1 NQ – Tariff Street Manchester

Marco Living 2 Ltd & Axis-Re Ltd

Validation Report

143404/R5

May 2025

FAIRHURST

Control Sheet

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1 Introduction

Fairhurst have been commissioned by Axis Real Estate and Marco Living 2 (the Client) to prepare a Validation report for the proposed development of two residential blocks located between Tariff Street and Port Street, in Manchester City Centre, M1 2EG located at grid reference 384790, 398390.

1.1 Site Description and Topography

The site is approximately 0.3ha (0.74 acres) in size and the location of the site is shown on the drawing which is attached to this report in Appendix A.

The site is relatively flat and situated at an elevation between 54mAOD and 56m AOD.

The site is bound to the north by Port Street and to the south by Tariff Street. The western boundary is demarcated by a public car park and the eastern site boundary was defined by hoarding associated with the neighbouring development of Brownfield Mill.

1.2 Development Proposal

This report has been prepared to accompany Axis Real Estate and Marco Living 2 Ltd who have obtained planning permission (Ref: 135675/FO/2022 and subsequent variation ref: 137807/JO/2023) for the erection of two residential apartment buildings (Use Class C3) comprising Block 1 (1NQ), 10 storey and Block 2 (Clements), 12 storey buildings above basement levels with ground floor commercial units (Use Class E), with associated residents amenity space, cycle parking, landscaping, access, street loading and other associated works following the demolition of existing building and structures on site.

A proposed site layout plan is present within the drawings of Appendix A.

1.3 Aims

This report is to support the discharge of Condition 5(b) within planning application number 135675/FO/2022.

This report has been prepared to present evidence of compliance with the agreed Fairhurst Remediation Strategy Method Statement (Ref. 3) and contains:

- Results of chemical testing of the site sub strata;
- Chemical testing and removal of Made Ground from site;
- Validation of the gas protection measures; and
- An updated risk assessment to assess any residual risks.

1.4 Sources of Information

Further details are presented below, however, in summary, the following information has been reviewed during the preparation of this report:

- Fairhurst Phase 1 Desk Study 143404/01 (2022) (Ref. 1)
- Fairhurst Ground Investigation Report 143404/R2-Rev 4 (Ref. 2)
- Fairhurst Remediation Strategy Method Statement 143404/R4-Rev2 (Ref. 3)
- GeoShield Validation Report (Appendix E)

2 Previous Reports

Fairhurst has prepared the following reports in advance of this report. It is recommended that the below reports are read in conjunction with this report and salient information from this report is summarised below.

- Fairhurst Phase 1 Desk Study 143404/01 (2022)
- Fairhurst Ground Investigation Report 143404/R2-Rev 4 (2023)
- Fairhurst Remediation Strategy Method Statement 143404/R4-Rev2 (2024)
- GeoShield Verification Report (2025)

2.1 Summary of Fairhurst Phase 1 Desk Study report 143404/01 (2022)

Review of the historical plans dating to 1884 indicate that the site is located in an area that has been industrial in nature and comprises of historical factory units, chimneys, canal wharf, warehouses and garages. The site is underlain by superficial deposits of Glacial Till underlain by the Chester Formation comprising sandstones.

The report, produced in 2022 (Ref. 1), identified the potential sources of contamination as ground gas which was given a moderate to low ground gas risk. Furthermore, asbestos contamination was also highlighted as likely with very high-risk rating, given the historical land use of the site.

2.2 Summary of Fairhurst Ground Investigation 143404/R2-Rev4 (2023)

This report was prepared to present findings of the site investigation. The ground investigation was undertaken in august 2023 which comprised the following:

- 12 No. cable percussive boreholes comprising;
    - Two cable percussive boreholes to bedrock with rotary coring follow on to 25mbgl;
    - Four cable percussive boreholes to 25mbgl;
    - Five cable percussive boreholes to 5mbgl and;
    - One cable percussive borehole to 7mbgl
- Installation of seven monitoring well with three rounds of gas and water monitoring;
- Geotechnical soil sampling and laboratory testing; and;
- Geo-environmental soil sampling and laboratory testing.

The strata encountered during the investigation is summarised in Table 2-1.

Table 2-1 Ground profile

Stratum	Base of Stratum (mbgl)		Thickness (m)		Location
	Min	Max	Min	Max	
Surfacing	0.1	0.7	0.03	0.4	Recorded in every borehole except BH12
Made Ground – Granular	0.15	3.1	0.1	3.0	Granular Made Ground was recorded in every borehole except BH11 where only Cohesive Made

					Ground was recorded.
Made Ground – Cohesive	0.8	4.0	0.3	2.55	Cohesive Made Ground was encountered in every hole except BH03, BH04 and BH12.
Upper Cohesive Glacial Till	4.5	18.0	0.6	13.2	Recorded in all boreholes
Upper Granular Glacial Till	13.5	19.0	0.5	3.1	Encountered in BH01, BH02, BH10 and BH12
Lower Cohesive Glacial Till	15.0	24.0	1.5	6.0	Encountered in BH01, BH02, BH05 and BH12
Lower Granular Glacial Till	12.9	27.2	0.6	9.7	Encountered in BH01, BH02, BH05, BH08, and BH12
Chester Formation Sandstone	-	35.16*	unknown		Encountered in BH01, BH02, BH05, BH08 and BH12. BH01 and BH12 had rotary coring to collect samples of rock core. BH02, BH05 and BH08 proved bedrock by chiselling and SPT refusals.

*Base not proven

Hydrocarbon odours were noted in two boreholes encountered in the Made Ground strata. Elevated concentrations of organic and inorganic contamination were encountered within the Made Ground deposits comprising arsenic, lead and Benzo(a)Pyrene.

The risk from hazardous gas was deemed to be CS2, as such protective measures are required.

2.3 Summary of the Fairhurst Remediation and Verification Strategy 143404/R2-Rev4

The Fairhurst ground investigation report (Ref 2.) identifies the hazards and significant risks to human health, the built development, landscaping and controlled waters associated with current the site conditions.

The following general remedial works are expected to mitigate risk of gas generation and Made Ground contaminants:

- A minimum 450mm clean cover should be incorporated into soft landscaping areas to provide a suitable rooting zone for proposed plating and incorporating a basal geotextile separator layer;
- All materials are to be validated as clean, inert and free form man-made debris;
- Ground gas protection measures as a solid floor slab or waterproofed basement, with a gas membrane; and
- Standard protection to buried water service pipes.

Methane concentrations above 1% v/v and carbon dioxide levels exceeding 5% v/v have been recorded, raising the Characteristic Situation to CS2. The specification must be verified as per CIRIA C735 and CIRIA C665, designed according to BS8485, with substrate preparation following the manufacturer's guidelines.

Since the development is classified as a Type B building per Table 3 of BS8485, a minimum of 3.5 protection points is required to meet the CS2 protection standard outlined in Table 4 of BS8485.

It is considered that the required point score could be achieved through a combination of the following measures:

- Solid floor slabs and substructures (Table 5 BS8485); 1.5 points
- Water proofing of basement areas (Table 5 BS8485) or Gas resistant membrane (Table 7 BS8485); 2 points

The Contractor shall operate a Controlled Waste Transfer Note documentation system as required under the above Duty of Care regulations for the transfer of all wastes out of the contractor's possession.

A revised qualitative risk assessment for identified sources of contamination was included with the report and is presented overleaf as Table 2-2.

Table 2-2 Revised Qualitative Risk Assessment for Identified Sources of Contamination

Source	Potential Contaminants	Potential Pathway	Potential Receptors	Assessment	Potential Severity	Potential Probability	Risk Class
Historical land use as infilled Canal	Metals TPH PAH Sulphate pH Asbestos	Ingestion, inhalation, dermal contact, direct contact	Future site users	Made Ground onsite containing elevated concentrations of lead and arsenic as well as elevated B(a)P to be present on site and this contamination may present a potential risk of harm to end users. There is a potential risk to construction workers, however, this risk can be mitigated using appropriate PPE. Foundations and services (including water pipes) could be affected by aggressive ground conditions or contamination. It is considered a very low risk to the local water environment from contamination associated with the Made Ground if present.	Minor	Unlikely	Low
			Construction workers		Minor	Unlikely	Low
			Adjacent land users		Medium	Unlikely	Low
		Direct contact	Buried structures and services		Medium	Unlikely	Low
		Migration/leaching of mobile contaminants	Groundwater		Medium	Unlikely	Low
Made Ground	Metals TPH PAH Sulphate pH Asbestos	Ingestion, inhalation, dermal contact, direct contact	Future site users		Minor	Unlikely	Very Low
			Construction workers		Mild	Likely	Moderate
			Adjacent land users		Mild	Unlikely	Very Low
		Direct contact	Buried structures and services		Mild	Unlikely	Very Low
		Migration/leaching of mobile contaminants	Groundwater		Mild	Unlikely	Very Low
			Surface water		Mild	Unlikely	Very Low
Historical land uses as: Garage, Paint works, Furniture warehouse	Metals TPH PAH Sulphate pH VOCs & SVOCs Asbestos	Ingestion, inhalation, dermal contact, direct contact	Future site users	Historical land uses have the potential to be a source of contamination. The risk to future site users is Very Low and the risk to construction workers is Moderate/Low. In order to reduce this level of risk to low, construction workers must adopt appropriate health and safety measures and PPE during works.	Minor	Unlikely	Very Low
			Construction workers		Medium	Likely	Moderate /Low
			Adjacent land users		Minor	Unlikely	Very Low
		Direct contact	Buried structures and services		Minor	Unlikely	Very Low
		Migration/leaching of mobile contaminants	Groundwater		Mild	Unlikely	Very Low
			Surface water		Mild	Unlikely	Very Low
Current land use as a Car Park	TPH PAH	Ingestion, inhalation, dermal contact, direct contact	Future site users	Hydrocarbons present at low concentrations and emission rates associated with the current use of the	Medium	Unlikely	Low
			Construction workers		Medium	Unlikely	Low
			Adjacent land users		Medium	Unlikely	Low

Source	Potential Contaminants	Potential Pathway	Potential Receptors	Assessment	Potential Severity	Potential Probability	Risk Class
		Direct contact	Buried structures and services	development site as a car park. The risk to future site users and construction workers is considered to be Low. In order to reduce this level of risk to low, construction workers must adopt appropriate health and safety measures and PPE during works.	Medium	Unlikely	Low
		Migration/leaching of mobile contaminants	Groundwater		Medium	Unlikely	Low
			Surface water		Medium	Unlikely	Low
Asbestos (buried onsite or within the Made ground soil fabric)	Asbestos	Ingestion, inhalation, dermal contact, direct contact	Future site users	Chrysotile asbestos was encountered in one sample of granular made ground. Further asbestos may be present in burial pits or Made Ground, posing a risk to future site users and construction workers. Construction workers should adhere to proper health and safety measures and personal protective equipment (PPE).	Severe	Low	Moderate
			Construction workers		Severe	High	Very High
Ground Gas (Made Ground and canal infill)	Hazardous Gas (CO_2, CH_4, VOCs, SVOCs)	Inhalation	Future site users	Based on monitoring to date the potential for ground gas is low. The current use of the development site as a car park may also result in low concentrations and emission rates of ground gases and hydrocarbons. There is risk to future site users and construction workers. To mitigate this risk construction workers must follow appropriate health and safety measures and use personal protective equipment (PPE).	Medium	Unlikely	Low
			Construction workers		Medium	Low	High
			Adjacent land users		Medium	Unlikely	Low

Source	Potential Contaminants	Potential Pathway	Potential Receptors	Assessment	Potential Severity	Potential Probability	Risk Class
Fly Tipped Material	Metals TPH PAH Asbestos	Dermal contact	Future site users	Any fly tipped material on site can be collected and disposed of. There is a potential risk to construction workers, however, this risk can be mitigated using appropriate PPE.	Minor	Unlikely	Very Low
			Construction workers		Minor	Unlikely	Very Low
			Adjacent land users		Minor	Unlikely	Very Low

3 Validation Works Undertaken

It is to be noted that Fairhurst did not have full time site presence during construction. All works were managed by United Living and relevant sub-contractors, with information being passed to Fairhurst

3.1 Site Strip

As part of the remediation a site strip was undertaken removing existing bound macadam surfacing and underlying Mage Ground was instructed. Chemical testing of the Made Ground has been provided in section 3.4.2.

Fairhurst performed a visual inspection during this phase of the works and can confirm the above requirements were met; photographic evidence of the site scrape has been provided within Appendix F.

Fairhurst did not record any visual or olfactory contamination evident during the site visit, and none was recorded to Fairhurst by United Living and their sub-contractors.

3.2 Canal Removal

The former canal present on-site was removed as part of the remediation process, involving the excavation and disposal of canal-related fill materials. The removed material was assessed for potential contaminants, including metals, hydrocarbons, and asbestos, in accordance with the Fairhurst Remediation Strategy (Ref. 3) with the results summarised in section 3.4.2. Following the removal, the site was backfilled with engineered fill materials to ensure compliance with geotechnical and environmental safety standards, chemical testing of imported materials has been summarised in section 3.4.2.

No significant visual or olfactory contamination was noted from the contractor during the process.

3.3 E3P Tank Removal

E3P Ltd was commissioned by Forshaw Demolition Ltd to oversee the validation works for the safe removal of seven underground storage tanks (USTs) as part of a site redevelopment project (Ref. 7). Each UST had a capacity of approximately 10,000 litres.

During demolition, the tanks were discovered, with two already decommissioned and filled with sand. The remaining four tanks contained residual diesel/oil, which was extracted using a vacuum tanker before controlled removal. Prior to extraction, all tanks were confirmed to be free from vapours.

On 11th January 2024, E3P attended the site to validate the excavation. To assess potential contamination, eight soil samples were taken from the sidewalls, base, and excavation arisings. The analysis identified elevated levels of naphthalene and volatile organic compounds (VOCs) in the northern and western sidewalls, likely due to historical contamination from the former canal rather than the USTs. Heavy metals and non-volatile polycyclic aromatic hydrocarbons (PAHs) were also detected. However, the associated risks to human health are considered manageable through the proposed site design, including building coverage and landscaping measures.

The full E3P report is included in Appendix C.

3.4 Chemical Testing

3.4.1 *Summary of Analytical Laboratory Testing Undertaken*

Geo-environmental laboratory testing was carried out by Fairhurst on behalf of the Client, on eight samples of Made Ground collected at depths ranging from 0.10m to 2.20m below ground level (bgl). An additional 14 No. samples were collected from the stockpile of the excavation arisings. The analysis focused on contaminants of concern identified in the Fairhurst Remediation Strategy (Ref. 1). All material tested has since been removed from site.

Waste Acceptance Criteria (WAC) testing was carried out on ten samples. The results classified all samples as Suitable Non-Hazardous Waste, permissible for disposal in a Non-Hazardous Landfill due to elevated concentrations of TDS & pH (refer to Section 3.5 for waste transfer notes, Appendix D Waste Transfer Notes & Appendix B Environmental Contamination Testing Results).

A summary of the chemical testing results is presented in Tables 3 to 8 overleaf. Any recorded exceedances are highlighted in red. The full laboratory reports are provided in Appendix B, and the sampling locations are illustrated in Appendix A – Drawings.

Additionally, further testing was undertaken on eight samples by E3P during the tank removal process (refer to Section 3.3 for details) (Appendix C).

3.4.2 *Assessment Criteria and Approach – Risks to Human Health*

The assessment criteria utilised are derived from the following sources:

- LQM / CIEH (2015) Suitable 4 Use Levels (S4ULs);
- CL: AIRE (January 2010) The Soil Generic Assessment Criteria for Human Health Risk Assessment;
- DEFRA (2014) C4SL value (lead only);
- Atkins At-Risk Site-Specific Values (cyanide only); and
- CL: AIRE, CAR-SOIL (2012) Asbestos in Soil Guidance.

Results have been assessed against assessment criteria for a 'Residential without plant uptake' site, which represents the most conservative assessment criteria derived for this land-use. Should any future development plans vary from this end use, the contaminated land risk assessment should be revised. The assessment criteria outlined above have been used to provide a Generic Quantitative Risk Assessment (GQRA). No statistical analysis has been completed and recorded concentrations have been compared directly to the applied S4ULs / C4SL.

Soil Organic Matter (SOM) concentrations ranged between 1.45 and 16.05%, with an average of 8.67%, as such, the 1% SOM criteria have been used in this case, as a the most suitable assessment criteria. Laboratory results are presented in Appendix B and screening values presented within Tables 3-1 to 3-5 below.

Table 3-1 Summary of Made Ground PAH Results

Determinand	Min	Max	GAC	Number of Exceedances
Acenaphthene	0.14	206.00	3000	0
Acenaphthylene	0.02	2.87	2900	0
Anthracene	0.27	54.20	31000	0

Benzo(a)anthracene*	0.24	9.62	11	1
Benzo(a)pyrene	0.11	6.67	3.2	7
Benzo(b)fluoranthene*	0.21	8.31	3.9	7
Benzo(g,h,i)perylene*	0.29	5.83	110	0
Benzo(k)fluoranthene*	0.28	7.36	360	0
Chrysene*	0.07	8.13	30	0
Dibenzo(a,h)anthracene*	0.09	0.94	0.31	10
Fluoranthene	0.94	77.90	1500	0
Fluorene	<0.01	142.00	2800	0
Indeno(1,2,3-cd)pyrene*	0.05	4.86	45	1
Naphthalene	<0.03	373.00	2.3	1
Phenanthrene	0.12	300.00	1300	0
Pyrene	0.73	53.00	3700	0

Table 3-2 Summary of Made Ground Heavy Metal results

Determinand	Min	Max	GAC	Number of Exceedances
Arsenic (Inorganic)	4.00	110.00	40	1
Boron (Water Soluble)	1.30	2.50	11000	0
Cadmium	<0.5	6.80	85	0
Chromium (III)	14.00	34.00	910	0
Chromium (VI)	<1	1.00	6	0
Copper^	22.00	193.00	7100	0
Lead	12.00	1150.00	310	7
Mercury (Elemental)	0.21	0.56	1.2	0
Nickel	17.00	35.00	180	0
Vanadium	21.00	41.00	1200	0
Zinc^	50.00	645.00	40000	0

Table 3-3 Summary of Non-Metalloid Inorganics

Determinand	Min	Max	GAC	Number of Exceedances
Asbestos (%)	0.01	0.08	0.001	2

Table 3-4 Summary of Hydrocarbon results

Determinand	Min	Max	GAC	Number of Exceedances
Aliphatic EC 5-6	0.02	0.61	24	0
Aliphatic EC >6-8	0.07	13.50	52	0
Aliphatic EC >8-10	5.00	603.00	13	1
Aliphatic EC >10-12	3.00	438.00	60	0
Aliphatic EC >12-16	2.00	761.00	500	0
Aromatic EC 5-7	0.09	2.50	155	0
Aromatic EC >7-8	<0.01	0.03	370	0
Aromatic EC >8-10	6.00	1260.00	20	1

Aromatic EC >10-12	<1	972.00	370	1
Aromatic EC >12-16	2.00	3470.00	1100	0
Aromatic EC >16-21	2.00	2690.00	1800	1
Aromatic EC >21-35	4.00	639.00	1900	0
Aromatic EC >35-40	46.00	348.00	1900	0
Aromatic EC >40-44	46.00	348.00	1900	0

Table 3-5 Summary of BTEX results

Determinand	Min	Max	GAC	Number of Exceedances
Benzene (ug/kg)	0.09	2.50	0.38	2
Toluene (ug/kg)	<0.01	0.03	880	0
Ethylbenzene (ug/kg)	0.03	0.23	83	0
MTBE (ug/kg)	0.00	0.00	88	0
Xylenes (total) (ug/kg)	<0.02	205.00	73	1

3.4.3 *Imported Fill*

Geo-environmental laboratory testing was conducted on ten samples of the imported fill. The analysis focused on contaminants of concern identified in the Fairhurst Remediation Strategy (Ref. 1).

A summary of the chemical testing results is presented in Tables 3-6 to 3-10 below and overleaf. Any recorded exceedances are highlighted in red. The full laboratory reports are provided in Appendix B.

Table 3-6 Summary of Made Ground PAH Results

Determinand	Min	Max	GAC	Number of Exceedances
Acenaphthene	0.43	1.28	3000	0
Acenaphthylene	0.09	0.13	2900	0
Anthracene	0.85	2.00	31000	0
Benzo(a)anthracene*	2.06	5.03	11	0
Benzo(a)pyrene	1.85	4.39	3.2	1
Benzo(b)fluoranthene*	2.16	5.03	3.9	1
Benzo(g,h,i)perylene*	0.90	2.01	110	0
Benzo(k)fluoranthene*	0.80	2.04	360	0
Chrysene*	1.94	3.99	30	0
Dibenzo(a,h)anthracene*	0.28	0.60	0.31	8
Fluoranthene	4.53	9.67	1500	0
Fluorene	0.40	1.28	2800	0
Indeno(1,2,3-cd)pyrene*	1.02	2.28	45	0
Naphthalene	0.30	0.73	2.3	0
Phenanthrene	2.90	5.72	1300	0
Pyrene	4.09	8.48	3700	0

Table 3-7 Summary of Made Ground Heavy Metal results

Determinand	Min	Max	GAC	Number of Exceedances
Arsenic (Inorganic)	8.70	14.00	40	0
Boron (Water Soluble)	0.00	0.00	11000	0
Cadmium	0.40	0.80	85	0
Chromium (III)	18.20	25.10	910	0
Chromium (VI)	0.10	0.30	6	0
Copper^	28.20	57.00	7100	0
Lead	79.20	127.20	310	0
Mercury (Inorganic)	0.00	0.00	56	0
Mercury (Elemental)	0.50	0.50	1.2	0
Nickel	17.10	27.50	180	0
Selenium	0.50	0.50	430	0
Vanadium	0.00	0.00	1200	0
Zinc^	110.90	251.90	40000	0

Table 3-8 Summary of Non-Metalloid Inorganics

Determinand	Min	Max	GAC	Number of Exceedances
Asbestos (%)	0.01	0.05	0.001	7

Table 3-9 Summary of Hydrocarbon results

Determinand	Min	Max	GAC	Number of Exceedances
Aliphatic EC 5-6	0.00	0.00	24	0
Aliphatic EC >6-8	0.00	0.00	52	0
Aliphatic EC >8-10	0.00	0.00	13	0
Aliphatic EC >10-12	0.00	0.00	60	0
Aliphatic EC >12-16	0.00	0.00	500	0
Aliphatic EC >16-35	0.00	0.00	41000	0
Aliphatic EC >35-40	0.00	0.00	41000	0
Aromatic EC 5-7	0.00	0.00	155	0
Aromatic EC >7-8	0.00	0.00	370	0
Aromatic EC >8-10	0.00	0.00	20	0
Aromatic EC >10-12	0.00	0.00	120	0
Aromatic EC >12-16	0.00	0.00	1100	0
Aromatic EC >16-21	0.00	0.00	1800	0
Aromatic EC >21-35	0.00	0.00	1900	0
Aromatic EC >35-40	0.00	0.00	1900	0
Aromatic EC >40-44	0.00	0.00	1900	0

Table 3-10 Summary of B-TEX

Determinand	Min	Max	GAC	Number of Exceedances
Benzene (ug/kg)	0.01	0.01	0.38	0
Toluene (ug/kg)	0.01	0.01	880	0

Ethylbenzene (ug/kg)	0.01	0.01	83	0
Xylenes (total) (ug/kg)	0.02	0.02	88	0
MTBE (ug/kg)	0.07	0.07	73	0

3.5 Waste Transfer Notes

The Fairhurst Remediation Method Strategy (Ref. 3) states that the Principal Contractor shall comply with requirements of relevant current legislation when materials are removed for offsite disposal.

The Principal Contactor has supplied Fairhurst with documentary evidence confirming compliance with these regulations; transfer Notes are available in Appendix D.

Waste was classified as EWC 17-05-04 (Non-Hazardous) due to elevated readings of TDS & pH.

3.6 Gas Protection Measures

Between June 14th, 2024, and November 28th, 2024, RASCOR UK Ltd, appointed by the Principal Contractor, installed a range of JUTA gas barriers and waterproof basement tanking protection systems as per the pre-verification report (Ref. 5). Including; JUTA Titantank, JUTA GP5, JUTA Titanbond and JUTA Titanflex.

GeoShield conducted independent verification of the installed ground gas protection membrane concurrently between June and November 2024, the reports detailing the verification are provided in Appendix E.

Additionally, a monolithic concrete floor slab was constructed in accordance with the Fairhurst structural drawings provided in Appendix A.

Therefore, it is deemed that a gas protection score of 3.5 has been achieved in accordance with the requirements of BS8445.

4 Revised Conceptual Site Model

Based on the results of the works detailed in section 3, a post remediation qualitative assessment of the residual risk from the previously identified contamination sources to receptors are detailed in Table 4-1 below & Table 4-2 overleaf; further information regarding the principles of environmental risk assessment is presented in Appendix G.

Table 4-1 Summary of Assessment of Potential Contamination

Section	Assessment
1 & 2	As part of the construction process, Made Ground has been removed from the site and down to the natural strata. Given this, the source of contamination has been removed, breaking the potential pollutant linkage. Additionally, the site is to be covered with hardstanding post construction, which will break the potential pollutant linkage for end-users. In ground concrete is understood to be have been designed to be sufficient grade to withstand sulphate attack.
3	Contamination (asbestos) maybe present within the ground which may pose a risk to construction workers in the future, as such should be recorded on the sites risk register for future risk assessment as per CAR 2012. The imported fill containing the asbestos was placed within the former canal area situated beneath the basement of the structure. As per CIRIA C733 (Ref. 8) Figure 9.7, the influence of moisture content of the samples taken were between 9-12% which reduces the release of fibres.
4	Removal of contaminated Made Ground removes the source, breaking the potential pollutant linkage. If hydrocarbons are present within the superficial deposits, the hardstanding across the site and surrounding area will limit groundwater infiltration, thereby reducing the potential for contaminant mobility.

While contamination is present in the Made Ground, the hardstanding provides an effective barrier, preventing exposure and limiting risk. As a result, the site conditions do not present an immediate concern, though any future changes to the site (e.g., removal of hardstanding or excavation) would require further assessment.

Table 4-2 Further revised Qualitative Risk Assessment for Identified Sources of Contamination

Source	Potential Contaminants	Potential Pathway	Potential Receptors	Assessment	Potential Severity	Potential Probability	Risk Class
Historical land use as infilled Canal	Metals TPH PAH Sulphate pH Asbestos	Ingestion, inhalation, dermal contact, direct contact	Future site users	See section 1 in above table	Minor	Unlikely	Very Low
			Construction workers		Minor	Unlikely	Very Low
			Adjacent land users		Medium	Unlikely	Very Low
		Direct contact	Buried structures and services		Medium	Unlikely	Very Low
		Migration/leaching of mobile contaminants	Groundwater		Medium	Unlikely	Very Low
Made Ground	Metals TPH PAH Sulphate pH Asbestos	Ingestion, inhalation, dermal contact, direct contact	Future site users		Minor	Unlikely	Very Low
			Construction workers		Mild	Likely	Very Low
			Adjacent land users		Mild	Unlikely	Very Low
		Direct contact	Buried structures and services		Mild	Unlikely	Very Low
		Migration/leaching of mobile contaminants	Groundwater		Mild	Unlikely	Very Low
			Surface water		Mild	Unlikely	Very Low
Historical land uses as: Garage, Paint works, Furniture warehouse	Metals TPH PAH Sulphate pH Asbestos	Ingestion, inhalation, dermal contact, direct contact	Future site users	See section 2 in above table	Minor	Unlikely	Very Low
			Construction workers		Medium	Likely	Very Low
			Adjacent land users		Minor	Unlikely	Very Low
		Direct contact	Buried structures and services		Minor	Unlikely	Very Low
		Migration/leaching of mobile contaminants	Groundwater		Mild	Unlikely	Very Low
			Surface water		Mild	Unlikely	Very Low
Current land use as a Car Park	TPH PAH	Ingestion, inhalation, dermal contact, direct contact	Future site users		Medium	Unlikely	Very Low
			Construction workers		Medium	Unlikely	Very Low
			Adjacent land users		Medium	Unlikely	Very Low
		Direct contact	Buried structures and services		Medium	Unlikely	Very Low
		Migration/leaching of mobile contaminants	Groundwater		Medium	Unlikely	Very Low
			Surface water		Medium	Unlikely	Very Low
Asbestos (buried onsite or within the	Asbestos	Ingestion, inhalation, dermal contact, direct contact	Future site users	See section 3 above table	Medium	Unlikely	Very Low
			Construction workers		Medium	Unlikely	Very Low

Source	Potential Contaminants	Potential Pathway	Potential Receptors	Assessment	Potential Severity	Potential Probability	Risk Class
Made ground soil fabric)							
Ground Gas (Made Ground and canal infill)	Hazardous Gas (CO_2, CH_4, VOCs, SVOCs)	Inhalation	Future site users	See section 4 in above table.	Medium	Unlikely	Very Low
			Construction workers		Medium	Low	Very Low
			Adjacent land users		Medium	Unlikely	Very Low
Fly Tipped Material	Metals TPH PAH Asbestos	Dermal contact	Future site users	Contractor confirmed all fly tipped material was removed from the site.	Minor	Unlikely	Very Low
			Construction workers		Minor	Unlikely	Very Low
			Adjacent land users		Minor	Unlikely	Very Low

5 Validation Statement

Remediation work at the site have generally been completed in line with the Fairhurst Remediation and Verification Strategy (Ref. 3) and has been successfully validated as described above.

A post-remediation quantitative risk assessment concluded that the residual risk associated with the development is classified as very low, therefore, the site is deemed appropriate for residential without plant uptake development.

If any localised contaminated soils remain on-site, it will be located beneath a hard or clean cover system, breaking the potential pollutant linkage, ensuring that the residual risk remains very low.

Consideration should be given to future construction works if the hardstanding ground is to be disturbed or excavated.

6 References

1. Fairhurst Phase 1 Desk Study Report 143404/01 (2022)
2. Fairhurst Ground Investigation Report 143404/R2- Rev 4
3. Fairhurst Remediation Strategy Method Statement 143404/R4-Rev 2 (2024)
4. BS 8485:2015+A1+2019: Assessing Risks Posed by Hazardous Ground Gases to Buildings.
5. GeoShield Verification Plan, Project Reference GEO104657 2024
6. GeoShield Verification Report 2024
7. E3P Tank Removal Validation Letter 2024
8. CIRIA C733: Asbestos in soil and made ground: a guide to understanding and managing risks, 2014.
9. CIRIA C735: Good practice on the testing and verification of protection systems for buildings against hazardous ground gases, 2014.
10. CIRIA C665: Risk of ground gas, 2007.

Appendix A
Drawings

PORT STREET

CLEMENTS BUILDING

LOADING ONLY DISABLED DISABLED DISABLED DISABLED

DASHED LINE INDICATING FLOOR PLAN AT LEVEL 2

DASHED LINE INDICATING FLOOR PLAN ABOVE

REFUSE STORE 01 86 sq.m. 28 BINS

REFUSE STORE 02 77.9 sq.m. 20 BINS

ENTRANCE LOBBY 20.1 sq.m.

ENTRANCE LOBBY 58.9 sq.m.

VENTED LOBBY

REFUSE ST. LOBBY 3.6 sq.m.

REFUSE ST. LOBBY 3.8 sq.m.

CLNRS CUPD 3.1 sq.m.

PARCEL STORE 17.6 sq.m.

MANAGEMENT 9.7 sq.m.

STAFF 17.7 sq.m.

PRIVATE 5.9 sq.m.

W.C. 3.3 sq.m.

DUAL SUBSTATION 34.5 sq.m.

SWITCH ROOM 7.8 sq.m.

RETAIL UNIT 83.6 sq.m.

SECURE GATE

ACCESS & CYCLE RAMP

RESIDENTS COMMUNAL GARDEN

PRIVATE TERRACE

B1.00.07 1B/1P 47.3 sq.m. LIVING / DINING

B1.00.06 1B/1P 42.8 sq.m. LIVING / DINING

B1.00.05 2B/3P 64.4 sq.m. LIVING / DINING

B1.00.04 2B/3P 63.1 sq.m. LIVING / DINING

B1.00.03 2B/4P 83.4 sq.m. LIVING / DINING

B1.00.02 2B/3P 67.4 sq.m. LIVING / DINING

B1.00.08 2B/3P 67.1 sq.m. LIVING / DINING

B1.00.09 2B/3P 63.4 sq.m. LIVING / DINING

B1.00.01 2B/3P 62.2 sq.m. LIVING / DINING

B1.00.13 2B/3P 63.5 sq.m. LIVING / DINING

B1.00.12 2B/3P 62.4 sq.m. LIVING / DINING

B1.00.10 1B/1P 50.6 sq.m. LIVING / DINING

B1.00.11 1B/1P 40.1 sq.m. LIVING / DINING

GENERAL NOTES:

ALL DIMENSIONS ARE TO BE CHECKED ON SITE WITH ANY DISCREPANCIES REPORTED TO THE ARCHITECT PRIOR TO THE WORKS BEING CARRIED OUT.

ALL WORKS ARE TO BE IN ACCORDANCE WITH THE PLANNING APPROVAL AND ANY SUBSEQUENT APPROVED LOCAL AUTHORITY PLANNING CORRESPONDENCE INCLUDING DRAWINGS, DOCUMENTS AND REPORTS.

ALL WORKS ARE TO COMPLY WITH THE BUILDING REGULATIONS, BRITISH STANDARDS, CODE OF PRACTICE, AND ANY LOCAL STATUTORY REQUIREMENTS.

ALL WORKS ARE TO COMPLY WITH CURRENT HEALTH AND SAFETY LEGISLATION, H.S.E. RECOMMENDATIONS/GUIDANCE AND THE CURRENT C.D.M. REGULATIONS.

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH LEACH RHODES WALKER ARCHITECTS GENERAL ARRANGEMENT DRAWINGS, TOGETHER WITH RELEVANT DETAILED DRAWINGS AND SPECIFICATIONS.

FOR ALL STRUCTURAL WORKS REFER TO THE STRUCTURAL ENGINEERS INFORMATION.

FOR ALL MECHANICAL AND ELECTRICAL WORKS REFER TO THE MECHANICAL AND ELECTRICAL ENGINEERS INFORMATION.

FOR ALL ABOVE GROUND DRAINAGE WORKS REFER TO THE PUBLIC HEALTH ENGINEERS INFORMATION.

ALL PRODUCTS SPECIFIED ARE TO BE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS, SPECIFICATION AND DETAILS.

rev	description	drwn	auth	date
C01	CONSTRUCTION ISSUE - AMENDED TO SUIT CRF004 CLIENT INSTRUCTION AND GENERAL UPDATES TO SUIT DCS COMMENTS AND DESIGN DEVELOPMENT	AMD	DG	29.08.24
P14	M/Z's POSITION AMENDED AND NEW FIRE BARRIER ADDED AS CLOUDED. GENERAL UPDATE TO SUIT DESIGN DEVELOPMENT AND COORDINATION	AP	DG	29.04.24
P13	STAGE 4 ISSUE - FOR COORDINATION/ APPROVAL	DG	MB	02.02.24
P12	ADJUSTMENTS TO SCHINDLER LIFT REQUIREMENTS. PREVIOUS KONE REQUIREMENTS SHOWN IN RED. COLUMNS/DOORS ADJUSTED INBETWEEN 7-9/A.	TG	TG	01.12.23
P11	ST4 SHORTENED TO SUIT ADJUSTED BASEMENT S/O OF SE LINER.	TG	TG	15.11.23
P10	ROLLER SHUTTER ADDED TO REFUSE. KITCHEN TYPES ADDED.	TG/ CC	TG	06.09.23
P09	STAGE 3+ GA UPDATES AS CLOUDED	TG	TG	14.08.23
P08	REVISIONS AS CLOUDED	TG	TG	04.08.23
P07	WT.1.1 & L2 ADDED	CC	TG	06.07.23
P06	STAGE 3+ ISSUE. RAMP, ST7, ST8.	TG	TG	16.06.23
P05	AX-R COMMENTS ON 'PCD LAYOUTS'	TG	TG	23.05.23
P04	AMENDMENTS TO INCREASE NETT	KM	MB	02.05.23
P03	STAGE 3 TENDER	KM	MB	28.04.23
P02	FOR COORDINATION	KM	MB	17.04.23
P01	DRAFT ISSUE FOR COORDINATION	KM	MB	29.03.23

DO NOT SCALE OFF THIS DRAWING

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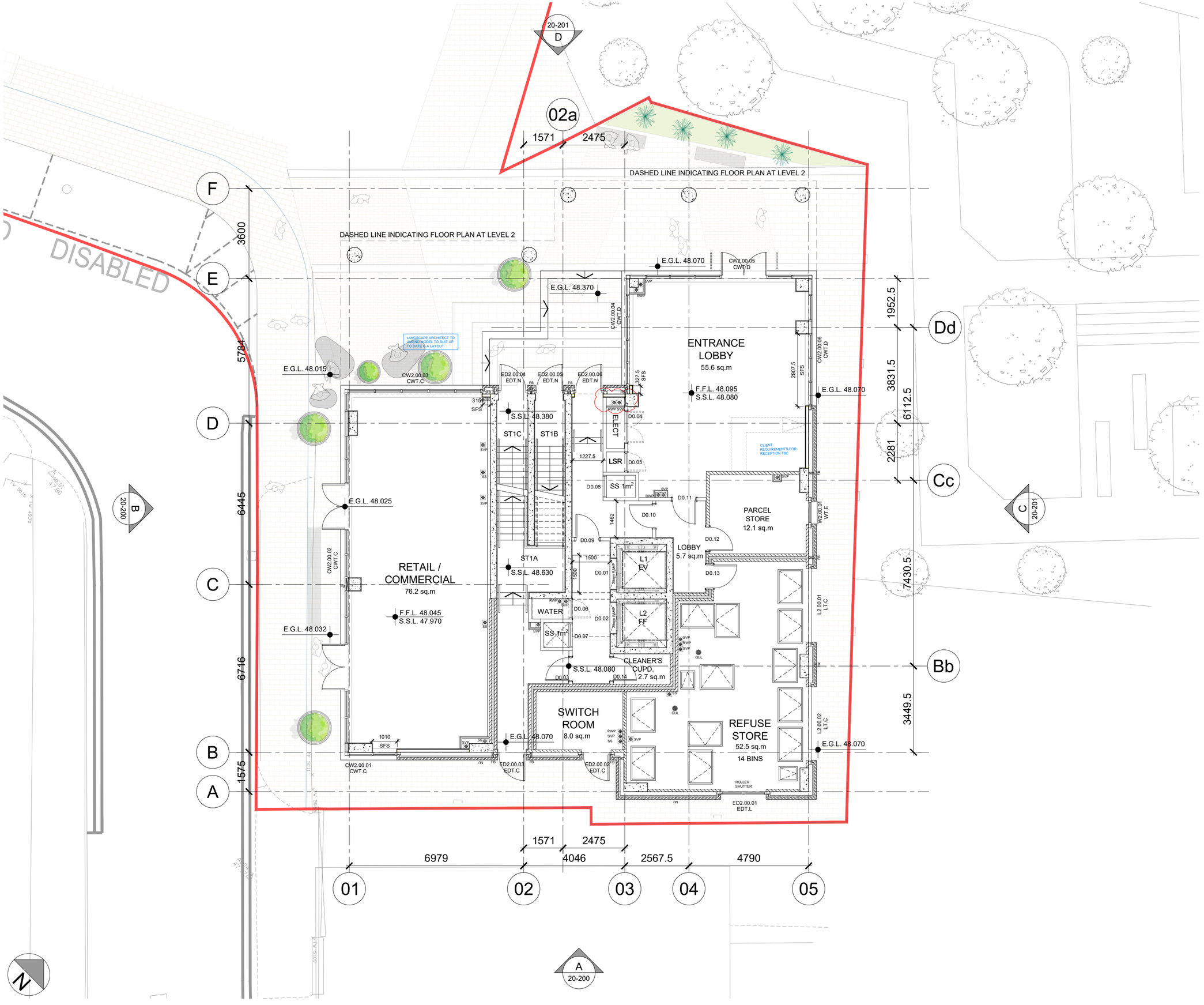
CLIENT: AXIS-RE

PROJECT: BLOCK 1 - 1NQ MANCHESTER

DOCUMENT NAME: 8198-LRW-B1-00-DR-A-20-101

DESCRIPTION: GROUND FLOOR PLAN

REVISION	SCALE		
C01	1:100@ A0		
LRW PROJECT No.	DATE CREATED	CREATED BY	AUTHORISED BY
8198	29/03/23	KM	MB



GENERAL NOTES:

ALL DIMENSIONS ARE TO BE CHECKED ON SITE WITH ANY DISCREPANCIES REPORTED TO THE ARCHITECT PRIOR TO THE WORKS BEING CARRIED OUT.

ALL WORKS ARE TO BE IN ACCORDANCE WITH THE PLANNING APPROVAL AND ANY SUBSEQUENT APPROVED LOCAL AUTHORITY PLANNING CORRESPONDENCE INCLUDING DRAWINGS, DOCUMENTS AND REPORTS.

