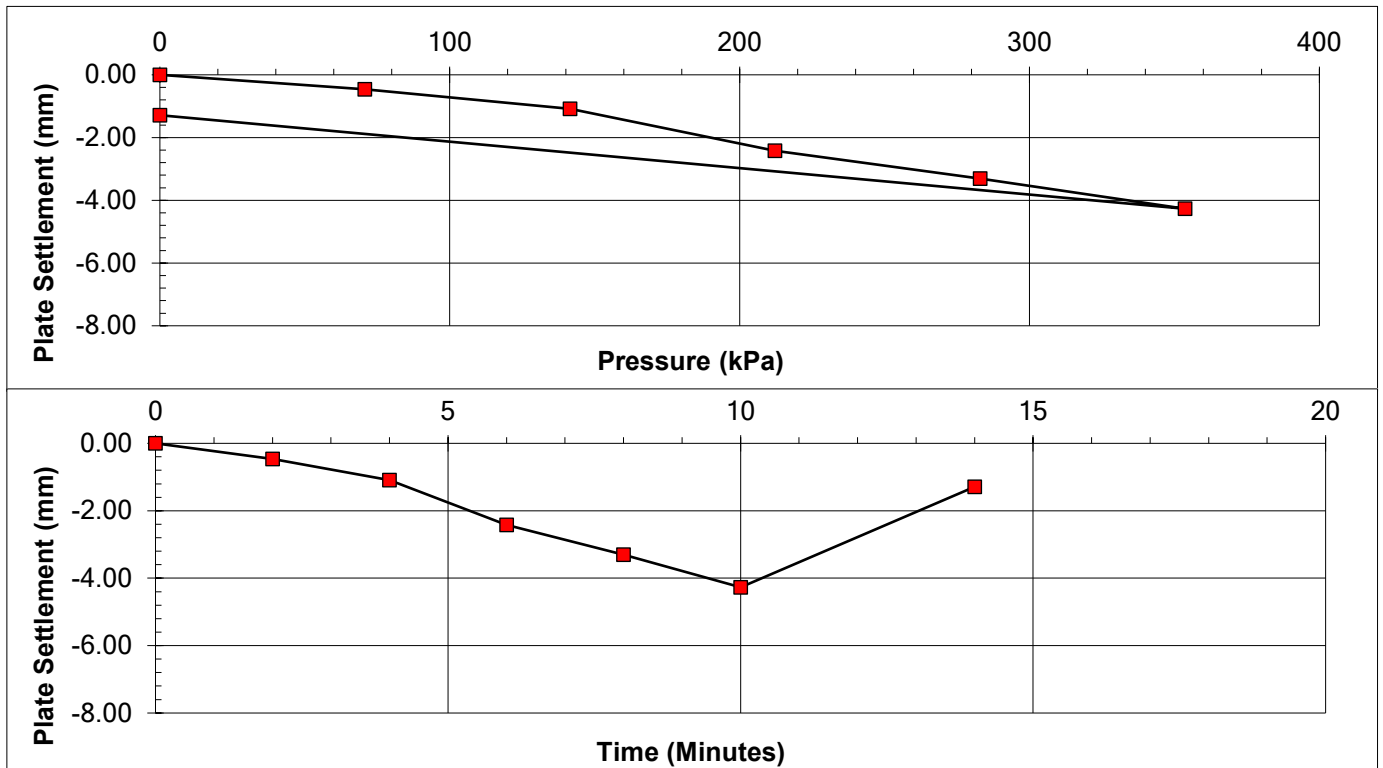
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                   |                    |                       |  |  |
|---------------------|-------------------|--------------------|-----------------------|--|--|
| CLIENT              | e3p               |                    |                       |  |  |
| SITE                | Castleton Sidings |                    |                       |  |  |
| JOB NUMBER          | MRN 24005/330     |                    |                       |  |  |
| TEST LOCATION       | Plot 15           | LOADING DEVICE     | 20 Tonne Enerpac Jack |  |  |
| TEST DATE           | 17-Dec-24         | PLATE SIZE (mm)    | 300 diameter          |  |  |
| TEST DEPTH          | Surface           | REACTION LOAD USED | Site Plant            |  |  |
| MATERIAL UNDER TEST | Crush             | MOISTURE CONTENT   | Not Required          |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4450                     | 4691                     | 4488                     | 4543                   | 0.00                    | 0.00         | 0.0               |
| 4404                     | 4646                     | 4441                     | 4497                   | -0.46                   | 5.00         | 70.7              |
| 4341                     | 4584                     | 4378                     | 4434                   | -1.09                   | 10.00        | 141.5             |
| 4209                     | 4450                     | 4245                     | 4301                   | -2.42                   | 15.00        | 212.2             |
| 4121                     | 4362                     | 4154                     | 4212                   | -3.31                   | 20.00        | 282.9             |
| 4026                     | 4264                     | 4058                     | 4116                   | -4.27                   | 25.00        | 353.7             |
| 4390                     | 4528                     | 4324                     | 4414                   | -1.29                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflection =   | 150 kPa   |
| Modulus of subgrade reaction (k) = | 120 MPa/m |
| Equivalent 762 mm plate reaction = | 53 MPa/m  |
| Equivalent CBR =                   | 9.4 %     |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 18-Dec-24

# MURRAY RIX

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TEL 0161 475 0870



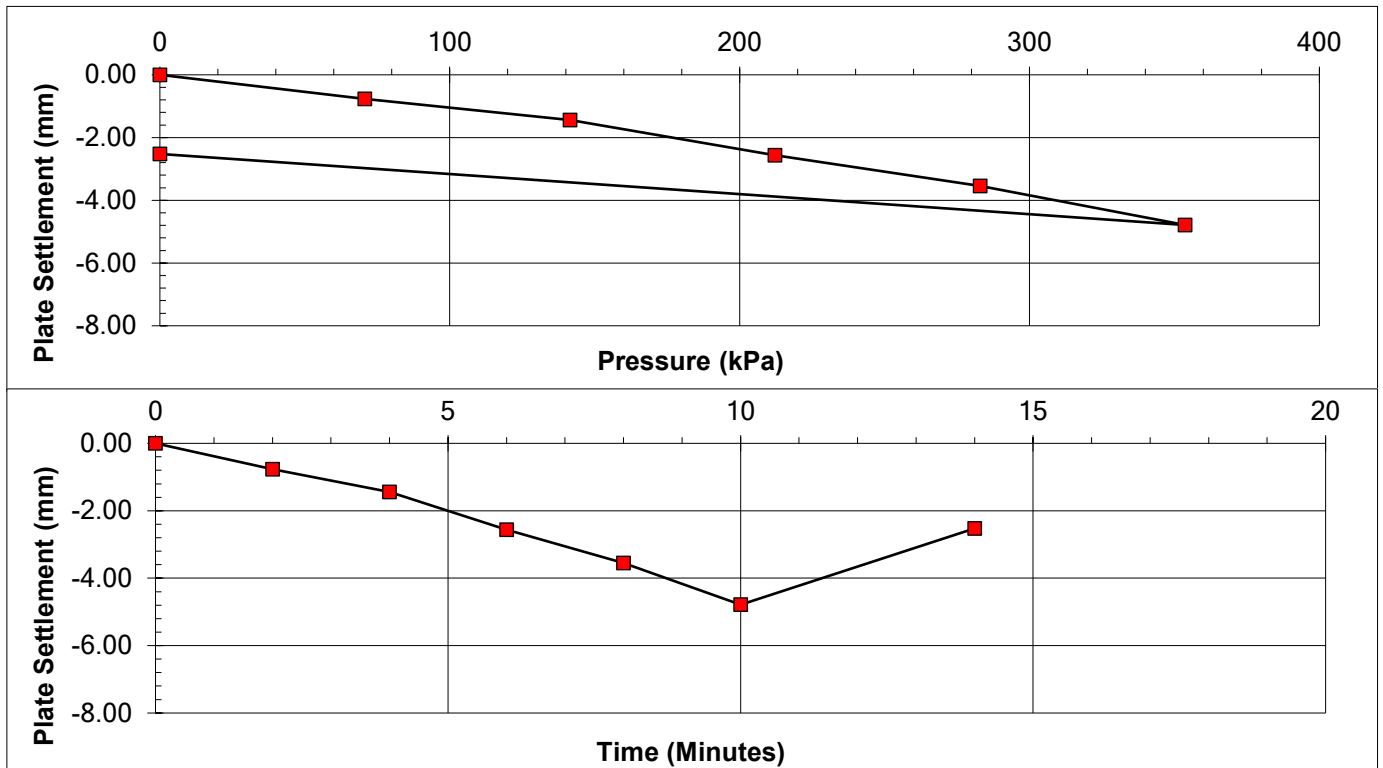
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                   |                    |                       |
|---------------------|-------------------|--------------------|-----------------------|
| CLIENT              | e3p               |                    |                       |
| SITE                | Castleton Sidings |                    |                       |
| JOB NUMBER          | MRN 24005/330     |                    |                       |
| TEST LOCATION       | J1                | LOADING DEVICE     | 20 Tonne Enerpac Jack |
| TEST DATE           | 17-Dec-24         | PLATE SIZE (mm)    | 300 diameter          |
| TEST DEPTH          | Surface           | REACTION LOAD USED | Site Plant            |
| MATERIAL UNDER TEST | Ash Fill          | MOISTURE CONTENT   | Not Required          |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4349                     | 4480                     | 4221                     | 4350                   | 0.00                    | 0.00         | 0.0               |
| 4274                     | 4397                     | 4149                     | 4273                   | -0.77                   | 5.00         | 70.7              |
| 4219                     | 4324                     | 4075                     | 4206                   | -1.44                   | 10.00        | 141.5             |
| 4108                     | 4210                     | 3962                     | 4093                   | -2.57                   | 15.00        | 212.2             |
| 4012                     | 4109                     | 3865                     | 3995                   | -3.55                   | 20.00        | 282.9             |
| 3883                     | 3990                     | 3741                     | 3871                   | -4.79                   | 25.00        | 353.7             |
| 4108                     | 4216                     | 3968                     | 4097                   | -2.53                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflection =   | 122 kPa  |
| Modulus of subgrade reaction (k) = | 97 MPa/m |
| Equivalent 762 mm plate reaction = | 43 MPa/m |
| Equivalent CBR =                   | 6.5 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 18-Dec-24



# MURRAY RIX

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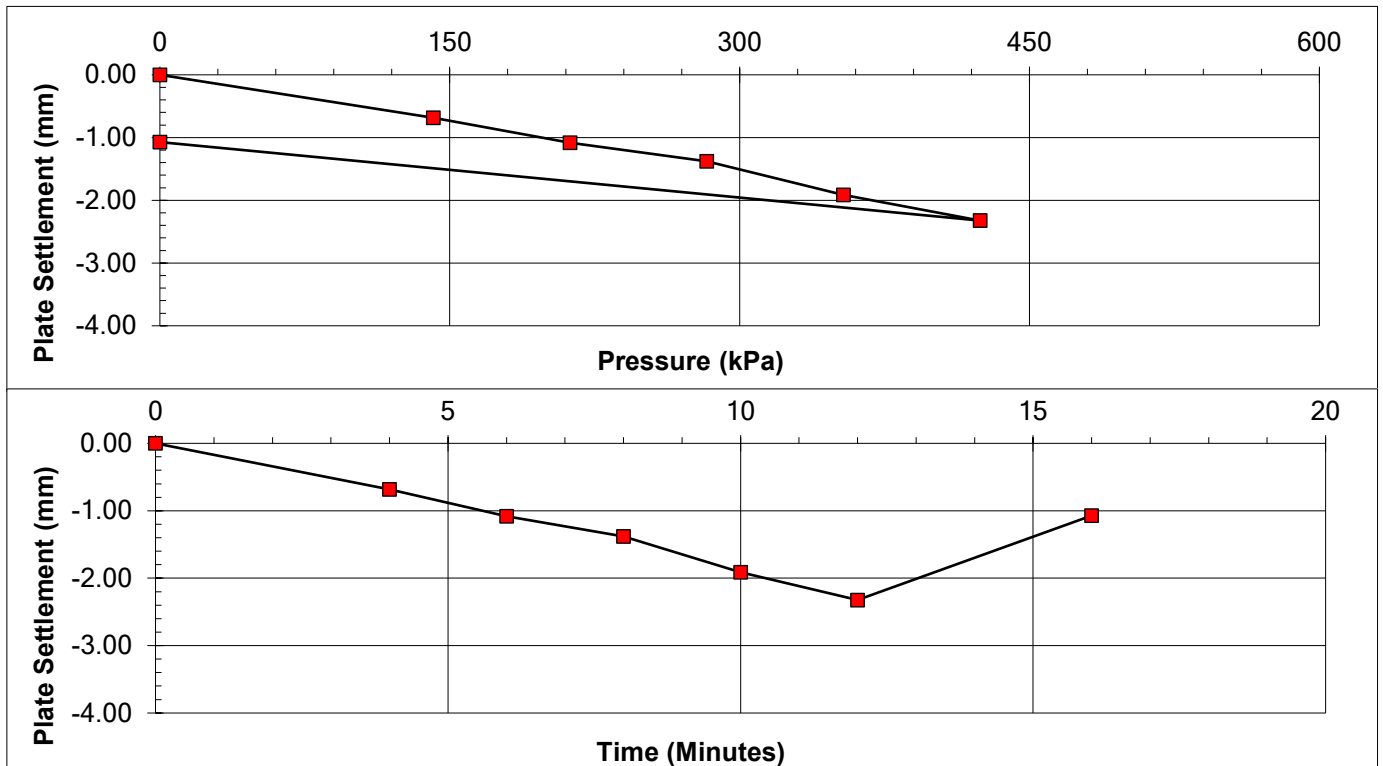
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                   |                    |                       |              |  |  |
|---------------------|-------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | e3p               |                    |                       |              |  |  |
| SITE                | Castleton Sidings |                    |                       |              |  |  |
| JOB NUMBER          | MRN 24005/330     |                    |                       |              |  |  |
| TEST LOCATION       | Road 1 (5)        | LOADING DEVICE     | 20 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 17-Dec-24         | PLATE SIZE (mm)    | 300 diameter          |              |  |  |
| TEST DEPTH          | Surface           | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush             |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4433                     | 4344                     | 4295                     | 4357                   | 0.00                    | 0.00         | 0.0               |
| 4362                     | 4273                     | 4232                     | 4289                   | -0.68                   | 10.00        | 141.5             |
| 4318                     | 4234                     | 4195                     | 4249                   | -1.08                   | 15.00        | 212.2             |
| 4294                     | 4202                     | 4162                     | 4219                   | -1.38                   | 20.00        | 282.9             |
| 4241                     | 4150                     | 4107                     | 4166                   | -1.91                   | 25.00        | 353.7             |
| 4205                     | 4107                     | 4063                     | 4125                   | -2.32                   | 30.00        | 424.4             |
| 4329                     | 4233                     | 4188                     | 4250                   | -1.07                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflection =   | 252 kPa   |
| Modulus of subgrade reaction (k) = | 202 MPa/m |
| Equivalent 762 mm plate reaction = | 89 MPa/m  |
| Equivalent CBR =                   | 23.1 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 18-Dec-24

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TEL 0161 475 0870

## TEST CERTIFICATE

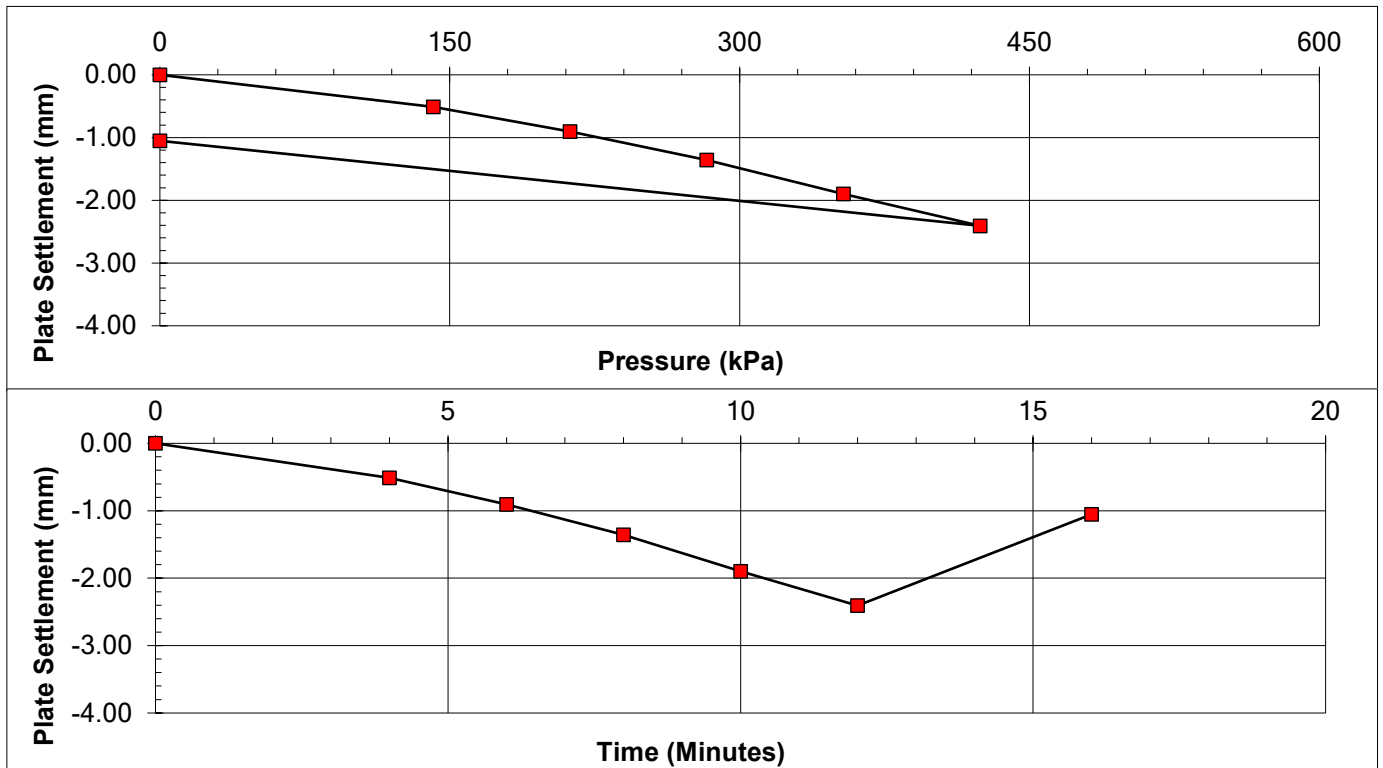
PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)



|                     |                   |                    |                       |              |  |  |
|---------------------|-------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | e3p               |                    |                       |              |  |  |
| SITE                | Castleton Sidings |                    |                       |              |  |  |
| JOB NUMBER          | MRN 24005/330     |                    |                       |              |  |  |
| TEST LOCATION       | Road 1 (6)        | LOADING DEVICE     | 20 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 17-Dec-24         | PLATE SIZE (mm)    | 300 diameter          |              |  |  |
| TEST DEPTH          | Surface           | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush             |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4456                     | 4579                     | 4547                     | 4527                   | 0.00                    | 0.00         | 0.0               |
| 4407                     | 4526                     | 4496                     | 4476                   | -0.51                   | 10.00        | 141.5             |
| 4362                     | 4488                     | 4460                     | 4437                   | -0.91                   | 15.00        | 212.2             |
| 4317                     | 4444                     | 4414                     | 4392                   | -1.36                   | 20.00        | 282.9             |
| 4264                     | 4391                     | 4357                     | 4337                   | -1.90                   | 25.00        | 353.7             |
| 4211                     | 4347                     | 4302                     | 4287                   | -2.41                   | 30.00        | 424.4             |
| 4346                     | 4483                     | 4437                     | 4422                   | -1.05                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflection =   | 266 kPa   |
| Modulus of subgrade reaction (k) = | 213 MPa/m |
| Equivalent 762 mm plate reaction = | 94 MPa/m  |
| Equivalent CBR =                   | 25.4 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 18-Dec-24

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



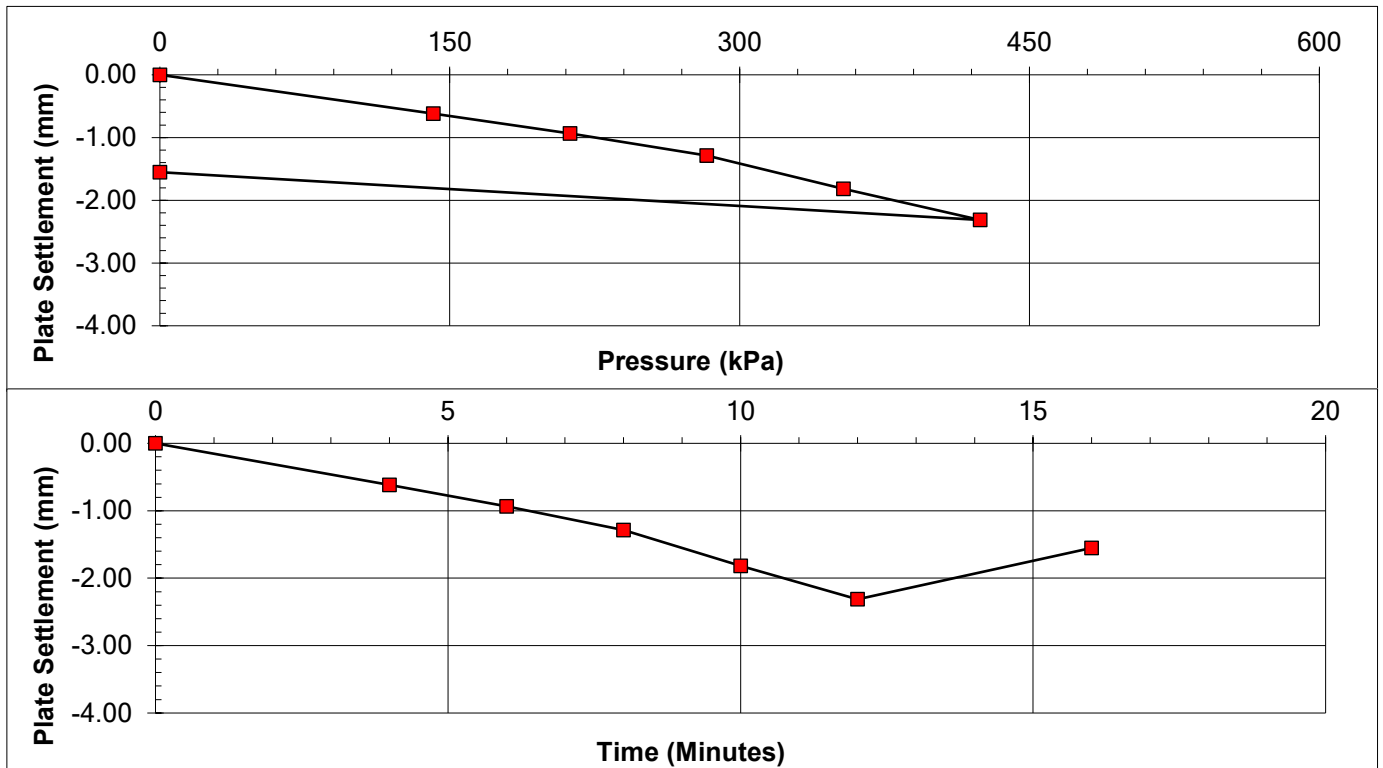
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                   |                    |                       |              |  |  |
|---------------------|-------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | e3p               |                    |                       |              |  |  |
| SITE                | Castleton Sidings |                    |                       |              |  |  |
| JOB NUMBER          | MRN 24005/330     |                    |                       |              |  |  |
| TEST LOCATION       | Road 2 (1)        | LOADING DEVICE     | 20 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 17-Dec-24         | PLATE SIZE (mm)    | 300 diameter          |              |  |  |
| TEST DEPTH          | Surface           | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush             |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4609                     | 4425                     | 4490                     | 4508                   | 0.00                    | 0.00         | 0.0               |
| 4546                     | 4354                     | 4439                     | 4446                   | -0.62                   | 10.00        | 141.5             |
| 4514                     | 4324                     | 4406                     | 4415                   | -0.93                   | 15.00        | 212.2             |
| 4477                     | 4302                     | 4359                     | 4379                   | -1.29                   | 20.00        | 282.9             |
| 4424                     | 4249                     | 4306                     | 4326                   | -1.82                   | 25.00        | 353.7             |
| 4371                     | 4201                     | 4258                     | 4277                   | -2.31                   | 30.00        | 424.4             |
| 4446                     | 4276                     | 4337                     | 4353                   | -1.55                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflection =   | 276 kPa   |
| Modulus of subgrade reaction (k) = | 220 MPa/m |
| Equivalent 762 mm plate reaction = | 97 MPa/m  |
| Equivalent CBR =                   | 26.9 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 18-Dec-24

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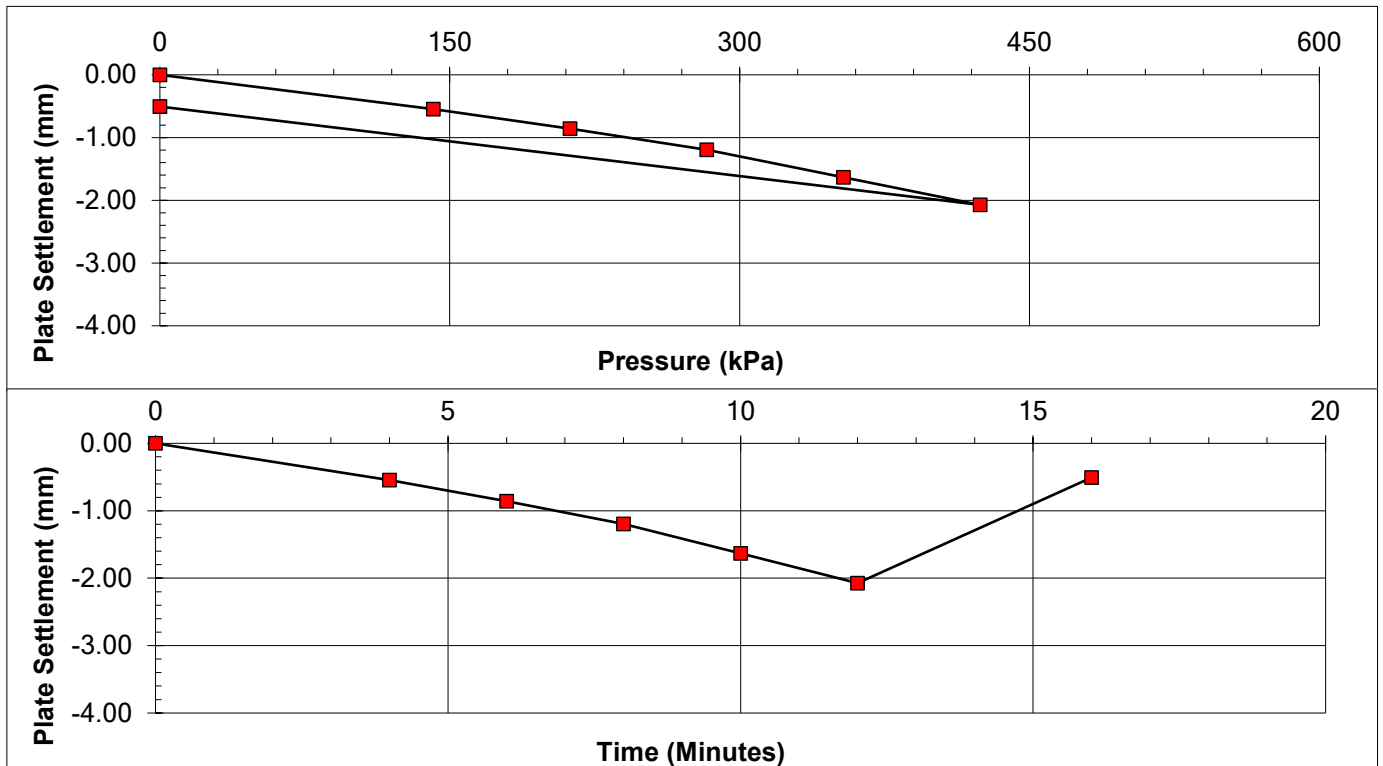
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                   |                    |                       |              |  |  |
|---------------------|-------------------|--------------------|-----------------------|--------------|--|--|
| CLIENT              | e3p               |                    |                       |              |  |  |
| SITE                | Castleton Sidings |                    |                       |              |  |  |
| JOB NUMBER          | MRN 24005/330     |                    |                       |              |  |  |
| TEST LOCATION       | Road 2 (2)        | LOADING DEVICE     | 20 Tonne Enerpac Jack |              |  |  |
| TEST DATE           | 17-Dec-24         | PLATE SIZE (mm)    | 300 diameter          |              |  |  |
| TEST DEPTH          | Surface           | REACTION LOAD USED | Site Plant            |              |  |  |
| MATERIAL UNDER TEST | Crush             |                    | MOISTURE CONTENT      | Not Required |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4403                     | 4698                     | 4312                     | 4471                   | 0.00                    | 0.00         | 0.0               |
| 4341                     | 4649                     | 4259                     | 4416                   | -0.55                   | 10.00        | 141.5             |
| 4307                     | 4621                     | 4227                     | 4385                   | -0.86                   | 15.00        | 212.2             |
| 4273                     | 4587                     | 4194                     | 4351                   | -1.20                   | 20.00        | 282.9             |
| 4231                     | 4542                     | 4150                     | 4308                   | -1.63                   | 25.00        | 353.7             |
| 4187                     | 4499                     | 4105                     | 4264                   | -2.07                   | 30.00        | 424.4             |
| 4344                     | 4655                     | 4262                     | 4420                   | -0.51                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflection =   | 292 kPa   |
| Modulus of subgrade reaction (k) = | 233 MPa/m |
| Equivalent 762 mm plate reaction = | 103 MPa/m |
| Equivalent CBR =                   | 29.7 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 18-Dec-24

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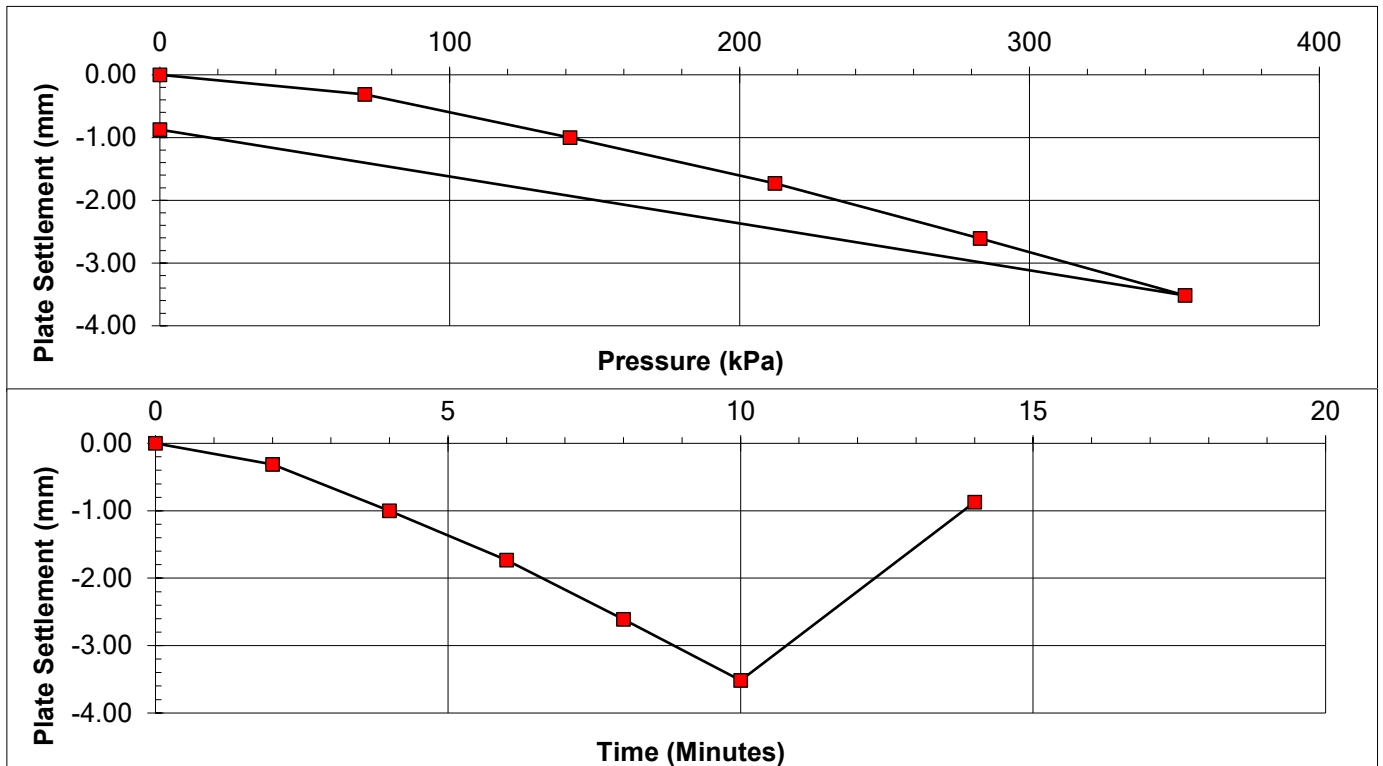
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                   |                    |  |                       |              |  |
|---------------------|-------------------|--------------------|--|-----------------------|--------------|--|
| CLIENT              | e3p               |                    |  |                       |              |  |
| SITE                | Castleton Sidings |                    |  |                       |              |  |
| JOB NUMBER          | MRN 24005/330     |                    |  |                       |              |  |
| TEST LOCATION       | Plot 10           | LOADING DEVICE     |  | 20 Tonne Enerpac Jack |              |  |
| TEST DATE           | 17-Dec-24         | PLATE SIZE (mm)    |  | 300 diameter          |              |  |
| TEST DEPTH          | Surface           | REACTION LOAD USED |  | Site Plant            |              |  |
| MATERIAL UNDER TEST |                   | Crush              |  | MOISTURE CONTENT      | Not Required |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 4478                     | 4521                     | 4487                     | 4495                   | 0.00                    | 0.00         | 0.0               |
| 4447                     | 4490                     | 4455                     | 4464                   | -0.31                   | 5.00         | 70.7              |
| 4382                     | 4417                     | 4386                     | 4395                   | -1.00                   | 10.00        | 141.5             |
| 4309                     | 4344                     | 4314                     | 4322                   | -1.73                   | 15.00        | 212.2             |
| 4221                     | 4256                     | 4226                     | 4234                   | -2.61                   | 20.00        | 282.9             |
| 4124                     | 4176                     | 4131                     | 4144                   | -3.52                   | 25.00        | 353.7             |
| 4388                     | 4440                     | 4396                     | 4408                   | -0.87                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflection =   | 165 kPa   |
| Modulus of subgrade reaction (k) = | 132 MPa/m |
| Equivalent 762 mm plate reaction = | 58 MPa/m  |
| Equivalent CBR =                   | 11.1 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 18-Dec-24

## TEST REPORT

**Client** e3p

**Address** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contract** Castleton Sidings

**Job Number** MRN 24005/328  
**Date of Issue** 16 December 2024  
**Page** 1 of 9

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.
- 5 The results included within the report are representative of the samples submitted for analysis.
- 6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.