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ALL PRODUCTS SPECIFIED ARE TO BE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS, SPECIFICATION AND DETAILS.

rev	description	drwn	auth	date
C01	CONSTRUCTION ISSUE - UPDATES TO SUIT DCS COMMENTS AND DESIGN DEVELOPMENT	AMD	DG	29.08.24
P10	NEW FIRE BARRIER ADDED AS CLOUDED. GENERAL UPDATE TO SUIT DESIGN DEVELOPMENT AND COORDINATION.	AP	DG	29.04.24
P09	RETAIL/ COMMERCIAL UNIT LEVELS REVISED AS CLOUDED.	DG	MB	12.02.24
P08	STAGE 4 ISSUE - FOR COORDINATION/ APPROVAL	DG	MB	02.02.24
P07	REVISIONS TO SCHINDLER LIFT REQUIREMENTS. PREVIOUS KONE REQUIREMENTS IN RED.	TG	TG	01.12.23
P06	COLUMN ADDED ADJ. TO GL B/2. ROLLER SHUTTER ADDED TO REFUSE STORE. LEVELS ADDED TO EXTERNAL STEPS/ ESCAPE EXIT.	TG	TG	15.11.23
P05	STAGE 3+ GA UPDATES AS CLOUDED	TG	TG	14.08.23
P04	REVISIONS AS CLOUDED	TT	CG	07.08.23
P03	LOBBY/ STAIR DOOR MOVED ADJACENT TO SWITCH ROOM	TG	TG	25.07.23
P02	REVISED TO MATCH CONSENTED G.F. FOOTPRINT	MB	MB	19.07.23
P01	1st draft of separated stairs option	TG	TG	28.06.23

DO NOT SCALE OFF THIS DRAWING
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CLIENT
AXIS-RE

PROJECT
BLOCK 2 - CLEMENTS
MANCHESTER

DOCUMENT NAME
8198-LRW-B2-00-DR-A-20-151

DESCRIPTION
GROUND FLOOR PLAN

REVISION	SCALE		
C01	1:100@ A2		
LRW PROJECT No.	DATE CREATED	CREATED BY	AUTHORISED BY
8198	28.06.23	TG	MB

COLUMNS		
REF.	TYPE	DESCRIPTION
C1	CONCRETE COLUMN: 1125 x 350mm	GRADE C40/50 CONCRETE COLUMN. ALLOW 275kg/m3 OF REINFORCEMENT
C2	CONCRETE COLUMN: 1000 x 350mm	GRADE C40/50 CONCRETE COLUMN. ALLOW 275kg/m3 OF REINFORCEMENT
C3	CONCRETE COLUMN: 950 x 350mm	GRADE C40/50 CONCRETE COLUMN. ALLOW 275kg/m3 OF REINFORCEMENT
C4	CONCRETE COLUMN: 850 x 350mm	GRADE C40/50 CONCRETE COLUMN. ALLOW 275kg/m3 OF REINFORCEMENT
C5	CONCRETE COLUMN: 500 x 500mm	GRADE C40/50 CONCRETE COLUMN. ALLOW 275kg/m3 OF REINFORCEMENT
C6	CONCRETE COLUMN: 550 x 550mm	GRADE C40/50 CONCRETE COLUMN. ALLOW 275kg/m3 OF REINFORCEMENT
C7	CONCRETE ROUND COLUMN: Ø 600mm	GRADE C40/50 CONCRETE COLUMN. ALLOW 275kg/m3 OF REINFORCEMENT
C8	CONCRETE COLUMN: 350 x 350mm	GRADE C40/50 CONCRETE COLUMN. ALLOW 275kg/m3 OF REINFORCEMENT
C9	CONCRETE COLUMN: 250 x 250mm	GRADE C40/50 CONCRETE COLUMN. ALLOW 275kg/m3 OF REINFORCEMENT

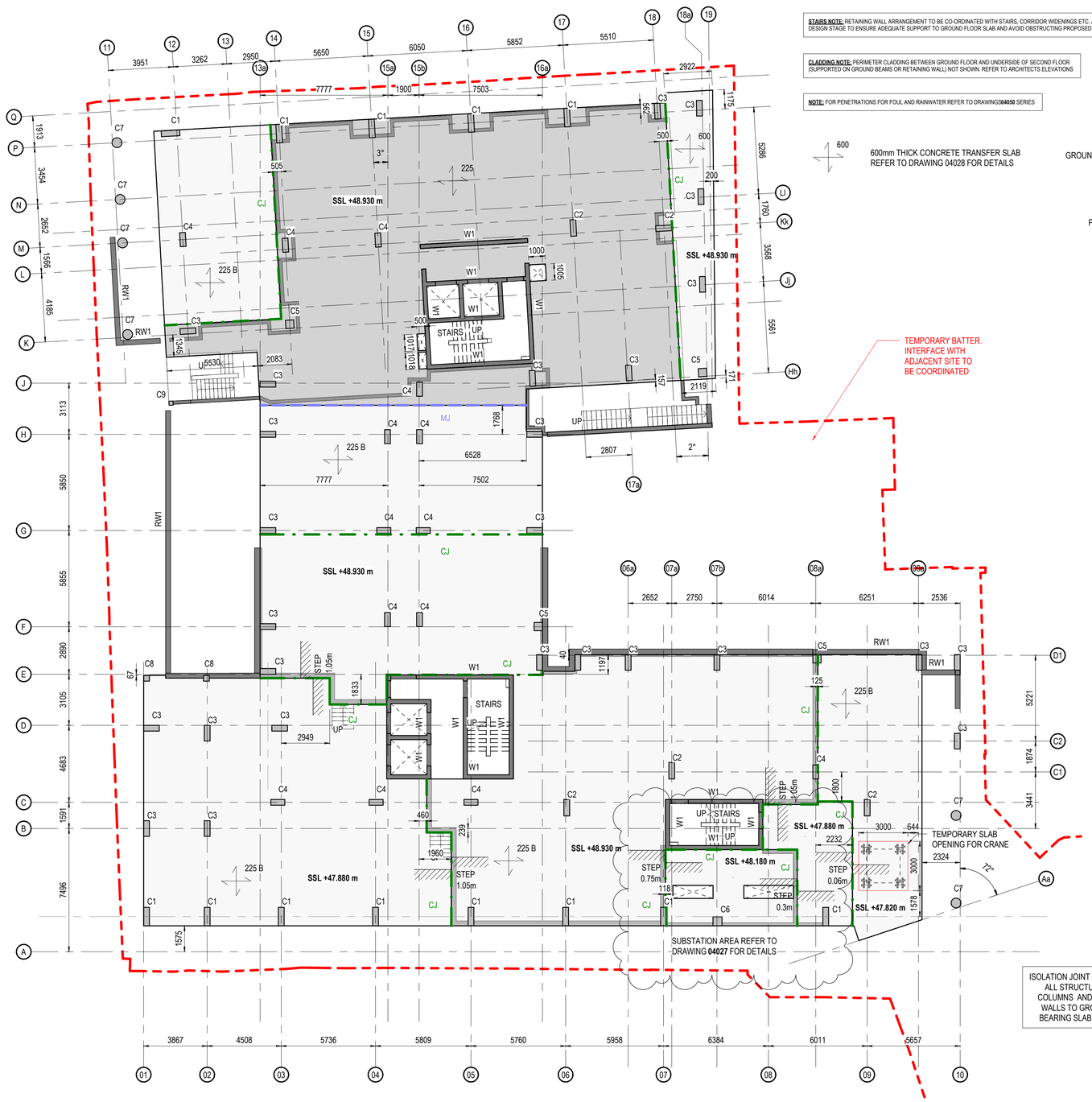
WALLS		
REF.	TYPE	DESCRIPTION
W1	250mm CONCRETE WALL	<varies>
W2	450mm CONCRETE WALL	GRADE C32/40 CONCRETE WALL. ALLOW 150kg/m3 OF REINFORCEMENT
WP	200mm CONCRETE PARAPET WALL	GRADE C32/40 CONCRETE WALL. ALLOW 150kg/m3 OF REINFORCEMENT
WP - UPSTAND	200mm CONCRETE UPSTAND WALL	GRADE C32/40 CONCRETE WALL. ALLOW 150kg/m3 OF REINFORCEMENT

225 — 225mm CONCRETE FLAT SLAB GRADE C32/40. REINFORCEMENT DENSITY 130kg/m³

STEP — DENOTES STEP IN SLAB

225 B — 225mm GROUND BEARING SLAB

REFER TO LRW DRAWINGS FOR THE RED LINE BOUNDARY



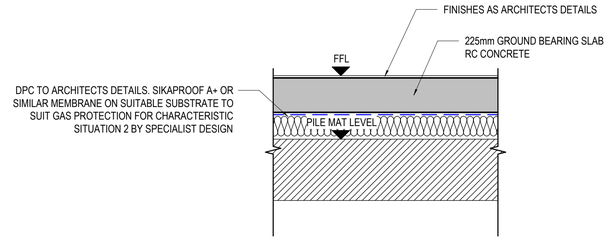
GROUND FLOOR
1 : 150

STAIRS NOTE: RETAINING WALL ARRANGEMENT TO BE CO-ORDINATED WITH STAIRS, CORRIDOR WIDENINGS ETC. AT DETAILED DESIGN STAGE TO ENSURE ADEQUATE SUPPORT TO GROUND FLOOR SLAB AND AVOID OBSTRUCTING PROPOSED LAYOUT

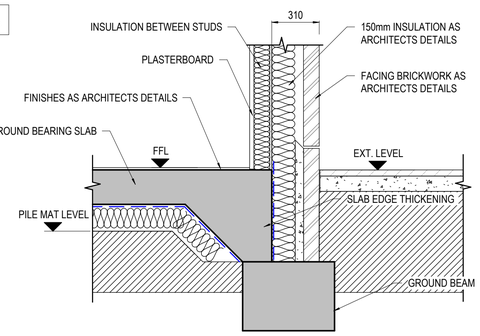
CLADDING NOTE: PERIMETER CLADDING BETWEEN GROUND FLOOR AND UNDERSIDE OF SECOND FLOOR (SUPPORTED ON GROUND BEAMS OR RETAINING WALL) NOT SHOWN. REFER TO ARCHITECTS ELEVATIONS

NOTE: FOR PENETRATIONS FOR FOUL AND RAINWATER REFER TO DRAWINGS **04050** SERIES

600 — 600mm THICK CONCRETE TRANSFER SLAB REFER TO DRAWING 04028 FOR DETAILS



TYPICAL GROUND BEARING SLAB DETAIL
1 : 20



TYPICAL GROUND BEARING SLAB EDGE DETAIL
1 : 20

GENERAL NOTES (Buildings)

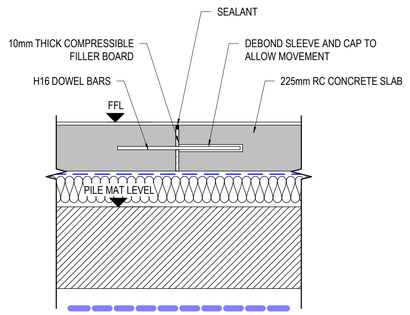
1. This drawing to be read in conjunction with all relevant drawings and specifications from Fairhurst and from other consultants and specialists.
2. Do not scale from Fairhurst drawings, or derive dimensions from digital media; use figured dimensions only. If in doubt, ask.
3. All dimensions are in millimetres unless noted otherwise.
4. All levels are in metres and relate to Ordnance Datum unless noted otherwise.
5. For building and grid setting out refer to architectural drawings.
6. All members are assumed to be set out central on grid, with levels to top of member unless noted otherwise.
7. Refer to architectural drawings for waterproofing details to DPC and above. Basement tanking to specialist design– any details shown on Fairhurst drawings are indicative.
8. Refer to architectural or fire engineering information for details of any fire protection required to the structure.
9. Any temporary works required for the construction of the permanent works shall be the responsibility of the contractor and designed by a suitably experienced and qualified person appointed by the contractor.
10. It is noted that the permanent works are designed to be stable in the final condition. The contractor should ensure stability of the works at all times, including that of any existing buildings that may be on the site.
11. Materials and products specified on the drawings shall be as stated or of equal specification, approved by the engineer in writing. All are to be installed in accordance with the manufacturer's recommendations.
12. All workmanship and materials shall comply with the latest codes of practice and in line with Local Authority, Statutory Authority and Health and Safety regulations

GROUND BEARING SLAB NOTES

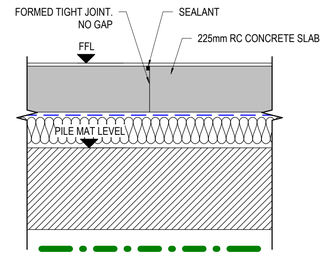
1. All concrete works shall be in accordance with the latest version of the National Structural Concrete Specification (NSCS) and Concrete Society Technical Report 34 (TR34).
2. The contractor shall be cognisant of the relevant findings of the Ground Investigation report for the site by 143404/R2 - Rev 3, dated 09/06/2023
3. Slab to be cast on minimum of 150mm thick Type 1 stone sub-base, compacted in line with the recommendations within the Specification for Highway Works Series 600 and 800 documents. Additional layers may be required to reach the natural formation identified on the drawing, which should be allowed for by the contractor.
4. Sub-base to be proof-rolled, with a minimum CBR of 5% proven by testing on site. Any soft spots identified to be excavated, refilled with suitable material recompacted, and proof-rolled again.
5. The final surface of the sub-base shall be smooth and level, free from ridges or ruts, cracks, loose material or other defects, and prepared to a tolerance of + 0mm/-25mm.
6. Concrete mix for Ground floor slab concrete to BS 8500-2 shall be a designated mix of RC32/40.
7. The contractor may allow the following reinforcement densities for tender purposes:
   Ground bearing slab - 130 kg/m² OR x layers A393 mesh
   The contractor should make their own allowances for any additional steel required as chairs, support, bracing etc to allow placing of the bars as called off by the engineer. Fabric reinforcement (mesh) will not be scheduled.
8. Anti-crack bars should be provided to all re-entrant corners within the slab, with 1200mm long H12 bars extending 600mm diagonally past the corner to each side.
9. Slab to only be cast once the building is watertight to prevent surface damage by the weather.
10. The slab is not to be loaded within 14 days of casting.

INSITU CONCRETE NOTES

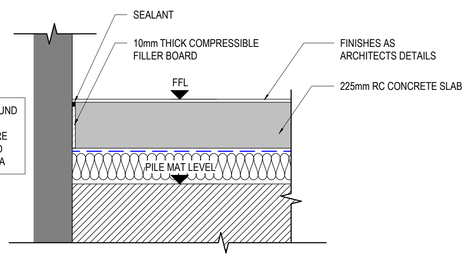
1. All concrete works shall be in accordance with the latest version of the National Structural Concrete Specification (NSCS).
2. Concrete mixes for the concrete elements to BS 8500-2 shall be as follows:
   Elevated slabs and Ground Floor slab - designated mix of RC32/40
   Basement slab - designated mix of RC32/40 with Waterproof additive (dosage to manufacturer recommendations)
   Columns - designated mix of RC40/50
   Cores/Shear Walls - designated mix of RC40/50
   Pile caps - designated mix of RC40/50
   Liner walls to Basement - designated mix of RC32/40 with Waterproof additive (dosage to manufacturer recommendations)
   External retaining walls - designated mix of RC32/40
3. The contractor shall allow for making and testing concrete cubes at a rate of three cubes per day per type of concrete mix being poured or otherwise as noted in the NSCS. The testing shall be undertaken by a UKAS accredited company, and the results made available to the engineer at the earliest opportunity for review.
4. Nominal cover to reinforcement to be 40 mm to all faces unless noted otherwise, tolerance 10mm.
5. Finishes to the concrete elements to be as follows, in accordance with the definitions in BS EN 13670 and the NSCS:
   Elevated Slabs Surface/Soffit - Ordinary/Ordinary
   Columns - Plain
   Core walls - Plain
   Retaining Walls Base/Stem - Basic/Plain
   Refer back to the architect and engineer for instruction should any of the concrete faces be visible in the final case, as Special finishes may be required.
6. No holes, chases, embedment of pipes etc shall be made in the concrete members, other than as shown on the structural drawings.
7. Construction Joints and Day Joints in concrete members shall be as shown on the drawings, or as otherwise agreed with the engineer in writing. Faces of Day Joints to be suitably prepared for aggregate interlock.
8. Kickers of 150mm height shall be used for vertical elements, to ensure correct placement of formwork, with the top face suitably prepared for aggregate interlock. Kicker-less construction may be permitted with the approval of the engineer in writing.
9. Allow for 25mm chamfer to all exposed arrises.
10. Proposals for the casting sequence to be submitted to the engineer for comment in adequate time prior to concrete pour.
11. Immediately following pouring, concrete to be protected from rain, significant weather of hot sun, or frost/ice/snow. In extremes of hot and cold, refer to the engineer for further instruction on casting in these conditions.
12. All reinforcement to be high-yield grade B500B conforming to BS 4449.
13. Refer to bar schedule XXXXXXXXXXXXX for all reinforcement called off on this drawing.
14. The contractor may allow the following reinforcement densities for tender purposes:
    Elevated slabs - 130 kg/m²
    Columns - 275 kg/m²
    Core/Shear walls/Parapets - 150 kg/m²
    Pile caps - 130 kg/m²
    Ground beams / Capping beam - 230 kg/m²
15. The contractor should make their own allowances for any additional steel required as chairs, support, bracing etc to allow placing of the bars as called off by the engineer. Fabric reinforcement (mesh) will not be scheduled.



TYPICAL MOVEMENT JOINT DETAIL
1 : 15



TYPICAL CONSTRUCTION JOINT DETAIL
1 : 15



ISOLATION JOINT AROUND ALL STRUCTURAL COLUMNS AND CORE WALLS TO GROUND BEARING SLAB AREA

TYPICAL ISOLATION JOINT DETAIL ON GROUND BEARING SLAB
1 : 15

DO NOT SCALE FROM THIS DRAWING

SAFETY HEALTH AND ENVIROMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING RISKS AND INFORMATION.

RISK LISTED HERE ARE NOT EXHAUSTIVE. REFER TO DESIGN ASSESSMENT FORM NO.

CONSTRUCTION
PROXIMITY TO ADJACENT BOUNDARIES AND EXISTING STRUCTURES
RETENTION CONSTRUCTION CLOSE TO FOOTPATH CONTAINING SERVICES

DEMOLITION
DEMOLITION OF EXISTING DERELICT BUILDING REMOVING SUPPORT FROM SAMS YARD

FOR INFORMATION RELATING TO USE, CLEANING AND MAINTENANCE SEE THE HEALTH AND SAFTEY FILE.

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT.

Rev	Date	Description	Dm/Chkd/Appd.
C5	19.11.24	SUBSTATION AREA UPDATED	JR/MM/MT
C4	04.11.24	COLUMN POSITION UPDATED	JR/MM/MT
C3	25.10.24	COLUMN POSITION AND SLAB EDGE MODIFIED	JR/MM/MT
C2	09.08.24	RISER OPENING UPDATED AND JOINT DETAILS ADDED	JR/MM/MT
C1	08.05.24	FOR CONSTRUCTION	JR/MM/MT
P6	01.02.24	COLUMNS POSITION UPDATED, SLAB EDGE AND OPENINGS MODIFIED AS ARCHITECTS COMMENTS	JR/MT/JT
P5	19.01.24	NOTES ADDED, COLUMNS POSITION UPDATED, DETAIL UPDATED, DIMENSIONS ADDED	JR/MT/JT
P4	01.09.23	COLUMN POSITION UPDATED	JR/MT/JT
P3	16.06.23	MINOR UPDATES	JR/MT/JT
P2	26.05.23	COLUMNS MOVED	JR/MT/JT
P1	19.05.23	STRUCTURE UPDATED	JR/MT/JT

Revisions

FAIRHURST
51a St. Pauls Street
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LS1 2TE
Tel: 0113 243 4671
Fax: 0844 381 4412

Client: united living — new homes

Project Title
1NQ BLOCK 1
TARIFF STREET
MANCHESTER

Drawing Title
GROUND FLOOR PLAN G.A.

Document Number
143404-FAI-B1-00-DR-S-04000

Revision C5

Issued for Construction

Ms Fatima Asim - United Living
Nov 20, 2024, 9:55 AM GMT+0:00

Scale @ A1	Purpose of issue
As indicated	CONSTRUCTION

Drawn	Checked	Approved
JR	JM	JT
Drawn Date	Checked Date	Approved Date
09.11.2022	09.11.2022	09.11.2022

Drawing Number.
143404 - FAI- B1- 00- DR- S- 04000- C5

COLUMNS		
REF.	TYPE	DESCRIPTION
C1	CONCRETE COLUMN: 950 x 350mm	GRADE C40/50 CONCRETE COLUMN. ALLOW 275kg/m3 OF REINFORCEMENT
C3	CONCRETE COLUMN: 500 x 500mm	GRADE C40/50 CONCRETE COLUMN. ALLOW 275kg/m3 OF REINFORCEMENT
C4	CONCRETE ROUND COLUMN: Ø 600mm	GRADE C40/50 CONCRETE COLUMN. ALLOW 275kg/m3 OF REINFORCEMENT
C5	CONCRETE COLUMN: 350 x 350mm	GRADE C40/50 CONCRETE COLUMN. ALLOW 275kg/m3 OF REINFORCEMENT

WALLS		
REF.	TYPE	DESCRIPTION
W1	250mm CONCRETE WALL	GRADE C32/40 CONCRETE WALL. ALLOW 150kg/m3 OF REINFORCEMENT
WP	200mm CONCRETE PARAPET WALL	GRADE C32/40 CONCRETE WALL. ALLOW 150kg/m3 OF REINFORCEMENT

united living

Document Number
143405-FAI-B2-00-DR-S-04000

Revision C3

Issued for Construction

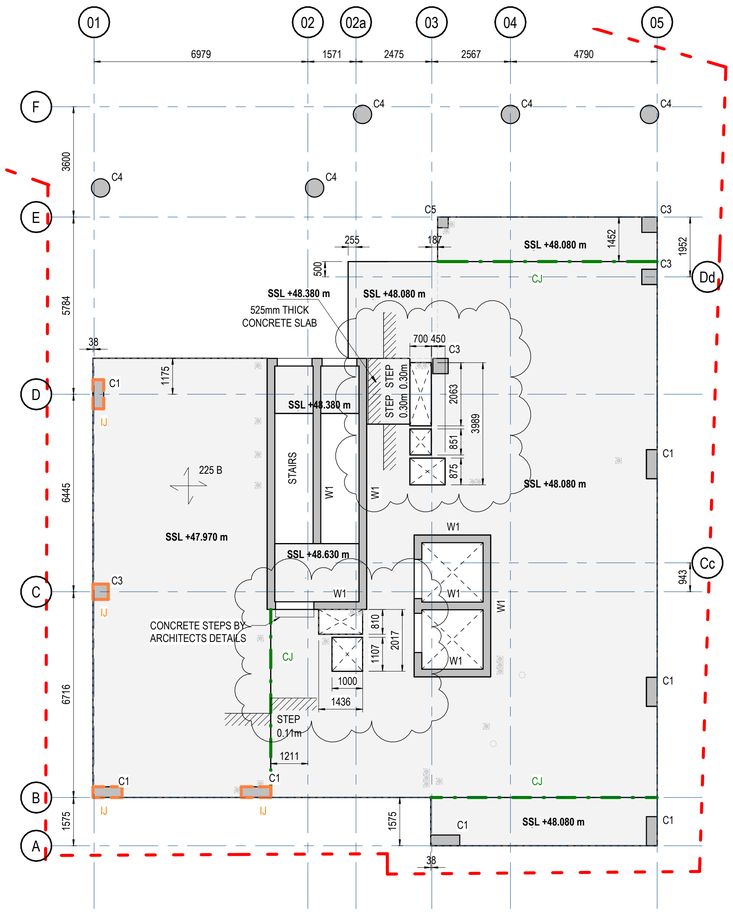
Ms Fatima Asim - United Living
Aug 16, 2024, 11:37 AM GMT+1:00

225 — 225mm CONCRETE FLAT SLAB GRADE C32/40. REINFORCEMENT DENSITY 130kg/m²

225 B — 225mm GROUND BEARING SLAB

STEP — DENOTES STEP IN SLAB

REFER TO LRW DRAWINGS FOR THE RED LINE BOUNDARY

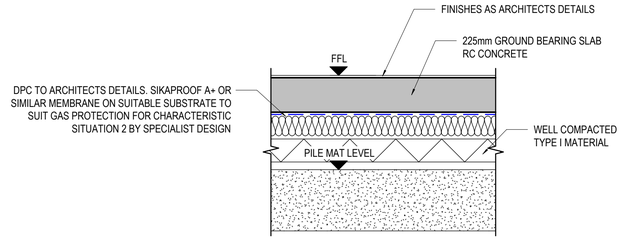


GROUND FLOOR
1 : 100

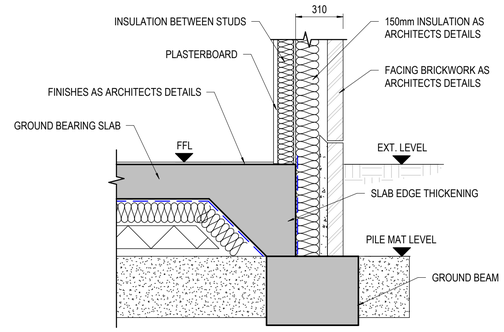
STAIRS NOTE: RETAINING WALL ARRANGEMENT TO BE CO-ORDINATED WITH STAIRS, CORRIDOR WIDENINGS ETC. AT DETAILED DESIGN STAGE TO ENSURE ADEQUATE SUPPORT TO GROUND FLOOR SLAB AND AVOID OBSTRUCTING PROPOSED LAYOUT

CLADDING NOTE: PERIMETER CLADDING BETWEEN GROUND FLOOR AND UNDERSIDE OF SECOND FLOOR (SUPPORTED ON GROUND BEAMS OR RETAINING WALL) NOT SHOWN. REFER TO ARCHITECTS ELEVATIONS

NOTE: FOR PENETRATIONS FOR FOUL AND RAINWATER REFER TO DRAWINGS**04060** SERIES



TYPICAL GROUND BEARING SLAB DETAIL
1 : 20

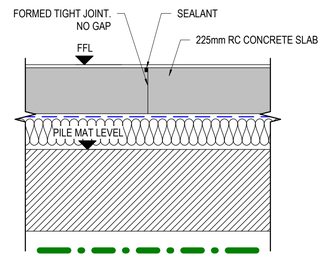


TYPICAL GROUND BEARING SLAB EDGE DETAIL
1 : 20

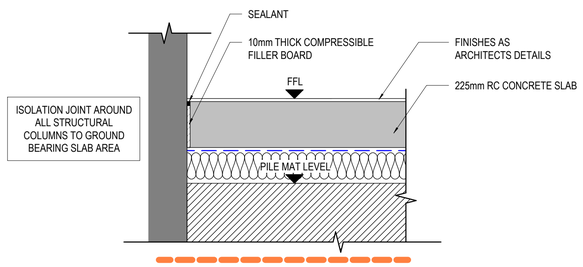
GENERAL NOTES (Buildings)
1. This drawing to be read in conjunction with all relevant drawings and specifications from Fairhurst and from other consultants and specialists.
2. Do not scale from Fairhurst drawings, or derive dimensions from digital media; use figured dimensions only. If in doubt, ask.
3. All dimensions are in millimetres unless noted otherwise.
4. All levels are in metres and relate to Ordnance Datum unless noted otherwise.
5. For building and grid setting out refer to architectural drawings.
6. All members are assumed to be set out central on grid, with levels to top of member unless noted otherwise.
7. Refer to architectural drawings for waterproofing details to DPC and above. Basement tanking to specialist design– any details shown on Fairhurst drawings are indicative.
8. Refer to architectural or fire engineering information for details of any fire protection required to the structure.
9. Any temporary works required for the construction of the permanent works shall be the responsibility of the contractor and designed by a suitably experienced and qualified person appointed by the contractor.
10. It is noted that the permanent works are designed to be stable in the final condition. The contractor should ensure stability of the works at all times, including that of any existing buildings that may be on the site.
11. Materials and products specified on the drawings shall be as stated or of equal specification, approved by the engineer in writing. All are to be installed in accordance with the manufacturer's recommendations.
12. All workmanship and materials shall comply with the latest codes of practice and in line with Local Authority, Statutory Authority and Health and Safety regulations

GROUND BEARING SLAB NOTES
1. All concrete works shall be in accordance with the latest version of the National Structural Concrete Specification (NSCS) and Concrete Society Technical Report 34 (TR34).
2. The contractor shall be cognisant of the relevant findings of the Ground Investigation report for the site by 14340/4/R2 - Rev 3, dated 09/06/2023
3. Slab to be cast on minimum of 150mm thick Type 1 stone sub-base, compacted in line with the recommendations within the Specification for Highway Works Series 600 and 800 documents. Additional layers may be required to reach the natural formation identified on the drawing, which should be allowed for by the contractor.
4. Sub-base to be proof-rolled, with a minimum CBR of 5% proven by testing on site. Any soft spots identified to be excavated, refilled with suitable material recompacted, and proof-rolled again.
5. The final surface of the sub-base shall be smooth and level, free from ridges or ruts, cracks, loose material or other defects, and prepared to a tolerance of + 0mm/-25mm.
6. Concrete mix for Ground floor slab concrete to BS 8500-2 shall be a designated mix of RC32/40.
7. The contractor may allow the following reinforcement densities for tender purposes:
   Ground bearing slab - 130 kg/m² OR x layers A393 mesh
   The contractor should make their own allowances for any additional steel required as chairs, support, bracing etc to allow placing of the bars as called off by the engineer. Fabric reinforcement (mesh) will not be scheduled.
8. Anti-crack bars should be provided to all re-entrant corners within the slab, with 1200mm long H12 bars extending 600mm diagonally past the corner to each side.
9. Slab to only be cast once the building is watertight to prevent surface damage by the weather.
10. The slab is not to be loaded within 14 days of casting.

INSITU CONCRETE NOTES
1. All concrete works shall be in accordance with the latest version of the National Structural Concrete Specification (NSCS).
2. Concrete mixes for the concrete elements to BS 8500-2 shall be as follows:
   Elevated slabs and Ground Floor slab - designated mix of RC32/40
   Basement slab - designated mix of RC32/40 with Waterproof additive (dosage to manufacturer recommendations)
   Columns - designated mix of RC40/50
   Cores/Shear Walls - designated mix of RC40/50
   Pile caps - designated mix of RC40/50
   Liner walls to Basement - designated mix of RC32/40 with Waterproof additive (dosage to manufacturer recommendations)
   External retaining walls - designated mix of RC32/40
3. The contractor shall allow for making and testing concrete cubes at a rate of three cubes per day per type of concrete mix being poured or otherwise as noted in the NSCS. The testing shall be undertaken by a UKAS accredited company, and the results made available to the engineer at the earliest opportunity for review.
4. Nominal cover to reinforcement to be 40 mm to all faces unless noted otherwise, tolerance 10mm.
5. Finishes to the concrete elements to be as follows, in accordance with the definitions in BS EN 13670 and the NSCS:
   Elevated Slabs Surface/Soffit - Ordinary/Ordinary
   Columns - Plain
   Core walls - Plain
   Retaining Walls Base/Stem - Basic/Plain
   Refer back to the architect and engineer for instruction should any of the concrete faces be visible in the final case, as Special finishes may be required.
6. No holes, chases, embedment of pipes etc shall be made in the concrete members, other than as shown on the structural drawings.
7. Construction Joints and Day Joints in concrete members shall be as shown on the drawings, or as otherwise agreed with the engineer in writing. Faces of Day Joints to be suitably prepared for aggregate interlock.
8. Kickers of 150mm height shall be used for vertical elements, to ensure correct placement of formwork, with the top face suitably prepared for aggregate interlock. Kicker-less construction may be permitted with the approval of the engineer in writing.
9. Allow for 25mm chamfer to all exposed arrises.
10. Proposals for the casting sequence to be submitted to the engineer for comment in adequate time prior to concrete pour.
11. Immediately following pouring, concrete to be protected from rain, significant weather of hot sun, or frost/ice/snow. In extremes of hot and cold, refer to the engineer for further instruction on casting in these conditions.
12. All reinforcement to be high-yield grade B500B conforming to BS 4449.
13. Refer to bar schedule XXXXXXXXXXXXX for all reinforcement called off on this drawing.
14. The contractor may allow the following reinforcement densities for tender purposes:
    Elevated slabs - 130 kg/m²
    Columns - 275 kg/m³
    Core/Shear walls/Parapets - 150 kg/m³
    Pile caps - 130 kg/m³
    Ground beams / Capping beam - 230 kg/m³
15. The contractor should make their own allowances for any additional steel required as chairs, support, bracing etc to allow placing of the bars as called off by the engineer. Fabric reinforcement (mesh) will not be scheduled.



TYPICAL CONSTRUCTION JOINT DETAIL
1 : 15



TYPICAL ISOLATION JOINT DETAIL ON GROUND BEARING SLAB
1 : 15

DO NOT SCALE FROM THIS DRAWING

SAFETY HEALTH AND ENVIROMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING RISKS AND INFORMATION.

RISK LISTED HERE ARE NOT EXHAUSTIVE. REFER TO DESIGN ASSESSMENT FORM NO.

CONSTRUCTION
PROXIMITY TO ADJACENT BOUNDARIES AND EXISTING STRUCTURES
EXCAVATIONS FOR SUBSTRUCTURE AND RETENTION

DEMOLITION
NONE A COMPETENT CONTRACTOR WOULD NOT BE AWARE OF

FOR INFORMATION RELATING TO USE, CLEANING AND MAINTENANCE SEE THE HEALTH AND SAFTEY FILE.

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT.

Rev	Date	Description	Drn/Chkd/Appd.
C3	12.08.24	SLAB PENETRATIONS AND JOINTS DETAILS ADDED	JR/MM/MT
C2	17.06.24	LANDING LEVEL CHANGED TO SUIT ARCHITECTS DRAWINGS	JR/MM/MT
C1	08.05.24	FOR CONSTRUCTION	JR/MM/MT
P6	16.04.24	UPDATED AS ARCHITECTS REQUIREMENTS	JR/MM/MT
P5	01.02.24	SLAB PENETRATIONS ADDED AS ARCHITECTS COMMENTS	JR/MT/JT
P4	19.01.24	NOTES ADDED, COLUMNS POSITION UPDATED, DETAIL UPDATED, DIMENSIONS ADDED	JR/MT/JT
P3	29.08.23	COLUMN LAYOUT UPDATED	JR/MT/JT
P2	16.06.23	UPDATED FOR TENDER	JR/MT/JT
P1	26.05.23	STRUCTURE UPDATED	JR/MT/JT

Revisions

FAIRHURST
51a St. Pauls Street
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LS1 2TE

Tel: 0113 243 4671
Fax: 0844 381 4412

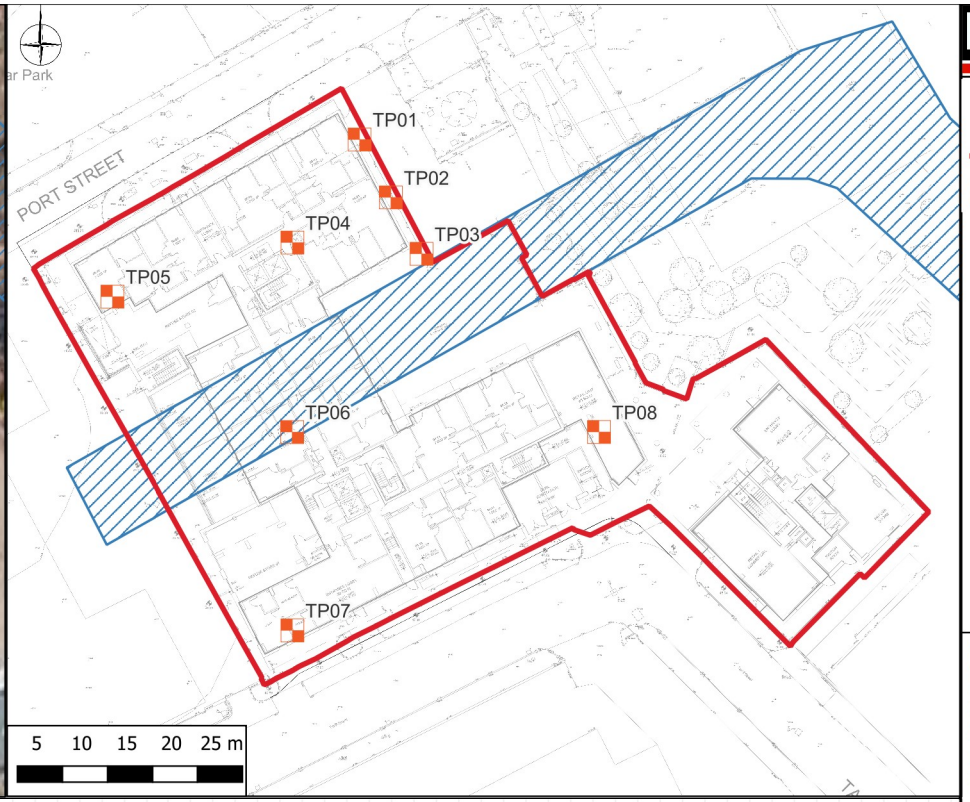
Client: united living new homes

Project Title
CLEMENTS BLOCK 2
TARIFF STREET
MANCHESTER

Drawing Title
GROUND FLOOR PLAN G.A.

Scale @ A1	Purpose of issue	
As indicated	CONSTRUCTION	
Drawn	Checked	Approved
JR	JM	JT
Drawn Date	Checked Date	Approved Date
09.11.2022	09.11.2022	09.11.2022

Drawing Number.
143405 - FAI- B2- 00- DR- S- 04000- C3



FAIRHURST

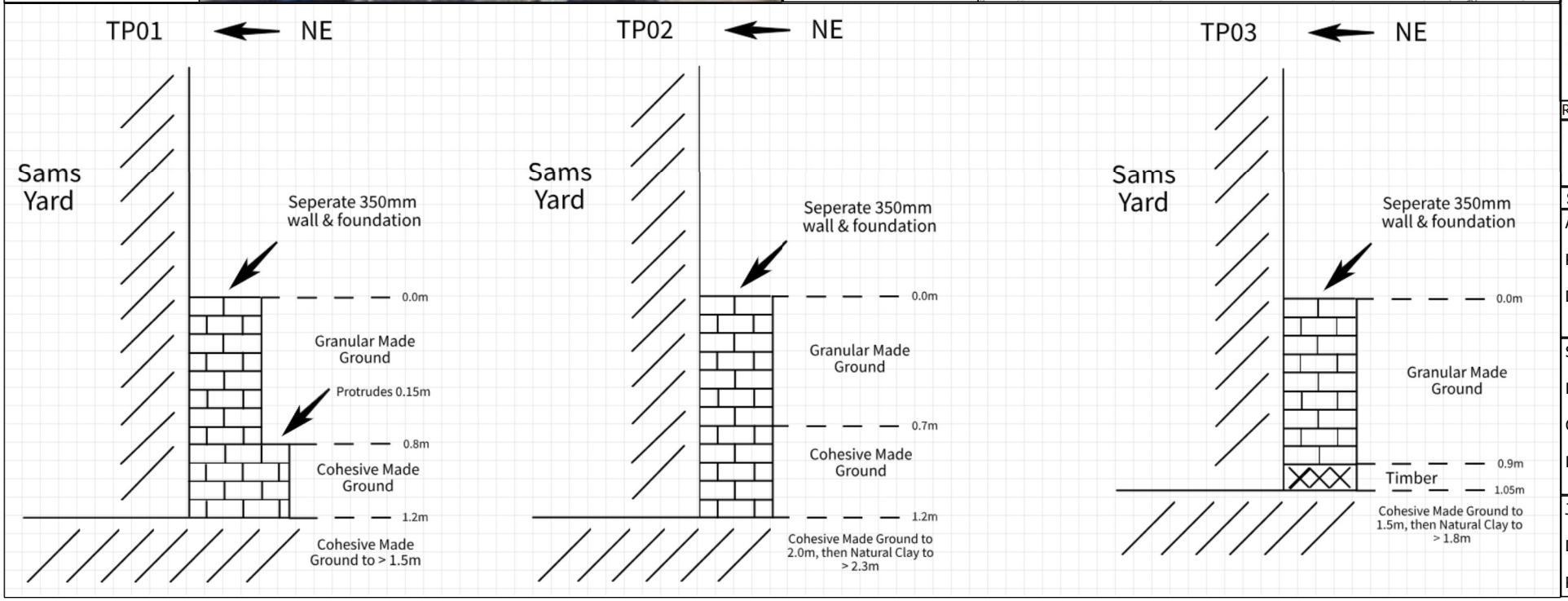
- Trial Pits (30/01/24)
- Site Boundary
- Former Canal

NOTES:
TP01 to 03 exposed the footing of Sam's Yard and former wall on site. Both structures have separate foundations, comprising of brick work.

TP04 to 08 were undertaken to obtain environmental samples of Made Ground.

Rev	Description	Date	Drn	Ch'd

INFORMATION



Status:	Final
Architect:	N/A
Project:	Tariff Street
Drg Title:	Foundation Trial Pit Cross Sections
Scale @ A3	Not To Scale
Drawn by	AP
Checked by	JH
Date	31/01/2024
Job No.	143404
Drg No.	02
Rev.	

Appendix B
Environmental Contamination Testing Results

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Urmston
Manchester

e: ndawson@e3p.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-008210

Project / Site name:	Tariff Street, Ancoats	**Samples received on:**	08/03/2024
Your job number:	17 370	**Samples instructed on/ Analysis started on:**	12/03/2024
Your order number:		**Analysis completed by:**	15/03/2024
Report Issue Number:	1	**Report issued on:**	16/03/2024
Samples Analysed:	6 soil samples		

Izabela Wójcik

Signed:

Izabela Wójcik
Senior 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

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.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 24-008210
Project / Site name: Tariff Street, Ancoats

Lab Sample Number				141312	141313	141314	141315	141316
Sample Reference				SP101	SP102	SP103	SP104	SP105
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				08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	9.2	7.4	9.7	21	19
Total mass of sample received	kg	0.1	NONE	1.2	1.3	1.2	1.3	1.4
Asbestos								
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SPU	SPU	SPU	SPU	SPU
Actinolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Amosite detected	Type	N/A	ISO 17025	-	-	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	-	-	-
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	11.7	11.6	11.4	10	10.8
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	1500	1200	1300	3400	4200
Water Soluble SO4 1hr extraction	mg/kg	2.5	MCERTS	180	190	300	1600	1100
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	88.3	97.4	150	816	566
Sulphide	mg/kg	1	MCERTS	92	130	2.8	56	29
Total Sulphur	mg/kg	50	MCERTS	910	780	820	1500	1800
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.3	0.3	0.5	1.2	1.2
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	1.2	1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.11	0.11
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.08	0.85	1.3
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.07	0.69	1.1
Phenanthrene	mg/kg	0.05	MCERTS	0.23	0.25	0.44	5.4	6.5
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.08	1.1	1.5
Fluoranthene	mg/kg	0.05	MCERTS	0.22	0.22	0.45	6.9	8.2
Pyrene	mg/kg	0.05	MCERTS	0.21	0.2	0.39	5.9	7.2
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.08	0.08	< 0.05	2.6	3.4
Chrysene	mg/kg	0.05	MCERTS	0.13	0.14	< 0.05	2.9	3
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.13	0.11	0.18	2.9	3.5
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.05	0.05	0.12	1.2	1.5
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.07	0.06	0.14	2.5	3.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	1.2	1.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.32	0.43
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	1.3	1.6
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	1.12	1.11	1.95	37	44.7

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-008210
Project / Site name: Tariff Street, Ancoats

Lab Sample Number				141312	141313	141314	141315	141316
Sample Reference				SP101	SP102	SP103	SP104	SP105
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				08/03/2024	08/03/2024	08/03/2024	08/03/2024	08/03/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	5	5	5.7	14	14
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2	0.3	0.3	0.7	0.6
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	17	16	19	26	22
Copper (aqua regia extractable)	mg/kg	1	MCERTS	19	27	20	52	55
Lead (aqua regia extractable)	mg/kg	1	MCERTS	14	13	15	100	120
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	0.5
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	15	13	17	27	24
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	48	47	50	150	140
Petroleum Hydrocarbons								
TPH (>C5 - C10) HS_1D_TOTAL	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (>C5 - C6) HS_1D_TOTAL	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (>C6 - C8) HS_1D_TOTAL	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (>C8 - C10) HS_1D_TOTAL	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (>C10 - C12) EH_CU_1D_TOTAL	mg/kg	2	MCERTS	< 2.0	2.2	< 2.0	< 2.0	< 2.0
TPH (>C12 - C16) EH_CU_1D_TOTAL	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	8.7	13
TPH (>C16 - C21) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10	< 10	< 10	52	57
TPH (>C21 - C35) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	18	19	10	260	240
TPH (>C35 - C40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10	< 10	< 10	99	69
TPH Total >C5 - C40 EH_CU+HS_1D_TOTAL	mg/kg	10	NONE	24	28	18	420	380
TPH (C10 - C40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	24	28	18	420	380

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

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-008210
Project / Site name: Tariff Street, Ancoats

Lab Sample Number				141317
Sample Reference				SP106
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				08/03/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	83.7
Moisture Content	%	0.01	NONE	6.9
Total mass of sample received	kg	0.1	NONE	1.3

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Detected
Asbestos Analyst ID	N/A	N/A	N/A	SPU
Actinolite detected	Type	N/A	ISO 17025	Not-detected
Amosite detected	Type	N/A	ISO 17025	Not-detected
Anthophyllite detected	Type	N/A	ISO 17025	Not-detected
Chrysotile detected	Type	N/A	ISO 17025	Detected
Crocidolite detected	Type	N/A	ISO 17025	Not-detected
Tremolite detected	Type	N/A	ISO 17025	Not-detected
Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	Loose Fibres

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	11.3
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	2500
Water Soluble SO4 1hr extraction	mg/kg	2.5	MCERTS	870
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	433
Sulphide	mg/kg	1	MCERTS	3.1
Total Sulphur	mg/kg	50	MCERTS	830
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.6

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.43
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.4
Fluorene	mg/kg	0.05	MCERTS	0.35
Phenanthrene	mg/kg	0.05	MCERTS	2.3
Anthracene	mg/kg	0.05	MCERTS	0.51
Fluoranthene	mg/kg	0.05	MCERTS	2.9
Pyrene	mg/kg	0.05	MCERTS	2.6
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.3
Chrysene	mg/kg	0.05	MCERTS	1.1
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	1.3
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.58
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.47
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.17
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.61

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	16.3

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Analytical Report Number: 24-008210
Project / Site name: Tariff Street, Ancoats

Lab Sample Number				141317
Sample Reference				SP106
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				08/03/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Heavy Metals / Metalloids				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	12
Copper (aqua regia extractable)	mg/kg	1	MCERTS	20
Lead (aqua regia extractable)	mg/kg	1	MCERTS	34
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	7
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	48
Petroleum Hydrocarbons				
TPH (>C5 - C10) HS_1D_TOTAL	mg/kg	1	NONE	< 1.0
TPH (>C5 - C6) HS_1D_TOTAL	mg/kg	0.1	NONE	< 0.1
TPH (>C6 - C8) HS_1D_TOTAL	mg/kg	1	NONE	< 1.0
TPH (>C8 - C10) HS_1D_TOTAL	mg/kg	1	NONE	< 1.0
TPH (>C10 - C12) EH_CU_1D_TOTAL	mg/kg	2	MCERTS	< 2.0
TPH (>C12 - C16) EH_CU_1D_TOTAL	mg/kg	4	MCERTS	< 4.0
TPH (>C16 - C21) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10
TPH (>C21 - C35) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	56
TPH (>C35 - C40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	16
TPH Total >C5 - C40 EH_CU+HS_1D_TOTAL	mg/kg	10	NONE	83
TPH (C10 - C40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	83

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Analytical Report Number : 24-008210
Project / Site name: Tariff Street, Ancoats

* 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 *
141312	SP101	None Supplied	None Supplied	Brown sand with gravel
141313	SP102	None Supplied	None Supplied	Brown sand with gravel
141314	SP103	None Supplied	None Supplied	Brown sand with gravel
141315	SP104	None Supplied	None Supplied	Brown sandy clay with gravel
141316	SP105	None Supplied	None Supplied	Brown sandy clay with gravel
141317	SP106	None Supplied	None Supplied	Brown silt / sediment with gravel and stones**

Analytical Report Number : 24-008210
Project / Site name: Tariff Street, Ancoats

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
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode	In-house method	L010	D	MCERTS
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
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038B	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS

Analytical Report Number : 24-008210
Project / Site name: Tariff Street, Ancoats

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
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	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.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

**Unaccredited sample matrix

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Analytical Report Number : 24-008212

Project / Site name:	Tariff Street, Ancoats	**Samples received on:**	08/03/2024
Your job number:	17 370	**Samples instructed on/ Analysis started on:**	12/03/2024
Your order number:		**Analysis completed by:**	18/03/2024
Report Issue Number:	1	**Report issued on:**	19/03/2024
Samples Analysed:	6 soil samples - 6 2stage samples		

Signed:

Anna Goc
PL Head of Reporting Team
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.