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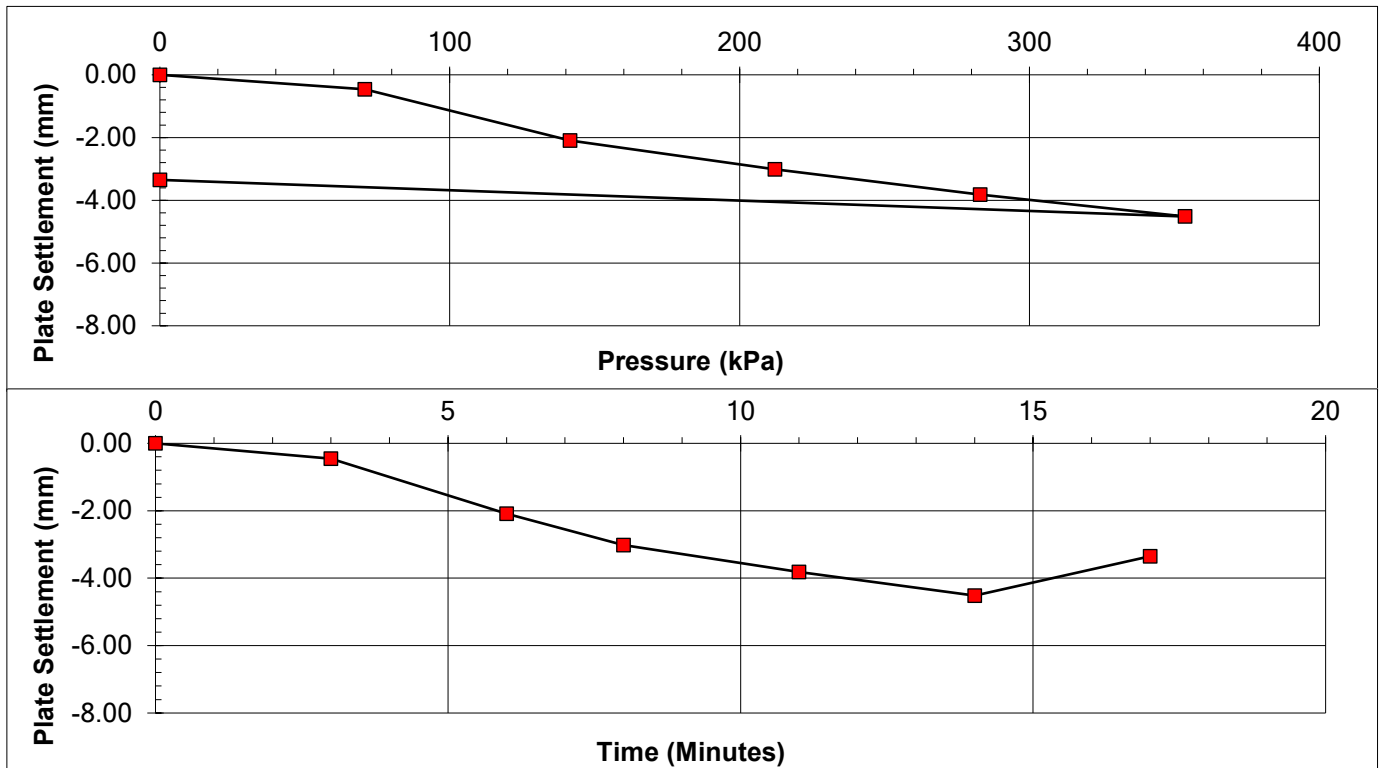
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                   |                    |                       |
|---------------------|-------------------|--------------------|-----------------------|
| CLIENT              | e3p               |                    |                       |
| SITE                | Castleton Sidings |                    |                       |
| JOB NUMBER          | MRN 24005/328     |                    |                       |
| TEST LOCATION       | L2                | LOADING DEVICE     | 20 Tonne Enerpac Jack |
| TEST DATE           | 13-Dec-24         | PLATE SIZE (mm)    | 300 diameter          |
| TEST DEPTH          | Surface           | REACTION LOAD USED | Site Plant            |
| MATERIAL UNDER TEST | Fill/Ash          | MOISTURE CONTENT   | Not Required          |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 2532                     | 3115                     | 2243                     | 2630                   | 0.00                    | 0.00         | 0.0               |
| 2481                     | 3071                     | 2201                     | 2584                   | -0.46                   | 5.00         | 70.7              |
| 2318                     | 2910                     | 2035                     | 2421                   | -2.09                   | 10.00        | 141.5             |
| 2241                     | 2801                     | 1943                     | 2328                   | -3.02                   | 15.00        | 212.2             |
| 2181                     | 2691                     | 1872                     | 2248                   | -3.82                   | 20.00        | 282.9             |
| 2110                     | 2613                     | 1812                     | 2178                   | -4.52                   | 25.00        | 353.7             |
| 2212                     | 2732                     | 1942                     | 2295                   | -3.35                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflection =   | 105 kPa  |
| Modulus of subgrade reaction (k) = | 84 MPa/m |
| Equivalent 762 mm plate reaction = | 37 MPa/m |
| Equivalent CBR =                   | 5.1 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 16-Dec-24

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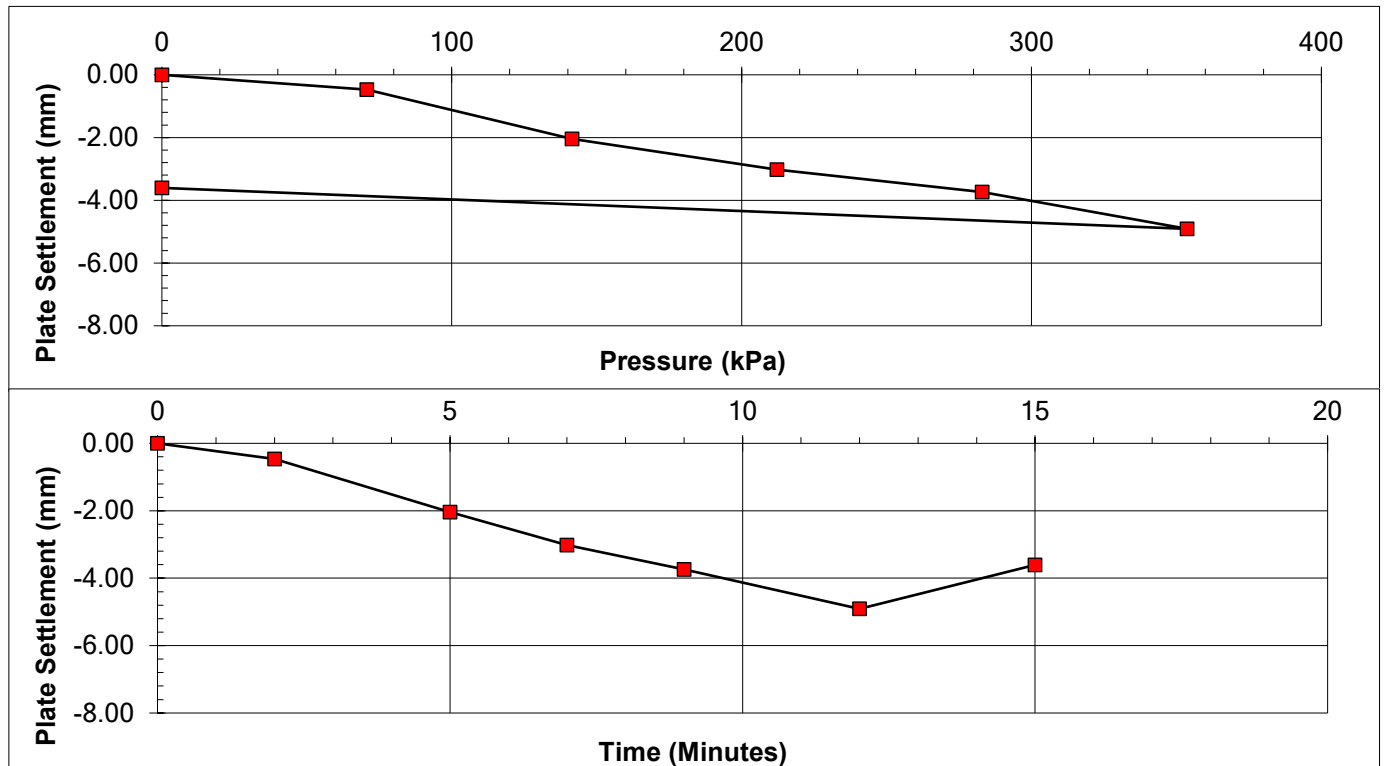
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                   |                    |                  |                       |              |  |
|---------------------|-------------------|--------------------|------------------|-----------------------|--------------|--|
| CLIENT              | e3p               |                    |                  |                       |              |  |
| SITE                | Castleton Sidings |                    |                  |                       |              |  |
| JOB NUMBER          | MRN 24005/328     |                    |                  |                       |              |  |
| TEST LOCATION       | K3                | LOADING DEVICE     |                  | 20 Tonne Enerpac Jack |              |  |
| TEST DATE           | 13-Dec-24         | PLATE SIZE (mm)    |                  | 300 diameter          |              |  |
| TEST DEPTH          | Surface           | REACTION LOAD USED |                  | Site Plant            |              |  |
| MATERIAL UNDER TEST | Fill/Ash          |                    | MOISTURE CONTENT |                       | Not Required |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 2461                     | 3596                     | 2143                     | 2733                   | 0.00                    | 0.00         | 0.0               |
| 2401                     | 3558                     | 2101                     | 2687                   | -0.47                   | 5.00         | 70.7              |
| 2248                     | 3395                     | 1945                     | 2529                   | -2.04                   | 10.00        | 141.5             |
| 2120                     | 3302                     | 1872                     | 2431                   | -3.02                   | 15.00        | 212.2             |
| 2045                     | 3231                     | 1803                     | 2360                   | -3.74                   | 20.00        | 282.9             |
| 1913                     | 3131                     | 1683                     | 2242                   | -4.91                   | 25.00        | 353.7             |
| 2042                     | 3265                     | 1812                     | 2373                   | -3.60                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflection =   | 106 kPa  |
| Modulus of subgrade reaction (k) = | 85 MPa/m |
| Equivalent 762 mm plate reaction = | 37 MPa/m |
| Equivalent CBR =                   | 5.1 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 16-Dec-24

# MURRAY RIX

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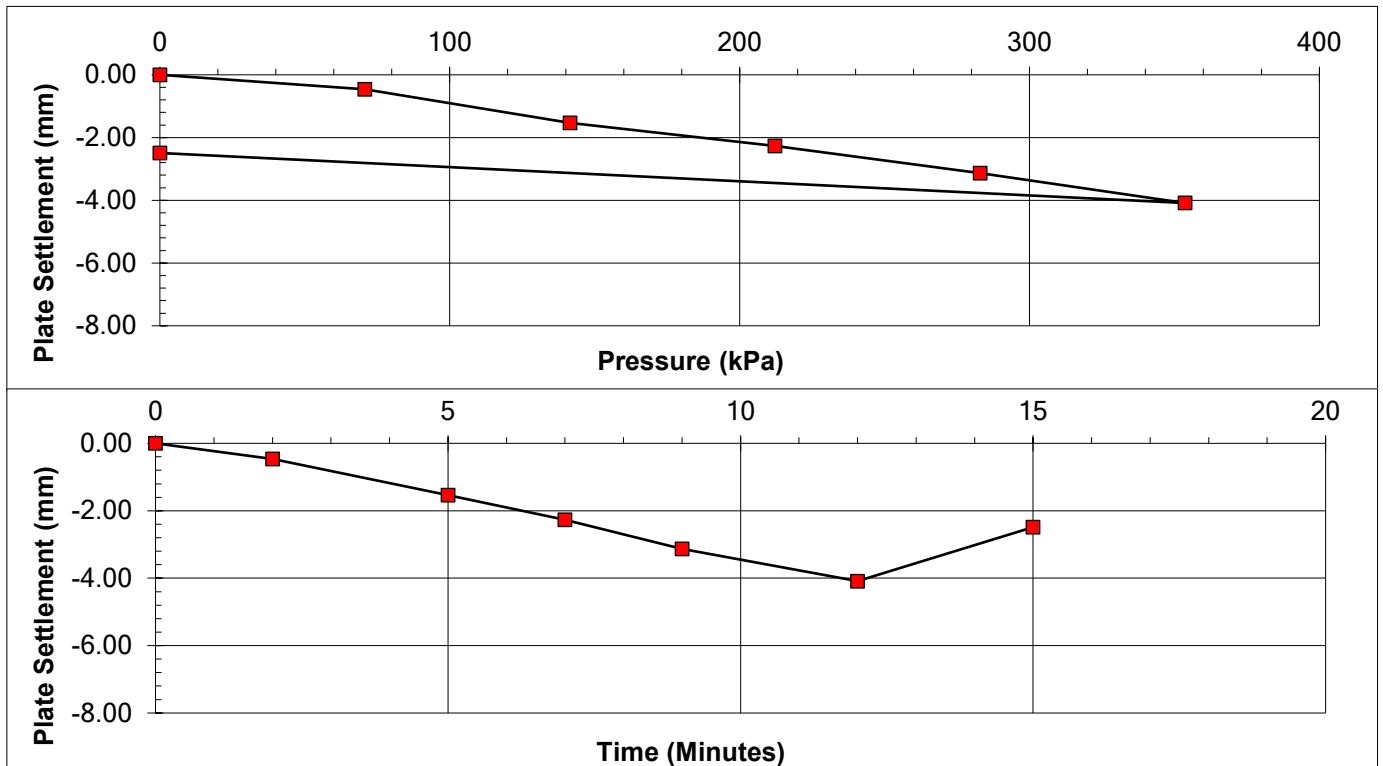
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                   |                    |  |                       |  |  |
|---------------------|-------------------|--------------------|--|-----------------------|--|--|
| CLIENT              | e3p               |                    |  |                       |  |  |
| SITE                | Castleton Sidings |                    |  |                       |  |  |
| JOB NUMBER          | MRN 24005/328     |                    |  |                       |  |  |
| TEST LOCATION       | K1                | LOADING DEVICE     |  | 20 Tonne Enerpac Jack |  |  |
| TEST DATE           | 13-Dec-24         | PLATE SIZE (mm)    |  | 300 diameter          |  |  |
| TEST DEPTH          | Surface           | REACTION LOAD USED |  | Site Plant            |  |  |
| MATERIAL UNDER TEST | Fill/Ash          | MOISTURE CONTENT   |  | Not Required          |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 2236                     | 4596                     | 3523                     | 3452                   | 0.00                    | 0.00         | 0.0               |
| 2183                     | 4545                     | 3488                     | 3405                   | -0.46                   | 5.00         | 70.7              |
| 2072                     | 4442                     | 3381                     | 3298                   | -1.53                   | 10.00        | 141.5             |
| 2012                     | 4361                     | 3301                     | 3225                   | -2.27                   | 15.00        | 212.2             |
| 1911                     | 4292                     | 3212                     | 3138                   | -3.13                   | 20.00        | 282.9             |
| 1843                     | 4165                     | 3121                     | 3043                   | -4.09                   | 25.00        | 353.7             |
| 1992                     | 4311                     | 3305                     | 3203                   | -2.49                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflection =   | 123 kPa  |
| Modulus of subgrade reaction (k) = | 98 MPa/m |
| Equivalent 762 mm plate reaction = | 43 MPa/m |
| Equivalent CBR =                   | 6.6 %    |

REMARKS

SIGNED   
NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 16-Dec-24

# MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX

TEL 0161 475 0870

## TEST CERTIFICATE

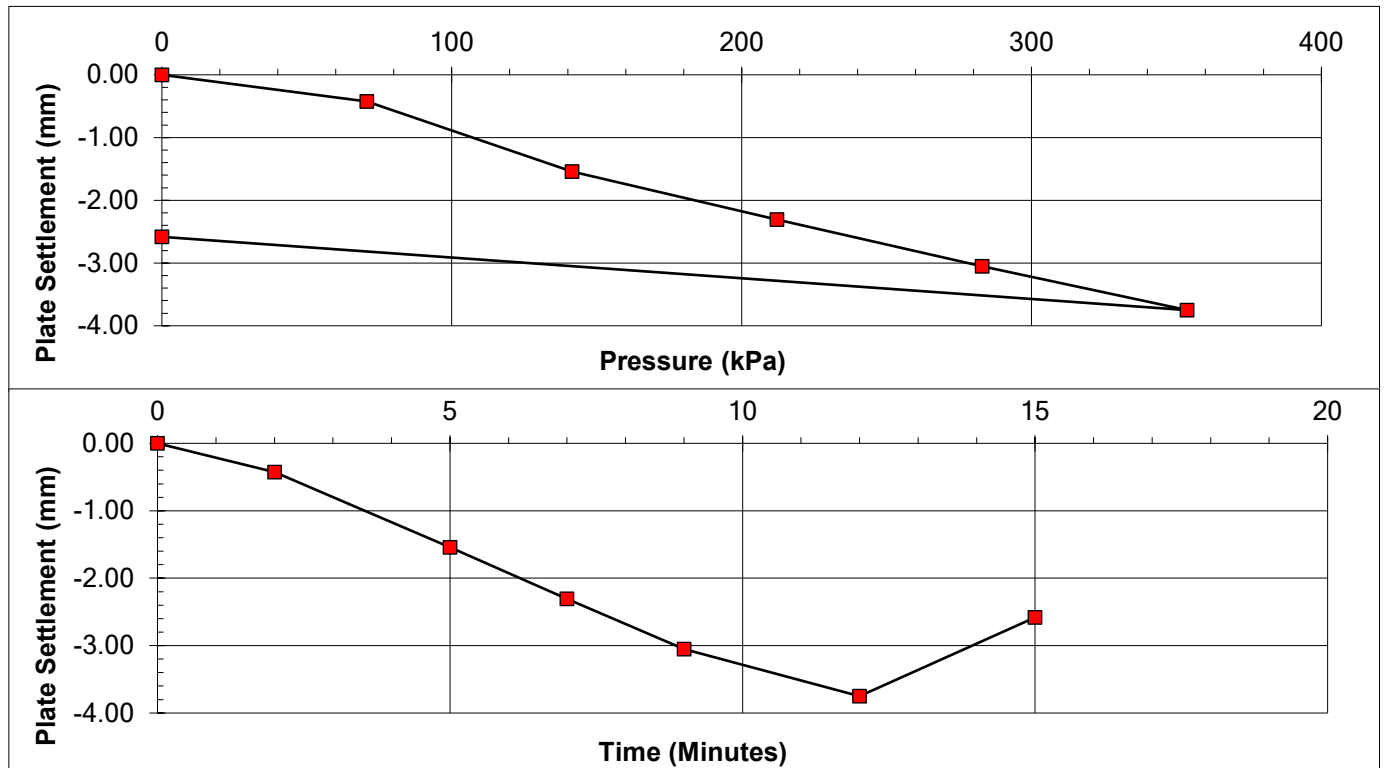
PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)



|                     |                   |                    |  |                       |  |  |
|---------------------|-------------------|--------------------|--|-----------------------|--|--|
| CLIENT              | e3p               |                    |  |                       |  |  |
| SITE                | Castleton Sidings |                    |  |                       |  |  |
| JOB NUMBER          | MRN 24005/328     |                    |  |                       |  |  |
| TEST LOCATION       | L1                | LOADING DEVICE     |  | 20 Tonne Enerpac Jack |  |  |
| TEST DATE           | 13-Dec-24         | PLATE SIZE (mm)    |  | 300 diameter          |  |  |
| TEST DEPTH          | Surface           | REACTION LOAD USED |  | Site Plant            |  |  |
| MATERIAL UNDER TEST | Fill/Ash          | MOISTURE CONTENT   |  | Not Required          |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 3145                     | 3538                     | 4603                     | 3762                   | 0.00                    | 0.00         | 0.0               |
| 3108                     | 3492                     | 4558                     | 3719                   | -0.43                   | 5.00         | 70.7              |
| 3001                     | 3381                     | 4442                     | 3608                   | -1.54                   | 10.00        | 141.5             |
| 2921                     | 3301                     | 4372                     | 3531                   | -2.31                   | 15.00        | 212.2             |
| 2842                     | 3221                     | 4308                     | 3457                   | -3.05                   | 20.00        | 282.9             |
| 2781                     | 3152                     | 4228                     | 3387                   | -3.75                   | 25.00        | 353.7             |
| 2898                     | 3268                     | 4345                     | 3504                   | -2.58                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflection =   | 123 kPa  |
| Modulus of subgrade reaction (k) = | 98 MPa/m |
| Equivalent 762 mm plate reaction = | 43 MPa/m |
| Equivalent CBR =                   | 6.7 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 16-Dec-24

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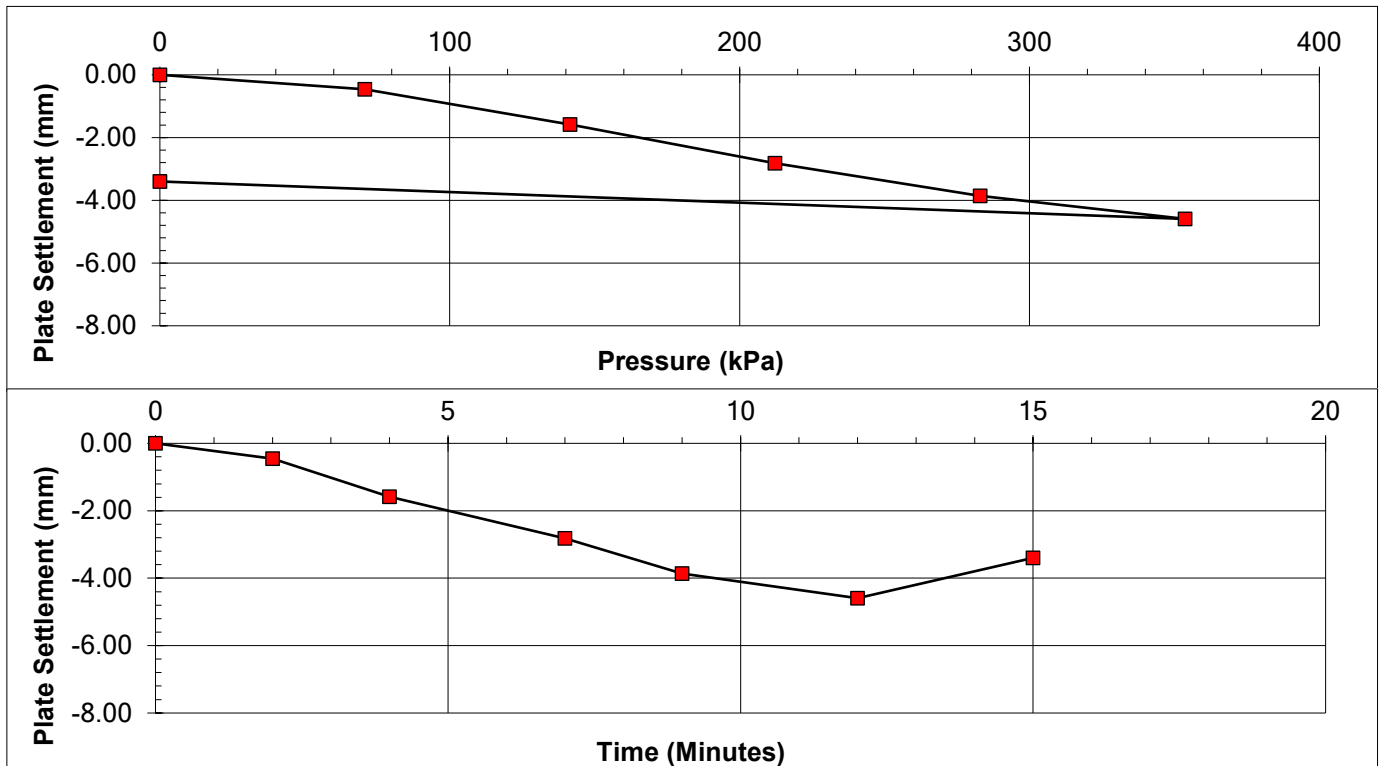
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                   |                    |                  |                       |              |  |
|---------------------|-------------------|--------------------|------------------|-----------------------|--------------|--|
| CLIENT              | e3p               |                    |                  |                       |              |  |
| SITE                | Castleton Sidings |                    |                  |                       |              |  |
| JOB NUMBER          | MRN 24005/328     |                    |                  |                       |              |  |
| TEST LOCATION       | J2                | LOADING DEVICE     |                  | 20 Tonne Enerpac Jack |              |  |
| TEST DATE           | 13-Dec-24         | PLATE SIZE (mm)    |                  | 300 diameter          |              |  |
| TEST DEPTH          | Surface           | REACTION LOAD USED |                  | Site Plant            |              |  |
| MATERIAL UNDER TEST | Fill/Ash          |                    | MOISTURE CONTENT |                       | Not Required |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 3461                     | 2123                     | 3038                     | 2874                   | 0.00                    | 0.00         | 0.0               |
| 3412                     | 2081                     | 2992                     | 2828                   | -0.46                   | 5.00         | 70.7              |
| 3308                     | 1971                     | 2868                     | 2716                   | -1.58                   | 10.00        | 141.5             |
| 3201                     | 1851                     | 2723                     | 2592                   | -2.82                   | 15.00        | 212.2             |
| 3132                     | 1721                     | 2611                     | 2488                   | -3.86                   | 20.00        | 282.9             |
| 3051                     | 1651                     | 2542                     | 2415                   | -4.59                   | 25.00        | 353.7             |
| 3168                     | 1773                     | 2661                     | 2534                   | -3.40                   | 0.00         | 0.0               |



|                                    |          |
|------------------------------------|----------|
| Pressure at 1.25 mm deflection =   | 121 kPa  |
| Modulus of subgrade reaction (k) = | 96 MPa/m |
| Equivalent 762 mm plate reaction = | 43 MPa/m |
| Equivalent CBR =                   | 6.4 %    |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 16-Dec-24

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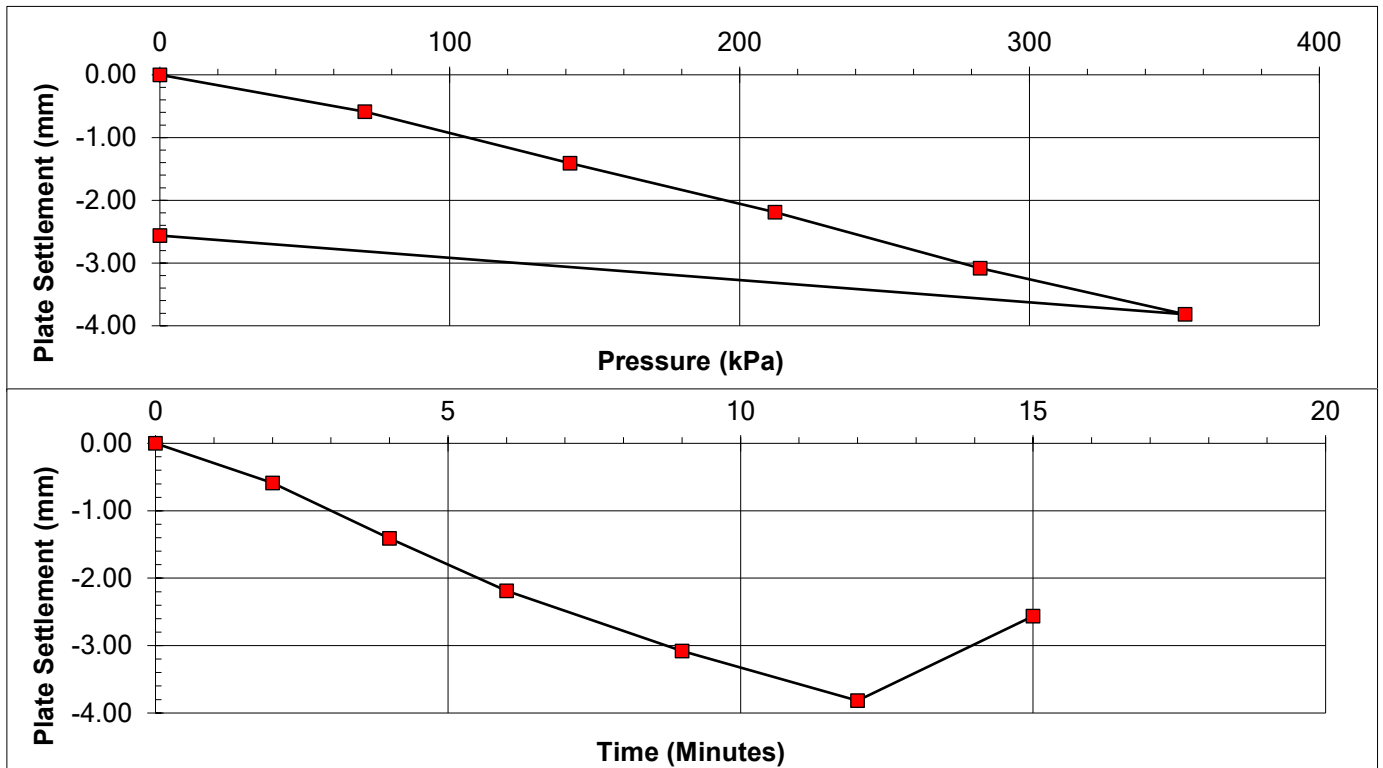
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                   |                    |  |                       |  |  |
|---------------------|-------------------|--------------------|--|-----------------------|--|--|
| CLIENT              | e3p               |                    |  |                       |  |  |
| SITE                | Castleton Sidings |                    |  |                       |  |  |
| JOB NUMBER          | MRN 24005/328     |                    |  |                       |  |  |
| TEST LOCATION       | K2                | LOADING DEVICE     |  | 20 Tonne Enerpac Jack |  |  |
| TEST DATE           | 13-Dec-24         | PLATE SIZE (mm)    |  | 300 diameter          |  |  |
| TEST DEPTH          | Surface           | REACTION LOAD USED |  | Site Plant            |  |  |
| MATERIAL UNDER TEST | Fill/Ash          | MOISTURE CONTENT   |  | Not Required          |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 2613                     | 3131                     | 3473                     | 3072                   | 0.00                    | 0.00         | 0.0               |
| 2551                     | 3065                     | 3425                     | 3014                   | -0.59                   | 5.00         | 70.7              |
| 2481                     | 2982                     | 3331                     | 2931                   | -1.41                   | 10.00        | 141.5             |
| 2401                     | 2901                     | 3258                     | 2853                   | -2.19                   | 15.00        | 212.2             |
| 2311                     | 2821                     | 3161                     | 2764                   | -3.08                   | 20.00        | 282.9             |
| 2228                     | 2772                     | 3072                     | 2691                   | -3.82                   | 25.00        | 353.7             |
| 2361                     | 2895                     | 3192                     | 2816                   | -2.56                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflection =   | 128 kPa   |
| Modulus of subgrade reaction (k) = | 102 MPa/m |
| Equivalent 762 mm plate reaction = | 45 MPa/m  |
| Equivalent CBR =                   | 7.1 %     |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 16-Dec-24



# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



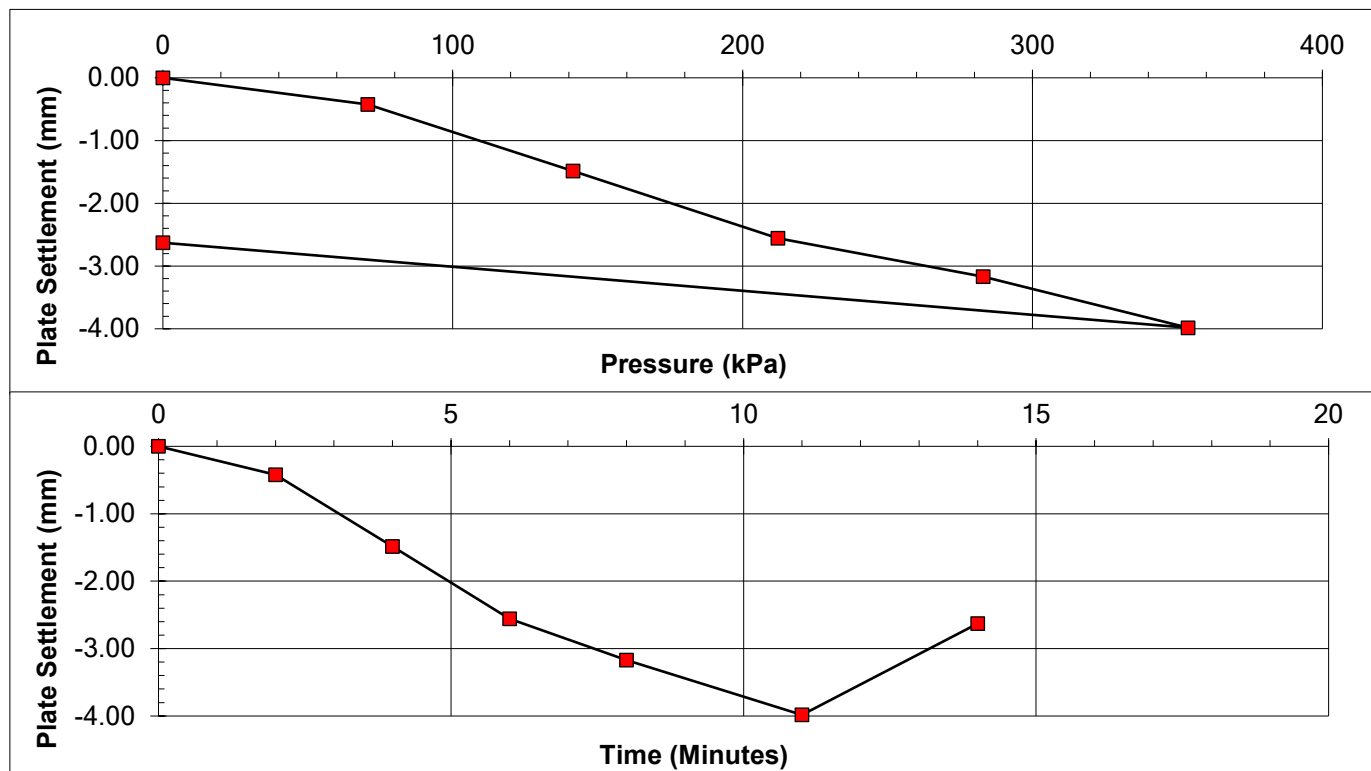
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                   |                    |  |                       |  |  |
|---------------------|-------------------|--------------------|--|-----------------------|--|--|
| CLIENT              | e3p               |                    |  |                       |  |  |
| SITE                | Castleton Sidings |                    |  |                       |  |  |
| JOB NUMBER          | MRN 24005/328     |                    |  |                       |  |  |
| TEST LOCATION       | M2                | LOADING DEVICE     |  | 20 Tonne Enerpac Jack |  |  |
| TEST DATE           | 13-Dec-24         | PLATE SIZE (mm)    |  | 300 diameter          |  |  |
| TEST DEPTH          | Surface           | REACTION LOAD USED |  | Site Plant            |  |  |
| MATERIAL UNDER TEST | Fill/Ash          | MOISTURE CONTENT   |  | Not Required          |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 3161                     | 3598                     | 2298                     | 3019                   | 0.00                    | 0.00         | 0.0               |
| 3110                     | 3560                     | 2260                     | 2977                   | -0.42                   | 5.00         | 70.7              |
| 3011                     | 3442                     | 2158                     | 2870                   | -1.49                   | 10.00        | 141.5             |
| 2901                     | 3351                     | 2038                     | 2763                   | -2.56                   | 15.00        | 212.2             |
| 2842                     | 3291                     | 1973                     | 2702                   | -3.17                   | 20.00        | 282.9             |
| 2751                     | 3210                     | 1901                     | 2621                   | -3.98                   | 25.00        | 353.7             |
| 2892                     | 3345                     | 2031                     | 2756                   | -2.63                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflection =   | 126 kPa   |
| Modulus of subgrade reaction (k) = | 101 MPa/m |
| Equivalent 762 mm plate reaction = | 44 MPa/m  |
| Equivalent CBR =                   | 6.9 %     |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 16-Dec-24

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



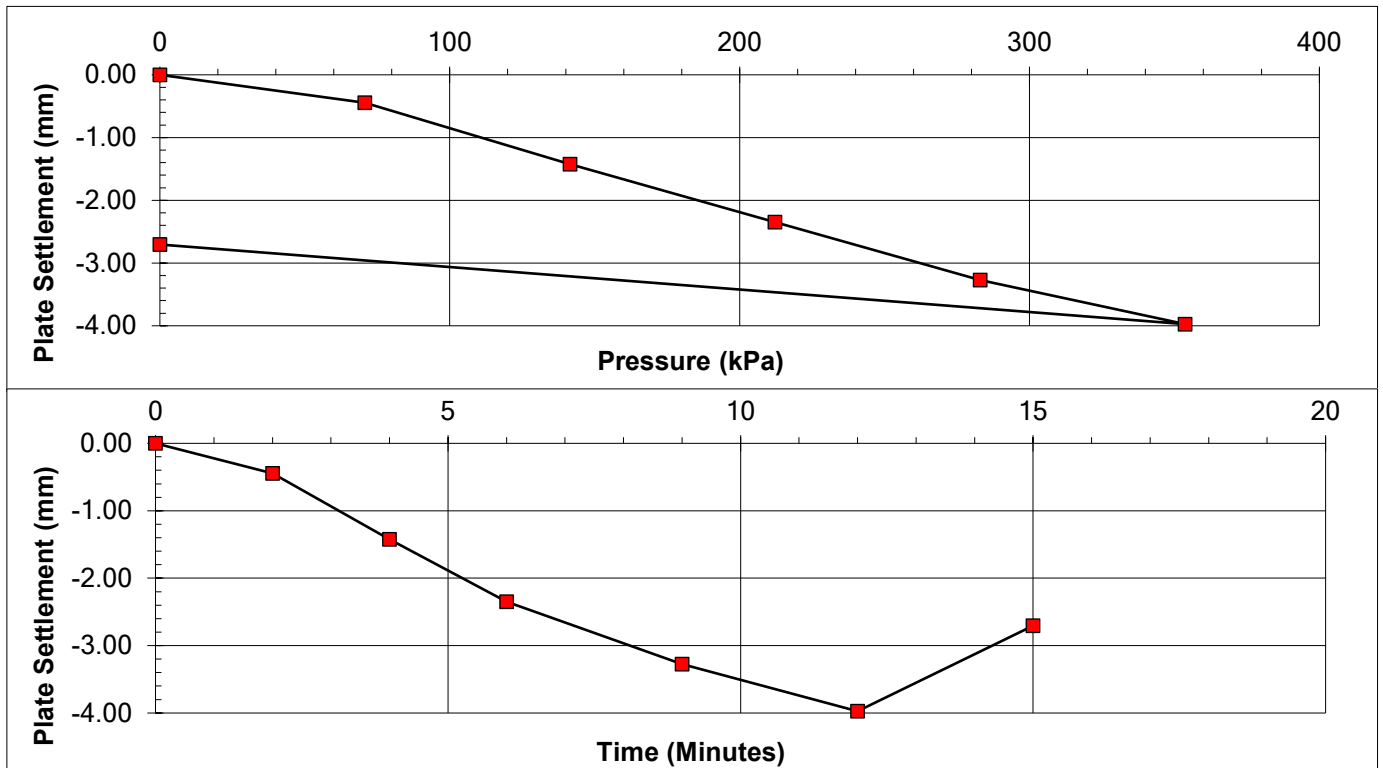
## TEST CERTIFICATE

### PLATE INCREMENTAL LOAD TEST

BS 1377 : PART 9 : CL 4.1 and IAN 73/06 Rev 1 (2009)

|                     |                   |                    |  |                       |  |  |
|---------------------|-------------------|--------------------|--|-----------------------|--|--|
| CLIENT              | e3p               |                    |  |                       |  |  |
| SITE                | Castleton Sidings |                    |  |                       |  |  |
| JOB NUMBER          | MRN 24005/328     |                    |  |                       |  |  |
| TEST LOCATION       | L3                | LOADING DEVICE     |  | 20 Tonne Enerpac Jack |  |  |
| TEST DATE           | 13-Dec-24         | PLATE SIZE (mm)    |  | 300 diameter          |  |  |
| TEST DEPTH          | Surface           | REACTION LOAD USED |  | Site Plant            |  |  |
| MATERIAL UNDER TEST | Fill/Ash          | MOISTURE CONTENT   |  | Not Required          |  |  |

| Dial Gauge 1<br>(mmx100) | Dial Gauge 2<br>(mmx100) | Dial Gauge 3<br>(mmx100) | Mean Gauge<br>(mmx100) | Mean Deflection<br>(mm) | Load<br>(kN) | Pressure<br>(kPa) |
|--------------------------|--------------------------|--------------------------|------------------------|-------------------------|--------------|-------------------|
| 3452                     | 3252                     | 3634                     | 3446                   | 0.00                    | 0.00         | 0.0               |
| 3401                     | 3212                     | 3592                     | 3402                   | -0.44                   | 5.00         | 70.7              |
| 3301                     | 3118                     | 3492                     | 3304                   | -1.42                   | 10.00        | 141.5             |
| 3201                     | 3031                     | 3401                     | 3211                   | -2.35                   | 15.00        | 212.2             |
| 3112                     | 2931                     | 3313                     | 3119                   | -3.27                   | 20.00        | 282.9             |
| 3042                     | 2873                     | 3231                     | 3049                   | -3.97                   | 25.00        | 353.7             |
| 3165                     | 2993                     | 3368                     | 3175                   | -2.71                   | 0.00         | 0.0               |



|                                    |           |
|------------------------------------|-----------|
| Pressure at 1.25 mm deflection =   | 129 kPa   |
| Modulus of subgrade reaction (k) = | 103 MPa/m |
| Equivalent 762 mm plate reaction = | 46 MPa/m  |
| Equivalent CBR =                   | 7.2 %     |

REMARKS

SIGNED

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

DATE 16-Dec-24

## TEST REPORT

**Client** e3p

**Address** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contract** Castleton Sidings

**Job Number** MRN 24005/260

**Date of Issue** 23 October 2024

**Page** 1 of 3

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
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Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

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# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

CALIBRATION OF NUCLEAR DENSITY GAUGE  
BY DIRECT COMPARISON WITH SAND REPLACEMENT DENSITY TESTS

|                |                   |
|----------------|-------------------|
| CLIENT         | e3p               |
| SITE           | Castleton Sidings |
| JOB NUMBER     | MRN 24005/260     |
| MATERIAL       | Ash Fill          |
| ADVISED SOURCE | Site Won          |

|              |                 |
|--------------|-----------------|
| Date of Test | 21 October 2024 |
|--------------|-----------------|

|              |              |
|--------------|--------------|
| Gauge Number | 24958        |
| Gauge Type   | Troxler 3440 |

| Sand Replacements |             |          | Nuclear Density Gauge (NDG) |             |          | Difference  |          |
|-------------------|-------------|----------|-----------------------------|-------------|----------|-------------|----------|
| Test No.          | Wet Density | Moisture | Test No.                    | Wet Density | Moisture | Wet Density | Moisture |
| 1                 | 1.954       | 20.4     | 1                           | 1.749       | 28.3     | 0.205       | 7.9      |
| 2                 | 1.896       | 21.6     | 2                           | 1.763       | 25.6     | 0.134       | 4.0      |
| 3                 | 1.917       | 20.4     | 3                           | 1.711       | 25.8     | 0.206       | 5.4      |
| 4                 | 1.926       | 20.9     | 4                           | 1.691       | 27.2     | 0.235       | 6.3      |
| 5                 | 1.838       | 20.8     | 5                           | 1.700       | 23.6     | 0.138       | 2.8      |
|                   |             |          |                             |             |          |             |          |

| Adjustment Required to Nuclear Density Gauge Reading |                                               |
|------------------------------------------------------|-----------------------------------------------|
| Wet Density                                          | Add 0.184 Mg/m <sup>3</sup> to the NDG Result |
| Moisture Content                                     | Subtract 5.3% from the NDG Result             |

(Wet Density results expressed as Mg/m<sup>3</sup>, Moisture Content results expressed as % of Dry Mass)

### COMMENT / ANOMALIES

NDG results reported are the average of 4 readings, Correction calculated as an average

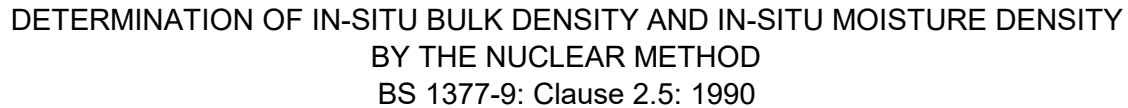
SIGNED

(Deputy Radiation Protection Supervisor)

NAME O.P. Davies BA (Hons)  
(Laboratory Manager / DPRS)

DATE 23-Oct-24

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST REPORT

**Client** e3p

**Address** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contract** Castleton Sidings

**Job Number** MRN 24005/262  
**Date of Issue** 25 October 2024  
**Page** 1 of 2

Approved Signatories

S J Hutchings, O P Davies

### Notes

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# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DETERMINATION OF IN-SITU BULK DENSITY AND IN-SITU MOISTURE DENSITY  
BY THE NUCLEAR METHOD  
BS 1377-9: Clause 2.5: 1990

|        |                   |
|--------|-------------------|
| CLIENT | e3p               |
| SITE   | Castleton Sidings |

|                   |                     |                         |                                         |
|-------------------|---------------------|-------------------------|-----------------------------------------|
| DATE              | 23-Oct-24           | JOB NUMBER              | MRN 24005/262                           |
| MATERIAL          | Ash Fill            |                         |                                         |
| NDG MODEL         | Troxler 3440        | SERIAL NUMBER           | 24958                                   |
| MODE OF OPERATION | Direct Transmission | MEASUREMENT APPLICATION | Compliance tests for compacted material |

| Test No.                                                            | Test Chainage / Location | Test Depth (mm) | Wet Density (Mg/m3) | Dry Density (Mg/m3) | Moisture Content (%) | Percentage Compaction (%) | Air Voids (%) |
|---------------------------------------------------------------------|--------------------------|-----------------|---------------------|---------------------|----------------------|---------------------------|---------------|
| 1                                                                   | P3 L1                    | 250             | 1.92                | 1.57                | 22                   | 100.3                     | N/A           |
| 2                                                                   | P4 L1                    | 250             | 1.86                | 1.49                | 24                   | 95.2                      | N/A           |
| 3                                                                   | O3 L1                    | 250             | 1.87                | 1.50                | 25                   | 95.3                      | N/A           |
| 4                                                                   | O4 L1                    | 250             | 1.91                | 1.60                | 20                   | 101.7                     | N/A           |
| 5                                                                   | R3 L2                    | 250             | 1.90                | 1.52                | 25                   | 96.7                      | N/A           |
| 6                                                                   | Q3 L2                    | 250             | 1.91                | 1.56                | 22                   | 99.6                      | N/A           |
| 7                                                                   | R2 L2                    | 250             | 1.93                | 1.64                | 18                   | 104.7                     | N/A           |
| 8                                                                   | Q2 L2                    | 250             | 1.88                | 1.59                | 18                   | 101.3                     | N/A           |
| 9                                                                   | R3 L3                    | 250             | 1.90                | 1.55                | 23                   | 98.4                      | N/A           |
| 10                                                                  | Q3 L3                    | 250             | 1.91                | 1.56                | 23                   | 99.5                      | N/A           |
| 11                                                                  | R2 L2                    | 250             | 1.89                | 1.54                | 23                   | 98.2                      | N/A           |
| 12                                                                  | Q2 L3                    | 250             | 1.97                | 1.60                | 24                   | 101.7                     | N/A           |
| 13                                                                  | P3 L2                    | 250             | 1.90                | 1.50                | 27                   | 95.6                      | N/A           |
| 14                                                                  | P4 L2                    | 250             | 1.91                | 1.50                | 28                   | 95.6                      | N/A           |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
| Maximum Dry Density (Mg/m3)                                         |                          |                 |                     |                     | 1.57                 | (Advised by client)       |               |
| Particle Density (Mg/m3)                                            |                          |                 |                     |                     | N/A                  | (Not Advised)             |               |
| Results corrected for NDG calibration/correlation to site materials |                          |                 |                     |                     | Yes                  |                           |               |

REMARKS/ABNORMALITIES

NAME S.J Hutchings  
(Director)