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Waste Acceptance Criteria Analytical Results

Report No:	**24-008212**						
					Client:	**E3P**	
Location	**Tariff Street, Ancoats**						
Lab Reference (Sample Number)	141319				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	08/03/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	SP101						
Depth (m)							
Solid Waste Analysis							
TOC (%)**	0.4				3%	5%	6%
Loss on Ignition (%) **	1.8				--	--	10%
BTEX (µg/kg)**	< 5.0				6000	--	--
Sum of PCBs (mg/kg)**	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	26				500	--	--
Total PAH (WAC-17) (mg/kg)	1.12				100	--	--
pH (units)**	11.7				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	67				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 3 preparation utilising end over end leaching procedure)	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
	mg/l	mg/l		mg/kg			
Arsenic *	< 0.0020	< 0.0020		< 0.020	0.5	2	25
Barium *	0.61	0.14		1.4	20	100	300
Cadmium *	< 0.00010	< 0.00010		< 0.0010	0.04	1	5
Chromium *	0.023	0.017		0.17	0.5	10	70
Copper *	0.0097	0.0051		0.051	2	50	100
Mercury *	< 0.00070	< 0.0007		< 0.0070	0.01	0.2	2
Molybdenum *	0.0076	0.0023		0.023	0.5	10	30
Nickel *	< 0.00090	< 0.00090		< 0.0090	0.4	10	40
Lead *	< 0.0017	< 0.0017		< 0.017	0.5	10	50
Antimony *	< 0.0020	< 0.0020		< 0.020	0.06	0.7	5
Selenium *	< 0.0050	< 0.0050		< 0.050	0.1	0.5	7
Zinc *	0.0026	< 0.00090		< 0.0090	4	50	200
Chloride *	5.3	< 4.0		21	800	15000	25000
Fluoride*	0.17	0.17		1.7	10	150	500
Sulphate *	13	17		170	1000	20000	50000
TDS*	2500	870		8700	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.16	< 0.13		< 0.50	1	-	-
DOC	8.59	4.3		43.1	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.2						
Dry Matter (%)	91						
Moisture (%)	9.2						
Stage 1							
Volume Eluate L2 (litres)	0.332						
Filtered Eluate VE1 (litres)	0.000000						

Results are expressed on a dry weight basis, after correction for moisture content where applicable. *= UKAS accredited (liquid eluate analysis only)

Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation ** = MCERTS accredited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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Waste Acceptance Criteria Analytical Results

Report No:	**24-008212**						
					Client:	**E3P**	
Location	**Tariff Street, Ancoats**						
Lab Reference (Sample Number)	141320				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	08/03/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	SP102						
Depth (m)							
Solid Waste Analysis							
TOC (%)**	0.3				3%	5%	6%
Loss on Ignition (%) **	1.6				--	--	10%
BTEX (µg/kg)**	< 5.0				6000	--	--
Sum of PCBs (mg/kg)**	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	1.00				100	--	--
pH (units)**	11.6				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	52				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 3 preparation utilising end over end leaching procedure)	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
	mg/l	mg/l		mg/kg			
Arsenic *	< 0.0020	< 0.0020		< 0.020	0.5	2	25
Barium *	0.19	0.062		0.62	20	100	300
Cadmium *	< 0.00010	< 0.00010		< 0.0010	0.04	1	5
Chromium *	0.028	0.014		0.14	0.5	10	70
Copper *	0.014	0.0037		0.037	2	50	100
Mercury *	< 0.00070	< 0.0007		< 0.0070	0.01	0.2	2
Molybdenum *	0.016	0.0030		0.030	0.5	10	30
Nickel *	< 0.00090	< 0.00090		< 0.0090	0.4	10	40
Lead *	< 0.0017	< 0.0017		< 0.017	0.5	10	50
Antimony *	< 0.0020	< 0.0020		< 0.020	0.06	0.7	5
Selenium *	< 0.0050	< 0.0050		< 0.050	0.1	0.5	7
Zinc *	0.0014	< 0.00090		< 0.0090	4	50	200
Chloride *	6.4	< 4.0		20	800	15000	25000
Fluoride*	0.22	0.19		1.9	10	150	500
Sulphate *	25	23		230	1000	20000	50000
TDS*	1500	520		5200	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.16	< 0.13		< 0.50	1	-	-
DOC	10.5	4.6		46.3	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.3						
Dry Matter (%)	93						
Moisture (%)	7.4						
Stage 1							
Volume Eluate L2 (litres)	0.333						
Filtered Eluate VE1 (litres)	0.000000						

Results are expressed on a dry weight basis, after correction for moisture content where applicable. *= UKAS accredited (liquid eluate analysis only)

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Waste Acceptance Criteria Analytical Results

Report No:	**24-008212**						
					Client:	**E3P**	
Location	**Tariff Street, Ancoats**						
Lab Reference (Sample Number)	141321				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	08/03/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	SP103						
Depth (m)							
Solid Waste Analysis							
TOC (%)**	0.4				3%	5%	6%
Loss on Ignition (%) **	2.0				--	--	10%
BTEX (µg/kg)**	< 5.0				6000	--	--
Sum of PCBs (mg/kg)**	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	30				500	--	--
Total PAH (WAC-17) (mg/kg)	2.23				100	--	--
pH (units)**	11.9				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	120				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 3 preparation utilising end over end leaching procedure)	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
	mg/l	mg/l		mg/kg			
Arsenic *	< 0.0020	< 0.0020		< 0.020	0.5	2	25
Barium *	0.41	0.11		1.1	20	100	300
Cadmium *	< 0.00010	< 0.00010		< 0.0010	0.04	1	5
Chromium *	0.024	0.019		0.19	0.5	10	70
Copper *	0.010	0.0042		0.042	2	50	100
Mercury *	< 0.00070	< 0.0007		< 0.0070	0.01	0.2	2
Molybdenum *	0.0091	0.0030		0.030	0.5	10	30
Nickel *	< 0.00090	< 0.00090		< 0.0090	0.4	10	40
Lead *	< 0.0017	< 0.0017		< 0.017	0.5	10	50
Antimony *	< 0.0020	< 0.0020		< 0.020	0.06	0.7	5
Selenium *	< 0.0050	< 0.0050		< 0.050	0.1	0.5	7
Zinc *	< 0.00090	< 0.00090		< 0.0090	4	50	200
Chloride *	5.6	< 4.0		24	800	15000	25000
Fluoride*	0.21	0.18		1.8	10	150	500
Sulphate *	16	19		190	1000	20000	50000
TDS*	2400	880		8800	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.16	< 0.13		< 0.50	1	-	-
DOC	9.60	4.3		43.2	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.2						
Dry Matter (%)	90						
Moisture (%)	9.7						
Stage 1							
Volume Eluate L2 (litres)	0.333						
Filtered Eluate VE1 (litres)	0.000000						

Results are expressed on a dry weight basis, after correction for moisture content where applicable. *= UKAS accredited (liquid eluate analysis only)

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Waste Acceptance Criteria Analytical Results

Report No:	**24-008212**						
					Client:	**E3P**	
Location	**Tariff Street, Ancoats**						
Lab Reference (Sample Number)	141322				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	08/03/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	SP104						
Depth (m)							
Solid Waste Analysis							
TOC (%)**	0.9				3%	5%	6%
Loss on Ignition (%) **	4.1				--	--	10%
BTEX (µg/kg)**	450				6000	--	--
Sum of PCBs (mg/kg)**	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	240				500	--	--
Total PAH (WAC-17) (mg/kg)	37.7				100	--	--
pH (units)**	10.8				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	89				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 3 preparation utilising end over end leaching procedure)	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
	mg/l	mg/l		mg/kg			
Arsenic *	0.0068	0.0034		0.034	0.5	2	25
Barium *	0.077	0.037		0.37	20	100	300
Cadmium *	< 0.00010	< 0.00010		< 0.0010	0.04	1	5
Chromium *	0.0076	0.0036		0.036	0.5	10	70
Copper *	0.027	0.0085		0.085	2	50	100
Mercury *	< 0.00070	< 0.0007		< 0.0070	0.01	0.2	2
Molybdenum *	0.018	0.0018		0.018	0.5	10	30
Nickel *	0.0055	0.0010		0.010	0.4	10	40
Lead *	< 0.0017	< 0.0017		< 0.017	0.5	10	50
Antimony *	< 0.0020	< 0.0020		< 0.020	0.06	0.7	5
Selenium *	< 0.0050	< 0.0050		< 0.050	0.1	0.5	7
Zinc *	0.0024	0.0032		0.032	4	50	200
Chloride *	30	< 4.0		40	800	15000	25000
Fluoride*	0.12	0.20		2.0	10	150	500
Sulphate *	590	120		1200	1000	20000	50000
TDS*	750	260		2600	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.16	< 0.13		< 0.50	1	-	-
DOC	14.3	7.6		75.5	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.3						
Dry Matter (%)	79						
Moisture (%)	21						
Stage 1							
Volume Eluate L2 (litres)	0.306						
Filtered Eluate VE1 (litres)	0.000000						

Results are expressed on a dry weight basis, after correction for moisture content where applicable. *= UKAS accredited (liquid eluate analysis only)

Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation ** = MCERTS accredited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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Waste Acceptance Criteria Analytical Results

Report No:	**24-008212**						
					Client:	**E3P**	
Location	**Tariff Street, Ancoats**						
Lab Reference (Sample Number)	141323				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	08/03/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	SP105						
Depth (m)							
Solid Waste Analysis							
TOC (%)**	0.9				3%	5%	6%
Loss on Ignition (%) **	4.2				--	--	10%
BTEX (µg/kg)**	120				6000	--	--
Sum of PCBs (mg/kg)**	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	230				500	--	--
Total PAH (WAC-17) (mg/kg)	46.0				100	--	--
pH (units)**	8.7				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	25				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 3 preparation utilising end over end leaching procedure)	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
	mg/l	mg/l		mg/kg			
Arsenic *	0.0063	0.0059		0.059	0.5	2	25
Barium *	0.14	0.037		0.37	20	100	300
Cadmium *	< 0.00010	< 0.00010		< 0.0010	0.04	1	5
Chromium *	0.0089	0.0047		0.047	0.5	10	70
Copper *	0.040	0.011		0.11	2	50	100
Mercury *	< 0.00070	< 0.0007		< 0.0070	0.01	0.2	2
Molybdenum *	0.058	0.0072		0.072	0.5	10	30
Nickel *	0.012	0.0019		0.019	0.4	10	40
Lead *	< 0.0017	< 0.0017		< 0.017	0.5	10	50
Antimony *	< 0.0020	< 0.0020		< 0.020	0.06	0.7	5
Selenium *	< 0.0050	< 0.0050		< 0.050	0.1	0.5	7
Zinc *	0.0046	0.0020		0.020	4	50	200
Chloride *	59	12		120	800	15000	25000
Fluoride*	0.21	0.25		2.5	10	150	500
Sulphate *	710	140		1400	1000	20000	50000
TDS*	810	260		2600	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.16	< 0.13		< 0.50	1	-	-
DOC	26.7	8.2		82.5	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.4						
Dry Matter (%)	81						
Moisture (%)	19						
Stage 1							
Volume Eluate L2 (litres)	0.307						
Filtered Eluate VE1 (litres)	0.000000						

Results are expressed on a dry weight basis, after correction for moisture content where applicable. *= UKAS accredited (liquid eluate analysis only)

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Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
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Waste Acceptance Criteria Analytical Results

Report No:	**24-008212**						
					Client: E3P		
Location	**Tariff Street, Ancoats**						
Lab Reference (Sample Number)	141324				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	08/03/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	SP106						
Depth (m)							
Solid Waste Analysis							
TOC (%)**	0.5				3%	5%	6%
Loss on Ignition (%) **	2.2				--	--	10%
BTEX (µg/kg)**	< 5.0				6000	--	--
Sum of PCBs (mg/kg)**	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	44				500	--	--
Total PAH (WAC-17) (mg/kg)	16.7				100	--	--
pH (units)**	9.6				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	35				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 3 preparation utilising end over end leaching procedure)	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
	mg/l	mg/l		mg/kg			
Arsenic *	0.0074	0.012		0.12	0.5	2	25
Barium *	0.060	0.023		0.23	20	100	300
Cadmium *	< 0.00010	< 0.00010		< 0.0010	0.04	1	5
Chromium *	0.0068	0.0039		0.039	0.5	10	70
Copper *	0.045	0.013		0.13	2	50	100
Mercury *	< 0.00070	< 0.0007		< 0.0070	0.01	0.2	2
Molybdenum *	0.073	0.0072		0.072	0.5	10	30
Nickel *	0.011	0.0025		0.025	0.4	10	40
Lead *	< 0.0017	0.0043		0.043	0.5	10	50
Antimony *	< 0.0020	< 0.0020		< 0.020	0.06	0.7	5
Selenium *	< 0.0050	< 0.0050		< 0.050	0.1	0.5	7
Zinc *	0.0039	0.0057		0.057	4	50	200
Chloride *	59	9.3		93	800	15000	25000
Fluoride*	0.24	0.28		2.8	10	150	500
Sulphate *	530	91		910	1000	20000	50000
TDS*	590	200		2000	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.16	< 0.13		< 0.50	1	-	-
DOC	24.2	7.9		78.9	500	800	1000
Leach Test Information							
Stone Content (%)	83.7						
Sample Mass (kg)	1.3						
Dry Matter (%)	93						
Moisture (%)	6.9						
Stage 1							
Volume Eluate L2 (litres)	0.309						
Filtered Eluate VE1 (litres)	0.000000						

Results are expressed on a dry weight basis, after correction for moisture content where applicable. *= UKAS accredited (liquid eluate analysis only)

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Analytical Report Number : 24-008212
Project / Site name: Tariff Street, Ancoats

* 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 *
141319	SP101	None Supplied	None Supplied	Brown sand with gravel
141320	SP102	None Supplied	None Supplied	Brown sand with gravel
141321	SP103	None Supplied	None Supplied	Brown sand with gravel
141322	SP104	None Supplied	None Supplied	Brown sandy clay with gravel
141323	SP105	None Supplied	None Supplied	Brown sandy clay with gravel
141324	SP106	None Supplied	None Supplied	Brown silt / sediment with gravel and stones

Analytical Report Number : 24-008212
Project / Site name: Tariff Street, Ancoats

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
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
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
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L023B	D	MCERTS
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L031B	W	ISO 17025
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033B	W	ISO 17025
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR analyser	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037B	W	NONE
Metals in WAC leachate (BS EN 12457-3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed	L039B	W	ISO 17025
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed	L039B	W	ISO 17025
Preparation WAC leachate		In-house method	L043B	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047	D	MCERTS
Speciated EPA-16 PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088	D/W	NONE

Analytical Report Number : 24-008212
Project / Site name: Tariff Street, Ancoats

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
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025

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.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 24-78181

Project / Site name:	Tariff Street	**Samples received on:**	12/01/2024
Your job number:	17 370	**Samples instructed on/ Analysis started on:**	12/01/2024
Your order number:	007166	**Analysis completed by:**	18/01/2024
Report Issue Number:	1	**Report issued on:**	18/01/2024
Samples Analysed:	2 soil samples		

Signed:

Anna Goc
PL Head of Reporting Team
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.

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78181
Project / Site name: Tariff Street
Your Order No: 007166

Lab Sample Number				2927943	2927944
Sample Reference				WAC 101	WAC 102
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	20	16
Total mass of sample received	kg	0.001	NONE	1.5	1.5

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile	-
Asbestos in Soil	Type	N/A	ISO 17025	Detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	< 0.001	-
Asbestos Quantification Total	%	0.001	ISO 17025	< 0.001	-
Asbestos Analyst ID	N/A	N/A	N/A	WEM	WEM

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.5	8.4
Total Cyanide	mg/kg	1	MCERTS	6.5	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	1100	1100
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.14	0.13
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	280	260
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	138	129
Sulphide	mg/kg	1	MCERTS	27	36
Total Sulphur	mg/kg	50	MCERTS	1300	2200
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	2.2	2.1

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.54	0.2
Acenaphthylene	mg/kg	0.05	MCERTS	0.18	0.08
Acenaphthene	mg/kg	0.05	MCERTS	1.7	0.22
Fluorene	mg/kg	0.05	MCERTS	1.2	0.26
Phenanthrene	mg/kg	0.05	MCERTS	10	1.6
Anthracene	mg/kg	0.05	MCERTS	2.2	0.37
Fluoranthene	mg/kg	0.05	MCERTS	13	2.4
Pyrene	mg/kg	0.05	MCERTS	12	2.4
Benzo(a)anthracene	mg/kg	0.05	MCERTS	5.1	1.1
Chrysene	mg/kg	0.05	MCERTS	5.5	1.3
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	5.4	1.2
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	2.5	0.63
Benzo(a)pyrene	mg/kg	0.05	MCERTS	4.9	1.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	2.4	0.57
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.7	0.18
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2.7	0.71

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	69.8	14.2

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Analytical Report Number: 24-78181
Project / Site name: Tariff Street
Your Order No: 007166

Lab Sample Number				2927943	2927944
Sample Reference				WAC 101	WAC 102
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	26	19
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.6	0.9
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	30	23
Copper (aqua regia extractable)	mg/kg	1	MCERTS	100	94
Lead (aqua regia extractable)	mg/kg	1	MCERTS	320	260
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.5	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	37	38
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	220	120
Petroleum Hydrocarbons					
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	NONE	< 0.1	< 0.1
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	< 1.0
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	< 1.0
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	12	39
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	50	75
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	140	200
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	NONE	46	87
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	250	400

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

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Analytical Report Number: 24-78181
Project / Site name: Tariff Street
Your Order No: 007166

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006-PL based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
2927943	WAC 101		126	Loose Fibres	**Chrysotile**	< 0.001	**< 0.001**

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 24-78181
Project / Site name: Tariff Street

* 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 *
2927943	WAC 101	None Supplied	None Supplied	Brown clay and sand with gravel.
2927944	WAC 102	None Supplied	None Supplied	Brown clay and sand with gravel.

Analytical Report Number : 24-78181
Project / Site name: Tariff Street

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
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
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.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards. Refer to CoA for analyte specific accreditation.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
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.	L019-UK/PL	D	NONE
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 24-78181
Project / Site name: Tariff Street

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
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	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.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

- Quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised.

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Analytical Report Number : 24-78184

Replaces Analytical Report Number: 24-78184, issue no. 1
Client references/information amended.
Sample ID for samples 2927952 & 292793 changed as per clients reqeust

Project / Site name:	Tariff Street	**Samples received on:**	12/01/2024
Your job number:	17 370	**Samples instructed on/ Analysis started on:**	12/01/2024
Your order number:	007164	**Analysis completed by:**	19/01/2024
Report Issue Number:	2	**Report issued on:**	24/01/2024
Samples Analysed:	7 soil samples		

Signed: A. Czerwińska

Agnieszka Czerwińska
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

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.

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927952	2927953	2927954	2927955	2927956
Sample Reference				TANK W1	TANK W2	TANK N1	TANK S1	TANK ARISINGS
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				11/01/2024	11/01/2024	11/01/2024	11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	18	14	20	26
Total mass of sample received	kg	0.001	NONE	1	1	1	1	1
Asbestos in Soil	Type	N/A	ISO 17025	-	-	-	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	N/A	N/A	N/A	N/A	WEM

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	-	-	-	8.1
Total Cyanide	mg/kg	1	MCERTS	-	-	-	-	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	-	-	-	-	1100
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	-	-	-	-	0.38
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	-	-	-	-	750
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	-	-	-	-	376
Sulphide	mg/kg	1	MCERTS	-	-	-	-	110
Total Sulphur	mg/kg	50	MCERTS	-	-	-	-	23000
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-	-	-	-	2.8

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-	-	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	0.52
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	0.12
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	0.82
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	0.8
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	3.6
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	0.79
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	3.7
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	3.5
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	1.6
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	1.6
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-	-	-	-	1.5
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-	-	-	-	0.68
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	1.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	0.7
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	0.21
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	0.77

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-	-	-	-	22

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Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927952	2927953	2927954	2927955	2927956
Sample Reference				TANK W1	TANK W2	TANK N1	TANK S1	TANK ARISINGS
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				11/01/2024	11/01/2024	11/01/2024	11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	110
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	-	-	-	10
Chromium (hexavalent)	mg/kg	1.8	MCERTS	-	-	-	-	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	16
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	200
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	2600
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	-	-	-	1.2
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	26
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	3800
Monoaromatics & Oxygenates								
Benzene	µg/kg	5	MCERTS	14	110	18	260	-
Toluene	µg/kg	5	MCERTS	43	680	90	1800	-
Ethylbenzene	µg/kg	5	MCERTS	16	720	27	480	-
p & m-xylene	µg/kg	5	MCERTS	36	3300	82	2800	-
o-xylene	µg/kg	5	MCERTS	26	1400	51	1300	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.02	NONE	< 0.020	0.31	0.025	< 0.020	-
TPH-CWG - Aliphatic >EC6 - EC8## $_{HS\_1D\_AL}$	mg/kg	0.02	NONE	< 0.020	2.1	< 0.020	< 0.020	-
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.05	NONE	< 0.050	0.77	< 0.050	< 0.050	-
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	15	2.7	1.8	2.1	-
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	97	35	21	4.4	-
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	150	72	54	< 8.0	-
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	630	260	280	< 8.0	-
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	890	370	360	18	-
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	NONE	0.011	0.12	0.02	0.26	-
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	NONE	0.044	0.77	0.1	1.8	-
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.05	NONE	0.096	6.7	0.19	4.6	-
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	1.2	4.2	2.3	< 1.0	-
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	25	29	17	< 2.0	-
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	110	120	74	< 10	-
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	350	200	190	< 10	-
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	490	360	280	14	-
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	NONE	-	-	-	-	< 0.1
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	-	-	-	-	< 1.0
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	-	-	-	-	< 1.0
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	-	-	-	-	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	-	-	-	-	25
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	-	-	-	-	39
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	-	-	-	-	42
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	NONE	-	-	-	-	< 10
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	-	-	-	-	110

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Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927952	2927953	2927954	2927955	2927956
Sample Reference				TANK W1	TANK W2	TANK N1	TANK S1	TANK ARISINGS
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				11/01/2024	11/01/2024	11/01/2024	11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Chloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
Bromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
1,1-dichloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
1,1,2-Trichloro 1,2,2-Trifluoroethane ##	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
1,1-dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
Chloroform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,2-dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Benzene	µg/kg	5	MCERTS	14	110	18	260	-
Carbontetrachloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
1,2-dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Trichloroethene ##	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Toluene	µg/kg	5	MCERTS	43	680	90	1800	-
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Tetrachloroethene	µg/kg	5	NONE	12	< 5.0	< 5.0	< 5.0	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Ethylbenzene	µg/kg	5	MCERTS	16	720	27	480	-
p & m-xylene	µg/kg	5	MCERTS	36	3300	82	2800	-
Styrene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Bromoform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
o-xylene	µg/kg	5	MCERTS	26	1400	51	1300	-
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	110	< 5.0	< 5.0	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
Bromobenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
N-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	370	< 5.0	< 5.0	-
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	27	1200	28	200	-
Tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	27	4200	55	740	-
Sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,3-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
P-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,4-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,2-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-

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Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927952	2927953	2927954	2927955	2927956
Sample Reference				TANK W1	TANK W2	TANK N1	TANK S1	TANK ARISINGS
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				11/01/2024	11/01/2024	11/01/2024	11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Butylbenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-

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Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927952	2927953	2927954	2927955	2927956
Sample Reference				TANK W1	TANK W2	TANK N1	TANK S1	TANK ARISINGS
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				11/01/2024	11/01/2024	11/01/2024	11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	-
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
Naphthalene	mg/kg	0.05	MCERTS	3.2	2.1	2.7	1.2	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	2.8	2.5	2.5	0.5	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	-
Acenaphthylene	mg/kg	0.05	MCERTS	0.4	0.26	0.51	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	4.9	3	2.6	0.12	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	2.5	1.6	1.7	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	-
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	-
Fluorene	mg/kg	0.05	MCERTS	4.3	2.9	2.9	0.1	-
Azobenzene	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
Phenanthrene	mg/kg	0.05	MCERTS	21	15	18	0.19	-
Anthracene	mg/kg	0.05	MCERTS	6	4.3	4.2	< 0.05	-
Carbazole	mg/kg	0.3	MCERTS	1.5	1	1.3	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	-
Anthraquinone	mg/kg	0.3	NONE	1.5	1.2	1.5	< 0.3	-
Fluoranthene	mg/kg	0.05	MCERTS	23	19	17	0.09	-
Pyrene	mg/kg	0.05	MCERTS	20	16	16	0.1	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	9	6.9	7.2	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	10	7.6	7.3	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	11	7.7	7.3	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	3.2	2.8	3.2	< 0.05	-

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Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927952	2927953	2927954	2927955	2927956
Sample Reference				TANK W1	TANK W2	TANK N1	TANK S1	TANK ARISINGS
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				11/01/2024	11/01/2024	11/01/2024	11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Benzo(a)pyrene	mg/kg	0.05	MCERTS	8.9	6.5	6.5	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	4.8	3.6	3.7	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	1.5	1.1	1.1	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	5.7	4.3	4.4	< 0.05	-

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

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Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927957	2927958
Sample Reference				TANK BASE 101	TANK BASE 102
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	16	19
Total mass of sample received	kg	0.001	NONE	1	0.4
Asbestos in Soil	Type	N/A	ISO 17025	-	-
Asbestos Analyst ID	N/A	N/A	N/A	N/A	N/A

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	-
Total Cyanide	mg/kg	1	MCERTS	-	-
Total Sulphate as SO4	mg/kg	50	MCERTS	-	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	-	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	-	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	-	-
Sulphide	mg/kg	1	MCERTS	-	-
Total Sulphur	mg/kg	50	MCERTS	-	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-	-
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-	-

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Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927957	2927958
Sample Reference				TANK BASE 101	TANK BASE 102
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	-
Chromium (hexavalent)	mg/kg	1.8	MCERTS	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Monoaromatics & Oxygenates					
Benzene	µg/kg	5	MCERTS	120	< 5.0
Toluene	µg/kg	5	MCERTS	39	32
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	23
p & m-xylene	µg/kg	5	MCERTS	< 5.0	120
o-xylene	µg/kg	5	MCERTS	< 5.0	65
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0
Petroleum Hydrocarbons					
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.02	NONE	< 0.020	0.031
TPH-CWG - Aliphatic >EC6 - EC8## $_{HS\_1D\_AL}$	mg/kg	0.02	NONE	< 0.020	0.58
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.05	NONE	< 0.050	0.35
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	3
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	9.9	11
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	15	20
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	NONE	0.12	< 0.010
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	NONE	0.041	0.033
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.05	NONE	< 0.050	0.31
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	5.3	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	20	< 10
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	NONE	-	-
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	-	-
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	-	-
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	-	-
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	-	-
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	-	-
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	-	-
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	NONE	-	-
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	-	-

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Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927957	2927958
Sample Reference				TANK BASE 101	TANK BASE 102
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
VOCs					
Chloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Chloroethane	µg/kg	5	NONE	< 5.0	< 5.0
Bromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	< 5.0
1,1-dichloroethene	µg/kg	5	NONE	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane ##	µg/kg	5	NONE	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0
1,1-dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0
Chloroform	µg/kg	5	NONE	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,2-dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	120	< 5.0
Carbontetrachloride	µg/kg	5	NONE	< 5.0	< 5.0
1,2-dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Trichloroethene ##	µg/kg	5	ISO 17025	< 5.0	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	39	32
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	NONE	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	23
p & m-xylene	µg/kg	5	MCERTS	< 5.0	120
Styrene	µg/kg	5	ISO 17025	< 5.0	< 5.0
Bromoform	µg/kg	5	NONE	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	65
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0
Bromobenzene	µg/kg	5	NONE	< 5.0	< 5.0
N-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	110
Tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	390
Sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,3-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
P-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,4-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,2-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0

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Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927957	2927958
Sample Reference				TANK BASE 101	TANK BASE 102
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Butylbenzene	µg/kg	5	NONE	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927957	2927958
Sample Reference				TANK BASE 101	TANK BASE 102
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
SVOCs					
Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	0.2	0.07
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	0.5	0.2
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	2.3	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	1.3	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	2.1	< 0.05
Azobenzene	mg/kg	0.3	NONE	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	11	0.27
Anthracene	mg/kg	0.05	MCERTS	3.5	0.07
Carbazole	mg/kg	0.3	MCERTS	0.5	< 0.3
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	NONE	< 0.3	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	10	0.37
Pyrene	mg/kg	0.05	MCERTS	8.5	0.34
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	3.1	0.12
Chrysene	mg/kg	0.05	MCERTS	3.4	0.13
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	3.1	0.12
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	1.2	0.06

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Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927957	2927958
Sample Reference				TANK BASE 101	TANK BASE 102
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.8	0.11
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.5	0.06
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.38	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.7	0.09

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

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Analytical Report Number : 24-78184
Project / Site name: Tariff Street

* 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 *
2927952	TANK W1	None Supplied	None Supplied	Brown clay and sand with gravel.
2927953	TANK W2	None Supplied	None Supplied	Brown gravelly sand.
2927954	TANK N1	None Supplied	None Supplied	Brown gravelly sand.
2927955	TANK S1	None Supplied	None Supplied	Brown sand with rubble and coal.
2927956	TANK ARISINGS	None Supplied	None Supplied	Brown clay and sand with gravel.
2927957	TANK BASE 101	None Supplied	None Supplied	Brown clay.
2927958	TANK BASE 102	None Supplied	None Supplied	Brown sand with gravel.

Analytical Report Number : 24-78184
Project / Site name: Tariff Street

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
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
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.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards. Refer to CoA for analyte specific accreditation.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
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.	L019-UK/PL	D	NONE
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.Refer to CoA for analyte specific accreditation.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260. Refer to CoA for analyte specific accreditation	L073B-PL	W	MCERTS

Analytical Report Number : 24-78184
Project / Site name: Tariff Street

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
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID. Refer to CoA for band specific accreditation.	In-house method with silica gel split/clean up.	L088/76-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	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.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

- Quality control parameter has a high recovery (outside of limit); however the associated result is below the reporting limit, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised

SOCOTEC
Environmental Chemistry

Certificate of Analysis

Client: SOCOTEC Materials Testing

Project: 24072991

Quote: BEC240133082 V2.1

Project Ref: P240714-NOR24-01746-WAR24-294

Site: OBR Construction Ltd

Contact: Ryan McConville

Address: 29 Rufford Court
Woolston
Warrington
Cheshire
WA1 4RF

E-Mail: Ryan.McConville@socotec.com

Phone: 01925 286 220

No. Samples Received: 10

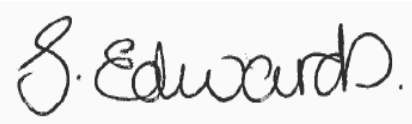
Date Received: 22/07/2024

Analysis Completed: 08/08/2024

Date Issued: 08/08/2024

Report Type: Version 01

This report supersedes any versions previously issued by the laboratory



Reported by Customer Service Co-Ordinator
Samantha Edwards
01283 554 541
Samantha.Edwards@socotec.co.uk

Project Number: 24072991

Client: SOCOTEC Materials Testing
Date Issued: 08/08/2024
Project Name: P240714-NOR24-01746-WAR24-294 - OBR Construction Ltd

Samples Analysed

Text ID	Sample Reference	Sampling Date	Sample Type	Sample Description
24072991-001	NOR24-01746-S001	09/07/2024 00:00:00	SOLID	Silt Sample
24072991-002	NOR24-01746-S002	09/07/2024 00:00:00	SOLID	Silt Sample
24072991-003	NOR24-01746-S003	09/07/2024 00:00:00	SOLID	Silt Sample
24072991-004	NOR24-01746-S004	09/07/2024 00:00:00	SOLID	Silt Sample
24072991-005	NOR24-01746-S005	09/07/2024 00:00:00	SOLID	Silt Sample
24072991-006	NOR24-01746-S006	09/07/2024 00:00:00	SOLID	Silt Sample
24072991-007	NOR24-01746-S007	09/07/2024 00:00:00	SOLID	Silt Sample
24072991-008	NOR24-01746-S008	09/07/2024 00:00:00	SOLID	Silt Sample
24072991-009	NOR24-01746-S009	09/07/2024 00:00:00	SOLID	Silt Sample
24072991-010	NOR24-01746-S010	09/07/2024 00:00:00	SOLID	Silt Sample

Project Number: 24072991

Client: SOCOTEC Materials Testing
Date Issued: 08/08/2024
Project Name: P240714-NOR24-01746-WAR24-294 - OBR Construction Ltd

Analysis Results

Method Code	Analysis	MDL	Accred.	SOCOTEC Sample ID:	24072991-001	24072991-002	24072991-003	24072991-004	24072991-005
				Sampling Date:	09/07/2024 00:00	09/07/2024 00:00	09/07/2024 00:00	09/07/2024 00:00	09/07/2024 00:00
				Customer ID:	NOR24-01746-S001	NOR24-01746-S002	NOR24-01746-S003	NOR24-01746-S004	NOR24-01746-S005
CLANDPREP	Total Moisture at 35°C	0.1 %	N		7.1	9.0	9.6	9.9	12.0
	Major Constituents	-	N		SILT	SILT	SILT	SILT	SILT
	Minor Constituents	-	N		Gravel	Gravel	Gravel	Gravel	Gravel
	Miscellaneous Constituents	-	N		n/a	n/a	n/a	n/a	n/a
	Colour of Material	-	N		Brown	Brown	Brown	Brown	Brown
Leachate Prep CEN 2 Stg	Equivalent Weight of Dry Material (kg)	kg	N		0.225	0.225	0.225	0.225	0.225
	Fraction above 4 mm (%)	%	N		1.7	11.0	27.2	27.6	10.9
	Fraction of non-crushable material (%)	%	N		0	0	0	0	0
	Volume of 2:1 Leach Analysed (ltr)	l	N		0.300	0.300	0.300	0.300	0.300
	Weight of Sample Leached (kg)	kg	N		0.250	0.256	0.257	0.261	0.267
	Weight of Water for 2:1 Stage (kg)	kg	N		0.425	0.419	0.418	0.414	0.408
	Weight of Water for 8:1 Stage (kg)	kg	N		1.65	1.65	1.65	1.65	1.65
SUB002	Asbestos Identification	-	N		CH	AM	NAIIS	CH	CH
SUB002	Asbestos Stage 3	0.001 %	N		0.049	0.005		0.009	0.002
PHSOIL	pH (2.5:1 extraction)	1 pH units	M^		9.2	9.7	9.0	10.3	9.7
ANC	ANC	0.04 mol/kg	N^		4.24	4.15	2.52	5.00	5.53
LOI(%MM)	LOI @ 450°C	0.2 % m/m	N^		5.4	6.0	6.4	6.7	5.0
WSLM59	Total Organic Carbon	0.02 % m/m	U^		2.56	3.18	4.02	3.19	2.31
SFAPI	Free Cyanide	0.5 mg/kg	M^		<0.5	<0.5	<0.6	<0.6	<0.6
SFAPI	Phenol Index	0.5 mg/kg	U^		<0.5	<0.5	<0.6	<0.6	<0.6
ICPMSS	Arsenic as As	0.3 mg/kg	M^		10.8	11.7	14.0	11.5	8.7
ICPMSS	Cadmium as Cd	0.2 mg/kg	M^		0.6	0.6	0.8	0.5	0.4
ICPMSS	Total Chromium as Cr	1.2 mg/kg	M^		22.1	21.9	25.1	22.6	18.3
KONENS	Chromium (VI) as Cr	0.1 mg/kg	N^		<0.1	0.1	<0.1	0.1	0.3
ICPMSS	Copper as Cu	1.6 mg/kg	M^		34.2	57.0	40.7	33.5	28.2
ICPMSS	Lead as Pb	0.7 mg/kg	M^		84.1	124.3	127.2	110.9	79.2
ICPMSS	Mercury as Hg	0.5 mg/kg	M^		<0.5	<0.5	<0.5	<0.5	<0.5
ICPMSS	Nickel as Ni	2 mg/kg	M^		19.2	21.0	27.5	22.8	17.1
ICPMSS	Selenium as Se	0.5 mg/kg	M^		<0.5	<0.5	<0.5	<0.5	<0.5
ICPMSS	Zinc as Zn	16 mg/kg	M^		251.9	159.0	167.6	153.3	110.9
ICPBOR	Boron as B	0.5 mg/kg	M^		1.5	1.5	2.5	1.8	1.4
BTEXHSA	Benzene (HS_1D_AR)	0.01 mg/kg	M^		<0.011	<0.011	<0.011	<0.011	<0.011
	Toluene (HS_1D_AR)	0.01 mg/kg	M^		<0.011	<0.011	<0.011	<0.011	<0.011
	Ethylbenzene (HS_1D_AR)	0.01 mg/kg	M^		<0.011	<0.011	<0.011	<0.011	<0.011
	m/p-Xylene (HS_1D_AR)	0.02 mg/kg	M^		<0.022	<0.022	<0.022	<0.022	<0.023
	o-Xylene (HS_1D_AR)	0.01 mg/kg	M^		<0.011	<0.011	<0.011	<0.011	<0.011
	Total BTEX (HS_1D_AR)	0.06 mg/kg	M^		<0.065	<0.066	<0.066	<0.067	<0.068
GROHSA	C5-C6 (HS_1D_Total)	0.2 mg/kg	M^		<0.215	<0.220	<0.221	<0.222	<0.227
	Total GRO C5-C10 (HS_1D_Total)	0.2 mg/kg	M^		<0.215	<0.220	<0.221	<0.222	<0.227
	>C6-C7 (HS_1D_Total)	0.2 mg/kg	M^		<0.215	<0.220	<0.221	<0.222	<0.227
	>C7-C8 (HS_1D_Total)	0.2 mg/kg	M^		<0.215	<0.220	<0.221	<0.222	<0.227
	>C8-C10 (HS_1D_Total)	0.2 mg/kg	M^		<0.215	<0.220	<0.221	<0.222	<0.227
TPHCALC	>C6-C40 (HS+EH_1D_Total)	10.2 mg/kg	U^		1090	824	602	743	928
TPHFIDUS (Aliphatic)	Total TPH >C8-C40 (Aliphatic) (EH_CU_1D_AL)	20 mg/kg	U^		617	451	304	408	401
	>C10-C40 (Aliphatic) (EH_CU_1D_AL)	20 mg/kg	U^		617	451	304	408	400
PAHMSUS	Acenaphthene	0.08 mg/kg	M^		1.04	1.28	0.87 c	0.73	0.48
	Acenaphthylene	0.08 mg/kg	U^		<0.09	0.10	0.13 c	0.13	0.09
	Anthracene	0.08 mg/kg	U^		1.48	1.78	2.00 c	1.64	1.03
	Benzo[a]anthracene	0.08 mg/kg	M^		3.38	3.35	5.03 c	3.84	3.04
	Benzo[a]pyrene	0.08 mg/kg	M^		2.93	2.74	4.39 c	3.04	2.67
	Benzo[b]fluoranthene	0.08 mg/kg	M^		3.37	3.16	5.03 c	3.37	3.17
	Benzo[g,h,i]perylene	0.08 mg/kg	M^		1.36	1.25	2.01 c	1.43	1.16
	Benzo[k]fluoranthene	0.08 mg/kg	M^		1.37	1.29	2.04 c	1.30	1.14
	Chrysene	0.08 mg/kg	M^		2.62	2.49	3.99 c	2.72	2.36
	Coronene	0.08 mg/kg	N^		0.32	0.29	0.46 c	0.37	0.25
	Dibenzo[a,h]anthracene	0.08 mg/kg	M^		0.41	0.37	0.60 c	0.44	0.36
	Fluoranthene	0.08 mg/kg	M^		6.56	6.70	9.67 c	7.90	6.71
	Fluorene	0.08 mg/kg	M^		0.58	0.59	0.67 c	0.43	0.40
	Indeno[1,2,3-cd]pyrene	0.08 mg/kg	M^		1.54	1.43	2.28 c	1.65	1.27
	Naphthalene	0.08 mg/kg	M^		0.73	0.52	0.51 c	0.37	0.57
	Phenanthrene	0.08 mg/kg	M^		4.22	4.48	5.72 c	4.68	4.01
	Pyrene	0.08 mg/kg	M^		5.85	5.75	8.48 c	6.56	6.06
	Total PAH 16	1.28 mg/kg	U^		37.5	37.3	53.4 c	40.2	34.5
	Total PAH 17	1.36 mg/kg	N^		37.8	37.6	53.9 c	40.6	34.8
PCBECD	PCB 28	0.005 mg/kg	M^		<0.005	<0.005	<0.006	<0.006	<0.006
	PCB 52	0.005 mg/kg	M^		<0.005	<0.005	<0.006	<0.006	<0.006
	PCB 101	0.005 mg/kg	M^		<0.005	<0.005	<0.006	<0.006	<0.006
	PCB 118	0.005 mg/kg	M^		<0.005	<0.005	<0.006	<0.006	<0.006
	PCB 138	0.005 mg/kg	M^		<0.005	<0.005	<0.006	<0.006	<0.006
	PCB 153	0.005 mg/kg	M^		<0.005	<0.005	0.013	<0.006	<0.006
	PCB 180	0.005 mg/kg	M^		<0.005	<0.005	0.031	<0.006	<0.006
	Total PCB 7 Congeners	0.035 mg/kg	M^		<0.038	<0.039	0.071	<0.039	<0.040
PHCONDW	pH	1 pH units	N		9.6	9.5	8.5	9.6	9.6
			N		9.9	10.0	9.1	10.2	10.1
PHCONDW	Conductivity at 25°C	100 µS/cm	N		2730	2670	2480	2600	2610
			N		2080	1850	1820	1810	1630
PHCONDW	TDS as mg/kg	1,400 mg/kg	N		14700	13300	13000	13000	12000
	TDS as mg/l	70 mg/l	N		1860	1820	1690	1770	1770
			N		1410	1260	1240	1230	1110

Project Number: 24072991

Client: SOCOTEC Materials Testing
Date Issued: 08/08/2024
Project Name: P240714-NOR24-01746-WAR24-294 - OBR Construction Ltd

Analysis Results

Method Code	Analysis	MDL	Accred.	SOCOTEC Sample ID:	24072991-001	24072991-002	24072991-003	24072991-004	24072991-005
				Sampling Date:	09/07/2024 00:00	09/07/2024 00:00	09/07/2024 00:00	09/07/2024 00:00	09/07/2024 00:00
				Customer ID:	NOR24-01746-S001	NOR24-01746-S002	NOR24-01746-S003	NOR24-01746-S004	NOR24-01746-S005
TOCW	Leached Organic Carbon	0.4 mg/l	U		29.2	31.1	24.8	26.6	24.3
			U		7.76	7.23	6.29	5.63	4.70
		4 mg/kg	N		106	104	87.6	84.3	73.1
KONENS	Chloride as Cl	1 mg/l	U		113	111	74	89	96
			U		10	10	6	8	8
		20 mg/kg	N		237	235	151	188	197
ISEF	Fluoride as F	0.1 mg/l	U		0.3	0.2	0.3	0.1	0.1
			U		0.2	0.2	0.2	0.1	0.2
		2 mg/kg	N		<4	2	<4	<2	<2
SFAPI	Phenol Index	0.05 mg/l	U		<0.05	<0.05	<0.05	<0.05	<0.05
			U		<0.05	<0.05	<0.05	<0.05	<0.05
		1 mg/kg	N		<1.0	<1.0	<1.0	<1.0	<1.0
ICPMSW (Dissolved)	Antimony as Sb	0.001 mg/l	U		0.025	0.012	0.017	0.006	0.009
			U		0.015	0.008	0.009	0.005	0.006
		0.02 mg/kg	N		0.16	0.09	0.10	0.05	0.06
ICPMSW (Dissolved)	Arsenic as As	0.001 mg/l	U		0.013	0.008	0.011	0.007	0.006
			U		0.011	0.004	0.007	0.004	0.003
		0.02 mg/kg	N		0.11	0.05	0.08	0.04	0.03
ICPWATVAR (Dissolved)	Barium as Ba	0.01 mg/l	U		0.04	0.03	0.04	0.03	0.03
			U		0.03	0.03	0.04	0.04	0.04
		0.2 mg/kg	N		0.3	0.3	0.4	0.4	0.4
ICPMSW (Dissolved)	Cadmium as Cd	0.00002 mg/l	U		<0.00002	0.00002	0.00003	0.00002	<0.00002
			U		<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
		0.0004 mg/kg	N		<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
ICPMSW (Dissolved)	Total Chromium as Cr	0.001 mg/l	U		0.296	0.065	0.024	0.027	0.030
			U		0.045	0.010	0.004	0.005	0.005
		0.02 mg/kg	N		0.79	0.17	0.07	0.08	0.08
ICPMSW (Dissolved)	Copper as Cu	0.001 mg/l	U		0.030	0.036	0.017	0.032	0.028
			U		0.009	0.010	0.005	0.008	0.006
		0.02 mg/kg	N		0.12	0.14	0.07	0.11	0.09
ICPMSW (Dissolved)	Lead as Pb	0.001 mg/l	U		<0.001	<0.001	<0.001	<0.001	<0.001
			U		<0.001	<0.001	<0.001	<0.001	<0.001
		0.02 mg/kg	N		<0.02	<0.02	<0.02	<0.02	<0.02
ICPMSW (Dissolved)	Mercury as Hg	0.00003 mg/l	U		<0.00003	<0.00003	<0.00003	<0.00003	<0.00003
			U		<0.00003	<0.00003	<0.00003	<0.00003	<0.00003
		0.0006 mg/kg	N		<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
ICPMSW (Dissolved)	Molybdenum as Mo	0.001 mg/l	U		0.059	0.047	0.044	0.047	0.041
			U		0.008	0.006	0.007	0.007	0.005
		0.02 mg/kg	N		<0.20	<0.20	<0.20	<0.20	<0.20
ICPMSW (Dissolved)	Nickel as Ni	0.001 mg/l	U		0.004	0.005	0.003	0.007	0.005
			U		0.001	0.001	<0.001	0.002	0.001
		0.02 mg/kg	N		<0.02	<0.02	<0.02	0.03	<0.02
ICPMSW (Dissolved)	Selenium as Se	0.001 mg/l	U		0.004	0.003	0.003	0.003	0.003
			U		<0.001	<0.001	<0.001	<0.001	<0.001
		0.02 mg/kg	N		<0.02	<0.02	<0.02	<0.02	<0.02
ICPWATVAR (Dissolved)	Total Sulphur as SO4	3 mg/l	U		1770	1670	1730	1640	1780
			U		1390	1220	1190	1260	1110
		60 mg/kg	N		14400	12800	12600	13100	12000
ICPMSW (Dissolved)	Zinc as Zn	0.002 mg/l	U		<0.002	<0.002	<0.002	<0.002	<0.002
			U		<0.002	<0.002	<0.002	<0.002	<0.002
		0.04 mg/kg	N		<0.04	<0.04	<0.04	<0.04	<0.04

10:1 Cumulative Amount Leached: 1st Stage Leachate Results: 2nd Stage Leachate Results:

Analysis Results

Method Code	Analysis	MDL	Accred.	SOCOTEC Sample ID:	24072991-006	24072991-007	24072991-008	24072991-009	24072991-010
				Sampling Date:	09/07/2024 00:00	09/07/2024 00:00	09/07/2024 00:00	09/07/2024 00:00	09/07/2024 00:00
				Customer ID:	NOR24-01746-S006	NOR24-01746-S007	NOR24-01746-S008	NOR24-01746-S009	NOR24-01746-S010
CLANDPREP	Total Moisture at 35°C	0.1 %	N		9.7	16.9	16.2	17.4	15.8
	Major Constituents	-	N		SILT	SILT	SILT	SILT	SILT
	Minor Constituents	-	N		Gravel	Gravel	Gravel	Gravel	Gravel
	Miscellaneous Constituents	-	N		n/a	n/a	n/a	n/a	n/a
	Colour of Material	-	N		Brown	Brown	Brown	Brown	Brown
Leachate Prep CEN 2 Stg	Equivalent Weight of Dry Material (kg)	kg	N		0.225	0.225	0.225	0.225	0.225
	Fraction above 4 mm (%)	%	N		46.4	15.1	15.0	34.3	16.2
	Fraction of non-crushable material (%)	%	N		0	0	0	0	0
	Volume of 2:1 Leach Analysed (ltr)	l	N		0.300	0.300	0.300	0.300	0.300
	Weight of Sample Leached (kg)	kg	N		0.259	0.271	0.267	0.260	0.275
	Weight of Water for 2:1 Stage (kg)	kg	N		0.416	0.404	0.408	0.415	0.400
	Weight of Water for 8:1 Stage (kg)	kg	N		1.65	1.65	1.65	1.65	1.65
SUB002	Asbestos Identification	-	N		NAIIS	AM	NAIIS	CH	CH
SUB002	Asbestos Stage 3	0.001 %	N			0.009		0.007	0.007
PHSOIL	pH (2.5:1 extraction)	1 pH units	M^		9.1	9.8	9.4	9.4	9.4
ANC	ANC	0.04 mol/kg	N^		3.99	4.02	3.39	4.38	6.02
LOI(%MM)	LOI @ 450°C	0.2 % m/m	N^		7.2	5.3	5.6	5.9	6.1
WSLM59	Total Organic Carbon	0.02 % m/m	U^		4.40	2.78	2.56	3.30	3.23
SFAPI	Free Cyanide	0.5 mg/kg	M^		<0.6	<0.6	<0.6	<0.6	<0.6
SFAPI	Phenol Index	0.5 mg/kg	U^		<0.6	<0.6	<0.6	<0.6	<0.6
ICPMSS	Arsenic as As	0.3 mg/kg	M^		12.2	10.5	10.7	10.7	11.6
ICPMSS	Cadmium as Cd	0.2 mg/kg	M^		0.5	0.4	0.4	0.5	0.5
ICPMSS	Total Chromium as Cr	1.2 mg/kg	M^		19.3	19.0	22.4	18.2	23.0
KONENS	Chromium (VI) as Cr	0.1 mg/kg	N^		0.1	0.1	0.1	0.1	<0.1
ICPMSS	Copper as Cu	1.6 mg/kg	M^		42.6	33.5	28.8	31.4	34.1
ICPMSS	Lead as Pb	0.7 mg/kg	M^		106.1	86.8	88.2	94.3	83.0
ICPMSS	Mercury as Hg	0.5 mg/kg	M^		<0.5	<0.5	<0.5	<0.5	<0.5
ICPMSS	Nickel as Ni	2 mg/kg	M^		26.0	19.0	21.1	22.7	22.1
ICPMSS	Selenium as Se	0.5 mg/kg	M^		<0.5	<0.5	<0.5	<0.5	<0.5
ICPMSS	Zinc as Zn	16 mg/kg	M^		148.1	120.2	138.7	128.1	111.0
ICPBOR	Boron as B	0.5 mg/kg	M^		2.0	1.8	1.9	1.6	1.4
BTEXHSA	Benzene (HS_1D_AR)	0.01 mg/kg	M^		<0.011	<0.012	<0.012	<0.012	<0.012
	Toluene (HS_1D_AR)	0.01 mg/kg	M^		<0.011	<0.012	<0.012	<0.012	<0.012
	Ethylbenzene (HS_1D_AR)	0.01 mg/kg	M^		<0.011	<0.012	<0.012	<0.012	<0.012
	m/p-Xylene (HS_1D_AR)	0.02 mg/kg	M^		<0.022	<0.024	<0.024	<0.024	<0.024
	o-Xylene (HS_1D_AR)	0.01 mg/kg	M^		<0.011	<0.012	<0.012	<0.012	<0.012
	Total BTEX (HS_1D_AR)	0.06 mg/kg	M^		<0.066	<0.072	<0.072	<0.073	<0.071
GROHSA	C5-C6 (HS_1D_Total)	0.2 mg/kg	M^		<0.221	<0.241	<0.239	<0.242	<0.238
	Total GRO C5-C10 (HS_1D_Total)	0.2 mg/kg	M^		<0.221	<0.241	<0.239	<0.242	<0.238
	>C6-C7 (HS_1D_Total)	0.2 mg/kg	M^		<0.221	<0.241	<0.239	<0.242	<0.238
	>C7-C8 (HS_1D_Total)	0.2 mg/kg	M^		<0.221	<0.241	<0.239	<0.242	<0.238
	>C8-C10 (HS_1D_Total)	0.2 mg/kg	M^		<0.221	<0.241	<0.239	<0.242	<0.238
TPHCALC	>C6-C40 (HS+EH_1D_Total)	10.2 mg/kg	U^		1110	813	2270	763	1210
TPHFIDUS (Aliphatic)	Total TPH >C8-C40 (Aliphatic) (EH_CU_1D_AL)	20 mg/kg	U^		449	346	1290	315	565
	>C10-C40 (Aliphatic) (EH_CU_1D_AL)	20 mg/kg	U^		449	345	1290	314	564
PAHMSUS	Acenaphthene	0.08 mg/kg	M^		0.43	0.45	0.64	0.46	0.50
	Acenaphthylene	0.08 mg/kg	U^		<0.09	<0.10	<0.10	<0.10	<0.10
	Anthracene	0.08 mg/kg	U^		0.87	0.85	0.91	0.95	0.97
	Benzo[a]anthracene	0.08 mg/kg	M^		3.13	2.19	2.06	2.46	2.76
	Benzo[a]pyrene	0.08 mg/kg	M^		2.85	2.00	1.85	2.25	2.55
	Benzo[b]fluoranthene	0.08 mg/kg	M^		3.40	2.30	2.16	2.62	3.01
	Benzo[g,h,i]perylene	0.08 mg/kg	M^		1.42	0.96	0.90	1.11	1.12
	Benzo[k]fluoranthene	0.08 mg/kg	M^		1.29	0.92	0.80	1.01	1.10
	Chrysene	0.08 mg/kg	M^		2.88	1.99	1.94	2.26	2.45
	Coronene	0.08 mg/kg	N^		0.39	0.25	0.24	0.30	0.27
	Dibenzo[a,h]anthracene	0.08 mg/kg	M^		0.42	0.28	0.28	0.33	0.34
	Fluoranthene	0.08 mg/kg	M^		6.20	5.15	4.53	5.20	5.90
	Fluorene	0.08 mg/kg	M^		0.30	0.26	0.34	0.30	0.31
	Indeno[1,2,3-cd]pyrene	0.08 mg/kg	M^		1.57	1.02	1.02	1.25	1.26
	Naphthalene	0.08 mg/kg	M^		0.51	0.46	0.30	0.56	0.47
	Phenanthrene	0.08 mg/kg	M^		3.59	2.90	3.33	3.45	3.27
	Pyrene	0.08 mg/kg	M^		5.83	4.47	4.09	4.83	5.53
	Total PAH 16	1.28 mg/kg	U^		34.8	26.3	25.2	29.1	31.7
	Total PAH 17	1.36 mg/kg	N^		35.2	26.5	25.5	29.4	31.9
PCBECD	PCB 28	0.005 mg/kg	M^		<0.006	<0.006	<0.006	<0.006	<0.006
	PCB 52	0.005 mg/kg	M^		<0.006	<0.006	<0.006	<0.006	<0.006
	PCB 101	0.005 mg/kg	M^		<0.006	<0.006	<0.006	<0.006	<0.006
	PCB 118	0.005 mg/kg	M^		<0.006	<0.006	<0.006	<0.006	<0.006
	PCB 138	0.005 mg/kg	M^		<0.006	<0.006	<0.006	<0.006	<0.006
	PCB 153	0.005 mg/kg	M^		<0.006	<0.006	<0.006	<0.006	<0.006
	PCB 180	0.005 mg/kg	M^		<0.006	<0.006	0.008	<0.006	<0.006
	Total PCB 7 Congeners	0.035 mg/kg	M^		<0.039	<0.042	0.043	<0.042	<0.042
PHCONDW	pH	1 pH units	N		8.5	10.8	10.6	10.6	10.7
			N		9.2	11.1	10.8	10.8	10.9
PHCONDW	Conductivity at 25°C	100 µS/cm	N		2590	2640	2640	2570	2590
			N		2070	1150	1460	1340	1290
PHCONDW	TDS as mg/kg	1,400 mg/kg	N		14600	9190	11000	10300	9920
	TDS as mg/l	70 mg/l	N		1760	1800	1800	1750	1760
			N		1410	784	991	914	874

Project Number: 24072991

Client: SOCOTEC Materials Testing
Date Issued: 08/08/2024
Project Name: P240714-NOR24-01746-WAR24-294 - OBR Construction Ltd

Analysis Results

Method Code	Analysis	MDL	Accred.	SOCOTEC Sample ID:	24072991-006	24072991-007	24072991-008	24072991-009	24072991-010
				Sampling Date:	09/07/2024 00:00	09/07/2024 00:00	09/07/2024 00:00	09/07/2024 00:00	09/07/2024 00:00
				Customer ID:	NOR24-01746-S006	NOR24-01746-S007	NOR24-01746-S008	NOR24-01746-S009	NOR24-01746-S010
TOCW	Leached Organic Carbon	0.4 mg/l	U		21.3	30.8	25.3	207	268
			U		4.54	5.44	4.90	4.38	5.11
		4 mg/kg	N		67.7	88.2	76.2	314	402
KONENS	Chloride as Cl	1 mg/l	U		109	107	99	87	90
			U		9	10	9	8	9
		20 mg/kg	N		223	229	210	185	198
ISEF	Fluoride as F	0.1 mg/l	U		0.2	<0.2 D	<0.2 D	<0.2 D	<0.2 D
			U		0.2	<0.2 D	<0.2 D	<0.2 D	<0.2 D
		2 mg/kg	N		<4	<4 D	<4 D	<4 D	<4 D
SFAPI	Phenol Index	0.05 mg/l	U		<0.05	<0.05	<0.05	0.07	0.38
			U		<0.05	<0.05	<0.05	<0.05	0.06
		1 mg/kg	N		<1.0	<1.0	<1.0	<1.0	1.0
ICPMSW (Dissolved)	Antimony as Sb	0.001 mg/l	U		0.016	0.001	0.002	0.002	0.001
			U		0.010	0.002	0.002	0.003	0.002
		0.02 mg/kg	N		0.11	<0.02	0.02	0.03	<0.02
ICPMSW (Dissolved)	Arsenic as As	0.001 mg/l	U		0.007	0.005	0.004	0.004	0.005
			U		0.004	0.001	0.001	0.001	0.002
		0.02 mg/kg	N		0.04	<0.02	<0.02	<0.02	0.02
ICPWATVAR (Dissolved)	Barium as Ba	0.01 mg/l	U		0.03	0.04	0.04	0.04	0.04
			U		0.03	0.04	0.04	0.04	0.04
		0.2 mg/kg	N		0.3	0.4	0.4	0.4	0.4
ICPMSW (Dissolved)	Cadmium as Cd	0.00002 mg/l	U		<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
			U		<0.00002	<0.00002	<0.00002	<0.00002	<0.00002
		0.0004 mg/kg	N		<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
ICPMSW (Dissolved)	Total Chromium as Cr	0.001 mg/l	U		0.019	0.051	0.043	0.025	0.051
			U		0.004	0.011	0.008	0.006	0.009
		0.02 mg/kg	N		0.06	0.16	0.13	0.09	0.15
ICPMSW (Dissolved)	Copper as Cu	0.001 mg/l	U		0.016	0.040	0.025	0.020	0.033
			U		0.005	0.008	0.005	0.004	0.006
		0.02 mg/kg	N		0.06	0.12	0.08	0.06	0.10
ICPMSW (Dissolved)	Lead as Pb	0.001 mg/l	U		<0.001	<0.001	<0.001	<0.001	<0.001
			U		<0.001	<0.001	<0.001	<0.001	<0.001
		0.02 mg/kg	N		<0.02	<0.02	<0.02	<0.02	<0.02
ICPMSW (Dissolved)	Mercury as Hg	0.00003 mg/l	U		<0.00003	<0.00003	<0.00003	<0.00003	<0.00003
			U		<0.00003	<0.00003	<0.00003	<0.00003	<0.00003
		0.0006 mg/kg	N		<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
ICPMSW (Dissolved)	Molybdenum as Mo	0.001 mg/l	U		0.047	0.096	0.065	0.063	0.072
			U		0.008	0.012	0.008	0.008	0.008
		0.02 mg/kg	N		<0.20	0.23	<0.20	<0.20	<0.20
ICPMSW (Dissolved)	Nickel as Ni	0.001 mg/l	U		0.005	0.011	0.006	0.007	0.007
			U		0.002	0.002	0.001	0.001	0.001
		0.02 mg/kg	N		0.02	0.03	<0.02	<0.02	<0.02
ICPMSW (Dissolved)	Selenium as Se	0.001 mg/l	U		0.004	0.004	0.004	0.003	0.003
			U		<0.001	<0.001	<0.001	<0.001	<0.001
		0.02 mg/kg	N		<0.02	<0.02	<0.02	<0.02	<0.02
ICPWATVAR (Dissolved)	Total Sulphur as SO4	3 mg/l	U		1700	1670	1730	1660	1710
			U		1500	566	884	775	748
		60 mg/kg	N		15300	7130	9970	8930	8760
ICPMSW (Dissolved)	Zinc as Zn	0.002 mg/l	U		<0.002	<0.002	<0.002	<0.002	<0.002
			U		<0.002	<0.002	<0.002	<0.002	<0.002
		0.04 mg/kg	N		<0.04	<0.04	<0.04	<0.04	<0.04

10:1 Cumulative Amount Leached: 1st Stage Leachate Results: 2nd Stage Leachate Results:

WASTE ACCEPTANCE CRITERIA TESTING (BSEN 12457/3)

Client Name: SOCOTEC Materials Testing
Lab Sample ID: 24072991-001
Sample ID: NOR24-01746-S001
Site Name: P240714-NOR24-01746-WAR24-294 - OBR Construction Ltd

Leachate Preparation Data			
Weight of Sample (kg)	0.250	Moisture content @ 105°C (%)	10.2
Equivalent weight dried @ 105° (kg)	0.225	Weight of Water required for 2:1 stage (kg)	0.425
Fraction of sample above 4mm (%)	1.7	Fraction of non-crushable material (%)	0
Volume to undertake analysis (2:1 Stage) (l)	0.300	Weight of Deionised water for 8:1 stage (kg)	1.65

Note: The >4mm fraction is crushed using a disc mill

Solid Sample Results

Method Code	Analysis	Result	Accred.	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
WSLM59	Total Organic Carbon (% m/m)	2.56	U	3	5	6
LOI(%MM)	Loss on Ignition (% m/m)	5.4	N			10
BTEXHSA	Sum of BTEX (mg/kg) (HS_1D_AR)	<0.065	M	6		
PCBECD	Sum of 7 Congener PCBs (mg/kg)	<0.038	M	1		
TPHFIDUS (Aliphatic)	>C10-C40 Aliphatic (mg/kg) (EH_CU_1D_AL)	617	U	500		
PAHMSUS	Sum of 17 PAHs (mg/kg)	37.8	N	100		
PHSOIL	pH (pH units)	9.2	M		>6	
ANC	Acid Neutralisation Capacity (mol/kg)	4.24	N		To be evaluated	To be evaluated

10:1 Cumulative Leachate Results

Method Code	Analysis	Result	Accred.	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
PHCONDW	pH (pH units)	9.6	N			
PHCONDW	Conductivity (µS/cm)	2730	N			
ICPMSW (Dissolved)	Antimony (mg/kg)	0.16	N	0.06	0.7	5
ICPMSW (Dissolved)	Arsenic (mg/kg)	0.11	N	0.5	2	25
ICPWATVAR (Dissolv	Barium (mg/kg)	0.3	N	20	100	300
ICPMSW (Dissolved)	Cadmium (mg/kg)	<0.0004	N	0.04	1	5
ICPMSW (Dissolved)	Chromium (mg/kg)	0.79	N	0.5	10	70
ICPMSW (Dissolved)	Copper (mg/kg)	0.12	N	2	50	100
ICPMSW (Dissolved)	Lead (mg/kg)	<0.02	N	0.5	10	50
ICPMSW (Dissolved)	Mercury (mg/kg)	<0.0006	N	0.01	0.2	2
ICPMSW (Dissolved)	Molybdenum (mg/kg)	<0.20	N	0.5	10	30
ICPMSW (Dissolved)	Nickel (mg/kg)	<0.02	N	0.4	10	40
ICPMSW (Dissolved)	Selenium (mg/kg)	<0.02	N	0.1	0.5	7
ICPMSW (Dissolved)	Zinc (mg/kg)	<0.04	N	4	50	200
KONENS	Chloride (mg/kg)	237	N	800	15000	25000
ISEF	Fluoride (mg/kg)	<4	N	10	150	500
ICPWATVAR (Dissolv	Sulphate as SO4 (mg/kg)	14400	N	1000	20000	50000
PHCONDW	Total Dissolved Solids (mg/kg)	14700	N	4000	60000	100000
SFAPI	Phenol Index (mg/kg)	<1.0	N	1		
TOCW	Dissolved Organic Carbon (mg/kg)	106	N	500	800	1000

Accreditation status of M denotes MCERT, U denotes UKAS, N denotes no accreditation for the specific result
Landfill Waste Acceptance Criteria limit values are taken from 2003/33/EC: Council Decision and are correct as of 8th January 2024
Conductivity and pH results are reported from the leached sample, not calculated into the cumulative solid sample

WASTE ACCEPTANCE CRITERIA TESTING (BSEN 12457/3)

Client Name: SOCOTEC Materials Testing
Lab Sample ID: 24072991-002
Sample ID: NOR24-01746-S002
Site Name: P240714-NOR24-01746-WAR24-294 - OBR Construction Ltd

Leachate Preparation Data			
Weight of Sample (kg)	0.256	Moisture content @ 105°C (%)	12.0
Equivalent weight dried @ 105° (kg)	0.225	Weight of Water required for 2:1 stage (kg)	0.419
Fraction of sample above 4mm (%)	11.0	Fraction of non-crushable material (%)	0
Volume to undertake analysis (2:1 Stage) (l)	0.300	Weight of Deionised water for 8:1 stage (kg)	1.65

Note: The >4mm fraction is crushed using a disc mill

Solid Sample Results

Method Code	Analysis	Result	Accred.	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
WSLM59	Total Organic Carbon (% m/m)	3.18	U	3	5	6
LOI(%MM)	Loss on Ignition (% m/m)	6.0	N			10
BTEXHSA	Sum of BTEX (mg/kg) (HS_1D_AR)	<0.066	M	6		
PCBECD	Sum of 7 Congener PCBs (mg/kg)	<0.039	M	1		
TPHFIDUS (Aliphatic)	>C10-C40 Aliphatic (mg/kg) (EH_CU_1D_AL)	451	U	500		
PAHMSUS	Sum of 17 PAHs (mg/kg)	37.6	N	100		
PHSOIL	pH (pH units)	9.7	M		>6	
ANC	Acid Neutralisation Capacity (mol/kg)	4.15	N		To be evaluated	To be evaluated

10:1 Cumulative Leachate Results

Method Code	Analysis	Result	Accred.	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
PHCONDW	pH (pH units)	9.5	N			
PHCONDW	Conductivity (µS/cm)	2670	N			
ICPMSW (Dissolved)	Antimony (mg/kg)	0.09	N	0.06	0.7	5
ICPMSW (Dissolved)	Arsenic (mg/kg)	0.05	N	0.5	2	25
ICPWATVAR (Dissolv	Barium (mg/kg)	0.3	N	20	100	300
ICPMSW (Dissolved)	Cadmium (mg/kg)	<0.0004	N	0.04	1	5
ICPMSW (Dissolved)	Chromium (mg/kg)	0.17	N	0.5	10	70
ICPMSW (Dissolved)	Copper (mg/kg)	0.14	N	2	50	100
ICPMSW (Dissolved)	Lead (mg/kg)	<0.02	N	0.5	10	50
ICPMSW (Dissolved)	Mercury (mg/kg)	<0.0006	N	0.01	0.2	2
ICPMSW (Dissolved)	Molybdenum (mg/kg)	<0.20	N	0.5	10	30
ICPMSW (Dissolved)	Nickel (mg/kg)	<0.02	N	0.4	10	40
ICPMSW (Dissolved)	Selenium (mg/kg)	<0.02	N	0.1	0.5	7
ICPMSW (Dissolved)	Zinc (mg/kg)	<0.04	N	4	50	200
KONENS	Chloride (mg/kg)	235	N	800	15000	25000
ISEF	Fluoride (mg/kg)	2	N	10	150	500
ICPWATVAR (Dissolv	Sulphate as SO4 (mg/kg)	12800	N	1000	20000	50000
PHCONDW	Total Dissolved Solids (mg/kg)	13300	N	4000	60000	100000
SFAPI	Phenol Index (mg/kg)	<1.0	N	1		
TOCW	Dissolved Organic Carbon (mg/kg)	104	N	500	800	1000

Accreditation status of M denotes MCERT, U denotes UKAS, N denotes no accreditation for the specific result
Landfill Waste Acceptance Criteria limit values are taken from 2003/33/EC: Council Decision and are correct as of 8th January 2024
Conductivity and pH results are reported from the leached sample, not calculated into the cumulative solid sample

WASTE ACCEPTANCE CRITERIA TESTING (BSEN 12457/3)

Client Name: SOCOTEC Materials Testing
Lab Sample ID: 24072991-003
Sample ID: NOR24-01746-S003
Site Name: P240714-NOR24-01746-WAR24-294 - OBR Construction Ltd

Leachate Preparation Data			
Weight of Sample (kg)	0.257	Moisture content @ 105°C (%)	12.6
Equivalent weight dried @ 105° (kg)	0.225	Weight of Water required for 2:1 stage (kg)	0.418
Fraction of sample above 4mm (%)	27.2	Fraction of non-crushable material (%)	0
Volume to undertake analysis (2:1 Stage) (l)	0.300	Weight of Deionised water for 8:1 stage (kg)	1.65

Note: The >4mm fraction is crushed using a disc mill

Solid Sample Results

Method Code	Analysis	Result	Accred.	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
WSLM59	Total Organic Carbon (% m/m)	4.02	U	3	5	6
LOI(%MM)	Loss on Ignition (% m/m)	6.4	N			10
BTEXHSA	Sum of BTEX (mg/kg) (HS_1D_AR)	<0.066	M	6		
PCBECD	Sum of 7 Congener PCBs (mg/kg)	0.071	M	1		
TPHFIDUS (Aliphatic)	>C10-C40 Aliphatic (mg/kg) (EH_CU_1D_AL)	304	U	500		
PAHMSUS	Sum of 17 PAHs (mg/kg)	53.9	N	100		
PHSOIL	pH (pH units)	9.0	M		>6	
ANC	Acid Neutralisation Capacity (mol/kg)	2.52	N		To be evaluated	To be evaluated

10:1 Cumulative Leachate Results

Method Code	Analysis	Result	Accred.	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
PHCONDW	pH (pH units)	8.5	N			
PHCONDW	Conductivity (µS/cm)	2480	N			
ICPMSW (Dissolved)	Antimony (mg/kg)	0.10	N	0.06	0.7	5
ICPMSW (Dissolved)	Arsenic (mg/kg)	0.08	N	0.5	2	25
ICPWATVAR (Dissolv	Barium (mg/kg)	0.4	N	20	100	300
ICPMSW (Dissolved)	Cadmium (mg/kg)	<0.0004	N	0.04	1	5
ICPMSW (Dissolved)	Chromium (mg/kg)	0.07	N	0.5	10	70
ICPMSW (Dissolved)	Copper (mg/kg)	0.07	N	2	50	100
ICPMSW (Dissolved)	Lead (mg/kg)	<0.02	N	0.5	10	50
ICPMSW (Dissolved)	Mercury (mg/kg)	<0.0006	N	0.01	0.2	2
ICPMSW (Dissolved)	Molybdenum (mg/kg)	<0.20	N	0.5	10	30
ICPMSW (Dissolved)	Nickel (mg/kg)	<0.02	N	0.4	10	40
ICPMSW (Dissolved)	Selenium (mg/kg)	<0.02	N	0.1	0.5	7
ICPMSW (Dissolved)	Zinc (mg/kg)	<0.04	N	4	50	200
KONENS	Chloride (mg/kg)	151	N	800	15000	25000
ISEF	Fluoride (mg/kg)	<4	N	10	150	500
ICPWATVAR (Dissolv	Sulphate as SO4 (mg/kg)	12600	N	1000	20000	50000
PHCONDW	Total Dissolved Solids (mg/kg)	13000	N	4000	60000	100000
SFAPI	Phenol Index (mg/kg)	<1.0	N	1		
TOCW	Dissolved Organic Carbon (mg/kg)	87.6	N	500	800	1000

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Landfill Waste Acceptance Criteria limit values are taken from 2003/33/EC: Council Decision and are correct as of 8th January 2024
Conductivity and pH results are reported from the leached sample, not calculated into the cumulative solid sample

WASTE ACCEPTANCE CRITERIA TESTING (BSEN 12457/3)

Client Name: SOCOTEC Materials Testing
Lab Sample ID: 24072991-004
Sample ID: NOR24-01746-S004
Site Name: P240714-NOR24-01746-WAR24-294 - OBR Construction Ltd

Leachate Preparation Data			
Weight of Sample (kg)	0.261	Moisture content @ 105°C (%)	13.7
Equivalent weight dried @ 105° (kg)	0.225	Weight of Water required for 2:1 stage (kg)	0.414
Fraction of sample above 4mm (%)	27.6	Fraction of non-crushable material (%)	0
Volume to undertake analysis (2:1 Stage) (l)	0.300	Weight of Deionised water for 8:1 stage (kg)	1.65

Note: The >4mm fraction is crushed using a disc mill

Solid Sample Results

Method Code	Analysis	Result	Accred.	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
WSLM59	Total Organic Carbon (% m/m)	3.19	U	3	5	6
LOI(%MM)	Loss on Ignition (% m/m)	6.7	N			10
BTEXHSA	Sum of BTEX (mg/kg) (HS_1D_AR)	<0.067	M	6		
PCBECD	Sum of 7 Congener PCBs (mg/kg)	<0.039	M	1		
TPHFIDUS (Aliphatic)	>C10-C40 Aliphatic (mg/kg) (EH_CU_1D_AL)	408	U	500		
PAHMSUS	Sum of 17 PAHs (mg/kg)	40.6	N	100		
PHSOIL	pH (pH units)	10.3	M		>6	
ANC	Acid Neutralisation Capacity (mol/kg)	5.00	N		To be evaluated	To be evaluated

10:1 Cumulative Leachate Results

Method Code	Analysis	Result	Accred.	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
PHCONDW	pH (pH units)	9.6	N			
PHCONDW	Conductivity (µS/cm)	2600	N			
ICPMSW (Dissolved)	Antimony (mg/kg)	0.05	N	0.06	0.7	5
ICPMSW (Dissolved)	Arsenic (mg/kg)	0.04	N	0.5	2	25
ICPWATVAR (Dissolv	Barium (mg/kg)	0.4	N	20	100	300
ICPMSW (Dissolved)	Cadmium (mg/kg)	<0.0004	N	0.04	1	5
ICPMSW (Dissolved)	Chromium (mg/kg)	0.08	N	0.5	10	70
ICPMSW (Dissolved)	Copper (mg/kg)	0.11	N	2	50	100
ICPMSW (Dissolved)	Lead (mg/kg)	<0.02	N	0.5	10	50
ICPMSW (Dissolved)	Mercury (mg/kg)	<0.0006	N	0.01	0.2	2
ICPMSW (Dissolved)	Molybdenum (mg/kg)	<0.20	N	0.5	10	30
ICPMSW (Dissolved)	Nickel (mg/kg)	0.03	N	0.4	10	40
ICPMSW (Dissolved)	Selenium (mg/kg)	<0.02	N	0.1	0.5	7
ICPMSW (Dissolved)	Zinc (mg/kg)	<0.04	N	4	50	200
KONENS	Chloride (mg/kg)	188	N	800	15000	25000
ISEF	Fluoride (mg/kg)	<2	N	10	150	500
ICPWATVAR (Dissolv	Sulphate as SO4 (mg/kg)	13100	N	1000	20000	50000
PHCONDW	Total Dissolved Solids (mg/kg)	13000	N	4000	60000	100000
SFAPI	Phenol Index (mg/kg)	<1.0	N	1		
TOCW	Dissolved Organic Carbon (mg/kg)	84.3	N	500	800	1000

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Landfill Waste Acceptance Criteria limit values are taken from 2003/33/EC: Council Decision and are correct as of 8th January 2024
Conductivity and pH results are reported from the leached sample, not calculated into the cumulative solid sample

WASTE ACCEPTANCE CRITERIA TESTING (BSEN 12457/3)

Client Name: SOCOTEC Materials Testing
Lab Sample ID: 24072991-005
Sample ID: NOR24-01746-S005
Site Name: P240714-NOR24-01746-WAR24-294 - OBR Construction Ltd

Leachate Preparation Data			
Weight of Sample (kg)	0.267	Moisture content @ 105°C (%)	15.8
Equivalent weight dried @ 105° (kg)	0.225	Weight of Water required for 2:1 stage (kg)	0.408
Fraction of sample above 4mm (%)	10.9	Fraction of non-crushable material (%)	0
Volume to undertake analysis (2:1 Stage) (l)	0.300	Weight of Deionised water for 8:1 stage (kg)	1.65

Note: The >4mm fraction is crushed using a disc mill

Solid Sample Results

Method Code	Analysis	Result	Accred.	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
WSLM59	Total Organic Carbon (% m/m)	2.31	U	3	5	6
LOI(%MM)	Loss on Ignition (% m/m)	5.0	N			10
BTEXHSA	Sum of BTEX (mg/kg) (HS_1D_AR)	<0.068	M	6		
PCBECD	Sum of 7 Congener PCBs (mg/kg)	<0.040	M	1		
TPHFIDUS (Aliphatic)	>C10-C40 Aliphatic (mg/kg) (EH_CU_1D_AL)	400	U	500		
PAHMSUS	Sum of 17 PAHs (mg/kg)	34.8	N	100		
PHSOIL	pH (pH units)	9.7	M		>6	
ANC	Acid Neutralisation Capacity (mol/kg)	5.53	N		To be evaluated	To be evaluated

10:1 Cumulative Leachate Results

Method Code	Analysis	Result	Accred.	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
PHCONDW	pH (pH units)	9.6	N			
PHCONDW	Conductivity (µS/cm)	2610	N			
ICPMSW (Dissolved)	Antimony (mg/kg)	0.06	N	0.06	0.7	5
ICPMSW (Dissolved)	Arsenic (mg/kg)	0.03	N	0.5	2	25
ICPWATVAR (Dissolv	Barium (mg/kg)	0.4	N	20	100	300
ICPMSW (Dissolved)	Cadmium (mg/kg)	<0.0004	N	0.04	1	5
ICPMSW (Dissolved)	Chromium (mg/kg)	0.08	N	0.5	10	70
ICPMSW (Dissolved)	Copper (mg/kg)	0.09	N	2	50	100
ICPMSW (Dissolved)	Lead (mg/kg)	<0.02	N	0.5	10	50
ICPMSW (Dissolved)	Mercury (mg/kg)	<0.0006	N	0.01	0.2	2
ICPMSW (Dissolved)	Molybdenum (mg/kg)	<0.20	N	0.5	10	30
ICPMSW (Dissolved)	Nickel (mg/kg)	<0.02	N	0.4	10	40
ICPMSW (Dissolved)	Selenium (mg/kg)	<0.02	N	0.1	0.5	7
ICPMSW (Dissolved)	Zinc (mg/kg)	<0.04	N	4	50	200
KONENS	Chloride (mg/kg)	197	N	800	15000	25000
ISEF	Fluoride (mg/kg)	<2	N	10	150	500
ICPWATVAR (Dissolv	Sulphate as SO4 (mg/kg)	12000	N	1000	20000	50000
PHCONDW	Total Dissolved Solids (mg/kg)	12000	N	4000	60000	100000
SFAPI	Phenol Index (mg/kg)	<1.0	N	1		
TOCW	Dissolved Organic Carbon (mg/kg)	73.1	N	500	800	1000

Accreditation status of M denotes MCERT, U denotes UKAS, N denotes no accreditation for the specific result
Landfill Waste Acceptance Criteria limit values are taken from 2003/33/EC: Council Decision and are correct as of 8th January 2024
Conductivity and pH results are reported from the leached sample, not calculated into the cumulative solid sample

WASTE ACCEPTANCE CRITERIA TESTING (BSEN 12457/3)

Client Name: SOCOTEC Materials Testing
Lab Sample ID: 24072991-006
Sample ID: NOR24-01746-S006
Site Name: P240714-NOR24-01746-WAR24-294 - OBR Construction Ltd

Leachate Preparation Data			
Weight of Sample (kg)	0.259	Moisture content @ 105°C (%)	13.2
Equivalent weight dried @ 105° (kg)	0.225	Weight of Water required for 2:1 stage (kg)	0.416
Fraction of sample above 4mm (%)	46.4	Fraction of non-crushable material (%)	0
Volume to undertake analysis (2:1 Stage) (l)	0.300	Weight of Deionised water for 8:1 stage (kg)	1.65

Note: The >4mm fraction is crushed using a disc mill

Solid Sample Results

Method Code	Analysis	Result	Accred.	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
WSLM59	Total Organic Carbon (% m/m)	4.40	U	3	5	6
LOI(%MM)	Loss on Ignition (% m/m)	7.2	N			10
BTEXHSA	Sum of BTEX (mg/kg) (HS_1D_AR)	<0.066	M	6		
PCBECD	Sum of 7 Congener PCBs (mg/kg)	<0.039	M	1		
TPHFIDUS (Aliphatic)	>C10-C40 Aliphatic (mg/kg) (EH_CU_1D_AL)	449	U	500		
PAHMSUS	Sum of 17 PAHs (mg/kg)	35.2	N	100		
PHSOIL	pH (pH units)	9.1	M		>6	
ANC	Acid Neutralisation Capacity (mol/kg)	3.99	N		To be evaluated	To be evaluated