SIGNED

DATE 25-Oct-24

## TEST REPORT

**Client** e3p

**Address** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contract** Castleton Sidings

**Job Number** MRN 24005/264

**Date of Issue** 28 October 2024

**Page** 1 of 3

Approved Signatories

S J Hutchings, O P Davies

Notes

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# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DETERMINATION OF IN-SITU BULK DENSITY AND IN-SITU MOISTURE DENSITY  
BY THE NUCLEAR METHOD  
BS 1377-9: Clause 2.5: 1990

|        |                   |
|--------|-------------------|
| CLIENT | e3p               |
| SITE   | Castleton Sidings |

|                   |                     |                         |                                         |
|-------------------|---------------------|-------------------------|-----------------------------------------|
| DATE              | 25-Oct-24           | JOB NUMBER              | MRN 24005/264                           |
| MATERIAL          | Ash Fill            |                         |                                         |
| NDG MODEL         | Troxler 3440        | SERIAL NUMBER           | 24958                                   |
| MODE OF OPERATION | Direct Transmission | MEASUREMENT APPLICATION | Compliance tests for compacted material |

| Test No.                                                            | Test Chainage / Location | Test Depth (mm) | Wet Density (Mg/m3) | Dry Density (Mg/m3) | Moisture Content (%) | Percentage Compaction (%) | Air Voids (%) |
|---------------------------------------------------------------------|--------------------------|-----------------|---------------------|---------------------|----------------------|---------------------------|---------------|
| 1                                                                   | P2 L3                    | 200             | 1.89                | 1.50                | 26                   | 95.7                      | N/A           |
| 2                                                                   | P3 L2                    | 200             | 1.90                | 1.56                | 22                   | 99.6                      | N/A           |
| 3                                                                   | P4 L3                    | 200             | 1.92                | 1.54                | 25                   | 98.3                      | N/A           |
| 4                                                                   | Q3 L4                    | 200             | 1.86                | 1.47                | 26                   | 93.8                      | N/A           |
| 5                                                                   | R3 L4                    | 200             | 1.87                | 1.52                | 23                   | 97.0                      | N/A           |
| 6                                                                   | O3 L2                    | 200             | 1.92                | 1.54                | 25                   | 98.2                      | N/A           |
| 7                                                                   | O4 L2                    | 200             | 1.98                | 1.55                | 28                   | 98.6                      | N/A           |
| 8                                                                   | Q4 L1                    | 200             | 1.96                | 1.59                | 23                   | 101.6                     | N/A           |
| 9                                                                   | R4 L1                    | 200             | 1.89                | 1.54                | 23                   | 97.8                      | N/A           |
| 10                                                                  | O3 L3                    | 200             | 2.00                | 1.58                | 27                   | 100.4                     | N/A           |
| 11                                                                  | O4 L4                    | 200             | 1.93                | 1.58                | 22                   | 100.6                     | N/A           |
| 12                                                                  | R3 L4                    | 200             | 1.98                | 1.56                | 27                   | 99.6                      | N/A           |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
| Maximum Dry Density (Mg/m3)                                         |                          |                 |                     |                     | 1.57                 | (Advised by client)       |               |
| Particle Density (Mg/m3)                                            |                          |                 |                     |                     | N/A                  | (Not Advised)             |               |
| Results corrected for NDG calibration/correlation to site materials |                          |                 |                     |                     | Yes                  |                           |               |

REMARKS/ABNORMALITIES

NAME S.J Hutchings  
(Director)

SIGNED

DATE 28-Oct-24

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

INSITU DENSITY, SAND REPLACEMENT METHOD

BS 1377 : Part 9 : Clause 2.2

MOISTURE CONTENT METHOD BS 1377 : Part 2 CLAUSE 3.2 : 1990 (OVEN DRY)

|            |                   |
|------------|-------------------|
| CLIENT     | e3p               |
| SITE       | Castleton Sidings |
| JOB NUMBER | MRN 24005/264     |

|              |                        |                 |            |
|--------------|------------------------|-----------------|------------|
| TEST METHOD  | Large Pouring Cylinder | DATE RECEIVED   | 25-Oct-24  |
| DATE OF TEST | 25-Oct-24              | SAMPLED BY      | Murray Rix |
| DATE TESTED  | 28-Oct-24              | MATERIAL SOURCE | Site Won   |

| Laboratory Sample Number                 | Test Location | Material | Bulk Density (Mg/m <sup>3</sup> ) | Dry Density (Mg/m <sup>3</sup> ) | Moisture Content (%) | Compaction (%) | Air Voids (%) |
|------------------------------------------|---------------|----------|-----------------------------------|----------------------------------|----------------------|----------------|---------------|
| 581401                                   | Test 01       | Ash Fill | 1.91                              | 1.49                             | 28                   | 94.6           | N/A           |
| 581402                                   | Test 02       | Ash Fill | 2.06                              | 1.71                             | 21                   | 108.6          | N/A           |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
| Maximum Dry Density (Mg/m <sup>3</sup> ) |               |          |                                   | 1.57                             | (Advised by client)  |                |               |
| Particle Density (Mg/m <sup>3</sup> )    |               |          |                                   | N/A                              | (Not Advised)        |                |               |

COMMENT / ANOMALIES

NAME S.J Hutchings  
(Director)

SIGNED

DATE 28-Oct-24

## TEST REPORT

**Client** e3p

**Address** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contract** Castleton Sidings

**Job Number** MRN 24005/267  
**Date of Issue** 31 October 2024  
**Page** 1 of 3

Approved Signatories

S J Hutchings, O P Davies

### Notes

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TEL 0161 475 0870



## TEST CERTIFICATE

DETERMINATION OF IN-SITU BULK DENSITY AND IN-SITU MOISTURE DENSITY  
BY THE NUCLEAR METHOD  
BS 1377-9: Clause 2.5: 1990

|        |                   |
|--------|-------------------|
| CLIENT | e3p               |
| SITE   | Castleton Sidings |

|                   |                     |                         |                                         |
|-------------------|---------------------|-------------------------|-----------------------------------------|
| DATE              | 29-Oct-24           | JOB NUMBER              | MRN 24005/267                           |
| MATERIAL          | Fill                |                         |                                         |
| NDG MODEL         | Troxler 3440        | SERIAL NUMBER           | 24958                                   |
| MODE OF OPERATION | Direct Transmission | MEASUREMENT APPLICATION | Compliance tests for compacted material |

| Test No.                                                            | Test Chainage / Location | Test Depth (mm) | Wet Density (Mg/m3) | Dry Density (Mg/m3) | Moisture Content (%) | Percentage Compaction (%) | Air Voids (%) |
|---------------------------------------------------------------------|--------------------------|-----------------|---------------------|---------------------|----------------------|---------------------------|---------------|
| 1                                                                   | Q4 L2                    | 250             | 1.86                | 1.51                | 23                   | 96.5                      | N/A           |
| 2                                                                   | Q4 L3                    | 250             | 1.89                | 1.55                | 22                   | 98.8                      | N/A           |
| 3                                                                   | Q4 L4                    | 250             | 1.86                | 1.53                | 22                   | 97.2                      | N/A           |
| 4                                                                   | R4 L2                    | 250             | 1.85                | 1.50                | 23                   | 95.6                      | N/A           |
| 5                                                                   | R4 L3                    | 250             | 1.85                | 1.50                | 24                   | 95.4                      | N/A           |
| 6                                                                   | R4 L4                    | 250             | 1.85                | 1.50                | 23                   | 95.8                      | N/A           |
| 7                                                                   | Q5 L1                    | 250             | 1.92                | 1.60                | 20                   | 102.1                     | N/A           |
| 8                                                                   | Q5 L2                    | 250             | 1.91                | 1.54                | 25                   | 97.8                      | N/A           |
| 9                                                                   | Q5 L3                    | 250             | 1.89                | 1.55                | 22                   | 98.4                      | N/A           |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
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|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
| Maximum Dry Density (Mg/m3)                                         |                          |                 |                     |                     | 1.57                 | (Advised by client)       |               |
| Particle Density (Mg/m3)                                            |                          |                 |                     |                     | N/A                  | (Not Advised)             |               |
| Results corrected for NDG calibration/correlation to site materials |                          |                 |                     |                     | Yes                  |                           |               |

REMARKS/ABNORMALITIES

NAME S.J Hutchings  
(Director)

SIGNED

DATE 31-Oct-24



# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

INSITU DENSITY, SAND REPLACEMENT METHOD

BS 1377 : Part 9 : Clause 2.2

MOISTURE CONTENT METHOD BS 1377 : Part 2 CLAUSE 3.2 : 1990 (OVEN DRY)

|            |                   |
|------------|-------------------|
| CLIENT     | e3p               |
| SITE       | Castleton Sidings |
| JOB NUMBER | MRN 24005/267     |

|              |                        |                 |            |
|--------------|------------------------|-----------------|------------|
| TEST METHOD  | Large Pouring Cylinder | DATE RECEIVED   | 29-Oct-24  |
| DATE OF TEST | 29-Oct-24              | SAMPLED BY      | Murray Rix |
| DATE TESTED  | 30-Oct-24              | MATERIAL SOURCE | Site Won   |

| Laboratory Sample Number                 | Test Location | Material | Bulk Density (Mg/m <sup>3</sup> ) | Dry Density (Mg/m <sup>3</sup> ) | Moisture Content (%) | Compaction (%) | Air Voids (%) |
|------------------------------------------|---------------|----------|-----------------------------------|----------------------------------|----------------------|----------------|---------------|
| 584801                                   | Q4 L2         | Fill     | 1.86                              | 1.51                             | 23                   | 96.2           | N/A           |
| 584802                                   | Q5 L1         | Fill     | 1.92                              | 1.60                             | 20                   | 102.1          | N/A           |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
| Maximum Dry Density (Mg/m <sup>3</sup> ) |               |          |                                   | 1.57                             | (Advised by client)  |                |               |
| Particle Density (Mg/m <sup>3</sup> )    |               |          |                                   | N/A                              | (Not Advised)        |                |               |

COMMENT / ANOMALIES

NAME S.J Hutchings  
(Director)

SIGNED

DATE 31-Oct-24

## TEST REPORT

**Client** e3p

**Address** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contract** Castleton Sidings

**Job Number** MRN 24005/269  
**Date of Issue** 07 November 2024  
**Page** 1 of 3

Approved Signatories

S J Hutchings, O P Davies

### Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
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Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870  
Email: [enquiries@murrayrix.com](mailto:enquiries@murrayrix.com) Website: [www.murrayrix.com](http://www.murrayrix.com)

Also at: London: 020 8523 1999

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# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DETERMINATION OF IN-SITU BULK DENSITY AND IN-SITU MOISTURE DENSITY  
BY THE NUCLEAR METHOD  
BS 1377-9: Clause 2.5: 1990

|        |                   |
|--------|-------------------|
| CLIENT | e3p               |
| SITE   | Castleton Sidings |

|                   |                     |                         |                                         |
|-------------------|---------------------|-------------------------|-----------------------------------------|
| DATE              | 31-Oct-24           | JOB NUMBER              | MRN 24005/269                           |
| MATERIAL          | Fill                |                         |                                         |
| NDG MODEL         | Troxler 3440        | SERIAL NUMBER           | 24958                                   |
| MODE OF OPERATION | Direct Transmission | MEASUREMENT APPLICATION | Compliance tests for compacted material |

| Test No.                                                            | Test Chainage / Location | Test Depth (mm) | Wet Density (Mg/m3) | Dry Density (Mg/m3) | Moisture Content (%) | Percentage Compaction (%) | Air Voids (%) |
|---------------------------------------------------------------------|--------------------------|-----------------|---------------------|---------------------|----------------------|---------------------------|---------------|
| 1                                                                   | P5 L1                    | 300             | 1.95                | 1.53                | 28                   | 106.0                     | N/A           |
| 2                                                                   | P5 L2                    | 300             | 1.98                | 1.53                | 30                   | 106.0                     | N/A           |
| 3                                                                   | O5 L1                    | 300             | 1.96                | 1.55                | 26                   | 107.5                     | N/A           |
| 4                                                                   | O5 L2                    | 300             | 1.96                | 1.57                | 25                   | 109.4                     | N/A           |
| 5                                                                   | O6 L1                    | 300             | 1.97                | 1.64                | 20                   | 113.9                     | N/A           |
| 6                                                                   | O6 L2                    | 300             | 1.96                | 1.62                | 21                   | 112.2                     | N/A           |
| 7                                                                   | P3 L3                    | 300             | 1.97                | 1.62                | 22                   | 112.4                     | N/A           |
| 8                                                                   | P3 L3                    | 300             | 1.97                | 1.62                | 22                   | 112.6                     | N/A           |
| 9                                                                   | P3 L4                    | 300             | 1.96                | 1.61                | 22                   | 111.7                     | N/A           |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
| Maximum Dry Density (Mg/m3)                                         |                          |                 |                     |                     | 1.44                 | (Advised by client)       |               |
| Particle Density (Mg/m3)                                            |                          |                 |                     |                     | N/A                  | (Not Advised)             |               |
| Results corrected for NDG calibration/correlation to site materials |                          |                 |                     |                     | Yes                  |                           |               |

REMARKS/ABNORMALITIES

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

SIGNED

DATE 07-Nov-24

# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

INSITU DENSITY, SAND REPLACEMENT METHOD

BS 1377 : Part 9 : Clause 2.2

MOISTURE CONTENT METHOD BS 1377 : Part 2 CLAUSE 3.2 : 1990 (OVEN DRY)

|            |                   |
|------------|-------------------|
| CLIENT     | e3p               |
| SITE       | Castleton Sidings |
| JOB NUMBER | MRN 24005/269     |

|              |                        |                 |            |
|--------------|------------------------|-----------------|------------|
| TEST METHOD  | Large Pouring Cylinder | DATE RECEIVED   | 31-Oct-24  |
| DATE OF TEST | 31-Oct-24              | SAMPLED BY      | Murray Rix |
| DATE TESTED  | 01-Nov-24              | MATERIAL SOURCE | Site Won   |

| Laboratory Sample Number                 | Test Location | Material | Bulk Density (Mg/m <sup>3</sup> ) | Dry Density (Mg/m <sup>3</sup> ) | Moisture Content (%) | Compaction (%) | Air Voids (%) |
|------------------------------------------|---------------|----------|-----------------------------------|----------------------------------|----------------------|----------------|---------------|
| 586601                                   | SRD 01        | Fill     | 1.94                              | 1.61                             | 21                   | 111.5          | N/A           |
| 586602                                   | SRD 02        | Fill     | 1.92                              | 1.59                             | 21                   | 110.1          | N/A           |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
| Maximum Dry Density (Mg/m <sup>3</sup> ) |               |          |                                   | 1.44                             | (Advised by client)  |                |               |
| Particle Density (Mg/m <sup>3</sup> )    |               |          |                                   | N/A                              | (Not Advised)        |                |               |

COMMENT / ANOMALIES

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

SIGNED

DATE 07-Nov-24

## TEST REPORT

**Client** e3p

**Address** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contract** Castleton Sidings

**Job Number** MRN 24005/271  
**Date of Issue** 07 November 2024  
**Page** 1 of 3

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
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# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DETERMINATION OF IN-SITU BULK DENSITY AND IN-SITU MOISTURE DENSITY  
BY THE NUCLEAR METHOD  
BS 1377-9: Clause 2.5: 1990

|        |                   |
|--------|-------------------|
| CLIENT | e3p               |
| SITE   | Castleton Sidings |

|                   |                     |                         |                                         |
|-------------------|---------------------|-------------------------|-----------------------------------------|
| DATE              | 05-Nov-24           | JOB NUMBER              | MRN 24005/271                           |
| MATERIAL          | Ash Fill            |                         |                                         |
| NDG MODEL         | Troxler 3440        | SERIAL NUMBER           | 24958                                   |
| MODE OF OPERATION | Direct Transmission | MEASUREMENT APPLICATION | Compliance tests for compacted material |

| Test No.                                                            | Test Chainage / Location | Test Depth (mm) | Wet Density (Mg/m3) | Dry Density (Mg/m3) | Moisture Content (%) | Percentage Compaction (%) | Air Voids (%) |
|---------------------------------------------------------------------|--------------------------|-----------------|---------------------|---------------------|----------------------|---------------------------|---------------|
| 1                                                                   | O2 L1                    | 200             | 1.80                | 1.44                | 25                   | 100.0                     | N/A           |
| 2                                                                   | O2 L2                    | 200             | 1.79                | 1.42                | 26                   | 98.3                      | N/A           |
| 3                                                                   | O5 L3                    | 200             | 1.77                | 1.41                | 25                   | 98.1                      | N/A           |
| 4                                                                   | P5 L3                    | 200             | 1.80                | 1.42                | 27                   | 98.7                      | N/A           |
| 5                                                                   | O5 L4                    | 200             | 1.74                | 1.42                | 23                   | 98.3                      | N/A           |
| 6                                                                   | P5 L4                    | 200             | 1.77                | 1.44                | 23                   | 100.1                     | N/A           |
| 7                                                                   | P4 L4                    | 200             | 1.81                | 1.45                | 25                   | 100.6                     | N/A           |
| 8                                                                   | O4 L4                    | 200             | 1.75                | 1.42                | 23                   | 98.6                      | N/A           |
| 9                                                                   | P5 L5                    | 200             | 1.71                | 1.40                | 22                   | 97.5                      | N/A           |
| 10                                                                  | Q5 L5                    | 200             | 1.80                | 1.44                | 25                   | 100.1                     | N/A           |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
| Maximum Dry Density (Mg/m3)                                         |                          |                 |                     |                     | 1.44                 | (Advised by client)       |               |
| Particle Density (Mg/m3)                                            |                          |                 |                     |                     | N/A                  | (Not Advised)             |               |
| Results corrected for NDG calibration/correlation to site materials |                          |                 |                     |                     | Yes                  |                           |               |