10:1 Cumulative Leachate Results

Method Code	Analysis	Result	Accred.	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
PHCONDW	pH (pH units)	8.5	N			
PHCONDW	Conductivity (µS/cm)	2590	N			
ICPMSW (Dissolved)	Antimony (mg/kg)	0.11	N	0.06	0.7	5
ICPMSW (Dissolved)	Arsenic (mg/kg)	0.04	N	0.5	2	25
ICPWATVAR (Dissolv	Barium (mg/kg)	0.3	N	20	100	300
ICPMSW (Dissolved)	Cadmium (mg/kg)	<0.0004	N	0.04	1	5
ICPMSW (Dissolved)	Chromium (mg/kg)	0.06	N	0.5	10	70
ICPMSW (Dissolved)	Copper (mg/kg)	0.06	N	2	50	100
ICPMSW (Dissolved)	Lead (mg/kg)	<0.02	N	0.5	10	50
ICPMSW (Dissolved)	Mercury (mg/kg)	<0.0006	N	0.01	0.2	2
ICPMSW (Dissolved)	Molybdenum (mg/kg)	<0.20	N	0.5	10	30
ICPMSW (Dissolved)	Nickel (mg/kg)	0.02	N	0.4	10	40
ICPMSW (Dissolved)	Selenium (mg/kg)	<0.02	N	0.1	0.5	7
ICPMSW (Dissolved)	Zinc (mg/kg)	<0.04	N	4	50	200
KONENS	Chloride (mg/kg)	223	N	800	15000	25000
ISEF	Fluoride (mg/kg)	<4	N	10	150	500
ICPWATVAR (Dissolv	Sulphate as SO4 (mg/kg)	15300	N	1000	20000	50000
PHCONDW	Total Dissolved Solids (mg/kg)	14600	N	4000	60000	100000
SFAPI	Phenol Index (mg/kg)	<1.0	N	1		
TOCW	Dissolved Organic Carbon (mg/kg)	67.7	N	500	800	1000

Accreditation status of M denotes MCERT, U denotes UKAS, N denotes no accreditation for the specific result
Landfill Waste Acceptance Criteria limit values are taken from 2003/33/EC: Council Decision and are correct as of 8th January 2024
Conductivity and pH results are reported from the leached sample, not calculated into the cumulative solid sample

WASTE ACCEPTANCE CRITERIA TESTING (BSEN 12457/3)

Client Name: SOCOTEC Materials Testing
Lab Sample ID: 24072991-007
Sample ID: NOR24-01746-S007
Site Name: P240714-NOR24-01746-WAR24-294 - OBR Construction Ltd

Leachate Preparation Data			
Weight of Sample (kg)	0.271	Moisture content @ 105°C (%)	17.1
Equivalent weight dried @ 105° (kg)	0.225	Weight of Water required for 2:1 stage (kg)	0.404
Fraction of sample above 4mm (%)	15.1	Fraction of non-crushable material (%)	0
Volume to undertake analysis (2:1 Stage) (l)	0.300	Weight of Deionised water for 8:1 stage (kg)	1.65

Note: The >4mm fraction is crushed using a disc mill

Solid Sample Results

Method Code	Analysis	Result	Accred.	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
WSLM59	Total Organic Carbon (% m/m)	2.78	U	3	5	6
LOI(%MM)	Loss on Ignition (% m/m)	5.3	N			10
BTEXHSA	Sum of BTEX (mg/kg) (HS_1D_AR)	<0.072	M	6		
PCBECD	Sum of 7 Congener PCBs (mg/kg)	<0.042	M	1		
TPHFIDUS (Aliphatic)	>C10-C40 Aliphatic (mg/kg) (EH_CU_1D_AL)	345	U	500		
PAHMSUS	Sum of 17 PAHs (mg/kg)	26.5	N	100		
PHSOIL	pH (pH units)	9.8	M		>6	
ANC	Acid Neutralisation Capacity (mol/kg)	4.02	N		To be evaluated	To be evaluated

10:1 Cumulative Leachate Results

Method Code	Analysis	Result	Accred.	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
PHCONDW	pH (pH units)	10.8	N			
PHCONDW	Conductivity (µS/cm)	2640	N			
ICPMSW (Dissolved)	Antimony (mg/kg)	<0.02	N	0.06	0.7	5
ICPMSW (Dissolved)	Arsenic (mg/kg)	<0.02	N	0.5	2	25
ICPWATVAR (Dissolv	Barium (mg/kg)	0.4	N	20	100	300
ICPMSW (Dissolved)	Cadmium (mg/kg)	<0.0004	N	0.04	1	5
ICPMSW (Dissolved)	Chromium (mg/kg)	0.16	N	0.5	10	70
ICPMSW (Dissolved)	Copper (mg/kg)	0.12	N	2	50	100
ICPMSW (Dissolved)	Lead (mg/kg)	<0.02	N	0.5	10	50
ICPMSW (Dissolved)	Mercury (mg/kg)	<0.0006	N	0.01	0.2	2
ICPMSW (Dissolved)	Molybdenum (mg/kg)	0.23	N	0.5	10	30
ICPMSW (Dissolved)	Nickel (mg/kg)	0.03	N	0.4	10	40
ICPMSW (Dissolved)	Selenium (mg/kg)	<0.02	N	0.1	0.5	7
ICPMSW (Dissolved)	Zinc (mg/kg)	<0.04	N	4	50	200
KONENS	Chloride (mg/kg)	229	N	800	15000	25000
ISEF	Fluoride (mg/kg)	<4	N	10	150	500
ICPWATVAR (Dissolv	Sulphate as SO4 (mg/kg)	7130	N	1000	20000	50000
PHCONDW	Total Dissolved Solids (mg/kg)	9190	N	4000	60000	100000
SFAPI	Phenol Index (mg/kg)	<1.0	N	1		
TOCW	Dissolved Organic Carbon (mg/kg)	88.2	N	500	800	1000

Accreditation status of M denotes MCERT, U denotes UKAS, N denotes no accreditation for the specific result
Landfill Waste Acceptance Criteria limit values are taken from 2003/33/EC: Council Decision and are correct as of 8th January 2024
Conductivity and pH results are reported from the leached sample, not calculated into the cumulative solid sample

WASTE ACCEPTANCE CRITERIA TESTING (BSEN 12457/3)

Client Name: SOCOTEC Materials Testing
Lab Sample ID: 24072991-008
Sample ID: NOR24-01746-S008
Site Name: P240714-NOR24-01746-WAR24-294 - OBR Construction Ltd

Leachate Preparation Data			
Weight of Sample (kg)	0.267	Moisture content @ 105°C (%)	15.8
Equivalent weight dried @ 105° (kg)	0.225	Weight of Water required for 2:1 stage (kg)	0.408
Fraction of sample above 4mm (%)	15.0	Fraction of non-crushable material (%)	0
Volume to undertake analysis (2:1 Stage) (l)	0.300	Weight of Deionised water for 8:1 stage (kg)	1.65

Note: The >4mm fraction is crushed using a disc mill

Solid Sample Results

Method Code	Analysis	Result	Accred.	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
WSLM59	Total Organic Carbon (% m/m)	2.56	U	3	5	6
LOI(%MM)	Loss on Ignition (% m/m)	5.6	N			10
BTEXHSA	Sum of BTEX (mg/kg) (HS_1D_AR)	<0.072	M	6		
PCBECD	Sum of 7 Congener PCBs (mg/kg)	0.043	M	1		
TPHFIDUS (Aliphatic)	>C10-C40 Aliphatic (mg/kg) (EH_CU_1D_AL)	1290	U	500		
PAHMSUS	Sum of 17 PAHs (mg/kg)	25.5	N	100		
PHSOIL	pH (pH units)	9.4	M		>6	
ANC	Acid Neutralisation Capacity (mol/kg)	3.39	N		To be evaluated	To be evaluated

10:1 Cumulative Leachate Results

Method Code	Analysis	Result	Accred.	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
PHCONDW	pH (pH units)	10.6	N			
PHCONDW	Conductivity (µS/cm)	2640	N			
ICPMSW (Dissolved)	Antimony (mg/kg)	0.02	N	0.06	0.7	5
ICPMSW (Dissolved)	Arsenic (mg/kg)	<0.02	N	0.5	2	25
ICPWATVAR (Dissolv	Barium (mg/kg)	0.4	N	20	100	300
ICPMSW (Dissolved)	Cadmium (mg/kg)	<0.0004	N	0.04	1	5
ICPMSW (Dissolved)	Chromium (mg/kg)	0.13	N	0.5	10	70
ICPMSW (Dissolved)	Copper (mg/kg)	0.08	N	2	50	100
ICPMSW (Dissolved)	Lead (mg/kg)	<0.02	N	0.5	10	50
ICPMSW (Dissolved)	Mercury (mg/kg)	<0.0006	N	0.01	0.2	2
ICPMSW (Dissolved)	Molybdenum (mg/kg)	<0.20	N	0.5	10	30
ICPMSW (Dissolved)	Nickel (mg/kg)	<0.02	N	0.4	10	40
ICPMSW (Dissolved)	Selenium (mg/kg)	<0.02	N	0.1	0.5	7
ICPMSW (Dissolved)	Zinc (mg/kg)	<0.04	N	4	50	200
KONENS	Chloride (mg/kg)	210	N	800	15000	25000
ISEF	Fluoride (mg/kg)	<4	N	10	150	500
ICPWATVAR (Dissolv	Sulphate as SO4 (mg/kg)	9970	N	1000	20000	50000
PHCONDW	Total Dissolved Solids (mg/kg)	11000	N	4000	60000	100000
SFAPI	Phenol Index (mg/kg)	<1.0	N	1		
TOCW	Dissolved Organic Carbon (mg/kg)	76.2	N	500	800	1000

Accreditation status of M denotes MCERT, U denotes UKAS, N denotes no accreditation for the specific result
Landfill Waste Acceptance Criteria limit values are taken from 2003/33/EC: Council Decision and are correct as of 8th January 2024
Conductivity and pH results are reported from the leached sample, not calculated into the cumulative solid sample

WASTE ACCEPTANCE CRITERIA TESTING (BSEN 12457/3)

Client Name: SOCOTEC Materials Testing
Lab Sample ID: 24072991-009
Sample ID: NOR24-01746-S009
Site Name: P240714-NOR24-01746-WAR24-294 - OBR Construction Ltd

Leachate Preparation Data			
Weight of Sample (kg)	0.260	Moisture content @ 105°C (%)	13.5
Equivalent weight dried @ 105° (kg)	0.225	Weight of Water required for 2:1 stage (kg)	0.415
Fraction of sample above 4mm (%)	34.3	Fraction of non-crushable material (%)	0
Volume to undertake analysis (2:1 Stage) (l)	0.300	Weight of Deionised water for 8:1 stage (kg)	1.65

Note: The >4mm fraction is crushed using a disc mill

Solid Sample Results

Method Code	Analysis	Result	Accred.	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
WSLM59	Total Organic Carbon (% m/m)	3.30	U	3	5	6
LOI(%MM)	Loss on Ignition (% m/m)	5.9	N			10
BTEXHSA	Sum of BTEX (mg/kg) (HS_1D_AR)	<0.073	M	6		
PCBECD	Sum of 7 Congener PCBs (mg/kg)	<0.042	M	1		
TPHFIDUS (Aliphatic)	>C10-C40 Aliphatic (mg/kg) (EH_CU_1D_AL)	314	U	500		
PAHMSUS	Sum of 17 PAHs (mg/kg)	29.4	N	100		
PHSOIL	pH (pH units)	9.4	M		>6	
ANC	Acid Neutralisation Capacity (mol/kg)	4.38	N		To be evaluated	To be evaluated

10:1 Cumulative Leachate Results

Method Code	Analysis	Result	Accred.	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
PHCONDW	pH (pH units)	10.6	N			
PHCONDW	Conductivity (µS/cm)	2570	N			
ICPMSW (Dissolved)	Antimony (mg/kg)	0.03	N	0.06	0.7	5
ICPMSW (Dissolved)	Arsenic (mg/kg)	<0.02	N	0.5	2	25
ICPWATVAR (Dissolv	Barium (mg/kg)	0.4	N	20	100	300
ICPMSW (Dissolved)	Cadmium (mg/kg)	<0.0004	N	0.04	1	5
ICPMSW (Dissolved)	Chromium (mg/kg)	0.09	N	0.5	10	70
ICPMSW (Dissolved)	Copper (mg/kg)	0.06	N	2	50	100
ICPMSW (Dissolved)	Lead (mg/kg)	<0.02	N	0.5	10	50
ICPMSW (Dissolved)	Mercury (mg/kg)	<0.0006	N	0.01	0.2	2
ICPMSW (Dissolved)	Molybdenum (mg/kg)	<0.20	N	0.5	10	30
ICPMSW (Dissolved)	Nickel (mg/kg)	<0.02	N	0.4	10	40
ICPMSW (Dissolved)	Selenium (mg/kg)	<0.02	N	0.1	0.5	7
ICPMSW (Dissolved)	Zinc (mg/kg)	<0.04	N	4	50	200
KONENS	Chloride (mg/kg)	185	N	800	15000	25000
ISEF	Fluoride (mg/kg)	<4	N	10	150	500
ICPWATVAR (Dissolv	Sulphate as SO4 (mg/kg)	8930	N	1000	20000	50000
PHCONDW	Total Dissolved Solids (mg/kg)	10300	N	4000	60000	100000
SFAPI	Phenol Index (mg/kg)	<1.0	N	1		
TOCW	Dissolved Organic Carbon (mg/kg)	314	N	500	800	1000

Accreditation status of M denotes MCERT, U denotes UKAS, N denotes no accreditation for the specific result
Landfill Waste Acceptance Criteria limit values are taken from 2003/33/EC: Council Decision and are correct as of 8th January 2024
Conductivity and pH results are reported from the leached sample, not calculated into the cumulative solid sample

WASTE ACCEPTANCE CRITERIA TESTING (BSEN 12457/3)

Client Name: SOCOTEC Materials Testing
Lab Sample ID: 24072991-010
Sample ID: NOR24-01746-S010
Site Name: P240714-NOR24-01746-WAR24-294 - OBR Construction Ltd

Leachate Preparation Data			
Weight of Sample (kg)	0.275	Moisture content @ 105°C (%)	18.1
Equivalent weight dried @ 105° (kg)	0.225	Weight of Water required for 2:1 stage (kg)	0.400
Fraction of sample above 4mm (%)	16.2	Fraction of non-crushable material (%)	0
Volume to undertake analysis (2:1 Stage) (l)	0.300	Weight of Deionised water for 8:1 stage (kg)	1.65

Note: The >4mm fraction is crushed using a disc mill

Solid Sample Results

Method Code	Analysis	Result	Accred.	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
WSLM59	Total Organic Carbon (% m/m)	3.23	U	3	5	6
LOI(%MM)	Loss on Ignition (% m/m)	6.1	N			10
BTEXHSA	Sum of BTEX (mg/kg) (HS_1D_AR)	<0.071	M	6		
PCBECD	Sum of 7 Congener PCBs (mg/kg)	<0.042	M	1		
TPHFIDUS (Aliphatic)	>C10-C40 Aliphatic (mg/kg) (EH_CU_1D_AL)	564	U	500		
PAHMSUS	Sum of 17 PAHs (mg/kg)	31.9	N	100		
PHSOIL	pH (pH units)	9.4	M		>6	
ANC	Acid Neutralisation Capacity (mol/kg)	6.02	N		To be evaluated	To be evaluated

10:1 Cumulative Leachate Results

Method Code	Analysis	Result	Accred.	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
PHCONDW	pH (pH units)	10.7	N			
PHCONDW	Conductivity (µS/cm)	2590	N			
ICPMSW (Dissolved)	Antimony (mg/kg)	<0.02	N	0.06	0.7	5
ICPMSW (Dissolved)	Arsenic (mg/kg)	0.02	N	0.5	2	25
ICPWATVAR (Dissolv	Barium (mg/kg)	0.4	N	20	100	300
ICPMSW (Dissolved)	Cadmium (mg/kg)	<0.0004	N	0.04	1	5
ICPMSW (Dissolved)	Chromium (mg/kg)	0.15	N	0.5	10	70
ICPMSW (Dissolved)	Copper (mg/kg)	0.10	N	2	50	100
ICPMSW (Dissolved)	Lead (mg/kg)	<0.02	N	0.5	10	50
ICPMSW (Dissolved)	Mercury (mg/kg)	<0.0006	N	0.01	0.2	2
ICPMSW (Dissolved)	Molybdenum (mg/kg)	<0.20	N	0.5	10	30
ICPMSW (Dissolved)	Nickel (mg/kg)	<0.02	N	0.4	10	40
ICPMSW (Dissolved)	Selenium (mg/kg)	<0.02	N	0.1	0.5	7
ICPMSW (Dissolved)	Zinc (mg/kg)	<0.04	N	4	50	200
KONENS	Chloride (mg/kg)	198	N	800	15000	25000
ISEF	Fluoride (mg/kg)	<4	N	10	150	500
ICPWATVAR (Dissolv	Sulphate as SO4 (mg/kg)	8760	N	1000	20000	50000
PHCONDW	Total Dissolved Solids (mg/kg)	9920	N	4000	60000	100000
SFAPI	Phenol Index (mg/kg)	1.0	N	1		
TOCW	Dissolved Organic Carbon (mg/kg)	402	N	500	800	1000

Accreditation status of M denotes MCERT, U denotes UKAS, N denotes no accreditation for the specific result
Landfill Waste Acceptance Criteria limit values are taken from 2003/33/EC: Council Decision and are correct as of 8th January 2024
Conductivity and pH results are reported from the leached sample, not calculated into the cumulative solid sample

ASBESTOS ANALYSIS RESULTS

SOCOTEC Asbestos Limited Certificate of Analysis for Asbestos in Soils, Sediments and Aggregates

UKAS TESTING
1089

Detection limit of Method SCI-ASB-020 is 0.001%

Sampling has been carried out by a third party

SOCOTEC

Client:	SOCOTEC Environmental Chemistry	**Page 1 of 1**	
Address:	Etwall House, Bretby Business Park, Ashby Road, Burton upon Trent	**Report No:**	**ANO-0503-30051**
For the attention of:	SOCOTEC Environmental Chemistry	**Report Date:**	**26/07/2024**
Site Address:	OBR Construction Ltd	**Project Number:**	**24072991**

Sample Number	Sample Date	Sample Location & Matrix	Test Date	Total Sample Dry Weight (g)	Weight of <10mm Fraction (g)	Asbestos(g) in >10mm	Asbestos(g) in < 10mm	% Asbestos by weight of Total Dried Sample	Moisture Content	Asbestos Fibre Types Identified
1	09/07/24	NOR24-01746-S001 Soils	25/07/2024	1474.8	924.8	0.47845	0.25129	0.049		Chrysotile (Thermoplastic Floor Tiles *) >10 mm, Chrysotile (Lagging), Stage 3
2	09/07/24	NOR24-01746-S002 Soils	25/07/2024	1273.5	881.9	0.00000	0.05736	0.005		NADIS >10 mm, Amosite (Free Fibres), Stage 3
3	09/07/24	NOR24-01746-S003 Soils	26/07/2024	1343.4	1103.6	0.00000	0.00000			NADIS Stage 1
4	09/07/24	NOR24-01746-S004 Soils	26/07/2024	1274.6	1004.4	0.00000	0.10940	0.009		NADIS >10 mm, Chrysotile (Free Fibres), Stage 3
5	09/07/24	NOR24-01746-S005 Soils	25/07/2024	1334.8	855.3	0.00000	0.02379	0.002		NADIS >10 mm, Chrysotile (Free Fibres), Stage 3
6	09/07/24	NOR24-01746-S006 Soils	26/07/2024	1369.5	847.9	0.00000	0.00000			NADIS Stage 1
7	09/07/24	NOR24-01746-S007 Soils	26/07/2024	1137.7	909.6	0.00000	0.10524	0.009		NADIS >10 mm, Amosite (Free Fibres), Stage 3
8	09/07/24	NOR24-01746-S008 Soils	26/07/2024	1199.7	897.5	0.00000	0.00000			NADIS Stage 1
9	09/07/24	NOR24-01746-S009 Soils	26/07/2024	1327.4	1059.2	0.00000	0.09882	0.007		NADIS >10 mm, Chrysotile (Free Fibres), Stage 3
10	09/07/24	NOR24-01746-S0010 Soils	26/07/2024	1394.8	803.5	0.00000	0.09388	0.007		NADIS >10 mm, Chrysotile (Free Fibres), Stage 3

Keys

NAACR = Not Analysed at Clients Request

*** visible to naked eye**

NAIIS = No Asbestos Identified in Sample (Identification Only)

NADIS = No Asbestos Detected in Sample (ID & Quant Only)

Name:	Rachel Howell	Authorised Signatory:
Position:	Lab Analyst	

The sample analysis for the above results was carried out using the procedures detailed in SOCOTEC Asbestos Limited in house method (SCI-ASB-020) based on EA document Quantification of asbestos in soil and associated materials - Draft 2017. Fibre identification was carried out using SOCOTEC Asbestos Limited in house method of transmitted/polarised light microscopy and centre stop dispersion staining (SCI-ASB-007), and fibre counting during sedimentation test, where applicable, was carried out using SOCOTEC Asbestos Ltd in house method (SCI/ASB/003) based on HSE's HSG 248. The sedimentation test does not discriminate non-asbestos fibres. Uncertainty of Measurement (UoM) estimate is +/- 29% for full quantitative analysis based on reproducibility analysis at 0.1%. Sampling is outside the UoM estimate. Recommended sample weight is 1kg-2kg, samples less than 1kg are classified as deviating samples. Any opinions or interpretations are outside the scope of our UKAS accreditation.

SOCOTEC Asbestos Limited is a wholly owned subsidiary of SOCOTEC UK Limited, registered in England and Wales, registered company 04951688.

Project Number: 24072991

Client: SOCOTEC Materials Testing
Date Issued: 08/08/2024
Project Name: P240714-NOR24-01746-WAR24-294 - OBR Construction Ltd

Deviating Sample Report

Sample Reference	Text ID	Method Code	Incorrect Container	Incorrect Label	Headspace	Incorrect/No Preservative	No Sampling Date	Holding Time
NOR24-01746-S001	24072991-001	BTEXHSA						✓
NOR24-01746-S001	24072991-001	GROHSA						✓
NOR24-01746-S001	24072991-001	PHSOIL						✓
NOR24-01746-S001	24072991-001	SFAPI						✓
NOR24-01746-S001	24072991-001	TPHCALC						✓
NOR24-01746-S002	24072991-002	BTEXHSA						✓
NOR24-01746-S002	24072991-002	GROHSA						✓
NOR24-01746-S002	24072991-002	PHSOIL						✓
NOR24-01746-S002	24072991-002	SFAPI						✓
NOR24-01746-S002	24072991-002	TPHCALC						✓
NOR24-01746-S003	24072991-003	BTEXHSA						✓
NOR24-01746-S003	24072991-003	GROHSA						✓
NOR24-01746-S003	24072991-003	PHSOIL						✓
NOR24-01746-S003	24072991-003	SFAPI						✓
NOR24-01746-S003	24072991-003	TPHCALC						✓
NOR24-01746-S004	24072991-004	BTEXHSA						✓
NOR24-01746-S004	24072991-004	GROHSA						✓
NOR24-01746-S004	24072991-004	PHSOIL						✓
NOR24-01746-S004	24072991-004	SFAPI						✓
NOR24-01746-S004	24072991-004	TPHCALC						✓
NOR24-01746-S005	24072991-005	BTEXHSA						✓
NOR24-01746-S005	24072991-005	GROHSA						✓
NOR24-01746-S005	24072991-005	PHSOIL						✓
NOR24-01746-S005	24072991-005	SFAPI						✓
NOR24-01746-S005	24072991-005	TPHCALC						✓
NOR24-01746-S006	24072991-006	BTEXHSA						✓
NOR24-01746-S006	24072991-006	GROHSA						✓
NOR24-01746-S006	24072991-006	PHSOIL						✓
NOR24-01746-S006	24072991-006	SFAPI						✓
NOR24-01746-S006	24072991-006	TPHCALC						✓
NOR24-01746-S007	24072991-007	BTEXHSA						✓
NOR24-01746-S007	24072991-007	GROHSA						✓
NOR24-01746-S007	24072991-007	PHSOIL						✓
NOR24-01746-S007	24072991-007	SFAPI						✓

Project Number: 24072991

Client: SOCOTEC Materials Testing
Date Issued: 08/08/2024
Project Name: P240714-NOR24-01746-WAR24-294 - OBR Construction Ltd

Sample Reference	Text ID	Method Code	Incorrect Container	Incorrect Label	Headspace	Incorrect/No Preservative	No Sampling Date	Holding Time
NOR24-01746-S007	24072991-007	**TPHCALC**						✓
NOR24-01746-S008	24072991-008	**BTEXHSA**						✓
NOR24-01746-S008	24072991-008	**GROHSA**						✓
NOR24-01746-S008	24072991-008	**PHSOIL**						✓
NOR24-01746-S008	24072991-008	**SFAPI**						✓
NOR24-01746-S008	24072991-008	**TPHCALC**						✓
NOR24-01746-S009	24072991-009	**BTEXHSA**						✓
NOR24-01746-S009	24072991-009	**GROHSA**						✓
NOR24-01746-S009	24072991-009	**PHSOIL**						✓
NOR24-01746-S009	24072991-009	**SFAPI**						✓
NOR24-01746-S009	24072991-009	**TPHCALC**						✓
NOR24-01746-S010	24072991-010	**BTEXHSA**						✓
NOR24-01746-S010	24072991-010	**GROHSA**						✓
NOR24-01746-S010	24072991-010	**PHSOIL**						✓
NOR24-01746-S010	24072991-010	**SFAPI**						✓
NOR24-01746-S010	24072991-010	**TPHCALC**						✓

Analysis Method

Method Code	Method Description	Analysis Method
ANC	ANC: Acid Neutralisation Capacity (mol/kg)	Air Dried & Ground
BTEXHSA	BTEX for WAC by GCFID	As Received
CLANDPREP	CLand Prep and Dry Weight Correction to 35°C	As Received
CLANDPREP	Solid Material Description	As Received
GROHSA	GRO (C5-C10) with Carbon Banding	As Received
ICPBOR	Boron (Water Soluble) by ICPOES	Air Dried & Ground
ICPMSS	Arsenic in Solids by ICPMS	Air Dried & Ground
ICPMSS	Cadmium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Chromium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Copper in Solids by ICPMS	Air Dried & Ground
ICPMSS	Lead in Solids by ICPMS	Air Dried & Ground
ICPMSS	Mercury in Solids by ICPMS	Air Dried & Ground
ICPMSS	Nickel in Solids by ICPMS	Air Dried & Ground
ICPMSS	Selenium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Zinc in Solids by ICPMS	Air Dried & Ground
ICPMSW (Dissolved)	Antimony (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Antimony in Solids (BSEN 12457-3)	Filtered
ICPMSW (Dissolved)	Arsenic (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Arsenic in Solids (BSEN 12457-3)	Filtered
ICPMSW (Dissolved)	Cadmium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Cadmium in Solids (BSEN 12457-3)	Filtered
ICPMSW (Dissolved)	Chromium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Chromium in Solids (BSEN 12457-3)	Filtered
ICPMSW (Dissolved)	Copper (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Copper in Solids (BSEN 12457-3)	Filtered

ICPMSW (Dissolved)	Lead (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Lead in Solids (BSEN 12457-3)	Filtered
ICPMSW (Dissolved)	Mercury (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Mercury in Solids (BSEN 12457-3)	Filtered
ICPMSW (Dissolved)	Molybdenum (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Molybdenum in Solids (BSEN 12457-3)	Filtered
ICPMSW (Dissolved)	Nickel (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Nickel in Solids (BSEN 12457-3)	Filtered
ICPMSW (Dissolved)	Selenium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Selenium in Solids (BSEN 12457-3)	Filtered
ICPMSW (Dissolved)	Zinc (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Zinc in Solids (BSEN 12457-3)	Filtered
ICPWATVAR (Dissolved)	Barium (Diss.) in Lab Leachate by ICPOES	Filtered
ICPWATVAR (Dissolved)	Barium in Solids (BSEN 12457-3)	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 (Diss.) in Lab Leachate	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 in Solids (BSEN 12457-3)	Filtered
ISEF	Fluoride by ISE	Filtered
ISEF	Fluoride in Solids (BSEN 12457-3)	Filtered
KONENS	Chloride by Colorimetry	Filtered
KONENS	Chloride in Solids (BSEN 12457-3)	Filtered
KONENS	Chromium VI (Hexavalent) by Colorimetry	Air Dried & Ground
Leachate Prep CEN 2 Stg	WAC Leachate Prep, 2-Stage (BSEN 12457-3)	As Received
LOI(%MM)	LOI: Loss on Ignition @ 450°C	Air Dried & Ground
PAHMSUS	17 PAHs (inc. Coronene) for WAC by GCMS	As Received
PCBECD	PCBs, ICES 7 Congeners inc. Total Calculation	As Received
PHCONDW	Electrical Conductivity @ 25°C	Filtered
PHCONDW	pH	Filtered
PHCONDW	TDS: Total Dissolved Solids (Calc)	Filtered
PHCONDW	Total Dissolved Solids in Solids (BSEN 12457-3)	Filtered
PHSOIL	pH (2.5:1)	As Received
SFAPI	Cyanide (Free) by SFA	As Received
SFAPI	Phenol Index (Total) by SFA	As Received
SFAPI	Phenol Index (Total) by SFA	Filtered
SFAPI	Phenol Index in Solids (BSEN 12457-3)	Filtered
SUB002	Asbestos Stage 1 (with Stage 2+3 Trigger)	
SUB002	Asbestos Stage 2+3: Quantification	
TOCW	Leached Organic Carbon in Solids (BSEN 12457-3)	Filtered
TOCW	LOC: Leached Organic Carbon	Filtered
TPHCALC	TPH (>C6-C40) Total (Calc)	As Received
TPHFIDUS (Aliphatic)	TPH (>C8-C40) Aliphatic and Carbon Band (>C10-C40)	As Received
WSLM59	TOC: Total Organic Carbon	Air Dried & Ground

Project Number: 24072991

Client: SOCOTEC Materials Testing
Date Issued: 08/08/2024
Project Name: P240714-NOR24-01746-WAR24-294 - OBR Construction Ltd

Result Report Notes

Letters alongside results signify that the result has associated report notes.
The report notes are as follows:

Letter	Note
A	Due to the matrix of the sample the laboratory has had to deviate from our standard protocols to be able to process the sample and provide a result. Where applicable the accreditation has been removed and this should be taken into consideration when utilising the data.
B	The QC associated with this result has not wholly met the QMS requirements, the accreditation has therefore been removed. However, the Laboratory has confidence in the performance of the method as a whole and that the integrity of the data has not been significantly compromised.
C	Due to matrix interference, the internal standard and/or surrogate has not met the QMS requirements. This should be taken into consideration when utilising the data.
D	A non-standard volume or mass has been used for this test which has resulted in a raised detection limit.
E	Due to the parameter value being beyond our calibration range (and following the maximum size of dilution allowed, where applicable), the result cannot be quantified and as such the result will appear as a greater than symbol (>) with the accreditation removed. This data should be used for indicative purposes only.
F	Based on the sample history, appearance and smell a dilution was applied prior to testing. Unfortunately, the result is either above (>) or below (<) our calibration range. Results above our calibration range have accreditation removed. The data should be used for indicative purposes only.
G	The day 5 oxygen reading was below the capability of the instrument to detect, and therefore the calculated BOD has been reported unaccredited for guidance purposes only.

HWOL Acronym Key

Acronym	Description
HS	Headspace Analysis
EH	Extractable Hydrocarbons - i.e everything extracted by the solvent(s)
CU	Clean up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
+	Operator to indicate cumulative e.g. EH_CU+HS_1D_Total

Project Number: 24072991

Client: SOCOTEC Materials Testing
Date Issued: 08/08/2024
Project Name: P240714-NOR24-01746-WAR24-294 - OBR Construction Ltd

Additional Information

This report refers to samples as received. SOCOTEC UK Ltd takes no responsibility for accuracy or competence of sampling by others.

Results within this report relate only to the samples tested.

The accreditation codes are as follows:

U = UKAS accredited analysis
M = MCERT accredited analysis
N = Unaccredited analysis

Any accreditation marked with ^ signify results are reported on a dry weight basis of 35 ° C.

All Air Dried and Ground Samples (ADG) are oven dried at less than 35° C.

This report shall not be reproduced except in full, without written approval of the laboratory.

Opinions and interpretations given are outside the scope of our UKAS accreditation.

Any results marked with * are not covered by our scope of UKAS accreditation. If applicable, further report notes have been added.

Any solid samples where the Major Constituents are not one of the following (Sand, Silt, Clay, Made Ground) are not one of our accredited matrix types.

Any samples marked with a tick in the deviant table is deviant for the specific reason.

Any samples reported as IS, NA, ND mean the following:

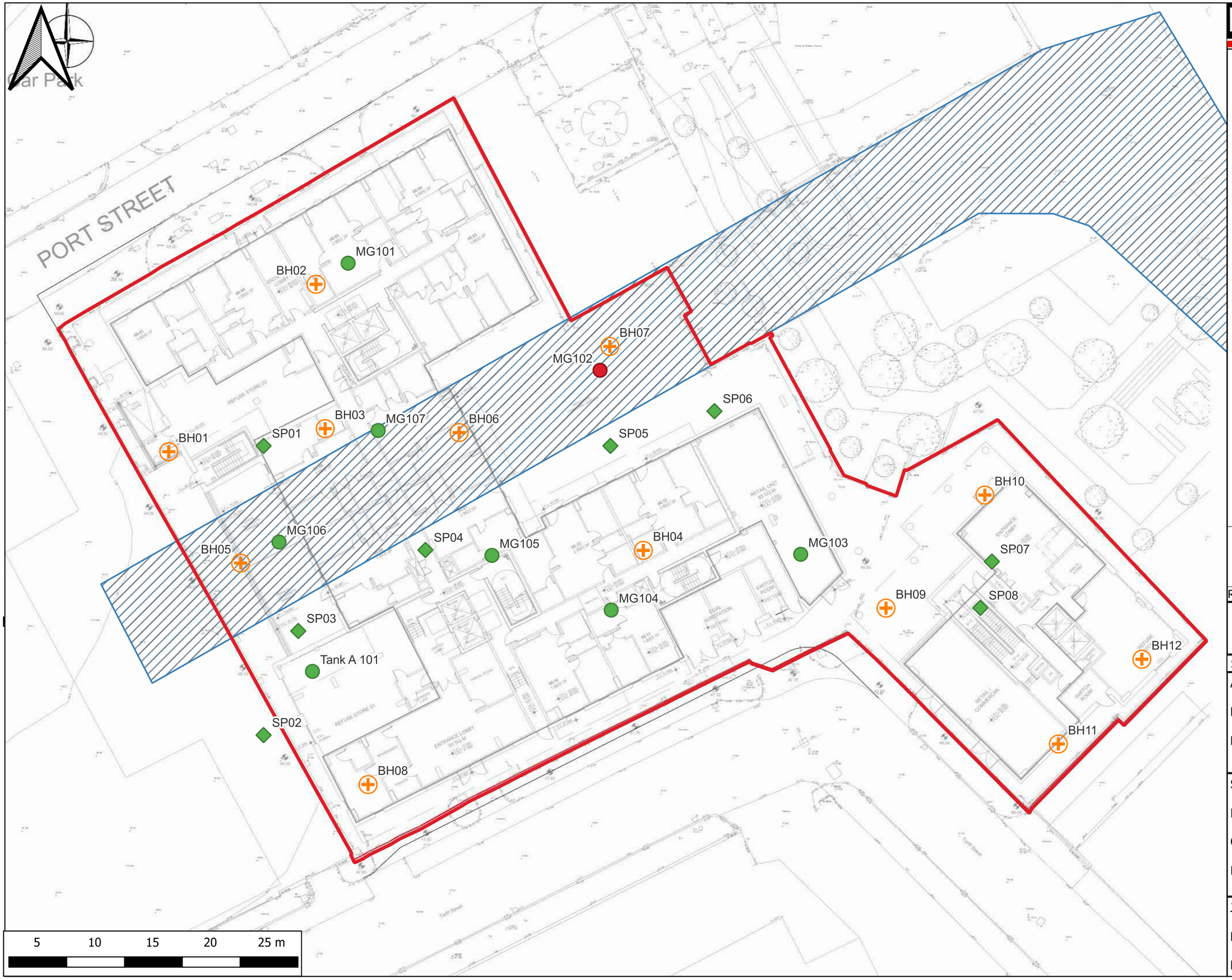
IS = Insufficient Sample to complete analysis
NA = Sample is not amenable for the required analysis
ND = Results cannot be determined

Items listed with a 'SUB' method code prefix have been carried out by another SOCOTEC department or by an external subcontracted laboratory.

Our deviating sample report does not include deviancy information for Subcontracted analysis. Please see the report from the subcontracted lab for information regarding any deviancies for this analysis.

Summaries of analysis methods are available upon request.

End of Certificate of Analysis



FAIRHURST

Legend

E3P Sampling Points 11 12 23
- No Excedence
- Excedence (6% SOM)

FH Sampling Points 19 12 23
- No Excedence

Site Boundary

Former Canal

Borehole Locations
- Cable Percussion

Rev	Description	Date	Drn	Ch'd

INFORMATION

Status:	Final
Architect:	N/A
Project:	Tariff Street
Drg Title:	Contamination Hotspots
Scale @ A3	1:296
Drawn by	AP
Checked by	JH
Date	19/01/2024
Job No.	143404
Drg No.	02
Rev.	

envirolab
Hattersley Science & Technology Park
Stockport Road, Hattersley, SK14 3QU

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 23/12683
Issue Number: 1 **Date:** 09 January, 2024

Client: Fairhurst (Leeds)
51a St Pauls Street
Leeds
LS1 2TE

Project Manager: Alex Petts/Justin Hobkirk
Project Name: Tariff Street, Manchester
Project Ref: 143404
Order No: 143404/01
Date Samples Received: 19/12/23
Date Instructions Received: 21/12/23
Date Analysis Completed: 09/01/24

Approved by:

Gemma Berrisford
Deputy Client Services Supervisor

Envirolab Job Number: 23/12683

Client Project Name: Tariff Street, Manchester

Client Project Ref: 143404

Lab Sample ID	23/12683/1	23/12683/2	23/12683/3	23/12683/4	23/12683/5	23/12683/6	23/12683/7	Units	Limit of Detection	Method ref
Client Sample No	1	1	1	1	1	1	1			
Client Sample ID	SP01	SP02	SP03	SP04	SP05	SP06	SP07			
Depth to Top	0.10	0.10	0.10	0.10	0.10	0.10	0.10			
Depth To Bottom										
Date Sampled	18-Dec-23	18-Dec-23	18-Dec-23	18-Dec-23	18-Dec-23	18-Dec-23	18-Dec-23			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	6AB	4AB	4AB	6A	4AB	6AB	6AB			
% Stones >10mm$_A$	7.3	19.7	9.5	10.2	25.1	7.1	22.0	% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	8.54	9.29	9.32	10.81	8.36	9.56	9.68	pH	0.01	A-T-031s
Total Organic Carbon$_D$$^{M\#}$	5.83	4.38	8.51	4.59	3.06	5.23	6.24	% w/w	0.03	A-T-032s
Arsenic$_D$$^{M\#}$	19	5	28	13	10	19	12	mg/kg	1	A-T-024s
Barium$_D$	110	136	314	236	282	208	176	mg/kg	1	A-T-024s
Beryllium$_D$	1.1	0.6	1.7	1.1	0.7	0.9	0.8	mg/kg	0.5	A-T-024s
Boron (water soluble)$_D$$^{M\#}$	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	mg/kg	1	A-T-027s
Cadmium$_D$$^{M\#}$	0.6	20.9	2.0	1.4	1.9	1.4	2.7	mg/kg	0.5	A-T-024s
Copper$_D$$^{M\#}$	258	40	144	61	97	99	71	mg/kg	1	A-T-024s
Chromium$_D$$^{M\#}$	19	39	25	22	16	20	26	mg/kg	1	A-T-024s
Lead$_D$$^{M\#}$	555	150	352	152	193	189	207	mg/kg	1	A-T-024s
Mercury$_D$	0.39	<0.17	0.95	<0.17	<0.17	<0.17	<0.17	mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	27	23	32	28	20	27	22	mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-024s
Vanadium$_D$$^{M\#}$	28	49	34	29	19	29	25	mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	192	4690	567	246	440	203	356	mg/kg	5	A-T-024s

Envirolab Job Number: 23/12683

Client Project Name: Tariff Street, Manchester

Client Project Ref: 143404

Lab Sample ID	23/12683/1	23/12683/2	23/12683/3	23/12683/4	23/12683/5	23/12683/6	23/12683/7	Units	Limit of Detection	Method ref
Client Sample No	1	1	1	1	1	1	1			
Client Sample ID	SP01	SP02	SP03	SP04	SP05	SP06	SP07			
Depth to Top	0.10	0.10	0.10	0.10	0.10	0.10	0.10			
Depth To Bottom										
Date Sampled	18-Dec-23	18-Dec-23	18-Dec-23	18-Dec-23	18-Dec-23	18-Dec-23	18-Dec-23			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	6AB	4AB	4AB	6A	4AB	6AB	6AB			
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD	NAD	NAD	NAD	NAD	NAD	NAD			A-T-045
Asbestos Matrix (visual)$_{D}$	-	-	-	-	-	-	-			A-T-045
Asbestos Matrix (microscope)$_{D}$	-	-	-	-	-	-	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A			A-T-045

Envirolab Job Number: 23/12683

Client Project Name: Tariff Street, Manchester

Client Project Ref: 143404

Lab Sample ID	23/12683/1	23/12683/2	23/12683/3	23/12683/4	23/12683/5	23/12683/6	23/12683/7	Units	Limit of Detection	Method ref
Client Sample No	1	1	1	1	1	1	1			
Client Sample ID	SP01	SP02	SP03	SP04	SP05	SP06	SP07			
Depth to Top	0.10	0.10	0.10	0.10	0.10	0.10	0.10			
Depth To Bottom										
Date Sampled	18-Dec-23	18-Dec-23	18-Dec-23	18-Dec-23	18-Dec-23	18-Dec-23	18-Dec-23			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	6AB	4AB	4AB	6A	4AB	6AB	6AB			
PAH-16MS										
Acenaphthene$_A^{M\#}$	0.38	0.45	3.96	0.27	2.26	0.35	0.89	mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	0.01	<0.10	<0.10	<0.01	0.12	0.02	<0.10	mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	0.51	0.87	4.37	0.21	5.55	0.39	1.15	mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	0.29	2.58	5.02	0.28	8.72	0.63	2.32	mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	0.12	2.72	3.97	0.19	6.82	0.49	2.34	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	0.14	3.30	5.03	0.23	8.88	0.61	2.93	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.05	1.37	1.50	0.10	2.78	0.27	1.08	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.07	1.31	2.18	<0.07	3.31	0.20	1.12	mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	0.37	3.78	6.86	0.35	11	0.77	3.37	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A$	<0.04	<0.40	<0.40	<0.04	0.54	0.06	<0.40	mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	1.26	6.18	18.5	1.04	32.8	2.17	7.23	mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	0.37	0.37	2.60	0.16	1.35	0.25	0.64	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	0.03	1.65	1.85	0.13	3.37	0.30	1.27	mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	0.77	<0.30	2.62	0.17	<0.30	0.14	0.32	mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	2.69	3.20	15.6	0.80	21.1	1.60	4.82	mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	1.20	5.51	15.3	0.87	26.8	1.91	6.46	mg/kg	0.07	A-T-019s
Total PAH-16MS$_A$	8.14	33.3	89.4	4.80	135	10.2	35.9	mg/kg	0.01	A-T-019s

Envirolab Job Number: 23/12683

Client Project Name: Tariff Street, Manchester

Client Project Ref: 143404

Lab Sample ID	23/12683/1	23/12683/2	23/12683/3	23/12683/4	23/12683/5	23/12683/6	23/12683/7	Units	Limit of Detection	Method ref
Client Sample No	1	1	1	1	1	1	1			
Client Sample ID	SP01	SP02	SP03	SP04	SP05	SP06	SP07			
Depth to Top	0.10	0.10	0.10	0.10	0.10	0.10	0.10			
Depth To Bottom										
Date Sampled	18-Dec-23	18-Dec-23	18-Dec-23	18-Dec-23	18-Dec-23	18-Dec-23	18-Dec-23			
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	6AB	4AB	4AB	6A	4AB	6AB	6AB			
TPH UKCWG with Clean Up										
Ali >C5-C6$_A$	<0.01	<0.01	<0.01	-	<0.01	-	<0.05	mg/kg	0.01	A-T-022s
Ali >C6-C8$_A$	0.46	0.06	<0.01	-	<0.01	-	0.15	mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	13	<10	<10	-	<20	-	<10	mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	12	<10	<10	-	<20	-	<10	mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	7	<10	21	-	<20	-	<10	mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	9	<10	26	-	27	-	12	mg/kg	1	A-T-055s
Ali >C21-C35$_A^{M\#}$	37	959	179	-	313	-	245	mg/kg	1	A-T-055s
Ali >C35-C44$_A$	35	1410	91	-	125	-	155	mg/kg	1	A-T-055s
Total Aliphatics$_A$	112	2370	318	-	465	-	412	mg/kg	1	Calc-As Recd
Aro >C5-C7$_A^{\#}$	0.01	<0.01	<0.01	-	<0.01	-	<0.05	mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	0.01	<0.01	<0.01	-	<0.01	-	<0.05	mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	43	<10	<10	-	<20	-	<10	mg/kg	1	A-T-055s
Aro >C10-C12$_A$	51	<10	24	-	<20	-	<10	mg/kg	1	A-T-055s
Aro >C12-C16$_A$	20	19	155	-	252	-	19	mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	15	108	503	-	1780	-	59	mg/kg	1	A-T-055s
Aro >C21-C35$_A^{M\#}$	37	598	1120	-	2480	-	141	mg/kg	1	A-T-055s
Aro >C35-C44$_A$	9	682	54	-	69	-	90	mg/kg	1	A-T-055s
Total Aromatics$_A$	175	1400	1860	-	4570	-	309	mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C44)$_A$	287	3780	2180	-	5040	-	722	mg/kg	1	Calc-As Recd
BTEX - Benzene$_A^{\#}$	0.01	<0.01	<0.01	-	<0.01	-	<0.05	mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	0.01	<0.01	<0.01	-	<0.01	-	<0.05	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	0.09	<0.01	<0.01	-	<0.01	-	<0.05	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	0.35	0.02	<0.01	-	<0.01	-	<0.05	mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	0.05	<0.01	<0.01	-	<0.01	-	<0.05	mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	<0.01	<0.01	<0.01	-	<0.01	-	<0.05	mg/kg	0.01	A-T-022s

Envirolab Job Number: 23/12683

Client Project Name: Tariff Street, Manchester

Client Project Ref: 143404

Lab Sample ID	23/12683/8							Units	Limit of Detection	Method ref
Client Sample No	1									
Client Sample ID	SP08									
Depth to Top	0.10									
Depth To Bottom										
Date Sampled	18-Dec-23									
Sample Type	SOIL									
Sample Matrix Code	6AB									
% Stones >10mm$_A$	8.6							% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	9.16							pH	0.01	A-T-031s
Arsenic$_D$$^{M\#}$	20							mg/kg	1	A-T-024s
Barium$_D$	170							mg/kg	1	A-T-024s
Beryllium$_D$	1.0							mg/kg	0.5	A-T-024s
Boron (water soluble)$_D$$^{M\#}$	<1.0							mg/kg	1	A-T-027s
Cadmium$_D$$^{M\#}$	2.8							mg/kg	0.5	A-T-024s
Copper$_D$$^{M\#}$	123							mg/kg	1	A-T-024s
Chromium$_D$$^{M\#}$	17							mg/kg	1	A-T-024s
Lead$_D$$^{M\#}$	303							mg/kg	1	A-T-024s
Mercury$_D$	0.37							mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	23							mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	<1							mg/kg	1	A-T-024s
Vanadium$_D$$^{M\#}$	25							mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	313							mg/kg	5	A-T-024s

Envirolab Job Number: 23/12683

Client Project Name: Tariff Street, Manchester

Client Project Ref: 143404

Lab Sample ID	**23/12683/8**							**Units**	**Limit of Detection**	**Method ref**
Client Sample No	**1**									
Client Sample ID	**SP08**									
Depth to Top	**0.10**									
Depth To Bottom										
Date Sampled	**18-Dec-23**									
Sample Type	**SOIL**									
Sample Matrix Code	**6AB**									
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	**NAD**									A-T-045
Asbestos Matrix (visual)$_{D}$	**-**									A-T-045
Asbestos Matrix (microscope)$_{D}$	**-**									A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	**N/A**									A-T-045

Envirolab Job Number: 23/12683

Client Project Name: Tariff Street, Manchester

Client Project Ref: 143404

Lab Sample ID	23/12683/8							Units	Limit of Detection	Method ref
Client Sample No	1									
Client Sample ID	SP08									
Depth to Top	0.10									
Depth To Bottom										
Date Sampled	18-Dec-23									
Sample Type	SOIL									
Sample Matrix Code	6AB									
PAH-16MS										
Acenaphthene$_A^{M\#}$	1.24							mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.10							mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	1.06							mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	1.14							mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	1.02							mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	1.24							mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.50							mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.70							mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	1.84							mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A$	<0.40							mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	4.27							mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	0.81							mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	0.47							mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	0.70							mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	4.31							mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	3.67							mg/kg	0.07	A-T-019s
Total PAH-16MS$_A$	21.8							mg/kg	0.01	A-T-019s

Report Notes

General
This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **six weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and Interpretations expressed are outside our scope of accreditation.
The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client.
A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "^"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
N/A	Not applicable

Asbestos
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing, and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs
Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.					

Soil Chemical Analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:
For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:
EPH CWG results have humics mathematically subtracted through instrument calculation.
Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the accreditation range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Hattersley Science & Technology Park, Stockport Road, Hattersley, SK14 3QU
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Fairhurst (Leeds), 51a St Pauls Street, Leeds, LS1 2TE

Project No: 23/12683

Date Received: 21/12/2023 (am)

Project: Tariff Street, Manchester

Cool Box Temperatures (°C): 11.6

Clients Project No: 143404

Lab Sample ID	23/12683/7
Client Sample No	1
Client Sample ID/Depth	SP07 0.10m
Date Sampled	18/12/23
Deviation Code	
F	✓

Key
F *Maximum holding time exceeded between sampling date and analysis for analytes listed below*

HOLDING TIME EXCEEDANCES

Lab Sample ID	23/12683/7
Client Sample No	1
Client Sample ID/Depth	SP07 0.10m
Date Sampled	18/12/23
VPHCWG	✓

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	23/12683/1	23/12683/2	23/12683/3	23/12683/4	23/12683/5	23/12683/6	23/12683/7	23/12683/8
Client Sample No	1	1	1	1	1	1	1	1
Client Sample ID/Depth	SP01 0.10m	SP02 0.10m	SP03 0.10m	SP04 0.10m	SP05 0.10m	SP06 0.10m	SP07 0.10m	SP08 0.10m
Date Sampled	18/12/23	18/12/23	18/12/23	18/12/23	18/12/23	18/12/23	18/12/23	18/12/23
A-T-019s	03/01/2024	04/01/2024	04/01/2024	03/01/2024	04/01/2024	03/01/2024	04/01/2024	04/01/2024
A-T-022s	04/01/2024	04/01/2024	04/01/2024		04/01/2024		05/01/2024	
A-T-024s	08/01/2024	09/01/2024	08/01/2024	08/01/2024	08/01/2024	08/01/2024	08/01/2024	08/01/2024
A-T-027s	05/01/2024	05/01/2024	05/01/2024	05/01/2024	05/01/2024	05/01/2024	05/01/2024	05/01/2024
A-T-031s	08/01/2024	08/01/2024	08/01/2024	08/01/2024	08/01/2024	08/01/2024	08/01/2024	08/01/2024
A-T-032s	09/01/2024	09/01/2024	09/01/2024	09/01/2024	09/01/2024	09/01/2024	09/01/2024	
A-T-044	05/01/2024	05/01/2024	05/01/2024	05/01/2024	05/01/2024	05/01/2024	05/01/2024	05/01/2024
A-T-045	02/01/2024	02/01/2024	02/01/2024	02/01/2024	02/01/2024	02/01/2024	02/01/2024	02/01/2024
A-T-055s	04/01/2024	04/01/2024	05/01/2024		05/01/2024		05/01/2024	
Calc-As Recd	04/01/2024	04/01/2024	05/01/2024		05/01/2024		05/01/2024	

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

Nicola Dawson
e3p☐
Taylor Road
Urmston
Manchester
M41 7JQ

e: ndawson@e3p.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
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Analytical Report Number : 23-75181

Project / Site name:	Tariff Street, Ancoats	**Samples received on:**	12/12/2023
Your job number:	17-370	**Samples instructed on/ Analysis started on:**	14/12/2023
Your order number:		**Analysis completed by:**	22/12/2023
Report Issue Number:	1	**Report issued on:**	22/12/2023
Samples Analysed:	1 leachate sample - 8 soil samples		

Signed:

Joanna Wawrzeczko
Senior 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

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.

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-75181
Project / Site name: Tariff Street, Ancoats

Lab Sample Number				2912450	2912451	2912452	2912453	2912454
Sample Reference				TankA 101	MG101	MG102	MG103	MG104
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				11/12/2023	11/12/2023	11/12/2023	11/12/2023	11/12/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	78	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	7.2	17	16	22
Total mass of sample received	kg	0.001	NONE	0.7	0.3	0.3	0.3	0.3
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	Chrysotile	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Detected	Not-detected	Not-detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	< 0.001	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	< 0.001	-	-	-
Asbestos Analyst ID	N/A	N/A	N/A	MLO	PDO	PDO	PDO	PDO
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	11.8	9	8.3	9.6	8.3
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	2100	670	940	1600	1300
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.091	0.047	0.073	0.16	0.11
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	180	94	150	320	210
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	91.3	46.8	72.8	159	106
Sulphide	mg/kg	1	MCERTS	25	30	4.4	8.9	15
Total Sulphur	mg/kg	50	MCERTS	750	960	540	980	2800
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.7	4.6	2.1	1.9	3.7
Total Organic Carbon (TOC) – Manual	%	0.1	MCERTS	-	-	-	-	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	3.4	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	-	0.93	2.3	0.78	0.81
Acenaphthylene	mg/kg	0.05	MCERTS	-	0.39	0.87	0.34	0.09
Acenaphthene	mg/kg	0.05	MCERTS	-	2.5	15	1	0.1
Fluorene	mg/kg	0.05	MCERTS	-	2.3	10	0.99	0.19
Phenanthrene	mg/kg	0.05	MCERTS	-	13	110	7.7	0.47
Anthracene	mg/kg	0.05	MCERTS	-	4.4	32	1.6	0.12
Fluoranthene	mg/kg	0.05	MCERTS	-	19	160	9.8	0.22
Pyrene	mg/kg	0.05	MCERTS	-	17	140	9.6	0.27
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	9.6	64	4.4	0.17
Chrysene	mg/kg	0.05	MCERTS	-	8.2	66	4.6	0.18
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-	8.4	71	5.4	0.17
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-	3.3	30	1.8	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	6.7	62	4.6	0.13
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	3.1	31	2.5	0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	1	8.4	0.75	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	3.3	37	3	0.09
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-	104	839	58.8	3.06

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Analytical Report Number: 23-75181
Project / Site name: Tariff Street, Ancoats

Lab Sample Number				2912450	2912451	2912452	2912453	2912454
Sample Reference				TankA 101	MG101	MG102	MG103	MG104
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				11/12/2023	11/12/2023	11/12/2023	11/12/2023	11/12/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.4	9.6	14	30	21
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	0.6	1.2	2.5	0.7
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	7.8	25	22	20	10
Copper (aqua regia extractable)	mg/kg	1	MCERTS	32	48	48	83	180
Lead (aqua regia extractable)	mg/kg	1	MCERTS	31	140	180	250	240
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	0.5	0.6
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	8.1	24	27	29	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	1.1	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	81	180	300	250	390
Monoaromatics & Oxygenates								
Benzene	µg/kg	5	MCERTS	31	-	-	-	-
Toluene	µg/kg	5	MCERTS	180	-	-	-	-
Ethylbenzene	µg/kg	5	MCERTS	100	-	-	-	-
p & m-xylene	µg/kg	5	MCERTS	520	-	-	-	-
o-xylene	µg/kg	5	MCERTS	350	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	-	-	-	-
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.02	NONE	< 0.020	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.02	NONE	< 0.020	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.05	NONE	< 0.050	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	8	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	73	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	94	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	55	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	230	-	-	-	-
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	NONE	0.028	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	NONE	0.17	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.05	NONE	1.1	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	30	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	110	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	230	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	200	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	570	-	-	-	-
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	NONE	-	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	-	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	-	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	-	2.2	3.6	< 2.0	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	-	22	73	5.8	< 4.0
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	-	160	410	44	< 10
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	-	1800	520	110	< 10
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	NONE	-	1100	66	24	11
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	-	3100	1100	190	26
VOCs								
Chloromethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Chloroethane	µg/kg	5	NONE	< 5.0	-	-	-	-

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Analytical Report Number: 23-75181
Project / Site name: Tariff Street, Ancoats

Lab Sample Number				2912450	2912451	2912452	2912453	2912454
Sample Reference				TankA 101	MG101	MG102	MG103	MG104
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				11/12/2023	11/12/2023	11/12/2023	11/12/2023	11/12/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Bromomethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Vinyl Chloride	µg/kg	5	NONE	< 5.0	-	-	-	-
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	-	-	-	-
1,1-dichloroethene	µg/kg	5	NONE	< 5.0	-	-	-	-
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0	-	-	-	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	-	-	-	-
1,1-dichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
2,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Chloroform	µg/kg	5	NONE	< 5.0	-	-	-	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,2-dichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Benzene	µg/kg	5	MCERTS	31	-	-	-	-
Carbontetrachloride	µg/kg	5	NONE	< 5.0	-	-	-	-
1,2-dichloropropane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Toluene	µg/kg	5	MCERTS	180	-	-	-	-
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Tetrachloroethene	µg/kg	5	NONE	< 5.0	-	-	-	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Ethylbenzene	µg/kg	5	MCERTS	100	-	-	-	-
p & m-xylene	µg/kg	5	MCERTS	520	-	-	-	-
Styrene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Bromoform	µg/kg	5	NONE	< 5.0	-	-	-	-
o-xylene	µg/kg	5	MCERTS	350	-	-	-	-
Isopropylbenzene	µg/kg	5	ISO 17025	14	-	-	-	-
1,1,2,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Bromobenzene	µg/kg	5	NONE	< 5.0	-	-	-	-
N-Propylbenzene	µg/kg	5	ISO 17025	34	-	-	-	-
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	190	-	-	-	-
Tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	570	-	-	-	-
Sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,3-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
P-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,4-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,2-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
Butylbenzene	µg/kg	5	NONE	< 5.0	-	-	-	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-

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Analytical Report Number: 23-75181
Project / Site name: Tariff Street, Ancoats

Lab Sample Number				2912450	2912451	2912452	2912453	2912454
Sample Reference				TankA 101	MG101	MG102	MG103	MG104
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				11/12/2023	11/12/2023	11/12/2023	11/12/2023	11/12/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	-	-	-	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	-	-	-	-
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	-	-	-	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	-	-	-	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	-	-	-	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	-	-	-	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	-	-	-	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	0.9	-	-	-	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Naphthalene	mg/kg	0.05	MCERTS	38	-	-	-	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	-	-	-	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	-	-	-	-
2-Methylnaphthalene	mg/kg	0.1	NONE	18	-	-	-	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	-	-	-	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	-	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	1.7	-	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	15	-	-	-	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	-	-	-	-
Dibenzofuran	mg/kg	0.2	MCERTS	10	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	-	-	-	-
Fluorene	mg/kg	0.05	MCERTS	17	-	-	-	-
Azobenzene	mg/kg	0.3	NONE	< 0.3	-	-	-	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	-	-	-	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	-	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	46	-	-	-	-
Anthracene	mg/kg	0.05	MCERTS	14	-	-	-	-
Carbazole	mg/kg	0.3	MCERTS	6.3	-	-	-	-
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	-	-	-	-
Anthraquinone	mg/kg	0.3	NONE	< 0.3	-	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	45	-	-	-	-
Pyrene	mg/kg	0.05	MCERTS	43	-	-	-	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	-	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	21	-	-	-	-

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Analytical Report Number: 23-75181
Project / Site name: Tariff Street, Ancoats

Lab Sample Number				2912450	2912451	2912452	2912453	2912454
Sample Reference				TankA 101	MG101	MG102	MG103	MG104
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				11/12/2023	11/12/2023	11/12/2023	11/12/2023	11/12/2023
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Chrysene	mg/kg	0.05	MCERTS	19	-	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	23	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	7.2	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	18	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	7.6	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	2.4	-	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	8.9	-	-	-	-

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

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Analytical Report Number: 23-75181
Project / Site name: Tariff Street, Ancoats

Lab Sample Number				2912455	2912456	2912457
Sample Reference				MG105	MG106	MG107
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				11/12/2023	11/12/2023	11/12/2023
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	22	19	47
Total mass of sample received	kg	0.001	NONE	0.3	0.4	0.4
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-
Asbestos Analyst ID	N/A	N/A	N/A	PDO	PDO	PDO
General Inorganics						
pH - Automated	pH Units	N/A	MCERTS	8.1	8.6	7.7
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	180
Total Sulphate as SO4	mg/kg	50	MCERTS	660	1600	2700
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.066	0.26	0.85
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	130	520	1700
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	65.6	259	848
Sulphide	mg/kg	1	MCERTS	21	40	180
Total Sulphur	mg/kg	50	MCERTS	950	1500	8900
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	2.9	2.9	-
Total Organic Carbon (TOC) – Manual	%	0.1	MCERTS	-	-	8.5
Total Phenols						
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Speciated PAHs						
Naphthalene	mg/kg	0.05	MCERTS	0.51	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	0.16	-	-
Acenaphthene	mg/kg	0.05	MCERTS	1.3	-	-
Fluorene	mg/kg	0.05	MCERTS	1.1	-	-
Phenanthrene	mg/kg	0.05	MCERTS	8.5	-	-
Anthracene	mg/kg	0.05	MCERTS	2.1	-	-
Fluoranthene	mg/kg	0.05	MCERTS	14	-	-
Pyrene	mg/kg	0.05	MCERTS	12	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	5.8	-	-
Chrysene	mg/kg	0.05	MCERTS	5.5	-	-
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	6.5	-	-
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	2.1	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	5.4	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	2.7	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.81	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	3.1	-	-
Total PAH						
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	71.3	-	-

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Analytical Report Number: 23-75181
Project / Site name: Tariff Street, Ancoats

Lab Sample Number				2912455	2912456	2912457
Sample Reference				MG105	MG106	MG107
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				11/12/2023	11/12/2023	11/12/2023
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Heavy Metals / Metalloids						
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	22	22	110
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.9	2.2	8.6
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21	21	44
Copper (aqua regia extractable)	mg/kg	1	MCERTS	58	110	620
Lead (aqua regia extractable)	mg/kg	1	MCERTS	150	350	980
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	1.3	2.7
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	25	28	80
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	2.4
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	360	590	5600
Monoaromatics & Oxygenates						
Benzene	µg/kg	5	MCERTS	-	< 5.0	19
Toluene	µg/kg	5	MCERTS	-	< 5.0	13
Ethylbenzene	µg/kg	5	MCERTS	-	< 5.0	19
p & m-xylene	µg/kg	5	MCERTS	-	< 5.0	200
o-xylene	µg/kg	5	MCERTS	-	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	-	< 5.0	< 5.0
Petroleum Hydrocarbons						
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.02	NONE	-	< 0.020	< 0.020
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.02	NONE	-	< 0.020	< 0.020
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.05	NONE	-	< 0.050	< 0.050
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	-	3.2	4.8
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	-	15	34
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	-	130	160
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	-	1700	2700
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	-	1800	2900
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	NONE	-	< 0.010	0.02
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	NONE	-	< 0.010	0.014
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.05	NONE	-	< 0.050	0.34
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	-	< 1.0	2.2
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	-	23	41
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	-	160	360
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	-	750	1100
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	-	930	1500
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	NONE	< 0.1	-	-
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	-	-
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	< 1.0	-	-
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	< 2.0	-	-
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	4.8	-	-
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	36	-	-
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	94	-	-
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	NONE	25	-	-
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	160	-	-
VOCs						
Chloromethane	µg/kg	5	ISO 17025	-	< 5.0##	< 5.0
Chloroethane	µg/kg	5	NONE	-	< 5.0	< 5.0

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Analytical Report Number: 23-75181
Project / Site name: Tariff Street, Ancoats

Lab Sample Number				2912455	2912456	2912457
Sample Reference				MG105	MG106	MG107
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				11/12/2023	11/12/2023	11/12/2023
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Bromomethane	µg/kg	5	ISO 17025	-	< 5.0##	< 5.0
Vinyl Chloride	µg/kg	5	NONE	-	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	-	< 5.0	< 5.0
1,1-dichloroethene	µg/kg	5	NONE	-	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	-	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	-	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	-	< 5.0	< 5.0
1,1-dichloroethane	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
Chloroform	µg/kg	5	NONE	-	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
1,2-dichloroethane	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	-	< 5.0	19
Carbontetrachloride	µg/kg	5	NONE	-	< 5.0	< 5.0
1,2-dichloropropane	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	-	< 5.0	13
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	NONE	-	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	-	< 5.0	19
p & m-xylene	µg/kg	5	MCERTS	-	< 5.0	200
Styrene	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
Bromoform	µg/kg	5	NONE	-	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	-	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	-	< 5.0##	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
Bromobenzene	µg/kg	5	NONE	-	< 5.0	< 5.0
N-Propylbenzene	µg/kg	5	ISO 17025	-	< 5.0##	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
Tert-Butylbenzene	µg/kg	5	ISO 17025	-	< 5.0##	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	-	< 5.0	240
Sec-Butylbenzene	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
1,3-dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
P-Isopropyltoluene	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
1,4-dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
1,2-dichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
Butylbenzene	µg/kg	5	NONE	-	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	-	< 5.0	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	< 5.0

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Analytical Report Number: 23-75181
Project / Site name: Tariff Street, Ancoats

Lab Sample Number				2912455	2912456	2912457
Sample Reference				MG105	MG106	MG107
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				11/12/2023	11/12/2023	11/12/2023
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Hexachlorobutadiene	µg/kg	5	NONE	-	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	-	< 5.0	< 5.0

SVOCs

Aniline	mg/kg	0.1	NONE	-	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	ISO 17025	-	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	-	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	-	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	-	2.3	2.8
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	-	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	-	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	-	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	-	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	-	1.9	1.4
2-Chloronaphthalene	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	-	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	-	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	-	0.5	1.1
Acenaphthene	mg/kg	0.05	MCERTS	-	6.7	11
2,4-Dinitrotoluene	mg/kg	0.2	NONE	-	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	-	2.8	1.9
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	-	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	-	5.1	4.6
Azobenzene	mg/kg	0.3	NONE	-	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	-	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	-	28	16
Anthracene	mg/kg	0.05	MCERTS	-	8.1	11
Carbazole	mg/kg	0.3	MCERTS	-	1.6	1
Dibutyl phthalate	mg/kg	0.2	NONE	-	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	NONE	-	1.9	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	-	41	85
Pyrene	mg/kg	0.05	MCERTS	-	35	69
Butyl benzyl phthalate	mg/kg	0.3	NONE	-	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	16	25

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 23-75181
Project / Site name: Tariff Street, Ancoats

Lab Sample Number				2912455	2912456	2912457
Sample Reference				MG105	MG106	MG107
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				11/12/2023	11/12/2023	11/12/2023
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Chrysene	mg/kg	0.05	MCERTS	-	16	25
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-	20	29
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-	7.5	32
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	16	12
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	7.8	8.5
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	2.3	2.3
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	9	10

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

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Analytical Report Number: 23-75181
Project / Site name: Tariff Street, Ancoats
Your Order No:

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006-PL based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
2912451	MG101		197	Loose Fibres	**Chrysotile**	< 0.001	**< 0.001**

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number: 23-75181
Project / Site name: Tariff Street, Ancoats

Lab Sample Number				2912458
Sample Reference				TankA 101
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				11/12/2023
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
General Inorganics				
pH (automated)	pH Units	N/A	ISO 17025	11.7
Total Cyanide	µg/l	10	ISO 17025	< 10
Total Phenols				
Total Phenols (monohydric)	µg/l	10	ISO 17025	42
Speciated PAHs				
Naphthalene	µg/l	0.01	NONE	31
Acenaphthylene	µg/l	0.01	NONE	0.17
Acenaphthene	µg/l	0.01	NONE	4
Fluorene	µg/l	0.01	NONE	2.5
Phenanthrene	µg/l	0.01	NONE	4.2
Anthracene	µg/l	0.01	NONE	0.43
Fluoranthene	µg/l	0.01	NONE	0.69
Pyrene	µg/l	0.01	NONE	0.45
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01
Chrysene	µg/l	0.01	NONE	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01
Total PAH				
Total EPA-16 PAHs	µg/l	0.2	NONE	44
Heavy Metals / Metalloids				
Arsenic (dissolved)	µg/l	1	ISO 17025	3.6
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	1.7
Copper (dissolved)	µg/l	0.7	ISO 17025	19
Lead (dissolved)	µg/l	1	ISO 17025	7.9
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.8
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	4.5
Monoaromatics & Oxygenates				
Benzene	µg/l	3	NONE	29
Toluene	µg/l	3	NONE	110
Ethylbenzene	µg/l	3	NONE	20
p & m-xylene	µg/l	3	NONE	130
o-xylene	µg/l	3	NONE	95
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10

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Analytical Report Number: 23-75181
Project / Site name: Tariff Street, Ancoats

Lab Sample Number				2912458
Sample Reference				TankA 101
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				11/12/2023
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Petroleum Hydrocarbons				
TPH1 (C10 - C40) EH_1D_TOTAL_MS	µg/l	10	NONE	720
TPH-CWG - Aliphatic >C5 - C6 HS_1D_AL	µg/l	1	NONE	< 1.0
TPH-CWG - Aliphatic >C6 - C8 HS_1D_AL	µg/l	1	NONE	< 1.0
TPH-CWG - Aliphatic >C8 - C10 HS_1D_AL	µg/l	1	NONE	< 1.0
TPH-CWG - Aliphatic >C10 - C12 EH_1D_AL_MS	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C12 - C16 EH_1D_AL_MS	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C16 - C21 EH_1D_AL_MS	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic >C21 - C35 EH_1D_AL_MS	µg/l	10	NONE	< 10
TPH-CWG - Aliphatic (C5 - C35) HS+EH_1D_AL_MS	µg/l	10	NONE	< 10
TPH-CWG - Aromatic >C5 - C7 HS_1D_AR	µg/l	1	NONE	24
TPH-CWG - Aromatic >C7 - C8 HS_1D_AR	µg/l	1	NONE	98
TPH-CWG - Aromatic >C8 - C10 HS_1D_AR	µg/l	1	NONE	260
TPH-CWG - Aromatic >C10 - C12 EH_1D_AR_MS	µg/l	10	NONE	140
TPH-CWG - Aromatic >C12 - C16 EH_1D_AR_MS	µg/l	10	NONE	170
TPH-CWG - Aromatic >C16 - C21 EH_1D_AR_MS	µg/l	10	NONE	200
TPH-CWG - Aromatic >C21 - C35 EH_1D_AR_MS	µg/l	10	NONE	220
TPH-CWG - Aromatic (C5 - C35) HS+EH_1D_AR_MS	µg/l	10	NONE	1100

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

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Analytical Report Number : 23-75181
Project / Site name: Tariff Street, Ancoats

* 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 *
2912450	TankA 101	None Supplied	None Supplied	Non Soil**
2912451	MG101	None Supplied	None Supplied	Brown loam and sand with gravel.
2912452	MG102	None Supplied	None Supplied	Brown clay with gravel.
2912453	MG103	None Supplied	None Supplied	Brown loam and sand with gravel.
2912454	MG104	None Supplied	None Supplied	Brown loam and sand with gravel.
2912455	MG105	None Supplied	None Supplied	Brown clay with gravel.
2912456	MG106	None Supplied	None Supplied	Brown clay with gravel.
2912457	MG107	None Supplied	None Supplied	Brown clay with gravel.

Analytical Report Number : 23-75181
Project / Site name: Tariff Street, Ancoats

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
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
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.	L038-PL	D	MCERTS
BS EN 12457-1 (2:1) Leachate Prep	2:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-1.	L043-PL	W	NONE
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in leachate	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards. Refer to CoA for analyte specific accreditation.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
pH at 20oC in leachate (automated)	Determination of pH in leachate by electrometric measurement.	In house method.	L099B	W	ISO 17025
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
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.	L019-UK/PL	D	NONE

Analytical Report Number : 23-75181
Project / Site name: Tariff Street, Ancoats

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
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.Refer to CoA for analyte specific accreditation.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
TPH1 (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
TPHCWG (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
Total cyanide in leachate	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260. Refer to CoA for analyte specific accreditation	L073B-PL	W	MCERTS
BTEX and MTBE in leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260. Refer to CoA for analyte specific accreditation	L073B-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID. Refer to CoA for band specific accreditation.	In-house method with silica gel split/clean up.	L088/76-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L023-PL	D	MCERTS
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE

Analytical Report Number : 23-75181
Project / Site name: Tariff Street, Ancoats

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
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	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.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

- Quality control parameter has a high recovery (outside of limit); however the associated result is below the reporting limit, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised
*Unaccredited sample matrix

envirolab
Hattersley Science & Technology Park
Stockport Road, Hattersley, SK14 3QU

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 24/01388
Issue Number: 1 **Date:** 26 February, 2024

Client: Fairhurst (Leeds)
51a St Pauls Street
Leeds
LS1 2TE

Project Manager: Alex Petts/Justin Hobkirk
Project Name: Tariff Street, Manchester
Project Ref: 143404
Order No: 143404/02
Date Samples Received: 31/01/24
Date Instructions Received: 12/02/24
Date Analysis Completed: 26/02/24

Approved by:

Gemma Berrisford
Deputy Client Services Supervisor

Envirolab Job Number: 24/01388

Client Project Name: Tariff Street, Manchester

Client Project Ref: 143404

Lab Sample ID	24/01388/1	24/01388/2	24/01388/3	24/01388/4	24/01388/5	24/01388/6	24/01388/7	Units	Limit of Detection	Method ref
Client Sample No	1	1	1	1	1	1	1			
Client Sample ID	TP02	TP02	TP03	TP04	TP05	TP06	TP07			
Depth to Top	1.40	2.20	1.40	0.50	0.40	0.60	0.40			
Depth To Bottom										
Date Sampled	30-Jan-24	30-Jan-24	30-Jan-24	30-Jan-24	30-Jan-24	30-Jan-24	30-Jan-24			
Sample Type	SOIL	SOIL	SOLID	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	6A	3	7	4AB	6A	6A	4ABE			
% Stones >10mm$_A$	6.5	6.6	<0.1	<0.1	28.0	<0.1	11.1	% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	7.34	8.11	8.05^U	7.89	7.94	8.63	8.06	pH	0.01	A-T-031s
Total Organic Carbon$_D$$^{M\#}$	7.93	0.84	4.58^U	4.30	4.90	9.31	4.82	% w/w	0.03	A-T-032s
Arsenic$_D$$^{M\#}$	27	4	14^U	17	14	14	20	mg/kg	1	A-T-024s
Barium$_D$	138	119	147	325	83	439	116	mg/kg	1	A-T-024s
Beryllium$_D$	2.0	1.3	1.5	0.7	0.9	0.6	1.2	mg/kg	0.5	A-T-024s
Boron (water soluble)$_D$$^{M\#}$	2.5	<1.0	1.3^U	<1.0	1.9	2.3	1.3	mg/kg	1	A-T-027s
Cadmium$_D$$^{M\#}$	0.7	<0.5	<0.5^U	0.7	<0.5	6.8	0.6	mg/kg	0.5	A-T-024s
Copper$_D$$^{M\#}$	61	22	31^U	71	126	193	87	mg/kg	1	A-T-024s
Chromium$_D$$^{M\#}$	26	34	32^U	15	14	30	18	mg/kg	1	A-T-024s
Lead$_D$$^{M\#}$	100	12	38^U	548	235	1150	169	mg/kg	1	A-T-024s
Mercury$_D$	<0.17	<0.17	<0.17	0.26	<0.17	<0.17	0.56	mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	33	34	35^U	20	22	31	24	mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	<1	<1	<1^U	<1	<1	<1	<1	mg/kg	1	A-T-024s
Vanadium$_D$$^{M\#}$	41	34	36^U	21	21	24	25	mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	87	56	60^U	211	122	645	77	mg/kg	5	A-T-024s

Envirolab Job Number: 24/01388

Client Project Name: Tariff Street, Manchester

Client Project Ref: 143404

Lab Sample ID	24/01388/1	24/01388/2	24/01388/3	24/01388/4	24/01388/5	24/01388/6	24/01388/7	Units	Limit of Detection	Method ref
Client Sample No	1	1	1	1	1	1	1			
Client Sample ID	TP02	TP02	TP03	TP04	TP05	TP06	TP07			
Depth to Top	1.40	2.20	1.40	0.50	0.40	0.60	0.40			
Depth To Bottom										
Date Sampled	30-Jan-24	30-Jan-24	30-Jan-24	30-Jan-24	30-Jan-24	30-Jan-24	30-Jan-24			
Sample Type	SOIL	SOIL	SOLID	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	6A	3	7	4AB	6A	6A	4ABE			
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD	NAD	NAD^{U}	Chrysotile	NAD	Chrysotile	NAD			A-T-045
Asbestos Matrix (visual)$_{D}$	-	-	-	Bitumin	-	-	-			A-T-045
Asbestos Matrix (microscope)$_{D}$	-	-	-	-	-	Loose Fibres	-			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A			A-T-045
Asbestos in Soil Quantification % (Hand Picking & Weighing)										
Asbestos in soil % composition (hand picking and weighing)$_{D}$	-	-	-	0.078	-	0.005	-	% w/w	0.001	A-T-054

Envirolab Job Number: 24/01388

Client Project Name: Tariff Street, Manchester

Client Project Ref: 143404

Lab Sample ID	24/01388/1	24/01388/2	24/01388/3	24/01388/4	24/01388/5	24/01388/6	24/01388/7	Units	Limit of Detection	Method ref
Client Sample No	1	1	1	1	1	1	1			
Client Sample ID	TP02	TP02	TP03	TP04	TP05	TP06	TP07			
Depth to Top	1.40	2.20	1.40	0.50	0.40	0.60	0.40			
Depth To Bottom										
Date Sampled	30-Jan-24	30-Jan-24	30-Jan-24	30-Jan-24	30-Jan-24	30-Jan-24	30-Jan-24			
Sample Type	SOIL	SOIL	SOLID	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	6A	3	7	4AB	6A	6A	4ABE			
PAH-16MS										
Acenaphthene$_A^{M\#}$	1.55	<0.01	206^U	0.48	0.28	2.43	0.99	mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	0.04	<0.01	2.87^U	0.11	0.02	0.43	0.05	mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	0.29	<0.02	54.2^U	4.15	0.44	2.81	1.64	mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	0.24	<0.04	9.62^U	5.36	0.84	6.71	5.31	mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	0.11	<0.04	1.39^U	6.67	0.66	6.29	4.33	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	0.21	<0.05	2.47^U	8.31	0.83	7.38	5.56	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.05	<0.05	0.29^U	3.69	0.31	5.83	2.25	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.07	<0.07	0.92^U	2.83	0.28	7.36	2.07	mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	0.29	0.07	8.13^U	5.92	0.85	6.60	5.07	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A$	<0.04	<0.04	0.09	0.94	0.09	0.84	0.53	mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	0.94	<0.08	77.9^U	10.1	1.74	16.4	12.5	mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	0.94	0.01	142^U	0.49	0.20	2.49	0.56	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	0.05	<0.03	0.32^U	4.06	0.29	4.86	2.48	mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	7.25	0.03	373^U	0.88	0.47	5.08	0.29	mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	2.34	0.12	300^U	4.97	2.07	10	6.69	mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	0.73	<0.07	53^U	9.12	1.68	16.5	10.4	mg/kg	0.07	A-T-019s
Total PAH-16MS$_A$	15	0.23	1230^U	68.1	11.1	102	60.7	mg/kg	0.01	A-T-019s

Envirolab Job Number: 24/01388

Client Project Name: Tariff Street, Manchester

Client Project Ref: 143404

Lab Sample ID	24/01388/1	24/01388/2	24/01388/3	24/01388/4	24/01388/5	24/01388/6	24/01388/7	Units	Limit of Detection	Method ref
Client Sample No	1	1	1	1	1	1	1			
Client Sample ID	TP02	TP02	TP03	TP04	TP05	TP06	TP07			
Depth to Top	1.40	2.20	1.40	0.50	0.40	0.60	0.40			
Depth To Bottom										
Date Sampled	30-Jan-24	30-Jan-24	30-Jan-24	30-Jan-24	30-Jan-24	30-Jan-24	30-Jan-24			
Sample Type	SOIL	SOIL	SOLID	SOIL	SOIL	SOIL	SOIL			
Sample Matrix Code	6A	3	7	4AB	6A	6A	4ABE			
TPH UKCWG with Clean Up										
Ali >C5-C6$_A$	0.61	0.04	0.04	<0.01	0.02	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8$_A$	13.5	0.07	0.16	<0.01	0.13	1.30	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	603	<1	<10	<10	5	187	153	mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	268	<1	67^U	<10	3	438	359	mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	49	<1	95^U	<10	<1	761	625	mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	13	<1	59^U	14	2	584	480	mg/kg	1	A-T-055s
Ali >C21-C35$_A^{M\#}$	29	2	50^U	812	6	5990	4910	mg/kg	1	A-T-055s
Ali >C35-C44$_A$	<10	<1	<10	396	2	1900	1560	mg/kg	1	A-T-055s
Total Aliphatics$_A$	975	2	271	1230	18	9860	8090	mg/kg	1	Calc-As Recd
Aro >C5-C7$_A^{\#}$	0.09	2.50	<0.01^U	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.05	0.01	0.03^U	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	1260	6	34	<10	10	116	95	mg/kg	1	A-T-055s
Aro >C10-C12$_A$	484	1	972	<10	6	306	252	mg/kg	1	A-T-055s
Aro >C12-C16$_A$	190	2	3470	15	3	492	404	mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	121	2	2690^U	65	9	526	432	mg/kg	1	A-T-055s
Aro >C21-C35$_A^{M\#}$	26	4	501^U	280	23	639	524	mg/kg	1	A-T-055s
Aro >C35-C44$_A$	<10	<1	<10	197	<1	348	286	mg/kg	1	A-T-055s
Total Aromatics$_A$	2090	18	7670	557	52	2430	1990	mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C44)$_A$	3070	20	7940	1780	70	12300	10100	mg/kg	1	Calc-As Recd
BTEX - Benzene$_A^{\#}$	0.09	2.50	<0.01^U	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.05	0.01	0.03^U	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	0.23	0.21	0.07^U	<0.01	0.04	0.03	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	0.73	0.88	0.34^U	<0.01	0.27	0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	0.99	0.38	0.26^U	<0.01	<0.01	0.23	<0.01	mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	<0.05	<0.01	<0.01^U	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s

Envirolab Job Number: 24/01388

Client Project Name: Tariff Street, Manchester

Client Project Ref: 143404

Lab Sample ID	24/01388/8							Units	Limit of Detection	Method ref
Client Sample No	1									
Client Sample ID	TP08									
Depth to Top	0.40									
Depth To Bottom										
Date Sampled	30-Jan-24									
Sample Type	SOIL									
Sample Matrix Code	4AB									
% Stones >10mm$_A$	10.6							% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	8.21							pH	0.01	A-T-031s
Total Organic Carbon$_D$$^{M\#}$	3.54							% w/w	0.03	A-T-032s
Arsenic$_D$$^{M\#}$	12							mg/kg	1	A-T-024s
Barium$_D$	89							mg/kg	1	A-T-024s
Beryllium$_D$	1.0							mg/kg	0.5	A-T-024s
Boron (water soluble)$_D$$^{M\#}$	<1.0							mg/kg	1	A-T-027s
Cadmium$_D$$^{M\#}$	0.5							mg/kg	0.5	A-T-024s
Copper$_D$$^{M\#}$	55							mg/kg	1	A-T-024s
Chromium$_D$$^{M\#}$	16							mg/kg	1	A-T-024s
Lead$_D$$^{M\#}$	171							mg/kg	1	A-T-024s
Mercury$_D$	0.21							mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	17							mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	<1							mg/kg	1	A-T-024s
Vanadium$_D$$^{M\#}$	21							mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	50							mg/kg	5	A-T-024s

Envirolab Job Number: 24/01388

Client Project Name: Tariff Street, Manchester

Client Project Ref: 143404

Lab Sample ID	24/01388/8							Units	Limit of Detection	Method ref
Client Sample No	1									
Client Sample ID	TP08									
Depth to Top	0.40									
Depth To Bottom										
Date Sampled	30-Jan-24									
Sample Type	SOIL									
Sample Matrix Code	4AB									
Asbestos in Soil (inc. matrix)										
Asbestos in soil$_{D}^{\#}$	NAD									A-T-045
Asbestos Matrix (visual)$_{D}$	-									A-T-045
Asbestos Matrix (microscope)$_{D}$	-									A-T-045
Asbestos ACM - Suitable for Water Absorption Test?$_{D}$	N/A									A-T-045

Envirolab Job Number: 24/01388

Client Project Name: Tariff Street, Manchester

Client Project Ref: 143404

Lab Sample ID	24/01388/8							Units	Limit of Detection	Method ref
Client Sample No	1									
Client Sample ID	TP08									
Depth to Top	0.40									
Depth To Bottom										
Date Sampled	30-Jan-24									
Sample Type	SOIL									
Sample Matrix Code	4AB									
PAH-16MS										
Acenaphthene$_A^{M\#}$	0.14							mg/kg	0.01	A-T-019s
Acenaphthylene$_A^{M\#}$	0.07							mg/kg	0.01	A-T-019s
Anthracene$_A^{M\#}$	0.27							mg/kg	0.02	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	0.98							mg/kg	0.04	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	1.02							mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	1.22							mg/kg	0.05	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	0.62							mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	0.46							mg/kg	0.07	A-T-019s
Chrysene$_A^{M\#}$	1.08							mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene$_A$	0.15							mg/kg	0.04	A-T-019s
Fluoranthene$_A^{M\#}$	1.83							mg/kg	0.08	A-T-019s
Fluorene$_A^{M\#}$	0.13							mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	0.60							mg/kg	0.03	A-T-019s
Naphthalene $_A^{M\#}$	0.15							mg/kg	0.03	A-T-019s
Phenanthrene$_A^{M\#}$	1.40							mg/kg	0.03	A-T-019s
Pyrene$_A^{M\#}$	1.78							mg/kg	0.07	A-T-019s
Total PAH-16MS$_A$	11.9							mg/kg	0.01	A-T-019s

Envirolab Job Number: 24/01388

Client Project Name: Tariff Street, Manchester

Client Project Ref: 143404

Lab Sample ID	24/01388/8							Units	Limit of Detection	Method ref
Client Sample No	1									
Client Sample ID	TP08									
Depth to Top	0.40									
Depth To Bottom										
Date Sampled	30-Jan-24									
Sample Type	SOIL									
Sample Matrix Code	4AB									
TPH UKCWG with Clean Up										
Ali >C5-C6$_A$	<0.01							mg/kg	0.01	A-T-022s
Ali >C6-C8$_A$	<0.01							mg/kg	0.01	A-T-022s
Ali >C8-C10$_A$	<1							mg/kg	1	A-T-055s
Ali >C10-C12$_A^{M\#}$	<1							mg/kg	1	A-T-055s
Ali >C12-C16$_A^{M\#}$	2							mg/kg	1	A-T-055s
Ali >C16-C21$_A^{M\#}$	4							mg/kg	1	A-T-055s
Ali >C21-C35$_A^{M\#}$	190							mg/kg	1	A-T-055s
Ali >C35-C44$_A$	9							mg/kg	1	A-T-055s
Total Aliphatics$_A$	205							mg/kg	1	Calc-As Recd
Aro >C5-C7$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
Aro >C7-C8$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
Aro >C8-C10$_A$	<1							mg/kg	1	A-T-055s
Aro >C10-C12$_A$	<1							mg/kg	1	A-T-055s
Aro >C12-C16$_A$	7							mg/kg	1	A-T-055s
Aro >C16-C21$_A^{M\#}$	81							mg/kg	1	A-T-055s
Aro >C21-C35$_A^{M\#}$	291							mg/kg	1	A-T-055s
Aro >C35-C44$_A$	46							mg/kg	1	A-T-055s
Total Aromatics$_A$	424							mg/kg	1	Calc-As Recd
TPH (Ali & Aro >C5-C44)$_A$	629							mg/kg	1	Calc-As Recd
BTEX - Benzene$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
BTEX - Toluene$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
BTEX - m & p Xylene$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
BTEX - o Xylene$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s
MTBE$_A^{\#}$	<0.01							mg/kg	0.01	A-T-022s

Report Notes

General
This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received within the same delivery, will be disposed of **four weeks** after the initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of **six months** after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and Interpretations expressed are outside our scope of accreditation.
The client Sample No, Client Sample ID, Depth to top, Depth to Bottom and Date Sampled are all provided by the client.
A deviating sample report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Key

Superscript "#"	Accredited to ISO 17025
Superscript "M"	Accredited to MCertS
Superscript "U"	Individual result not accredited
None of the above symbols	Analysis unaccredited
Subscript "A"	Analysis performed on as-received Sample
Subscript "D"	Analysis performed on the dried sample, crushed to pass 2mm sieve.
Subscript "^"	Analysis has dependant options against results. Details appear in the comments of your Sample receipt
IS	Insufficient Sample for analysis
US	Unsuitable Sample for analysis
NDP	No Determination Possible
NAD	No Asbestos Detected
N/A	Not applicable

Asbestos
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing, and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Assigned Matrix Codes

1	SAND	6	CLAY/LOAM	A	Contains Stones
2	LOAM	7	OTHER	B	Contains Construction Rubble
3	CLAY	8	Asbestos Bulk (Only Asbestos ID accredited)	C	Contains visible hydrocarbons
4	LOAM/SAND	9	Incinerator Ash (some Metals accredited)	D	Contains glass / metal
5	SAND/CLAY			E	Contains roots / twigs
Note: 7,8,9 matrices are not covered by our ISO 17025 or MCertS accreditation, unless stated above.					