REMARKS/ABNORMALITIES

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

SIGNED

DATE 07-Nov-24



# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

INSITU DENSITY, SAND REPLACEMENT METHOD

BS 1377 : Part 9 : Clause 2.2

MOISTURE CONTENT METHOD BS 1377 : Part 2 CLAUSE 3.2 : 1990 (OVEN DRY)

|            |                   |
|------------|-------------------|
| CLIENT     | e3p               |
| SITE       | Castleton Sidings |
| JOB NUMBER | MRN 24005/271     |

|              |                        |                 |            |
|--------------|------------------------|-----------------|------------|
| TEST METHOD  | Large Pouring Cylinder | DATE RECEIVED   | 05-Nov-24  |
| DATE OF TEST | 05-Nov-24              | SAMPLED BY      | Murray Rix |
| DATE TESTED  | 06-Nov-24              | MATERIAL SOURCE | Site Won   |

| Laboratory Sample Number                 | Test Location | Material | Bulk Density (Mg/m <sup>3</sup> ) | Dry Density (Mg/m <sup>3</sup> ) | Moisture Content (%) | Compaction (%) | Air Voids (%) |
|------------------------------------------|---------------|----------|-----------------------------------|----------------------------------|----------------------|----------------|---------------|
| 588401                                   | SRD 01        | Fill     | 1.79                              | 1.48                             | 21                   | 102.8          | N/A           |
| 588402                                   | SRD 02        | Fill     | 1.76                              | 1.45                             | 21                   | 100.5          | N/A           |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
| Maximum Dry Density (Mg/m <sup>3</sup> ) |               |          |                                   | 1.44                             | (Advised by client)  |                |               |
| Particle Density (Mg/m <sup>3</sup> )    |               |          |                                   | N/A                              | (Advised by client)  |                |               |

COMMENT / ANOMALIES

NAME O.P. Davies BA (Hons)  
(Laboratory Manager)

SIGNED

DATE 07-Nov-24

## TEST REPORT

**Client** e3p

**Address** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contract** Castleton Sidings

**Job Number** MRN 24005/278

**Date of Issue** 07 November 2024

**Page** 1 of 3

Approved Signatories

S J Hutchings, O P Davies

Notes

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# MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

INSITU DENSITY, SAND REPLACEMENT METHOD

BS 1377 : Part 9 : Clause 2.2

MOISTURE CONTENT METHOD BS 1377 : Part 2 CLAUSE 3.2 : 1990 (OVEN DRY)

|            |                   |
|------------|-------------------|
| CLIENT     | e3p               |
| SITE       | Castleton Sidings |
| JOB NUMBER | MRN 24005/278     |

|              |                        |                 |            |
|--------------|------------------------|-----------------|------------|
| TEST METHOD  | Large Pouring Cylinder | DATE RECEIVED   | 06-Nov-24  |
| DATE OF TEST | 06-Nov-24              | SAMPLED BY      | Murray Rix |
| DATE TESTED  | 07-Nov-24              | MATERIAL SOURCE | Site Won   |

| Laboratory Sample Number                 | Test Location | Material | Bulk Density (Mg/m <sup>3</sup> ) | Dry Density (Mg/m <sup>3</sup> ) | Moisture Content (%) | Compaction (%) | Air Voids (%) |
|------------------------------------------|---------------|----------|-----------------------------------|----------------------------------|----------------------|----------------|---------------|
| 588601                                   | SRD 01        | Ash Fill | 1.80                              | 1.47                             | 23                   | 101.9          | N/A           |
| 588602                                   | SRD 02        | Ash Fill | 1.96                              | 1.56                             | 25                   | 108.7          | N/A           |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
|                                          |               |          |                                   |                                  |                      |                |               |
| Maximum Dry Density (Mg/m <sup>3</sup> ) |               |          |                                   | 1.44                             | (Advised by client)  |                |               |
| Particle Density (Mg/m <sup>3</sup> )    |               |          |                                   | N/A                              | (Not Advised)        |                |               |

COMMENT / ANOMALIES

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

SIGNED

DATE 07-Nov-24

## TEST REPORT

**Client** e3p

**Address** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contract** Castleton Sidings

**Job Number** MRN 24005/292

**Date of Issue** 11 November 2024

**Page** 1 of 2

Approved Signatories

S J Hutchings, O P Davies

Notes

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# MURRAY RIX

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DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DETERMINATION OF IN-SITU BULK DENSITY AND IN-SITU MOISTURE DENSITY  
BY THE NUCLEAR METHOD  
BS 1377-9: Clause 2.5: 1990

|        |                   |
|--------|-------------------|
| CLIENT | e3p               |
| SITE   | Castleton Sidings |

|                   |                     |                         |                                         |
|-------------------|---------------------|-------------------------|-----------------------------------------|
| DATE              | 08-Nov-24           | JOB NUMBER              | MRN 24005/292                           |
| MATERIAL          | Fill                |                         |                                         |
| NDG MODEL         | Troxler 3440        | SERIAL NUMBER           | 22848                                   |
| MODE OF OPERATION | Direct Transmission | MEASUREMENT APPLICATION | Compliance tests for compacted material |

| Test No.                                                            | Test Chainage / Location | Test Depth (mm) | Wet Density (Mg/m3) | Dry Density (Mg/m3) | Moisture Content (%) | Percentage Compaction (%) | Air Voids (%) |
|---------------------------------------------------------------------|--------------------------|-----------------|---------------------|---------------------|----------------------|---------------------------|---------------|
| 1                                                                   | N2 L3                    | 250             | 1.82                | 1.46                | 25                   | 101.4                     | N/A           |
| 2                                                                   | N3 L3                    | 250             | 1.81                | 1.46                | 24                   | 101.2                     | N/A           |
| 3                                                                   | N4 L1                    | 250             | 1.85                | 1.50                | 23                   | 104.1                     | N/A           |
| 4                                                                   | N4 L2                    | 250             | 1.80                | 1.46                | 23                   | 101.7                     | N/A           |
| 5                                                                   | O2 L3                    | 250             | 1.75                | 1.39                | 26                   | 96.9                      | N/A           |
| 6                                                                   | N5 L1                    | 250             | 1.78                | 1.43                | 25                   | 99.1                      | N/A           |
| 7                                                                   | N5 L2                    | 250             | 1.86                | 1.47                | 26                   | 102.3                     | N/A           |
| 8                                                                   | N6 L1                    | 250             | 1.86                | 1.46                | 28                   | 101.1                     | N/A           |
| 9                                                                   | N6 L2                    | 250             | 1.91                | 1.48                | 29                   | 102.8                     | N/A           |
| 10                                                                  | P4 L5                    | 250             | 1.93                | 1.53                | 26                   | 106.2                     | N/A           |
| 11                                                                  | Q4 L5                    | 250             | 1.87                | 1.48                | 26                   | 102.6                     | N/A           |
| 12                                                                  | R4 L5                    | 250             | 1.79                | 1.40                | 28                   | 97.3                      | N/A           |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
| Maximum Dry Density (Mg/m3)                                         |                          |                 |                     |                     | 1.44                 | (Advised by client)       |               |
| Particle Density (Mg/m3)                                            |                          |                 |                     |                     | N/A                  | (Not Advised)             |               |
| Results corrected for NDG calibration/correlation to site materials |                          |                 |                     |                     | Yes                  |                           |               |

REMARKS/ABNORMALITIES

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

SIGNED

DATE 11-Nov-24



## TEST REPORT

**Client** e3p

**Address** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contract** Castleton Sidings

**Job Number** MRN 24005/294  
**Date of Issue** 14 November 2024  
**Page** 1 of 2

Approved Signatories

S J Hutchings, O P Davies

### Notes

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Also at: London: 020 8523 1999

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# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

### MOISTURE CONTENT DETERMINATION

BS 1377 : Part 2 : 1990  
(OVEN DRY)

|            |                   |
|------------|-------------------|
| CLIENT     | e3p               |
| SITE       | Castleton Sidings |
| JOB NUMBER | MRN 24005/294     |

|              |           |               |           |
|--------------|-----------|---------------|-----------|
| DATE SAMPLED | 11-Nov-24 | DATE RECEIVED | 11-Nov-24 |
| DATE TESTED  | 12-Nov-24 | SAMPLED BY    | Client    |

| Laboratory Sample Number | Site Reference | Material  | Sample Location | Moisture Content (%) |
|--------------------------|----------------|-----------|-----------------|----------------------|
| 591701                   | C-01           | Clay Fill | C-01            | 18.6                 |
| 591702                   | C-02           | Clay Fill | C-02            | 18.9                 |
| 591703                   | C-03           | Clay Fill | C-03            | 18.7                 |
| 591704                   | C-04           | Clay Fill | C-04            | 20.4                 |
| 591705                   | C-05           | Clay Fill | C-05            | 19.6                 |
| 591706                   | C-06           | Clay Fill | C-06            | 18.8                 |
| 591707                   | C-07           | Clay Fill | C-07            | 20.1                 |
|                          |                |           |                 |                      |
|                          |                |           |                 |                      |
|                          |                |           |                 |                      |

COMMENT / ANOMALIES

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

SIGNED

DATE 14-Nov-24

## TEST REPORT

**Client** e3p

**Address** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contract** Castleton Sidings

**Job Number** MRN 24005/296  
**Date of Issue** 18 November 2024  
**Page** 1 of 2

Approved Signatories

S J Hutchings, O P Davies

Notes

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Also at: London: 020 8523 1999

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# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DETERMINATION OF IN-SITU BULK DENSITY AND IN-SITU MOISTURE DENSITY  
BY THE NUCLEAR METHOD  
BS 1377-9: Clause 2.5: 1990

|        |                   |
|--------|-------------------|
| CLIENT | e3p               |
| SITE   | Castleton Sidings |

|                   |                     |                         |                                         |
|-------------------|---------------------|-------------------------|-----------------------------------------|
| DATE              | 15-Nov-24           | JOB NUMBER              | MRN 24005/296                           |
| MATERIAL          | Ash Fill            |                         |                                         |
| NDG MODEL         | Troxler 3440        | SERIAL NUMBER           | 24958                                   |
| MODE OF OPERATION | Direct Transmission | MEASUREMENT APPLICATION | Compliance tests for compacted material |

| Test No.                                                            | Test Chainage / Location | Test Depth (mm) | Wet Density (Mg/m3) | Dry Density (Mg/m3) | Moisture Content (%) | Percentage Compaction (%) | Air Voids (%) |
|---------------------------------------------------------------------|--------------------------|-----------------|---------------------|---------------------|----------------------|---------------------------|---------------|
| 1                                                                   | N6 L3                    | 250             | 1.77                | 1.40                | 27                   | 96.9                      | N/A           |
| 2                                                                   | N6 L4                    | 250             | 1.80                | 1.40                | 28                   | 97.5                      | N/A           |
| 3                                                                   | O6 L3                    | 250             | 1.77                | 1.38                | 28                   | 95.9                      | N/A           |
| 4                                                                   | O6 L4                    | 250             | 1.81                | 1.43                | 27                   | 99.0                      | N/A           |
| 5                                                                   | N5 L4                    | 250             | 1.80                | 1.42                | 27                   | 98.7                      | N/A           |
| 6                                                                   | N4 L5                    | 250             | 1.78                | 1.38                | 29                   | 95.8                      | N/A           |
| 7                                                                   | O4 L5                    | 250             | 1.82                | 1.42                | 28                   | 98.7                      | N/A           |
| 8                                                                   | N5 L5                    | 250             | 1.80                | 1.41                | 28                   | 97.8                      | N/A           |
| 9                                                                   | O5 L5                    | 250             | 1.78                | 1.38                | 29                   | 96.1                      | N/A           |
| 10                                                                  | N6 L5                    | 250             | 1.80                | 1.40                | 29                   | 97.2                      | N/A           |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
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|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
| Maximum Dry Density (Mg/m3)                                         |                          |                 |                     |                     | 1.44                 | (Advised by client)       |               |
| Particle Density (Mg/m3)                                            |                          |                 |                     |                     | N/A                  | (Not Advised)             |               |
| Results corrected for NDG calibration/correlation to site materials |                          |                 |                     |                     | No                   |                           |               |

REMARKS/ABNORMALITIES

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

SIGNED

DATE 18-Nov-24

## TEST REPORT

**Client** e3p

**Address** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contract** Castleton Sidings

**Job Number** MRN 24005/304  
**Date of Issue** 28 November 2024  
**Page** 1 of 2

Approved Signatories

S J Hutchings, O P Davies

Notes

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ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



# TEST CERTIFICATE

DETERMINATION OF IN-SITU BULK DENSITY AND IN-SITU MOISTURE DENSITY  
BY THE NUCLEAR METHOD  
BS 1377-9: Clause 2.5: 1990

|               |                   |
|---------------|-------------------|
| <b>CLIENT</b> | e3p               |
| <b>SITE</b>   | Castleton Sidings |

|                          |                     |                                |                                         |
|--------------------------|---------------------|--------------------------------|-----------------------------------------|
| <b>DATE</b>              | 26-Nov-24           | <b>JOB NUMBER</b>              | MRN 24005/304                           |
| <b>MATERIAL</b>          | Ash Fill            |                                |                                         |
| <b>NDG MODEL</b>         | Troxler 3440        | <b>SERIAL NUMBER</b>           | 22848                                   |
| <b>MODE OF OPERATION</b> | Direct Transmission | <b>MEASUREMENT APPLICATION</b> | Compliance tests for compacted material |

| Test No.                                                                   | Test Chainage / Location | Test Depth<br>(mm) | Wet Density<br>(Mg/m <sup>3</sup> ) | Dry Density<br>(Mg/m <sup>3</sup> ) | Moisture Content<br>(%) | Percentage Compaction<br>(%) | Air Voids<br>(%) |
|----------------------------------------------------------------------------|--------------------------|--------------------|-------------------------------------|-------------------------------------|-------------------------|------------------------------|------------------|
| 1                                                                          | S3 L3                    | 200                | 1.73                                | 1.43                                | 21                      | 99.0                         | N/A              |
| 2                                                                          | S3 L4                    | 200                | 1.75                                | 1.44                                | 22                      | 99.8                         | N/A              |
| 3                                                                          | Q3 L5                    | 200                | 1.78                                | 1.46                                | 22                      | 101.2                        | N/A              |
| 4                                                                          | R3 L5                    | 200                | 1.73                                | 1.41                                | 23                      | 97.7                         | N/A              |
| 5                                                                          | S3 L5                    | 200                | 1.78                                | 1.45                                | 23                      | 101.0                        | N/A              |
| 6                                                                          | S4 L3                    | 200                | 1.73                                | 1.42                                | 22                      | 98.6                         | N/A              |
| 7                                                                          | S4 L4                    | 200                | 1.77                                | 1.45                                | 22                      | 100.5                        | N/A              |
|                                                                            |                          |                    |                                     |                                     |                         |                              |                  |
|                                                                            |                          |                    |                                     |                                     |                         |                              |                  |
|                                                                            |                          |                    |                                     |                                     |                         |                              |                  |
|                                                                            |                          |                    |                                     |                                     |                         |                              |                  |
|                                                                            |                          |                    |                                     |                                     |                         |                              |                  |
|                                                                            |                          |                    |                                     |                                     |                         |                              |                  |
|                                                                            |                          |                    |                                     |                                     |                         |                              |                  |
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|                                                                            |                          |                    |                                     |                                     |                         |                              |                  |
|                                                                            |                          |                    |                                     |                                     |                         |                              |                  |
|                                                                            |                          |                    |                                     |                                     |                         |                              |                  |
|                                                                            |                          |                    |                                     |                                     |                         |                              |                  |
|                                                                            |                          |                    |                                     |                                     |                         |                              |                  |
|                                                                            |                          |                    |                                     |                                     |                         |                              |                  |
| <b>Maximum Dry Density (Mg/m<sup>3</sup>)</b>                              |                          |                    |                                     |                                     | 1.44                    | (Advised by client)          |                  |
| <b>Particle Density (Mg/m<sup>3</sup>)</b>                                 |                          |                    |                                     |                                     | N/A                     | (Not Advised)                |                  |
| <b>Results corrected for NDG calibration/correlation to site materials</b> |                          |                    |                                     |                                     | No                      |                              |                  |

REMARKS/ABNORMALITIES

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

SIGNED

DATE 28-Nov-24



## TEST REPORT

**Client** e3p

**Address** Taylor Road  
Trafford Park  
Urmston  
Manchester  
M41 7JQ

**Contract** Castleton Sidings

**Job Number** MRN 24005/313  
**Date of Issue** 02 December 2024  
**Page** 1 of 2

Approved Signatories

S J Hutchings, O P Davies

Notes

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# MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,  
DUKINFIELD, CHESHIRE SK16 4QX  
TEL 0161 475 0870