Soil Chemical Analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH by method A-T-007:
For waters, free and visible oils are excluded from the sample used for analysis, so the reported result represents the dissolved phase only.
Results "with Clean up" indicates samples cleaned up with Silica during extraction.

EPH CWG (method A-T-055) from TPH CWG:
EPH CWG results have humics mathematically subtracted through instrument calculation.
Where these humic substances have been identified in any IDs from "TPH CWG with clean up" please note that the concentration is **NOT** included in the quantified results but present in the ID for information.

Electrical Conductivity of water by method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the accreditation range and as such are unaccredited.

Please contact your client manager if you require any further information.

Envirolab Deviating Samples Report

Hattersley Science & Technology Park, Stockport Road, Hattersley, SK14 3QU
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Fairhurst (Leeds), 51a St Pauls Street, Leeds, LS1 2TE

Project No: 24/01388

Date Received: 12/02/2024 (am)

Project: Tariff Street, Manchester

Cool Box Temperatures (°C): 11.9

Clients Project No: 143404

Lab Sample ID	24/01388/1	24/01388/2	24/01388/4	24/01388/5	24/01388/6	24/01388/7	24/01388/8
Client Sample No	1	1	1	1	1	1	1
Client Sample ID/Depth	TP02 1.40m	TP02 2.20m	TP04 0.50m	TP05 0.40m	TP06 0.60m	TP07 0.40m	TP08 0.40m
Date Sampled	30/01/24	30/01/24	30/01/24	30/01/24	30/01/24	30/01/24	30/01/24
Deviation Code							
F	✓	✓	✓	✓	✓	✓	✓

Key
F *Maximum holding time exceeded between sampling date and analysis for analytes listed below*

HOLDING TIME EXCEEDANCES

Lab Sample ID	24/01388/1	24/01388/2	24/01388/4	24/01388/5	24/01388/6	24/01388/7	24/01388/8
Client Sample No	1	1	1	1	1	1	1
Client Sample ID/Depth	TP02 1.40m	TP02 2.20m	TP04 0.50m	TP05 0.40m	TP06 0.60m	TP07 0.40m	TP08 0.40m
Date Sampled	30/01/24	30/01/24	30/01/24	30/01/24	30/01/24	30/01/24	30/01/24
VPHCWG	✓	✓	✓	✓	✓	✓	✓
PAH-16MS	✓	✓	✓	✓	✓	✓	✓

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	24/01388/1	24/01388/2	24/01388/3	24/01388/4	24/01388/5	24/01388/6	24/01388/7	24/01388/8
Client Sample No	1	1	1	1	1	1	1	1
Client Sample ID/Depth	TP02 1.40m	TP02 2.20m	TP03 1.40m	TP04 0.50m	TP05 0.40m	TP06 0.60m	TP07 0.40m	TP08 0.40m
Date Sampled	30/01/24	30/01/24	30/01/24	30/01/24	30/01/24	30/01/24	30/01/24	30/01/24
A-T-019s	21/02/2024	21/02/2024	21/02/2024	21/02/2024	21/02/2024	21/02/2024	21/02/2024	21/02/2024
A-T-022s	22/02/2024	22/02/2024	20/02/2024	20/02/2024	20/02/2024	20/02/2024	20/02/2024	20/02/2024
A-T-024s	26/02/2024	26/02/2024	26/02/2024	26/02/2024	26/02/2024	26/02/2024	26/02/2024	26/02/2024
A-T-027s	26/02/2024	26/02/2024	26/02/2024	26/02/2024	26/02/2024	26/02/2024	26/02/2024	26/02/2024
A-T-031s	23/02/2024	23/02/2024	23/02/2024	23/02/2024	23/02/2024	23/02/2024	23/02/2024	23/02/2024
A-T-032s	26/02/2024	26/02/2024	26/02/2024	26/02/2024	26/02/2024	26/02/2024	26/02/2024	26/02/2024
A-T-044	19/02/2024	19/02/2024	19/02/2024	19/02/2024	19/02/2024	19/02/2024	19/02/2024	19/02/2024
A-T-045	15/02/2024	15/02/2024	15/02/2024	15/02/2024	15/02/2024	15/02/2024	15/02/2024	15/02/2024
A-T-054				22/02/2024		22/02/2024		
A-T-055s	22/02/2024	20/02/2024	22/02/2024	23/02/2024	20/02/2024	26/02/2024	23/02/2024	20/02/2024
Calc-As Recd	22/02/2024	22/02/2024	22/02/2024	23/02/2024	20/02/2024	26/02/2024	20/02/2024	20/02/2024

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

Appendix C
E3P Tank Removal Report

Ref: 17-370–L1-1
Date: 14th March 2024

Forshaw Demolition Limited
King House
Stotts Park
James Street
West Houghton
Bolton
BL5 3QR

Dear Sirs,

TANK REMOVAL VALIDATION LETTER
TARIFF STREET, ANCOATS

BACKGROUND & OBJECTIVES

E3P have been instructed by Forshaw Demolition Limited (the client) to undertake validation works forthe removal of Underground Storage Tanks (USTs) as part of the groundworks for the redevelopment of a parcel of land known as Tariff Street, Ancoats, Manchester.

E3P understands that Forshaw Demolition Limited have been instructed on behalf of the main contractor, United Living, to undertake the demolition and groundwork for the proposed redevelopment of the site.

For the avoidance of doubt, this validation letter has been produced to outline the works undertaken by E3P completed to date at the site herein referred to as Tariff Street, Ancoats, under the instruction of Forshaw Demolition Limited.

It is understood that Forshaw Demolition have been instructed to turnover the site, remove tanks and install a piling mat to the required depth (based on the position on site).

PROPOSED DEVELOPMENT

Axis Real Estate and Marco Living 2 Ltd have obtained planning permission (Ref: 135675/FO/2022 and subsequent variation ref: 137807/JO/2023) for the erection of two residential apartment buildings (Use Class C3) comprising Block 1, 9/10 storey and Block 2, 12 storey buildings above basement levels with ground floor commercial units (Use Class E, with associated residents amenity space, cycle parking, landscaping, access, street loading and other associated works following the demolition of existing building and structures on site.

The proposed development plan has been included as a snapshot is included in Figure 1.1 as referenced in the Fairhurst Report (Ref:143404/R2).

FIGURE 1.1 SNAPSHOT OF PROPOSED DEVELOPMENT PLAN

PREVIOUS REPORTS

E3P have been provided with the following reports pertinent to the site:

- **Fairhurst** – Ground Investigation Report – 1NQ Tariff Street Manchester, Ref: 143404/R2 – Rev 2, dated July 2023.
- **Fairhurst** – Remediation Method Statement – 1NQ Tariff Street Manchester, Ref: 143404/04, dated January 2024.

OVERVIEW OF WORKS

Underground tanks were not identified during the Fairhurst Ground Investigation, however, based on desk-study information, it was anticipated that tanks were present on site, as noted on the Groundsure Environment Report (included within Fairhurst Report Ref: 143404/04).

The number of tanks,- locations, nature of the fill materials and the decommission status of the tanks were unknown at the time of works commencing on site.

During the course of the works being undertaken by Forshaw Demolition Ltd, 7 no. below-ground storage tanks were exposed in the eastern sector of the site. These tanks were estimated to be circa 10,000 litre tanks. Two of the tanks were found to have been decommissioned and filled with sand. Six of the tanks were oriented in a line adjacent to the western site boundary. The final tank was encountered in the centre of the site.

Inspection of the filler points for two of the tanks (southernmost tanks) confirmed that they were sand filled to the top and as such the integrity of the tanks can be presumed to be intact and thus the potential for any significant pollution is deemed to be reduced.

DELINEATION, EXCAVATION AND VALIDATION OF UNDERGROUND STORAGE TANKS (USTS)

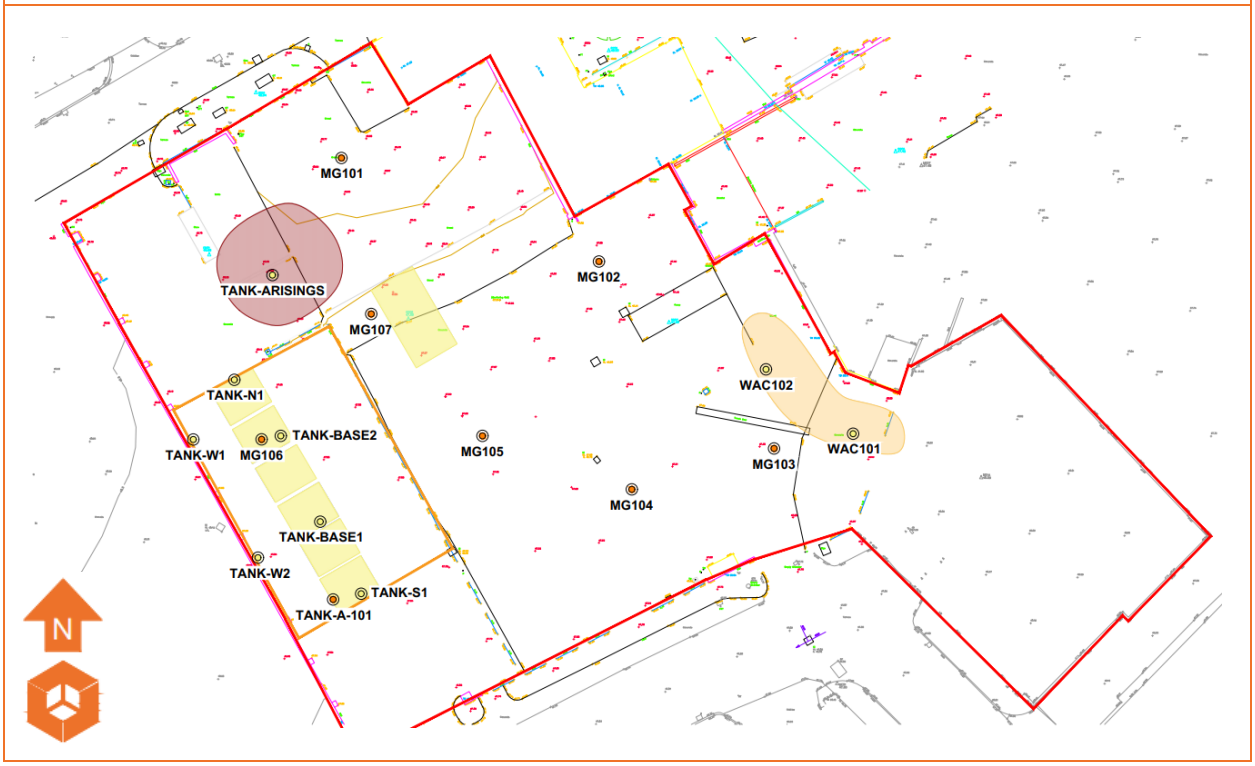
Four of the tanks were noted to contain residual liquids (understood to be diesel/oil), which were extracted by a vacuum tanker (Mantank) under the instruction of Forshaw Demolition. On completion of the pumping, the tanks were checked for vapours using a lower explosive limit (LEL) meter. All tanks were deemed to be free from vapours, and a 24-hour certificate was issued by Mantank (available on request from Forshaw Demolition).

Within 24-hours, the tanks were opened along the top in a controlled manner with suitable equipment to ensure no risk of sparks. This process rendered the tanks as an open vessel and no longer a tank. Where encountered, the tank infill material (sand/cement mix) was removed and stockpiled prior to removal from site. Once emptied, the former tanks were removed from the excavation and stockpiled on site prior to removal by a suitable waste removal contractor. Waste transfer notes are available from Forshaw Demolition on request.

E3P attended site on 11th January 2024 to validate the removal of the tanks and resulting excavation. The excavation had to be terminated along the western boundary due to proximity to a boundary wall with the adjacent car park. The eastern walls of the excavation were unstable during the excavation work due to water ingress and very soft ground therefore sampling was not viable as the excavation could not be extended in this direction to fully delineate the tank excavation and impacted materials. The soft ground and collapse due to water ingress also occurred within the vicinity of the tank in the central area of the site therefore the excavation was terminated. It is anticipated that this was a result of the materials from the canal in this area which E3P are advised does not fall under Forshaw remit at this time. Based on the samples obtained to date and the relative continuity of materials across the site, the testing is deemed to be representative, however further sampling may be required.

The sampling locations have been included in Drawing 17-370-022 and a snapshot has been included in Figure 1.2.

FIGURE 1.2 SNAPSHOT OF SAMPLING LOCATION PLAN



The side walls, base and arisings of the excavation (North, West, South, Base and Arisings) were sampled for chemical validation. Chemical analysis results (sample ref: TANK-N1, TANK-W1, TANK-W2, TANK-S1, TANK-BASE-1, TANK-BASE-2 and TANK-ARISINGS) are included as an attachment to this letter (i2 Report Ref: 24-78184-2).

Results of the chemical analysis are summarised in Table 1.1.

TABLE 1.1 SUMMARY OF INORGANIC AND HYDROCARBON TOXICITY ASSESSMENT FOR A RESIDENTIAL END USE (WITHOUT PLANT UPTAKE)

DETERMINANT	UNITS	GAC	N	MC	LOC. OF EX	PATH WAY	ASSESSMENT
Arsenic	mg/kg	40	1	110	TANK-ARISINGS	1	Further Action
Cadmium	mg/kg	85	1	10	N/A	1	No further action
Chromium (VI)	mg/kg	6	1	<1.8	N/A	1	No further action
Lead	mg/kg	330**	1	2600	TANK-ARISINGS	1	Further Action
Mercury	mg/kg	1.2	1	1.2	N/A	2	No further action
Nickel	mg/kg	180	1	26	N/A	1	No further action
Selenium	mg/kg	430	1	<1.0	N/A	1	No further action
Copper(ii)	mg/kg	7100	1	200	N/A	1	No further action
Zinc(ii)	mg/kg	40000	1	3800	N/A	1	No further action
Cyanide - Total	mg/kg	791	1	<1.0	N/A	1	No further action

DETERMINANT	UNITS	GAC	N	MC	LOC. OF EX	PATH WAY	ASSESSMENT
Phenols - Total	mg/kg	210	1	<1.0	N/A	1	No further action
Asbestos	Fibres	NFD	1	NFD	N/A	4	No further action
Naphthalene	mg/kg	2.3	7	3.2 2.7	TANK-W1 TANK-N1	3	Further Action
Acenaphthylene	mg/kg	2900	7	0.51	N/A	2	No further action
Acenaphthene	mg/kg	3000	7	4.9	N/A	1	No further action
Fluorene	mg/kg	2800	7	4.3	N/A	1	No further action
Phenanthrene	mg/kg	1300	7	21	N/A	2	No further action
Anthracene	mg/kg	31000	7	6	N/A	2	No further action
Fluoranthene	mg/kg	1500	7	23	N/A	2	No further action
Pyrene	mg/kg	3700	7	20	N/A	2	No further action
Benzo(a)Anthracene	mg/kg	11	7	9	N/A	2	No further action
Chrysene	mg/kg	30	7	10	N/A	2	No further action
Benzo(b)Fluoranthene	mg/kg	3.9	7	11 7.7 7.3	TANK-W1 TANK-W2 TANK-N1	2	Further Action
Benzo(k)Fluoranthene	mg/kg	110	7	3.2	N/A	2	No further action
Benzo(a)Pyrene	mg/kg	3.2	7	8.9 6.5 6.5	TANK-W1 TANK-W2 TANK-N1	2	Further Action
Indeno(123-cd)Pyrene	mg/kg	45	7	4.8	N/A	2	No further action
Dibenzo(a,h)Anthracene	mg/kg	0.31	7	1.5 1.1 1.1 0.38	TANK-W1 TANK-W2 TANK-N1 TANK-BASE-101	2	Further Action
Benzo(ghi)Perylene	mg/kg	360	7	5.7	N/A	2	No further action
TPH C5-C6 (aliphatic)	mg/kg	42	6	0.31	N/A	3	No further action
TPH C6-C8 (aliphatic)	mg/kg	100	6	2.1	N/A	3	No further action
TPH C8-C10 (aliphatic)	mg/kg	27	6	0.77	N/A	3	No further action
TPH C10-C12 (aliphatic)	mg/kg	130	6	15	N/A	3	No further action
TPH C12-C16 (aliphatic)	mg/kg	1000	6	97	N/A	1	No further action
TPH C16-C21 (aliphatic)	mg/kg	1000	6	150	N/A	1	No further action
TPH C21-C35 (aliphatic)	mg/kg	1000	6	630	N/A	1	No further action
TPH C5-C7 (aromatic)	mg/kg	370	6	0.26	N/A	3	No further action
TPH C7-C8 (aromatic)	mg/kg	860	6	1.8	N/A	3	No further action
TPH C8-C10 (aromatic)	mg/kg	47	6	6.7	N/A	3	No further action
TPH C10-C12 (aromatic)	mg/kg	250	6	4.2	N/A	3	No further action
TPH C12-C16 (aromatic)	mg/kg	1800	6	29	N/A	1	No further action
TPH C16-C21 (aromatic)	mg/kg	1900	6	120	N/A	1	No further action
TPH C21-C35 (aromatic)	mg/kg	1900	6	350	N/A	1	No further action

DETERMINANT	UNITS	GAC	N	MC	LOC. OF EX	PATH WAY	ASSESSMENT
Benzene	mg/kg	0.38	6	0.26	N/A	3	No further action
Toluene	mg/kg	869	6	1.8	N/A	3	No further action
Ethylbenzene	mg/kg	83	6	0.72	N/A	3	No further action
p & m-xylene	mg/kg	79	6	3.3	N/A	3	No further action
o-xylene	mg/kg	88	6	1.4	N/A	3	No further action
1,2,4-Trimethylbenzene**	mg/kg	0.41	6	4.2	TANK-W2	3	**Further Action**
1,3,5-Trimethylbenzene	mg/kg	-	6	1.2	TANK-W2	3	**Further Action**

Notes
Main Exposure Pathways: 1 = Soil Ingestion, 2 = Dermal Contact & Ingestion, 3 = Vapour Inhalation (indoor), 4 = Dust Inhalation.
Abbreviations: GAC = General Assessment Criteria, n = number of samples, MC = Maximum Concentration; Loc of Ex = Location of Exceedance; NFD = No Fibres Detected
The pathway noted in the table is the primary pathway, however it may not be the only pathway of that contaminant.
** Tier 2 GAC for lead taken from C4SL CL:AIRE

HUMAN HEALTH RISK ASSESSMENT

Referring to Table 1.1, the result of the comparison indicates that the data exceeds the screening criteria for a residential end use (without plant uptake) for the following contaminants:

- Arsenic (TANK-ARISINGS);
- Lead (TANK-ARISINGS);
- Naphthalene (TANK-W1 and TANK-N1);
- Benzo(b)fluoranthene (TANK-W1, TANK-W2 and TANK-N1);
- Benzo(a)pyrene (TANK-W1, TANK-W2 and TANK-N1);
- Dibenzo(a,h)anthracene (TANK-W1, TANK-W2, TANK-N1 and TANK-BASE-101);
- 1,2,4-Trimethylbenzene (TANK-W2); and
- 1,3,5-Trimethylbenzene (TANK-W2.

The majority of the above contaminants relate to a dermal contact and exposure pathway therefore the risk to chronic human health associated with the elevated concentrations of inorganic heavy metals and non-volatile PAH compounds can be mitigated by the proposed building that occupies the majority of the site area, and through the installation of a suitable cover system in all proposed landscaping and public open space to remove any potential for direct exposure to impacted soils.

With regards to the elevated naphthalene and VOCs (1,2,4-Trimethylbenzene and 1,3,5-Trimethylbenzene), these present potential volatilisation to indoor air risk. The elevated concentrations have been identified within the northern and western side walls of the tank excavation. The northern elevation represents the boundary with the former canal and the impacted soils are anticipated to be related to soils in this area and not soils impacted by the tanks. Further works are required to delineate and excavate the Naphthalene-impacted soils within these areas, particularly in regard to the naphthalene within the northern wall. It should be noted that during the excavation and delineation, the western side wall was limited due to the presence of a boundary wall for an adjacent car park therefore the excavation had to be terminated. This wall represents the planning and ownership boundary of the site and therefore could not be extended further.

CONCLUSION

E3P have carried out works to oversee the removal of the tanks identified on site in a safe manner and to undertake subsequent testing where possible within the vicinity of the tanks to further understand the potential contamination present on site.

The elevated contaminants that remain are evident of other sources and from the arisings of materials surrounding the tanks it is confirmed that no TPH impact is noted.

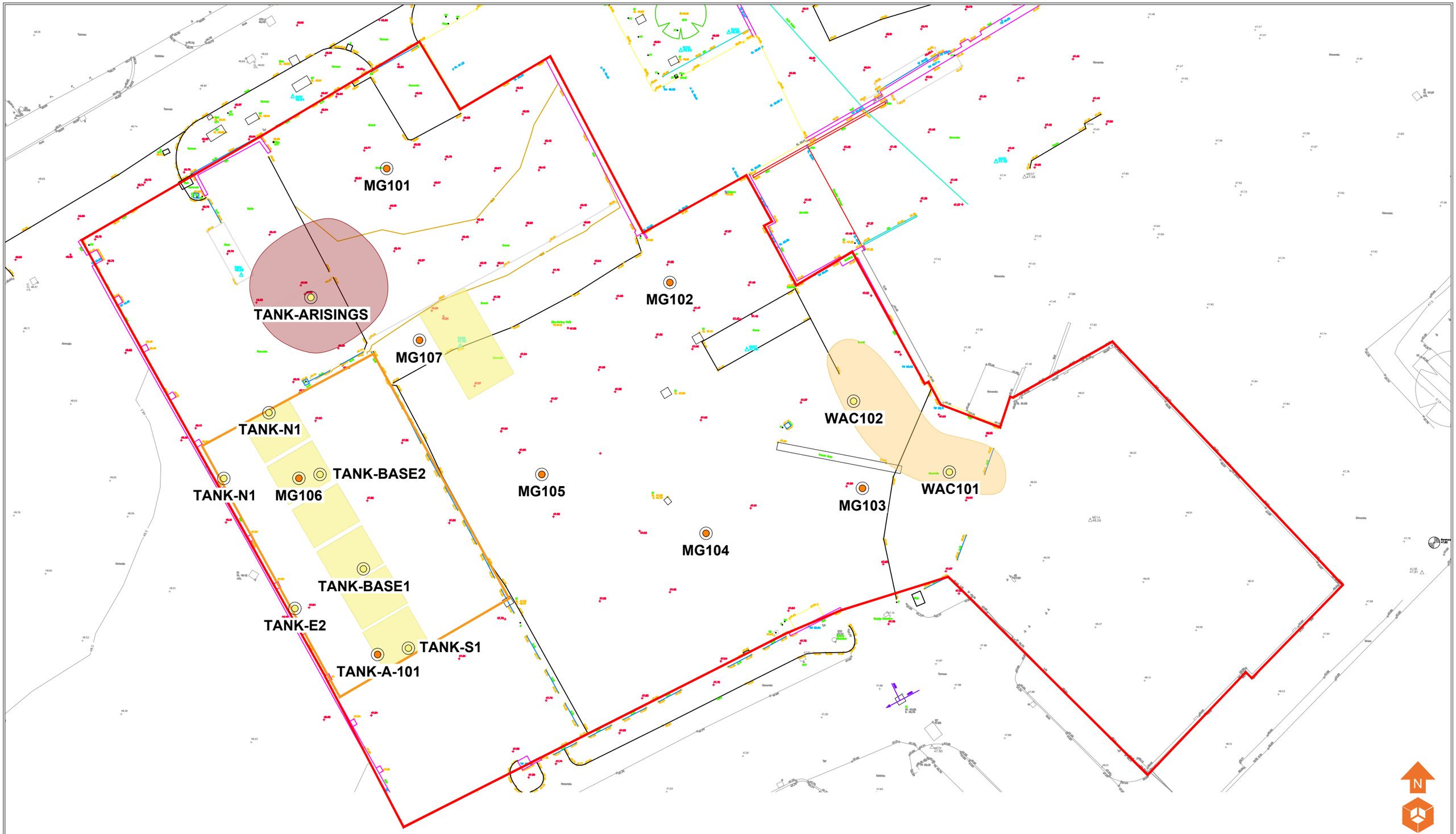
Further works are required in line with the Fairhurst Remediation Method Statement (Report Ref: 143404/04) which E3P understands is to be completed by others at a later date.

I trust that the above information is sufficient and if you require anything further, please do not hesitate to contact me.

Yours sincerely,
For and on behalf of E3P Ltd

Nicola Dawson - *BSc (Hons), FGS*
Senior Geoenvironmental Consultant

Enclosed
- Drawing
  - 17-370-022 – Tank Validation Sample Location Plan
- Chemical Laboratory Testing Results (i2 Report Ref: 24-78184-2)



Location Symbols

- MG101 — Approximate Validation Sample Location (E3P - December 2023)
- TANK-N1 — Approximate Validation Sample Location (E3P - January 2024)

Legend

- Site Strip Stockpile
- Approximate Tank Locations (Removed)
- Tank Arisings Stockpile

Notes:

Client: Forshaw Demolition Ltd

Job No: 17-370

Date: 21.02.2024

Drawing No: 022

Scale: NTS @ A3

Phase	Issue	Date	Drawn	Checked	PM
P1	REVB	21.02.2024	EB	ND	ND
P1	REVA	24.01.2024	CB	ND	ND

Job Title: Tariff Street, Ancoats

Drawing Title: Tank Validation Sampling Plan

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

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Analytical Report Number : 24-78184

Replaces Analytical Report Number: 24-78184, issue no. 1
Client references/information amended.
Sample ID for samples 2927952 & 292793 changed as per clients reqeust

Project / Site name:	Tariff Street	**Samples received on:**	12/01/2024
Your job number:	17 370	**Samples instructed on/ Analysis started on:**	12/01/2024
Your order number:	007164	**Analysis completed by:**	19/01/2024
Report Issue Number:	2	**Report issued on:**	24/01/2024
Samples Analysed:	7 soil samples		

Signed: A. Czerwińska

Agnieszka Czerwińska
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.

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The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927952	2927953	2927954	2927955	2927956
Sample Reference				TANK W1	TANK W2	TANK N1	TANK S1	TANK ARISINGS
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				11/01/2024	11/01/2024	11/01/2024	11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	18	14	20	26
Total mass of sample received	kg	0.001	NONE	1	1	1	1	1
Asbestos in Soil	Type	N/A	ISO 17025	-	-	-	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	N/A	N/A	N/A	N/A	WEM

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	-	-	-	8.1
Total Cyanide	mg/kg	1	MCERTS	-	-	-	-	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	-	-	-	-	1100
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	-	-	-	-	0.38
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	-	-	-	-	750
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	-	-	-	-	376
Sulphide	mg/kg	1	MCERTS	-	-	-	-	110
Total Sulphur	mg/kg	50	MCERTS	-	-	-	-	23000
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-	-	-	-	2.8

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-	-	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	0.52
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	0.12
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	0.82
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	0.8
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	3.6
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	0.79
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	3.7
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	3.5
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	1.6
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	1.6
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-	-	-	-	1.5
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-	-	-	-	0.68
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	1.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	0.7
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	0.21
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	0.77

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-	-	-	-	22

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Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927952	2927953	2927954	2927955	2927956
Sample Reference				TANK W1	TANK W2	TANK N1	TANK S1	TANK ARISINGS
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				11/01/2024	11/01/2024	11/01/2024	11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	110
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	-	-	-	10
Chromium (hexavalent)	mg/kg	1.8	MCERTS	-	-	-	-	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	16
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	200
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	2600
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	-	-	-	1.2
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	26
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	3800
Monoaromatics & Oxygenates								
Benzene	µg/kg	5	MCERTS	14	110	18	260	-
Toluene	µg/kg	5	MCERTS	43	680	90	1800	-
Ethylbenzene	µg/kg	5	MCERTS	16	720	27	480	-
p & m-xylene	µg/kg	5	MCERTS	36	3300	82	2800	-
o-xylene	µg/kg	5	MCERTS	26	1400	51	1300	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.02	NONE	< 0.020	0.31	0.025	< 0.020	-
TPH-CWG - Aliphatic >EC6 - EC8## $_{HS\_1D\_AL}$	mg/kg	0.02	NONE	< 0.020	2.1	< 0.020	< 0.020	-
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.05	NONE	< 0.050	0.77	< 0.050	< 0.050	-
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	15	2.7	1.8	2.1	-
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	97	35	21	4.4	-
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	150	72	54	< 8.0	-
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	630	260	280	< 8.0	-
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	890	370	360	18	-
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	NONE	0.011	0.12	0.02	0.26	-
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	NONE	0.044	0.77	0.1	1.8	-
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.05	NONE	0.096	6.7	0.19	4.6	-
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	1.2	4.2	2.3	< 1.0	-
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	25	29	17	< 2.0	-
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	110	120	74	< 10	-
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	350	200	190	< 10	-
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	490	360	280	14	-
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	NONE	-	-	-	-	< 0.1
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	-	-	-	-	< 1.0
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	-	-	-	-	< 1.0
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	-	-	-	-	< 2.0
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	-	-	-	-	25
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	-	-	-	-	39
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	-	-	-	-	42
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	NONE	-	-	-	-	< 10
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	-	-	-	-	110

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Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927952	2927953	2927954	2927955	2927956
Sample Reference				TANK W1	TANK W2	TANK N1	TANK S1	TANK ARISINGS
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				11/01/2024	11/01/2024	11/01/2024	11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
VOCs								
Chloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Chloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
Bromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
1,1-dichloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
1,1,2-Trichloro 1,2,2-Trifluoroethane ##	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
1,1-dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
Chloroform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,2-dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Benzene	µg/kg	5	MCERTS	14	110	18	260	-
Carbontetrachloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
1,2-dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Trichloroethene ##	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Toluene	µg/kg	5	MCERTS	43	680	90	1800	-
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Tetrachloroethene	µg/kg	5	NONE	12	< 5.0	< 5.0	< 5.0	-
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Ethylbenzene	µg/kg	5	MCERTS	16	720	27	480	-
p & m-xylene	µg/kg	5	MCERTS	36	3300	82	2800	-
Styrene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Bromoform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
o-xylene	µg/kg	5	MCERTS	26	1400	51	1300	-
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	110	< 5.0	< 5.0	-
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
Bromobenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
N-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	370	< 5.0	< 5.0	-
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	27	1200	28	200	-
Tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	27	4200	55	740	-
Sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,3-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
P-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,4-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,2-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-

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Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927952	2927953	2927954	2927955	2927956
Sample Reference				TANK W1	TANK W2	TANK N1	TANK S1	TANK ARISINGS
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				11/01/2024	11/01/2024	11/01/2024	11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Butylbenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	-
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	-

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Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927952	2927953	2927954	2927955	2927956
Sample Reference				TANK W1	TANK W2	TANK N1	TANK S1	TANK ARISINGS
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				11/01/2024	11/01/2024	11/01/2024	11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
SVOCs								
Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	-
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	-
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	-
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	-
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	-
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	-
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	-
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	-
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	-
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	-
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	-
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	-
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
Naphthalene	mg/kg	0.05	MCERTS	3.2	2.1	2.7	1.2	-
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	-
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	-
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	-
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	-
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	-
2-Methylnaphthalene	mg/kg	0.1	NONE	2.8	2.5	2.5	0.5	-
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	-
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	-
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	-
Acenaphthylene	mg/kg	0.05	MCERTS	0.4	0.26	0.51	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	4.9	3	2.6	0.12	-
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	-
Dibenzofuran	mg/kg	0.2	MCERTS	2.5	1.6	1.7	< 0.2	-
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	-
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	-
Fluorene	mg/kg	0.05	MCERTS	4.3	2.9	2.9	0.1	-
Azobenzene	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	-
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	-
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
Phenanthrene	mg/kg	0.05	MCERTS	21	15	18	0.19	-
Anthracene	mg/kg	0.05	MCERTS	6	4.3	4.2	< 0.05	-
Carbazole	mg/kg	0.3	MCERTS	1.5	1	1.3	< 0.3	-
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	-
Anthraquinone	mg/kg	0.3	NONE	1.5	1.2	1.5	< 0.3	-
Fluoranthene	mg/kg	0.05	MCERTS	23	19	17	0.09	-
Pyrene	mg/kg	0.05	MCERTS	20	16	16	0.1	-
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	< 0.3	< 0.3	< 0.3	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	9	6.9	7.2	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	10	7.6	7.3	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	11	7.7	7.3	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	3.2	2.8	3.2	< 0.05	-

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Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927952	2927953	2927954	2927955	2927956
Sample Reference				TANK W1	TANK W2	TANK N1	TANK S1	TANK ARISINGS
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				11/01/2024	11/01/2024	11/01/2024	11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Benzo(a)pyrene	mg/kg	0.05	MCERTS	8.9	6.5	6.5	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	4.8	3.6	3.7	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	1.5	1.1	1.1	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	5.7	4.3	4.4	< 0.05	-

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

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Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927957	2927958
Sample Reference				TANK BASE 101	TANK BASE 102
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	16	19
Total mass of sample received	kg	0.001	NONE	1	0.4
Asbestos in Soil	Type	N/A	ISO 17025	-	-
Asbestos Analyst ID	N/A	N/A	N/A	N/A	N/A

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	-
Total Cyanide	mg/kg	1	MCERTS	-	-
Total Sulphate as SO4	mg/kg	50	MCERTS	-	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	-	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	-	-
Water Soluble SO4 (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	-	-
Sulphide	mg/kg	1	MCERTS	-	-
Total Sulphur	mg/kg	50	MCERTS	-	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	-
Fluorene	mg/kg	0.05	MCERTS	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	-
Anthracene	mg/kg	0.05	MCERTS	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	-
Pyrene	mg/kg	0.05	MCERTS	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-
Chrysene	mg/kg	0.05	MCERTS	-	-
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	-	-
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	-	-

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Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927957	2927958
Sample Reference				TANK BASE 101	TANK BASE 102
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	-
Chromium (hexavalent)	mg/kg	1.8	MCERTS	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	-
Monoaromatics & Oxygenates					
Benzene	µg/kg	5	MCERTS	120	< 5.0
Toluene	µg/kg	5	MCERTS	39	32
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	23
p & m-xylene	µg/kg	5	MCERTS	< 5.0	120
o-xylene	µg/kg	5	MCERTS	< 5.0	65
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0
Petroleum Hydrocarbons					
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.02	NONE	< 0.020	0.031
TPH-CWG - Aliphatic >EC6 - EC8## $_{HS\_1D\_AL}$	mg/kg	0.02	NONE	< 0.020	0.58
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.05	NONE	< 0.050	0.35
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	3
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	9.9	11
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	15	20
TPH-CWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	NONE	0.12	< 0.010
TPH-CWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	NONE	0.041	0.033
TPH-CWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.05	NONE	< 0.050	0.31
TPH-CWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	5.3	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC35) $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	20	< 10
TPH (C5 - C6) $_{HS\_1D\_TOTAL}$	mg/kg	0.1	NONE	-	-
TPH (C6 - C8) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	-	-
TPH (C8 - C10) $_{HS\_1D\_TOTAL}$	mg/kg	1	NONE	-	-
TPH (C10 - C12) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	2	MCERTS	-	-
TPH (C12 - C16) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	4	MCERTS	-	-
TPH (C16 - C21) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	-	-
TPH (C21 - C35) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	MCERTS	-	-
TPH (C35 - C40) $_{EH\_CU\_1D\_TOTAL}$	mg/kg	10	NONE	-	-
TPH Total C5 - C40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	-	-

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Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927957	2927958
Sample Reference				TANK BASE 101	TANK BASE 102
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
VOCs					
Chloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Chloroethane	µg/kg	5	NONE	< 5.0	< 5.0
Bromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	< 5.0
1,1-dichloroethene	µg/kg	5	NONE	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane ##	µg/kg	5	NONE	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0
1,1-dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0
Chloroform	µg/kg	5	NONE	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,2-dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	120	< 5.0
Carbontetrachloride	µg/kg	5	NONE	< 5.0	< 5.0
1,2-dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Trichloroethene ##	µg/kg	5	ISO 17025	< 5.0	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	39	32
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	NONE	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	23
p & m-xylene	µg/kg	5	MCERTS	< 5.0	120
Styrene	µg/kg	5	ISO 17025	< 5.0	< 5.0
Bromoform	µg/kg	5	NONE	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	65
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0
Bromobenzene	µg/kg	5	NONE	< 5.0	< 5.0
N-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	110
Tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	390
Sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,3-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
P-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,4-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,2-dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0

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Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927957	2927958
Sample Reference				TANK BASE 101	TANK BASE 102
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Butylbenzene	µg/kg	5	NONE	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0

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Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927957	2927958
Sample Reference				TANK BASE 101	TANK BASE 102
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
SVOCs					
Aniline	mg/kg	0.1	NONE	< 0.1	< 0.1
Phenol	mg/kg	0.2	ISO 17025	< 0.2	< 0.2
2-Chlorophenol	mg/kg	0.1	MCERTS	< 0.1	< 0.1
Bis(2-chloroethyl)ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2
1,3-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2
1,2-Dichlorobenzene	mg/kg	0.1	MCERTS	< 0.1	< 0.1
1,4-Dichlorobenzene	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Bis(2-chloroisopropyl)ether	mg/kg	0.1	MCERTS	< 0.1	< 0.1
2-Methylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Hexachloroethane	mg/kg	0.05	ISO 17025	< 0.05	< 0.05
Nitrobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3
4-Methylphenol	mg/kg	0.2	NONE	< 0.2	< 0.2
Isophorone	mg/kg	0.2	MCERTS	< 0.2	< 0.2
2-Nitrophenol	mg/kg	0.3	NONE	< 0.3	< 0.3
2,4-Dimethylphenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Bis(2-chloroethoxy)methane	mg/kg	0.3	MCERTS	< 0.3	< 0.3
1,2,4-Trichlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Naphthalene	mg/kg	0.05	MCERTS	0.2	0.07
2,4-Dichlorophenol	mg/kg	0.3	MCERTS	< 0.3	< 0.3
4-Chloroaniline	mg/kg	0.1	NONE	< 0.1	< 0.1
Hexachlorobutadiene	mg/kg	0.1	MCERTS	< 0.1	< 0.1
4-Chloro-3-methylphenol	mg/kg	0.1	NONE	< 0.1	< 0.1
2,4,6-Trichlorophenol	mg/kg	0.1	NONE	< 0.1	< 0.1
2,4,5-Trichlorophenol	mg/kg	0.2	NONE	< 0.2	< 0.2
2-Methylnaphthalene	mg/kg	0.1	NONE	0.5	0.2
2-Chloronaphthalene	mg/kg	0.1	MCERTS	< 0.1	< 0.1
Dimethylphthalate	mg/kg	0.1	MCERTS	< 0.1	< 0.1
2,6-Dinitrotoluene	mg/kg	0.1	NONE	< 0.1	< 0.1
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	2.3	< 0.05
2,4-Dinitrotoluene	mg/kg	0.2	NONE	< 0.2	< 0.2
Dibenzofuran	mg/kg	0.2	MCERTS	1.3	< 0.2
4-Chlorophenyl phenyl ether	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Diethyl phthalate	mg/kg	0.2	MCERTS	< 0.2	< 0.2
4-Nitroaniline	mg/kg	0.2	NONE	< 0.2	< 0.2
Fluorene	mg/kg	0.05	MCERTS	2.1	< 0.05
Azobenzene	mg/kg	0.3	NONE	< 0.3	< 0.3
Bromophenyl phenyl ether	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Hexachlorobenzene	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Phenanthrene	mg/kg	0.05	MCERTS	11	0.27
Anthracene	mg/kg	0.05	MCERTS	3.5	0.07
Carbazole	mg/kg	0.3	MCERTS	0.5	< 0.3
Dibutyl phthalate	mg/kg	0.2	NONE	< 0.2	< 0.2
Anthraquinone	mg/kg	0.3	NONE	< 0.3	< 0.3
Fluoranthene	mg/kg	0.05	MCERTS	10	0.37
Pyrene	mg/kg	0.05	MCERTS	8.5	0.34
Butyl benzyl phthalate	mg/kg	0.3	NONE	< 0.3	< 0.3
Benzo(a)anthracene	mg/kg	0.05	MCERTS	3.1	0.12
Chrysene	mg/kg	0.05	MCERTS	3.4	0.13
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	3.1	0.12
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	1.2	0.06

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Analytical Report Number: 24-78184
Project / Site name: Tariff Street
Your Order No: 007164

Lab Sample Number				2927957	2927958
Sample Reference				TANK BASE 101	TANK BASE 102
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.8	0.11
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.5	0.06
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.38	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.7	0.09

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

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Analytical Report Number : 24-78184
Project / Site name: Tariff Street

* 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 *
2927952	TANK W1	None Supplied	None Supplied	Brown clay and sand with gravel.
2927953	TANK W2	None Supplied	None Supplied	Brown gravelly sand.
2927954	TANK N1	None Supplied	None Supplied	Brown gravelly sand.
2927955	TANK S1	None Supplied	None Supplied	Brown sand with rubble and coal.
2927956	TANK ARISINGS	None Supplied	None Supplied	Brown clay and sand with gravel.
2927957	TANK BASE 101	None Supplied	None Supplied	Brown clay.
2927958	TANK BASE 102	None Supplied	None Supplied	Brown sand with gravel.