## TEST CERTIFICATE

DETERMINATION OF IN-SITU BULK DENSITY AND IN-SITU MOISTURE DENSITY  
BY THE NUCLEAR METHOD  
BS 1377-9: Clause 2.5: 1990

|        |                   |
|--------|-------------------|
| CLIENT | e3p               |
| SITE   | Castleton Sidings |

|                   |                     |                         |                                         |
|-------------------|---------------------|-------------------------|-----------------------------------------|
| DATE              | 29-Nov-24           | JOB NUMBER              | MRN 24005/313                           |
| MATERIAL          | Ash Fill            |                         |                                         |
| NDG MODEL         | Troxler 3440        | SERIAL NUMBER           | 22848                                   |
| MODE OF OPERATION | Direct Transmission | MEASUREMENT APPLICATION | Compliance tests for compacted material |

| Test No.                                                            | Test Chainage / Location | Test Depth (mm) | Wet Density (Mg/m3) | Dry Density (Mg/m3) | Moisture Content (%) | Percentage Compaction (%) | Air Voids (%) |
|---------------------------------------------------------------------|--------------------------|-----------------|---------------------|---------------------|----------------------|---------------------------|---------------|
| 1                                                                   | N3 L5                    | 250             | 1.76                | 1.44                | 22                   | 100.3                     | N/A           |
| 2                                                                   | O3 L5                    | 250             | 1.74                | 1.43                | 22                   | 99.2                      | N/A           |
| 3                                                                   | O6 L5                    | 250             | 1.76                | 1.43                | 23                   | 99.5                      | N/A           |
| 4                                                                   | O6 L6                    | 250             | 1.78                | 1.45                | 23                   | 100.9                     | N/A           |
| 5                                                                   | P5 L6                    | 250             | 1.79                | 1.46                | 22                   | 101.7                     | N/A           |
| 6                                                                   | P6 L5                    | 250             | 1.73                | 1.41                | 23                   | 97.6                      | N/A           |
| 7                                                                   | P6 L6                    | 250             | 1.75                | 1.43                | 22                   | 99.2                      | N/A           |
| 8                                                                   | Q5 L6                    | 250             | 1.76                | 1.45                | 22                   | 100.6                     | N/A           |
| 9                                                                   | R4 L6                    | 250             | 1.75                | 1.43                | 22                   | 99.0                      | N/A           |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
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|                                                                     |                          |                 |                     |                     |                      |                           |               |
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|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
|                                                                     |                          |                 |                     |                     |                      |                           |               |
| Maximum Dry Density (Mg/m3)                                         |                          |                 |                     |                     | 1.44                 | (Advised by client)       |               |
| Particle Density (Mg/m3)                                            |                          |                 |                     |                     | N/A                  | (Not Advised)             |               |
| Results corrected for NDG calibration/correlation to site materials |                          |                 |                     |                     | No                   |                           |               |

REMARKS/ABNORMALITIES

NAME O.P. Davies BA (Hons)  
(Director / Head of Laboratory)

SIGNED

DATE 02-Dec-24

# APPENDIX IX

## WASTE TICKETS



**PART A Notification details**

- 1 Consignment note code: **URBANR / 01035**
- 2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):  
**Kellen homes castleton  
 Siding Rochdale  
 OL11 3AU**
- 3 The waste will be taken to (name, address and postcode):  
**URBAN REGEN ASBESTOS SOLUTIONS  
 Langley Road Pendlebury  
 Salford M6 6FG**
- 4 The waste producer was (if different from 2) (name, address, postcode, telephone, e-mail, facsimile):  
**AS per 2**

**PART B Description of the waste**

 If continuation sheet used, tick here ☐

- 1 The process giving rise to the waste(s) was: **Removal**
- 2 SIC (2007) for the process giving rise to the waste: **45.251**
- 3 WASTE DETAILS (where more than one waste type is collected all of the information given below must be completed for each EWC identified)

| Description of waste     | List of wastes (EWC code)(6 digits) | Quantity (kg) | The chemical/biological components in the waste and their concentrations are: |                            | Physical form (gas, liquid, solid, powder, sludge or mixed) | Hazard code(s) | Container type, number and size |
|--------------------------|-------------------------------------|---------------|-------------------------------------------------------------------------------|----------------------------|-------------------------------------------------------------|----------------|---------------------------------|
|                          |                                     |               | Component                                                                     | Concentration (% or mg/kg) |                                                             |                |                                 |
| <b>Cement<br/>Sheets</b> | <b>170605</b>                       | <b>3000</b>   | <b>CHRYSOLE</b>                                                               | <b>15%</b>                 | <b>SOLID</b>                                                | <b>HY</b>      | <b>DB</b>                       |

The information given below is to be completed for each EWC identified

| EWC code      | UN identification number(s) | Proper shipping name(s) | UN class(es) | Packing group(s) | Special handling requirements |
|---------------|-----------------------------|-------------------------|--------------|------------------|-------------------------------|
| <b>170605</b> | <b>2590</b>                 | <b>White</b>            | <b>9</b>     | <b>II</b>        | <b>DB</b>                     |

**PART C Carrier's certificate**

 (If more than one carrier is used, please attach schedule for subsequent carriers. If schedule of carriers is attached tick here. ☐)

I certify that I today collected the consignment and that the details in A2, A3 and B3 are correct and I have been advised of any specific handling requirements.

Where this note comprises part of a multiple collection the round number and collection number are:

 / 

- 1 Carrier name: **JOSEF ANTOLEK**  
 On behalf of (name, address, postcode, telephone, e-mail, facsimile):  
**Urban Regen Ltd  
 Langley Road, Salford M6 6FG**
- 2 Carrier registration no./reason for exemption:  
**CBDU328363**
- 3 Vehicle registration no. (or mode of transport, if not road):  
**YT24FBY**

Signature



 Date **23/02/2024** Time **1700**
**PART D Consignor's certificate**

I certify that the information in A, B and C has been completed and is correct, that the carrier is registered or exempt and was advised of the appropriate precautionary measures. All of the waste is packaged and labelled correctly and the carrier has been advised of any special handling requirements.

I confirm that I have fulfilled my duty to apply the waste hierarchy as required by Regulation 12 of the Waste (England and Wales) Regulations 2011.

- 1 Consignor name: **J ANTOLEK**  
 On behalf of (name, address, postcode, telephone, e-mail, facsimile):

**Urban Regen Ltd  
 Langley Road, Pendlebury, Salford M6 6FG**

Signature



 Date **23/02/2024** Time **1700**
**PART E Consignee's certificate** (where more than one waste type is collected all of the information given below must be completed for each EWC)

| Individual EWC code(s) received | Quantity of each EWC code received (kg) | EWC code accepted/rejected | Waste management operation (R or D code) |
|---------------------------------|-----------------------------------------|----------------------------|------------------------------------------|
| <b>170605</b>                   | <b>Approx 300kg</b>                     | <b>Accepted</b>            | <b>D</b>                                 |

- 1 I received this waste at the address given in A3 on: Date **24/02/2024** Time **0800**

- 2 Vehicle registration no. (or mode of transport if not road):

**YT24FBY**

- 3 Where waste is rejected please provide details:

**NO**

I certify that waste permit/exempt waste operation number:

 **NWFD EXEMPT**

authorises the management of the waste described in B at the address given in A3.

Where the consignment forms part of a multiple collection, as identified in Part C, I certify that the total number of consignments forming the collection are:

 **N/A**

 Name: **M RAMSDEN**  
 On behalf of (name, address, postcode, telephone, e-mail, facsimile):

**URBAN REGEN ASBESTOS SOLUTIONS  
 Langley Road Pendlebury  
 Salford M6 6FG**

Signature



 Date **24/02/2024** Time **0800**





**Urban Regen**  
ESTABLISHED 2001

**URBAN REGEN LTD**  
Langley Road, Pendlebury, Salford M6 6FG  
Tel: 0161 710 1930  
Email: info@urbanregen.co.uk  
Web: www.urbanregen.co.uk

# The Hazardous Waste Regulations 2005: Consignment Note

No. 0045

## PART A Notification details

- 1 Consignment note code: **URBANR / 01044**
- 2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):  
**Kellen Homes Castleton  
Siding Rochdale  
OL13AU**
- 3 The waste will be taken to (name, address and postcode):  
**URBAN REGEN ASBESTOS SOLUTIONS  
Langley Road Pendlebury  
Salford M6 6FG**
- 4 The waste producer was (if different from 2) (name, address, postcode, telephone, e-mail, facsimile):  
**AS 2**

## PART B Description of the waste

If continuation sheet used, tick here ☐

- 1 The process giving rise to the waste(s) was: **Reman**
- 2 SIC (2007) for the process giving rise to the waste: **45.25 /**
- 3 WASTE DETAILS (where more than one waste type is collected all of the information given below must be completed for each EWC identified)

| Description of waste | List of wastes (EWC code)(6 digits) | Quantity (kg) | The chemical/biological components in the waste and their concentrations are: |                            | Physical form (gas, liquid, solid, powder, sludge or mixed) | Hazard code(s) | Container type, number and size |
|----------------------|-------------------------------------|---------------|-------------------------------------------------------------------------------|----------------------------|-------------------------------------------------------------|----------------|---------------------------------|
|                      |                                     |               | Component                                                                     | Concentration (% or mg/kg) |                                                             |                |                                 |
| <b>Cement</b>        | <b>070605</b>                       | <b>500kg</b>  | <b>CHALISOTILE</b>                                                            | <b>15%</b>                 | <b>SOLID</b>                                                | <b>H4</b>      | <b>DB</b>                       |

The information given below is to be completed for each EWC identified

| EWC code      | UN identification number(s) | Proper shipping name(s) | UN class(es) | Packing group(s) | Special handling requirements |
|---------------|-----------------------------|-------------------------|--------------|------------------|-------------------------------|
| <b>070605</b> | <b>2500</b>                 | <b>white</b>            | <b>9</b>     | <b>II</b>        | <b>DB</b>                     |

## PART C Carrier's certificate

(If more than one carrier is used, please attach schedule for subsequent carriers. If schedule of carriers is attached tick here. ☐)

I certify that I today collected the consignment and that the details in A2, A3 and B3 are correct and I have been advised of any specific handling requirements.

Where this note comprises part of a multiple collection the round number and collection number are:

/

- 1 Carrier name: **J ANTALSK**  
On behalf of (name, address, postcode, telephone, e-mail, facsimile):  
**Urban Regen Ltd  
Langley Road, Salford M6 6FG**
- 2 Carrier registration no./reason for exemption:  
**CBDU328363**
- 3 Vehicle registration no. (or mode of transport, if not road):  
**YT24 FBY**

Signature **SA**

Date **26/11/2024** Time **1300**

## PART D Consignor's certificate

I certify that the information in A, B and C has been completed and is correct, that the carrier is registered or exempt and was advised of the appropriate precautionary measures. All of the waste is packaged and labelled correctly and the carrier has been advised of any special handling requirements.

I confirm that I have fulfilled my duty to apply the waste hierarchy as required by Regulation 12 of the Waste (England and Wales) Regulations 2011.

- 1 Consignor name: **J ANTALSK**  
On behalf of (name, address, postcode, telephone, e-mail, facsimile):

**Urban Regen Ltd  
Langley Road, Pendlebury, Salford M6 6FG**

Signature **SA**

Date **26/11/2024** Time **1300**

## PART E Consignee's certificate (where more than one waste type is collected all of the information given below must be completed for each EWC)

| Individual EWC code(s) received | Quantity of each EWC code received (kg) | EWC code accepted/rejected | Waste management operation (R or D code) |
|---------------------------------|-----------------------------------------|----------------------------|------------------------------------------|
| <b>070605</b>                   | <b>A Prox 500 kg</b>                    | <b>Accepted</b>            | <b>D</b>                                 |

- 1 I received this waste at the address given in A3 on: Date **26/11/2024** Time **1700**

- 2 Vehicle registration no. (or mode of transport if not road):  
**YT24 FBY**

- 3 Where waste is rejected please provide details:  
**NO**

I certify that waste permit/exempt waste operation number:

**NWFD EXEMPT**

authorises the management of the waste described in B at the address given in A3.

Where the consignment forms part of a multiple collection, as identified in Part C, I certify that the total number of consignments forming the collection are:

**NA**

Name: **M RAMSDEN**  
On behalf of (name, address, postcode, telephone, e-mail, facsimile):

**URBAN REGEN ASBESTOS SOLUTIONS  
Langley Road Pendlebury  
Salford M6 6FG**

Signature **M Ramsden**

Date **26/11/2024** Time **1700**



**PART A Notification details**

- 1 Consignment note code: **URBANR/01051**
- 2 The waste described below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):  
**Kelen homes Castleton  
 Siding Roundale  
 OL11 3AU**
- 3 The waste will be taken to (name, address and postcode):  
**URBAN REGEN ASBESTOS SOLUTIONS  
 Langley Road Pendlebury  
 Salford M6 6FG**
- 4 The waste producer (name, address, postcode, telephone, e-mail, facsimile):  
**AS per 2**

**PART B Description of the waste**

 If continuation sheet used, tick here ☐

- 1 The process giving rise to the waste(s) was: **Removal**
- 2 SIC (2007) for the process giving rise to the waste: **45.25.1**
- 3 WASTE DETAILS (where more than one waste type is collected all of the information given below must be completed for each EWC identified)

| Description of waste    | List of wastes (EWC code)(6 digits) | Quantity (kg) | The chemical/biological components in the waste and their concentrations are: |                            | Physical form (gas, liquid, solid, powder, sludge or mixed) | Hazard code(s) | Container type, number and size |
|-------------------------|-------------------------------------|---------------|-------------------------------------------------------------------------------|----------------------------|-------------------------------------------------------------|----------------|---------------------------------|
|                         |                                     |               | Component                                                                     | Concentration (% or mg/kg) |                                                             |                |                                 |
| <b>CEMENT<br/>SACKS</b> | <b>170605</b>                       | <b>400kg</b>  | <b>CHRYSOE</b>                                                                | <b>15%</b>                 | <b>SOLID</b>                                                | <b>H4</b>      | <b>DB</b>                       |

The information given below is to be completed for each EWC identified

| EWC code      | UN identification number(s) | Proper shipping name(s) | UN class(es) | Packing group(s) | Special handling requirements |
|---------------|-----------------------------|-------------------------|--------------|------------------|-------------------------------|
| <b>170605</b> | <b>2990</b>                 | <b>White</b>            | <b>9</b>     | <b>II</b>        | <b>DB</b>                     |

**PART C Carrier's certificate**
**PART D Consignor's certificate**

 (If more than one carrier is used, please attach schedule for subsequent carriers. If schedule of carriers is attached tick here. ☐)

I certify that I today collected the consignment and that the details in A2, A3 and B3 are correct and I have been advised of any specific handling requirements.

Where this note comprises part of a multiple collection the round number and collection number are:

/

- 1 Carrier name: **JOZEF ANTOLEK**  
 On behalf of (name, address, postcode, telephone, e-mail, facsimile):  
**Urban Regen Ltd  
 Langley Road, Salford M6 6FG**
- 2 Carrier registration no./reason for exemption:  
**CBDU328363**
- 3 Vehicle registration no. (or mode of transport, if not road):  
**YT24FBY**

Signature

 Date **13/12/2024** Time **1600**

I certify that the information in A, B and C has been completed and is correct, that the carrier is registered or exempt and was advised of the appropriate precautionary measures. All of the waste is packaged and labelled correctly and the carrier has been advised of any special handling requirements.

I confirm that I have fulfilled my duty to apply the waste hierarchy as required by Regulation 12 of the Waste (England and Wales) Regulations 2011.

- 1 Consignor name: **JOZEF ANTOLEK**  
 On behalf of (name, address, postcode, telephone, e-mail, facsimile):

**Urban Regen Ltd  
 Langley Road, Pendlebury, Salford M6 6FG**

Signature

 Date **13/12/2024** Time **1600**
**PART E Consignee's certificate** (where more than one waste type is collected all of the information given below must be completed for each EWC)

| Individual EWC code(s) received | Quantity of each EWC code received (kg) | EWC code accepted/rejected | Waste management operation (R or D code) |
|---------------------------------|-----------------------------------------|----------------------------|------------------------------------------|
| <b>170605</b>                   | <b>APPROX 400KG</b>                     | <b>Accepted</b>            | <b>D</b>                                 |

- 1 I received this waste at the address given in A3 on: Date **13/12/2024** Time **1700**

- 2 Vehicle registration no. (or mode of transport if not road):  
**YT24FBY**

- 3 Where waste is rejected please provide details:

**NO**

I certify that waste permit/exempt waste operation number:

**NWFO EXEMPT**

authorises the management of the waste described in B at the address given in A3.

Where the consignment forms part of a multiple collection, as identified in Part C, I certify that the total number of consignments forming the collection are:

**MA**

 Name: **M RAMSDEN**

On behalf of (name, address, postcode, telephone, e-mail, facsimile):

**URBAN REGEN ASBESTOS SOLUTIONS**
**Langley Road Pendlebury**
**Salford M6 6FG**

Signature

 Date **13/12/2024** Time **1700**