Analytical Report Number : 24-78184
Project / Site name: Tariff Street

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
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
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.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards. Refer to CoA for analyte specific accreditation.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
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.	L019-UK/PL	D	NONE
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.Refer to CoA for analyte specific accreditation.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260. Refer to CoA for analyte specific accreditation	L073B-PL	W	MCERTS

Analytical Report Number : 24-78184
Project / Site name: Tariff Street

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
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID. Refer to CoA for band specific accreditation.	In-house method with silica gel split/clean up.	L088/76-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	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.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

- Quality control parameter has a high recovery (outside of limit); however the associated result is below the reporting limit, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised

Appendix D
Waste Transfer Notes

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 646528

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	14515	VEHICLE REG.	MV73 YSC	DAY & DATE	3.4.24

CUSTOMER/HOLDER - PRODUCER: Dunton

ADDRESS:- Tariff Street Manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 & 8W Spoil Away

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

To Booths Lip.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	NIL

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME	[signature]	[illegible]	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 631045

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4277	VEHICLE REG.	MJ70 W2M	DAY & DATE	03-04-24

CUSTOMER/HOLDER - PRODUCER: Dunton/ Forshaw Demolition

ADDRESS:- Tarrif Street, Manchester M1 2JF

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8W Spoil collected Off Site

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- Delivered Booths Harwood tip

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	W [signature]	
PRINT NAME	Josh	WALDAS ALRAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645483

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4013	VEHICLE REG.	PS67 SFO	DAY & DATE	3/4/24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- TARIFF ST MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 X 8W SPOIL

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	—
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY: BOOTHS HARWOOD

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	F Harwood	W [signature]	
PRINT NAME	F. HARWOOD	WALTHAS HERAN	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 646527

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	14515	VEHICLE REG.	MV73 YSE	DAY & DATE	3-6-24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- TARIFF STREET MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8w SPOIL AWAY

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- to BOOTH'S TIP

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	NIL

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME			

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 642675

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	1411 32	VEHICLE REG.	RN19 ZDS	DAY & DATE	WED 3/4/24

CUSTOMER/HOLDER - PRODUCER: FOR SHAW DEMO

ADDRESS:- TARIFF ST. MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 = W Spoil Away 1 load

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME		WARREN DEAN	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 648002

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4513.	VEHICLE REG.	MW73 454.	DAY & DATE	Wed 3/4/24

CUSTOMER/HOLDER - PRODUCER: Dunton -

ADDRESS:- Forshaw Demo Tarlef St Manchester.

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 wheeler Spoil collected off site

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	—
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- Booth. Harwood.

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☑	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME		WAGON DRIVER	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 647720

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4130	VEHICLE REG.	PN19ZDU	DAY & DATE	3 4 24

CUSTOMER/HOLDER - PRODUCER: DUNSTON FORSHAW DEMO

ADDRESS:- TARIFF ST M/CHESTR

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 a 8 WML

SPOIL

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	NONE

No. OF LOOSE WAGON LOADS TO TIP	1	TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME	MAHONEY	WALLADS AGLAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 631044

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4277	VEHICLE REG.	MJ72 WZM	DAY & DATE	03-04-24

CUSTOMER/HOLDER - PRODUCER: Bunch / Corshaw demolition

ADDRESS:- Tariff Street, manchester M1 2JF

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8w Spoil Collected off site

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DISPOSER OF WASTE - NAME AND ADDRESS:- Delivered Booths Harwood tip

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☑	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE		W	
PRINT NAME		W [illegible]	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645050

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4513.	VEHICLE REG.	MU73 YSG	DAY & DATE	Wed 3/4/24.

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- FORSHAW DEMO TARRIF ST MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 wheeler Spoil Collected off site

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- Booths Horwood.

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☑	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME			

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 647719

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4130	VEHICLE REG.	PN19 2DU	DAY & DATE	3 4 24

CUSTOMER/HOLDER - PRODUCER: DUNSTON FORSHAWE DEMO

ADDRESS:- TARIFF ST M/CHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x8 WHL
5 POL

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	NONE

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	
1			

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME	MAHONEY	WAGDAS AKRAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 646526

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4515	VEHICLE REG.	MV73 4SE	DAY & DATE	3. 2. 24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- TANFIELD STREET MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8W SPOIL AWAY

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- TO BOOTHS TIP.

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	NIL

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME		WORKS MANAGER	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 631043

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4277	VEHICLE REG.	MJ70 WZM	DAY & DATE	03-04-24

CUSTOMER/HOLDER - PRODUCER: Dunton/ Forshaw Demolition

ADDRESS:- Tarrif Street, Manchester M1 2JF

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x 8W Spoil Collected off Site

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DISPOSER OF WASTE - NAME AND ADDRESS:- Delivered to Booths Harwood tip

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME	Josh	WALDAS [illegible]	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645482

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4013	VEHICLE REG.	PE67 JFO	DAY & DATE	3/4/24

CUSTOMER/HOLDER - PRODUCER	ADDRESS:-
DUNTON	TARIFF ST MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1X 8W SPOIL

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	—
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No. BOOTHS HARWOOD

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME	FRED HARWOOD	WAKDAD AKRAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 642674

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	TH132	VEHICLE REG.	PW19 ZDS	DAY & DATE	WED 3/4/24

CUSTOMER/HOLDER - PRODUCER: FORSHAW DEMO

ADDRESS:- TARIFF ST. MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 X 8 CW SOIL AWAY 1 LOAD

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME			

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 644095

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	11027	VEHICLE REG.	P018 TTU	DAY & DATE	26/3/24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- THARIF ST MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1X 6W SPOIL

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	–
MIX OF CONCRETE & BRICK	EWC 17-01-07	

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No. BOOTHS HANWOOD

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME			

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

Duty of Care-Controlled Waste Transfer Note

FLEET No.	4502	VEHICLE REG.	MW73 4SC	DAY & DATE	26 3 24.

Forshaw Demo. Kearsley Manchester

CUSTOMER/HOLDER - PRODUCER: Dunton.

ADDRESS:-

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 wh L Spoil

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DISPOSER OF WASTE - NAME AND ADDRESS:-

Booths Venture

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	D. Smith		
PRINT NAME	Darren Smith	S. Morrison	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 648404

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4280	VEHICLE REG.	MK21 EUJ	DAY & DATE	26-3-24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- TARRIF STREET - MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 WHL SPOIL COLLECTED

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	—
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- BOOTHS - HARWOOD

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE		[signature]	
PRINT NAME	HAYDN NICHOLSON	WALEDHS AKRAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

No. 645037

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

Duty of Care-Controlled Waste Transfer Note

FLEET No.	T4513	VEHICLE REG.	MU43454	DAY & DATE	Tues 26/3/24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- FORSHAW DEMO TARIFF ST. MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x 8 wheeler Spoil Collected off site

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DISPOSER OF WASTE - NAME AND ADDRESS:- Booth Harwood

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☑	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME	G WHIGLEY	WALEAAS HARDIN	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 648402

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/CU/8577 - Issued by Environment Agency

FLEET No.	T4280	VEHICLE REG.	MK21 EUJ	DAY & DATE	26-3-24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- TARRIF STREET - MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 X S W SPOIL

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	—
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- BOOTHS - HARWOOD

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE		S Marsden	
PRINT NAME	HAYDN NICHOLSON	S	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 644092

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4027	VEHICLE REG.	P018 TTJ	DAY & DATE	26/3/24

CUSTOMER/~~HOLDER~~ - PRODUCER: DUNTON

ADDRESS:- TARRIFF ST MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 w SPOIL

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME			

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 644093

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4027	VEHICLE REG.	P018 TTU	DAY & DATE	26/3/24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- TRAFF ST MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8W Skip

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	—
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No. BOOTHS HARWOOD

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					—	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE		SMORRSON	
PRINT NAME	FRED HARWOOD		

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645035

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4513	VEHICLE REG.	MJ73YSG	DAY & DATE	Tues 26/3/24

CUSTOMER/HOLDER - PRODUCER	ADDRESS:-
Dunton	Forshaw Demo Tarif St Manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 wheeler Spoil Collected off site

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- Booth Harwood

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME	[illegible]	WAIGHAS AIGHAN	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645257

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4501	VEHICLE REG.	MV73 95F	DAY & DATE	26·3·24

CUSTOMER/HOLDER - PRODUCER: Dunton

ADDRESS:- C/o Forshan Demo Tarmfst Mchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 W

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No. Booth Harwood.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE		S Morris	
PRINT NAME	Ian J		

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645197

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4502	VEHICLE REG.	MV73 4SC	DAY & DATE	26 3 24.

CUSTOMER/HOLDER - PRODUCER	ADDRESS:-
Durkon.	Forshaw Demo. Karrig St Manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x8whL Spoil

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY

Booths Venture Harwood.

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	D. Smith	[signature]	
PRINT NAME	Darren Smith	WAGHAS AKRAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645198

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4502	VEHICLE REG.	MV73 YSC	DAY & DATE	26 3 24.

CUSTOMER/HOLDER - PRODUCER: Dunton

ADDRESS:- Forstrow Demo - Earlestown St Manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x Bulk Spoil

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No. Booths Venture

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	D. Smith	Simon Fox	
PRINT NAME	Darren Smith		

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 644094

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4027	VEHICLE REG.	P018 TTW	DAY & DATE	26/3/24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- THARLEY ST MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x 8w SPOIL

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY Boots Harwood

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME	F. Harwood	WARREN ASHTON	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 648403

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4280	VEHICLE REG.	MK21 EUJ	DAY & DATE	26-3-24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- TARRIF STREET - MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 WHL SPOIL

COLLECTED

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	-
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- BOOTHS - HARWOOD

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE		W. [illegible]	
PRINT NAME	HAYDN NICHOLSON	WAKADS ALCOCK	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645036

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4513	VEHICLE REG.	MU73YSG	DAY & DATE	Tues 26/3/24

CUSTOMER/HOLDER - PRODUCER	ADDRESS:-
DUNTON.	FORSHAW DEMO TARRIFF ST. MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 wheeler Spoil Collected off site

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- BOOTHS HARWOOD.

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☑	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	S. Morrison	
PRINT NAME	[illegible]		

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645258

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CBDU88771 - Issued by Environment Agency

FLEET No.	T4501	VEHICLE REG.	MV73 YSF	DAY & DATE	26-3-24

CUSTOMER/HOLDER - PRODUCER: Dustoo

ADDRESS:- C/o Forshaw Demo Tarnf st Mchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8W Spo.1

SIC CODE 42.99 - OTHER PLEASE SPECIFY To t.p

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No. Booth Harwood

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE		Gilmartin	
PRINT NAME	T.A.J.		

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645196

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4502	VEHICLE REG.	MV73 4SC	DAY & DATE	26 3 24

CUSTOMER/HOLDER - PRODUCER: Durkan

ADDRESS:- Forshaw Demo Barns & SE Manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x8wtL Spoil

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- Booths Heritage Gt. Harwood.

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	D. Smith	[illegible]	
PRINT NAME	Darren Smith	[illegible]	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 648401

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4280	VEHICLE REG.	MK21 EUJ	DAY & DATE	26-3-24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- TARRIF STREET - MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 X 8 WHL SPOIL

COLLECTED

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	—
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- BOOTHS - HARWOOD

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☑	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE		W	
PRINT NAME	HAYDN NICHOLSON	WARREN ASHTON	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645034

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4513	VEHICLE REG.	M073454	DAY & DATE	Tue 26/3/24.

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- FORSHAW DEPO Tarmac St. Manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 wheeler Spoil Collected off site

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- Booths. Harwood.

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME		WDIGAS DICKEN	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Kuttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 646651

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4502	VEHICLE REG.	MV73 YSC	DAY & DATE	27 3 24.

CUSTOMER/HOLDER - PRODUCER: Dunton

ADDRESS:- Forshaw Demo Lamb St Manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x8whL spoil

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

Booths venture

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	D. Smith	[signature]	
PRINT NAME	Darren Smith	WAKAAS AKRAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645038

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4513	VEHICLE REG.	MU73 YSG	DAY & DATE	Wed 27/3/24

CUSTOMER/HOLDER - PRODUCER	ADDRESS:-
DUNTON.	FORSHAW DEMO. / TARRIFST MANCHESTER.

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 wheeler

Spoil Collected offsite.

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- Booth Harwood

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME	G. Wasiary	WAISAS ALAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645260

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	TL501	VEHICLE REG.	MV73 45F	DAY & DATE	27-B-24

CUSTOMER/HOLDER - PRODUCER: Duston

ADDRESS:- C/o Forshaw Tarif st Mchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8W Spoil

SIC CODE 42.99 - OTHER PLEASE SPECIFY To tip

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No. Booths Harwood.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE		W	
PRINT NAME	Ian J	[illegible]	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 644096

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4027	VEHICLE REG.	P018 TTU	DAY & DATE	27/3/24

CUSTOMER/~~HOLDER~~ - PRODUCER: DUNTON

ADDRESS:- TARRIF ST MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1X8W SPOIL

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	—
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No. BOOTHES HARWOOD

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	F Harwood		
PRINT NAME	FRED HARWOOD	WAKAS AKRAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 646652

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4502	VEHICLE REG.	MV73 YSC	DAY & DATE	27 3 24.

CUSTOMER/HOLDER - PRODUCER: Dodson

ADDRESS:- Forshaws Demo Barns St Manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x 8wh L Spoil

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY Booths Venture

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP

TOTAL HOURS WORKED

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	D. Smith	W. [illegible]	
PRINT NAME	Darren Smith	William Ashton	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645261

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	14501	VEHICLE REG.	MV73 45F	DAY & DATE	27-3-24

CUSTOMER/HOLDER - PRODUCER: Dunfoo

ADDRESS:- C/o Forshaw Tarrif st Mchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x 8w Spoil.

SIC CODE 42.99 - OTHER PLEASE SPECIFY To tip

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY Boothes HARWOOD

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE		W.	
PRINT NAME	T A D	WARDS	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645039

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4513	VEHICLE REG.	MW73 45G	DAY & DATE	Wed 27/3/24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- FORSHAW DEMO TARRIF ST - Mc Chester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 wheeler Spoil Collected off site

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- Booth Harwood.

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME	S. Conslog	WALHASAHEDAN	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 644097

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	H027	VEHICLE REG.	P018 TTU	DAY & DATE	27/3/24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- TARIFF ST MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8w Spoil

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	—
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No. BOOTHES HARWOOD

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP

TOTAL HOURS WORKED

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE		S. Morrison	
PRINT NAME	Fred Harwood		

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

uttle Plant Hire Ltd.

ancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

uty of Care-Controlled Waste Transfer Note

No. 644098

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4027	VEHICLE REG.	R61 TTU	DAY & DATE	27/3/24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- LARK ST MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x 8w Spoil

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	—
MIX OF CONCRETE & BRICK	EWC 17-01-07	

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY BOOTHS HARWOOD

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME	ROD HARWOOD	WALTERS DUNTON	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645040

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU66771 . Issued by Environment Agency

FLEET No.	R4513	VEHICLE REG.	HU73 754	DAY & DATE	Wed 27/3/26

CUSTOMER/HOLDER - PRODUCER: Dunton

ADDRESS:- FORSHAW DEMO. TARIFF ST MANCHESTER.

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 wheeler Spoil Collected off Site

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DISPOSER OF WASTE - NAME AND ADDRESS:- Booths Harwood

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☑	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME	G. WRIGHT	WARREN DIXON	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 646653

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4502	VEHICLE REG.	MV73 4SC	DAY & DATE	27 3 24

CUSTOMER/HOLDER - PRODUCER: Dunton

ADDRESS:- Forshaw Demo. Lang St Manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x8uhL Spoil

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No. Booths venture

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	D. Smith	[signature]	
PRINT NAME	Darren Smith	Wayne Abram	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645262

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4501	VEHICLE REG.	MV73 9SA	DAY & DATE	27.3.24

CUSTOMER/HOLDER - PRODUCER: Dunton

ADDRESS:- C/O Forshaw, Tarnfst Mchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8W Spoil

SIC CODE 42.99 - OTHER PLEASE SPECIFY To t.p

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No. Bootle Harwood

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME	IAN J	WORKS MGRAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645263

Duty of Care-Controlled Waste Transfer Note

Registered Carrier : Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4501	VEHICLE REG.	MV734SF	DAY & DATE	27-3-24

CUSTOMER/HOLDER - PRODUCER: Dunton

ADDRESS:- c/o Forshaw Tarrif St Mchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8W Spoil

SIC CODE 42.99 - OTHER PLEASE SPECIFY To tip

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No. Booth Harwood

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE		[signature]	
PRINT NAME	Tan	Wagas Akram	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 646654

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4502	VEHICLE REG.	MV73 YSC	DAY & DATE	27 3 24

CUSTOMER/HOLDER - PRODUCER: Dunton

ADDRESS:- Forshaw Demo. Tarry St Manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x8whL Spoil

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY

Booths venture.

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	D Smith	[signature]	
PRINT NAME	Darren Smith	WAIGAAD AIGRAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645041

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4513	VEHICLE REG.	MW73 YSG	DAY & DATE	Wed 27/3/24

CUSTOMER/HOLDER - PRODUCER: Dunton

ADDRESS:- Forshaw Dems Tarrif St Manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 wheeler Spoil Collected off Site

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- Booths Harwood

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME	G. Wigley	Walgad Algrham	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 644099

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4027	VEHICLE REG.	P018 TTU	DAY & DATE	27/3/24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- TARLET ST MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX: 1x 8w SOIL

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	—
MIX OF CONCRETE & BRICK	EWC 17-01-07	

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY BOOTH HARWOOD

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	F Harwood	W	
PRINT NAME	FRED HARWOOD	WALDRON	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645045

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4513	VEHICLE REG.	MW73 YSY	DAY & DATE	Thurs 28/3/24

CUSTOMER/HOLDER - PRODUCER: Dunton

ADDRESS:- Fosham Demo Tarmac St Helens

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

Ex Bulwell Spoil Collected off Site

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- Booths Harwood

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐ ✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME	G WRIGHT	[illegible]	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 631100

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4481	VEHICLE REG.	MV23 4RT	DAY & DATE	28/3/24

CUSTOMER/HOLDER - PRODUCER: Dunlop c/o Forshaws Demo

ADDRESS:- Taffit st manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

18wheel spoil - collected

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	~
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No. Booths Norwood

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME			

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 646658

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4502	VEHICLE REG.	MV73 YSC	DAY & DATE	28 3 24

CUSTOMER/HOLDER - PRODUCER	ADDRESS:-
Dunton	Forshaw Demo - barrel st manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x8whL spoil

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No. Booths venture

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	D Smith	[signature]	
PRINT NAME	Darren Smith	[illegible]	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645267

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4501	VEHICLE REG.	MV73 4SF	DAY & DATE	28·3·24

CUSTOMER/HOLDER - PRODUCER: Duston

ADDRESS:- C/O Forshaw Tarrif st Mchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8W Spoil To tip

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No. Booth Harwood

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME			

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645043

Duty of Care-Controlled Waste Tranafer Note

Registered Carrier . Reg. No. CB/DU88771 . Issued by Environment Agency

FLEET No.	1453.	VEHICLE REG.	MJ73 454	DAY & DATE	Thur 28/3/24

CUSTOMER/HOLDER - PRODUCER: Dunton

ADDRESS:- Forshaw DBM Tarrif St Manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 wheeler Spoil Collected off site.

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DISPOSER OF WASTE - NAME AND ADDRESS:- Booth Harwood.

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME			

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645474

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 . Issued by Environment Agency

FLEET No.	4012	VEHICLE REG.	PO67 JFO	DAY & DATE	28/3/24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- TARRIF ST MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1X 8W SPOIL

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	—
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY BOOTHS HARWOOD

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					—	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME	FRED HARWOOD	WAKAAS AKRAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 646655

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4502	VEHICLE REG.	MV73 YSC	DAY & DATE	28 3 24.

CUSTOMER/HOLDER - PRODUCER: Dunton

ADDRESS:- Forshaw Demo Carrel St Manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x8whl spool

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY Booths Venture.

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	D. Smith	[signature]	
PRINT NAME	Darren Smith	WALAAS AKRAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645042

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

Duty of Care-Controlled Waste Transfer Note

FLEET No.	T4513	VEHICLE REG.	MW73YSG	DAY & DATE	Thur 28/3/24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- FORSHAW DEMO TARRIF ST. MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 wheeler Spoil collected off site

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- Boothe Harwood

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME	[illegible]	[illegible]	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645264

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4501	VEHICLE REG.	MV734SF	DAY & DATE	28.3.24

CUSTOMER/HOLDER - PRODUCER: Dunton

ADDRESS:- c/o Forshaw Tarrif st Mchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8W Spoil

SIC CODE 42.99 - OTHER PLEASE SPECIFY To tip

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No. Bootls Harwood

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE		W [signature]	
PRINT NAME	Ian J	Wallas Alam	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 646657

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

Duty of Care-Controlled Waste Transfer Note

FLEET No.	4502	VEHICLE REG.	MV73 4SE	DAY & DATE	28 3 24

CUSTOMER/HOLDER - PRODUCER: Dunton

ADDRESS:- Forshaw Demo Carrier St Manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x8 wht spoil

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

Booths venture.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	D. Smith	[signature]	
PRINT NAME	Darren Smith	WALDAS AKRAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645266

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4501	VEHICLE REG.	MV734SF	DAY & DATE	28.3.24

CUSTOMER/HOLDER - PRODUCER: Dunton

ADDRESS:- c/o Forstall Tarrif st Mchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x8W Spoil

SIC CODE 42.99 - OTHER PLEASE SPECIFY To tip

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No. Booth HARWOOD

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	S.Morrison	
PRINT NAME	[signature]	[signature]	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645044

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4513.	VEHICLE REG.	MW73YSG.	DAY & DATE	Thurs 28/3/26

CUSTOMER/HOLDER - PRODUCER	ADDRESS:-
Dunton	Forshaw Demo Tariff St Manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 wheeler Spoil Collected off site.

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- Booth Harwood

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	Smomison	
PRINT NAME	G Wilson.		

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 631099

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4481	VEHICLE REG.	MV23 YRT	DAY & DATE	28/3/24

CUSTOMER/HOLDER - PRODUCER: Dunton c/o Forshaws Demo

ADDRESS:- Taffit St Manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x8wheel spoil - collected

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No. Booths ~~[illegible]~~ Marwood

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME	[illegible]	WALDAS [illegible]	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 646656

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4502	VEHICLE REG.	MV73 YSC	DAY & DATE	28 3 24.

CUSTOMER/HOLDER - PRODUCER	ADDRESS:-
Dunton's	Forshaw Demo tagg St manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x8whL spoil

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY

Booths venture.

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	D. Smith	[signature]	
PRINT NAME	Darren Smith	WASHAS AKRAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 647714

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4130	VEHICLE REG.	PN19204	DAY & DATE	28 3 24

CUSTOMER/HOLDER - PRODUCER: DUTON C/O FORSHAW DEM

ADDRESS:- TARRIFFST MICHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 Kg WHL

SPOOL

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	/
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☑	None

No. OF LOOSE WAGON LOADS TO TIP	1	TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME	[signature]	[illegible]	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645265

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4501	VEHICLE REG.	MV73 4SF	DAY & DATE	28.3.24

CUSTOMER/HOLDER - PRODUCER: Dunton

ADDRESS:- c/o Forshaw Tarrif st Mchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8W Spoil

SIC CODE 42.99 - OTHER PLEASE SPECIFY To tip

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No. Booths Harwood

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE		[signature]	
PRINT NAME	[signature]	[signature]	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 642670

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	TW132	VEHICLE REG.	PN19 ZDS	DAY & DATE	THURS 28/3/24

CUSTOMER/HOLDER - PRODUCER: FORSHAW DEMOLITION

ADDRESS:- TARIFF ST MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x8=W

SIC CODE 42.99 - OTHER PLEASE SPECIFY 1 LOAD

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	V O'Reilly	W	
PRINT NAME		WALGADS ARLAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645476

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4013	VEHICLE REG.	PE67 JFO	DAY & DATE	28/3/24

CUSTOMER/HOLDER - PRODUCER

ADDRESS:-

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8w Spoil

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY Booths Harwood

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME	Ross Harwood		

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 646717

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4504	VEHICLE REG.	MV73-4SA	DAY & DATE	28-3-2024

CUSTOMER/HOLDER - PRODUCER: DUNTONS

ADDRESS:- TARRIF ST MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x R load SOIL FROM SITE

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- TO BOOTHS TIP

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	NONE.

No. OF LOOSE WAGON LOADS TO TIP: 1

TOTAL HOURS WORKED:

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME	JOE COSTA	WOODS DUNN	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645475

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

Duty of Care-Controlled Waste Transfer Note

FLEET No.	4013	VEHICLE REG.	PE67 JFO	DAY & DATE	28/3/24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- TARRIF ST MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1X 8W SPOIL

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	—
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY BOOTHS HARWOOD

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME	F. HARWOOD	WALLACE HARDEN	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645478

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4013	VEHICLE REG.	PE67 JKO	DAY & DATE	2/4/24

CUSTOMER/HOLDER - PRODUCER	ADDRESS:-
DUNTON	TARRIF ST MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1X 8W SPOIL

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	—
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No. BOOTH'S HARWOOD

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME	FRED HARWOOD	WALLADS ALGRAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 646522

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4515	VEHICLE REG.	MU73 YSE	DAY & DATE	2.4.24

CUSTOMER/HOLDER - PRODUCER: FORSHAW

ADDRESS:- TARLTF STREET MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 & 8W SPOIL AWAY

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- TO BOOTHS HARWOOD TIP.

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	NIL

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME			

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 631039

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	TL277	VEHICLE REG.	MJ70 WZM	DAY & DATE	02-04-24

CUSTOMER/HOLDER - PRODUCER: Denton Forshaw Demolition

ADDRESS:- Tariff Street, Manchester M1 2JF

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8W spoil collected off site

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DISPOSER OF WASTE - NAME AND ADDRESS:- Delivered to Booths Harwood tip

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☑	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME		THOMAS ALCOCK	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 642671

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	14132	VEHICLE REG.	PW19 ZDS	DAY & DATE	TUES 2/4/24

CUSTOMER/HOLDER - PRODUCER: LORSHAW DEMO

ADDRESS:- TARIFF ST, MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1X8=W SPOIL AWAY 1 LOAD

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME		WATKINS	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 647715

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4130	VEHICLE REG.	PN192DU	DAY & DATE	2 4 24

CUSTOMER/HOLDER - PRODUCER	ADDRESS:-
DUNSTON FORSHAW DEMO	TARIFF ST MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x 8wkl

SPOIL

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☑	NONE

No. OF LOOSE WAGON LOADS TO TIP	1	TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME	Mallowes	Wakeds Alan	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645046

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4513	VEHICLE REG.	MV73459.	DAY & DATE	Tues 2/4/24

CUSTOMER/HOLDER - PRODUCER: DUNTON.

ADDRESS:- FORSTAL DEMO. TARMFST. MANCHESTER.

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 wheeler Spoil Collected off site

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- Booths Harwood

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME			

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 646523

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4515	VEHICLE REG.	MU73 4SE	DAY & DATE	2.4.24

CUSTOMER/HOLDER - PRODUCER: FORSHAW

ADDRESS:- TARIFF STREET MARC

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 & 8 W SPOIL

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- TO BOOTHS

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	NIL

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME		WAYNE ARROWSMITH	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 631040

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4277	VEHICLE REG.	MJ70 WZM	DAY & DATE	02-04-24

CUSTOMER/HOLDER - PRODUCER: Denton Forshaw Demolition

ADDRESS:- Taffy Street, Manchester M1 2JF

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x 8w Spoil collected off site

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DISPOSER OF WASTE - NAME AND ADDRESS:- Delivered to Booths Harwood tip

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☑	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME			

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645047

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	74513	VEHICLE REG.	MW73754	DAY & DATE	Tues 2/4/24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- FORSHAW DEPO TARIFF ST. MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 wheeler Spoil Collected off site

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- BOOTHS HARWOOD.

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐ ✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME		WADDAS ASLAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645479

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4013	VEHICLE REG.	P667 JKO	DAY & DATE	2/4/24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- TARRATT ST MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1X 8W Spoil

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No. BOOTHS HARWOOD

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☐	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME	FRED HARWOOD	WILLIAM ASHTON	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 647716

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4130	VEHICLE REG.	PN192DU	DAY & DATE	2424

CUSTOMER/HOLDER - PRODUCER: Duistone Folshaw Demo

ADDRESS:- Taliffe St Manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1a 8 wk

Spoil

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☑	None

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	
1			

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME	[signature]	WALAAS ALAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 646524

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	14515	VEHICLE REG.	MU73 4SC	DAY & DATE	2.4.24

CUSTOMER/HOLDER - PRODUCER: FORSHAW

ADDRESS:- Carrington Street Manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8w Spoil Away

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- To [redacted] Boothus Ltd

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	NIL

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	J. [illegible]	W. [illegible]	
PRINT NAME	J. [illegible]	[illegible]	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 647717

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	TL130	VEHICLE REG.	PN19204	DAY & DATE	24 24

CUSTOMER/HOLDER - PRODUCER: DUNSTAN FORMWORK

ADDRESS:- TARIFF ST MACCLESFIELD

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

DIG WKS SPOIL

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☑	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME		WOLLOD SHAW	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645048

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4513	VEHICLE REG.	MV73 45Z	DAY & DATE	Tues 2/4/20

CUSTOMER/HOLDER - PRODUCER: Dayton

ADDRESS:- Forshaw Demo. Tariff St. Manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 wheeler Spoil Collected Offsite

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- Booths Hamwood.

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☑	

Nq. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME			

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645480

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4013	VEHICLE REG.	P567 JKO	DAY & DATE	2/9/24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- TARIFF ST MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 X 8W SPOIL

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY BOOTHS MARKWOOD

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME	FRED MARKWOOD	WAKAS	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 631041

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4277	VEHICLE REG.	MJ70 W2M	DAY & DATE	02-04-24

CUSTOMER/HOLDER - PRODUCER: Forshaw Dunton Demolition

ADDRESS:- Turrif Street, Manchester M1 2JF

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x 8W Spoil Collected off Site

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- Delivered to Booths Harwood tip

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☑	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME	Josh	WALGAS AKRAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 642672

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	TH132	VEHICLE REG.	PN19 ZDS	DAY & DATE	WED 2/4/24

CUSTOMER/HOLDER - PRODUCER: FORSHAW DEMO

ADDRESS:- WARWICK ST, MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1X8=W SPOIL AWAY LOAD

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME		THOMAS FORSHAW	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645481

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	14013	VEHICLE REG.	P567 JTO	DAY & DATE	2/4/24

CUSTOMER/HOLDER - PRODUCER: Dunton

ADDRESS:- TARIFF ST MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 X 8W SPOIL

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	—
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY Booths Harwood

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					—	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE		Swarbon	
PRINT NAME	Fred Harwood		

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 647718

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4130	VEHICLE REG.	PN192DU	DAY & DATE	2 4 24

CUSTOMER/HOLDER - PRODUCER	ADDRESS:-
Dunsen Forshane Demo	Tariff St M/Chester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x8wm Spoil

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	None

No. OF LOOSE WAGON LOADS TO TIP	1	TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	W. [signature]	
PRINT NAME	[signature]	WINGAAS AKHAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 646525

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	TL515	VEHICLE REG.	MU73 YSE	DAY & DATE	2. 4. 24

CUSTOMER/HOLDER - PRODUCER: FORSHAW

ADDRESS:- LANIFF STREET MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 & 8 Spoil Away

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- to Booth Lip

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	nil

No. OF LOOSE WAGON LOADS TO TIP

TOTAL HOURS WORKED

IGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE LAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
URE	J. S		
	J. S	[illegible]	

ED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 642673

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	TW132	VEHICLE REG.	PW19 ZDS	DAY & DATE	

CUSTOMER/HOLDER - PRODUCER	ADDRESS:-
FORSHAW DEMO	TARIFF ST. MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x8=W SPOIL AWAY 1 LOAD

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☑	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	MOheilly	[signature]	
PRINT NAME		WAKAAS AKRAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645049

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4513	VEHICLE REG.	MW73YSE	DAY & DATE	Tues 2/4/24

CUSTOMER/HOLDER - PRODUCER	ADDRESS:-
DUNTON	FORSHAW DEMO. TARRIE ST. Manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x 8 wheeler Spoil Collected off site

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- Booth Venture.

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME	G. Wrigley	WALCADS ALRAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 631042

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4277	VEHICLE REG.	MT570 WZM	DAY & DATE	02-04-24

CUSTOMER/HOLDER - PRODUCER: Dynen Fenshaw Demolition

ADDRESS:- Tariff Street, manchester M1 2SF

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x 8w Speil collected off site

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- Delivered to Booths Harwood tip

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☑	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME	JOSH	WALEHAS HERAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645485

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	H013	VEHICLE REG.	PE67 540	DAY & DATE	3/4/24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- TARIFF ST MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8w Spoil

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	—
MIX OF CONCRETE & BRICK	EWC 17-01-07	

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No. BOOTHS HAKWOOD

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					—	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	F Hakwood	W A	
PRINT NAME	FRED HAKWOOD	WALLACE ADAMS	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Seattle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 642677

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	14132	VEHICLE REG.	PN19 ZDS	DAY & DATE	WED 3/4/24

CUSTOMER/HOLDER - PRODUCER: FORSHAW DEMO

ADDRESS:- WARIFF ST. MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1X8-W SOIL AWAY LOAD

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	M O'Kelly		
PRINT NAME		SIMON MASON	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 646529

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	14515	VEHICLE REG.	MV73 YSE	DAY & DATE	J. 4. 24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- CARLISLE STREET MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 X 8W SPOIL AWAY

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- TO DOOTH TIP

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	NIL

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME			

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 648004

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4513	VEHICLE REG.	MW73 YSG	DAY & DATE	Wed 3/4/24

CUSTOMER/HOLDER - PRODUCER: Dunton.

ADDRESS:- Forshaw Demo Tarrif St - Manchester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 wheeler Sport Collected offsite

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- Booth Harwood.

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME	Gwaigwy.	WACHS Hodson	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 631046

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4277	VEHICLE REG.	MJ70 WZM	DAY & DATE	03-04-24

CUSTOMER/HOLDER - PRODUCER: Dunton/Forshaw Demolition

ADDRESS:- Tariff Street, Manchester M1 2JF

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1x 8w Spoil collected off site

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:- Delivered to Booths Norwood tip

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☑	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE			
PRINT NAME	Josh	WAKDAS AKRAM	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 648003

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4513	VEHICLE REG.	MU73YSE	DAY & DATE	Wed 3/4/24

CUSTOMER/HOLDER - PRODUCER: Dawton

ADDRESS:- Forshaw Dem. Tarif St. Manchester.

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 wheeler Spoil Collected offsite

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	✓
MIX OF CONCRETE & BRICK	EWC 17-01-07	

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DISPOSER OF WASTE - NAME AND ADDRESS:- Booth Harwood

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME	J. Wright	[illegible]	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

No. 647721

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

Duty of Care-Controlled Waste Transfer Note

FLEET No.	T4130	VEHICLE REG.	PN192DU	DAY & DATE	3 4 24

CUSTOMER/HOLDER - PRODUCER: Dunsen Foreshaw Demo

ADDRESS:- Tariff St M/Chester

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8 wk
Spoil

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					☑	None

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	
1			

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME	[signature]	[signature]	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 642676

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	T4132	VEHICLE REG.	PW19 ZDS	DAY & DATE	WED 3/4/24

CUSTOMER/HOLDER - PRODUCER	ADDRESS:-
FORSHAW DEMO	TARIFF ST. MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1X8=W SPOIL AWAY 1 LOAD

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No.

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					✓	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	[signature]	[signature]	
PRINT NAME		[illegible]	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Ruttle Plant Hire Ltd.

Lancaster House, Ackhurst Road, Chorley. Tel: 01257 266511.

No. 645484

Duty of Care-Controlled Waste Transfer Note

Registered Carrier . Reg. No. CB/DU88771 - Issued by Environment Agency

FLEET No.	4013	VEHICLE REG.	P567 SFO	DAY & DATE	3/4/24

CUSTOMER/HOLDER - PRODUCER: DUNTON

ADDRESS:- TARIFF ST MANCHESTER

DESCRIPTION OF WASTE:- TICK THE APPROPRIATE BOX

1 x 8w Spoil

SIC CODE 42.99 - OTHER PLEASE SPECIFY

DEMOLITION & CONSTRUCTION WASTE	EWC 17-09-04	
SOILS & STONE	EWC 17-05-04	—
MIX OF CONCRETE & BRICK	EWC 17-01-07	

DISPOSER OF WASTE - NAME AND ADDRESS:-

LICENCE No. Booths Harwood

ISSUED BY

START	FINISH	TOTAL STOPPAGE	TOTAL ON SITE HRS	TRAVELLING TIME	TYRES CHECKED	DEFECTS FOUND
					—	

No. OF LOOSE WAGON LOADS TO TIP		TOTAL HOURS WORKED	

BY SIGNING I CONFIRM THAT I HAVE FULFILLED MY DUTY TO COMPLY WITH THE WASTE HIERARCHY AS REQUIRED BY REGULATION 12 OF THE WASTE (ENGLAND AND WALES) REGULATIONS 2011

	CARRIER	HIRER / HOLDER	DISPOSER
SIGNATURE	F Harwood	W. Dunton	
PRINT NAME	Fred Harwood	William Dunton	

THIS WAGON IS HIRED UNDER C.P.A. MODEL CONDITIONS OF HIRE AND ACCEPTANCE OF THIS WAGON ON SITE SIGNIFIES ACCEPTANCE OF THESE CONDITIONS.

Appendix E

GeoShield Verification and Pre-Verification plan

GeoShield Verification Report 11

PROJECT REFERENCE:	GEO104657
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer’s instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

GeoShield Verification Report

NAME OF SURVEYOR: Liam England

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07551 259023

EMAIL ADDRESS: lengland@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Building 1 Basement (See verification layout for mark up)

SITE CONDITIONS:

WEATHER:

Rain

TEMPERATURE:

9ºc

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 12:00 - 13:10

DATE: 11.09.2024

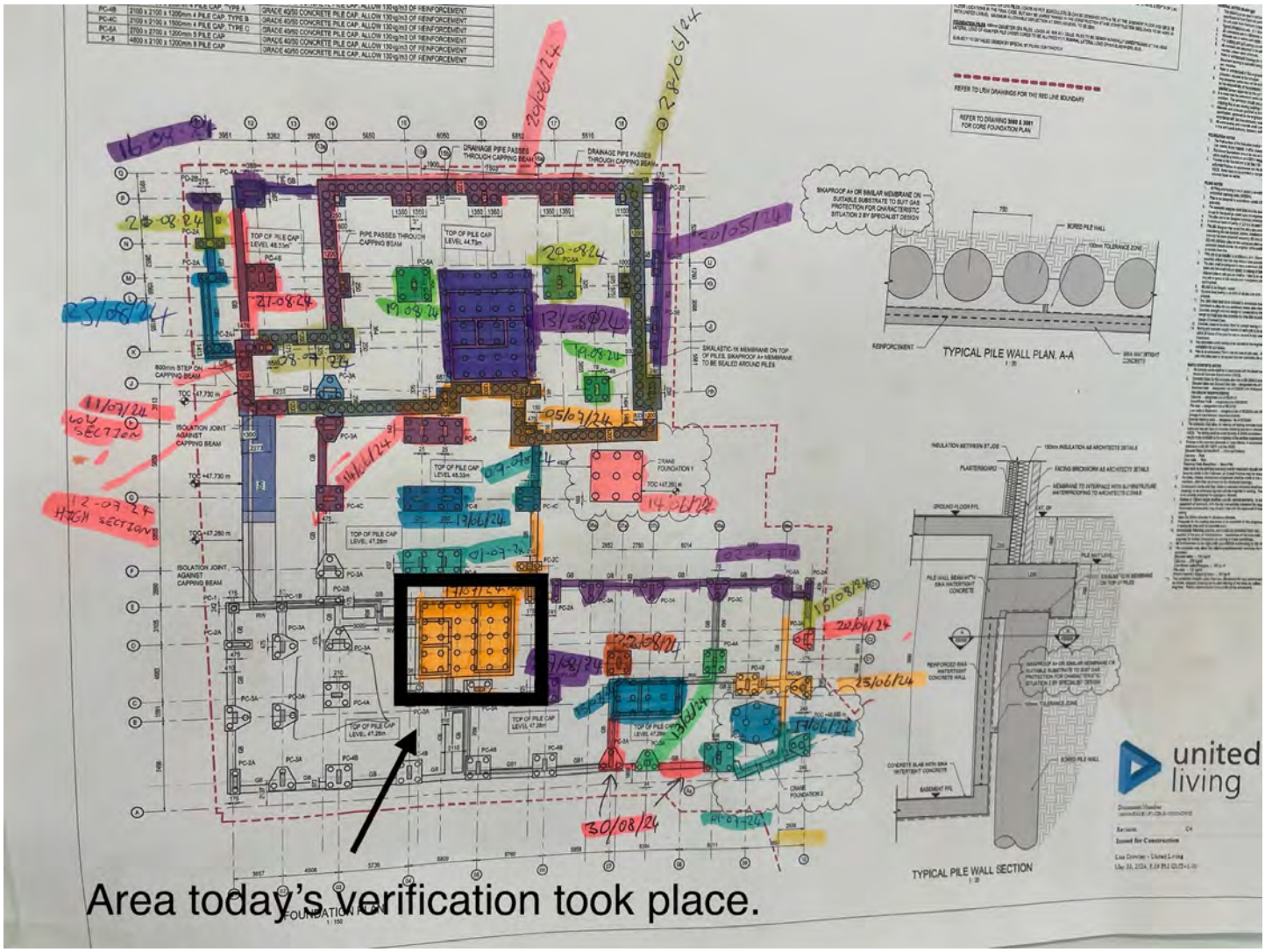
REPORT NUMBER: 011

ACCOMPANIED BY:

Bruno - RASCOR UK Ltd

GeoShield Verification Report

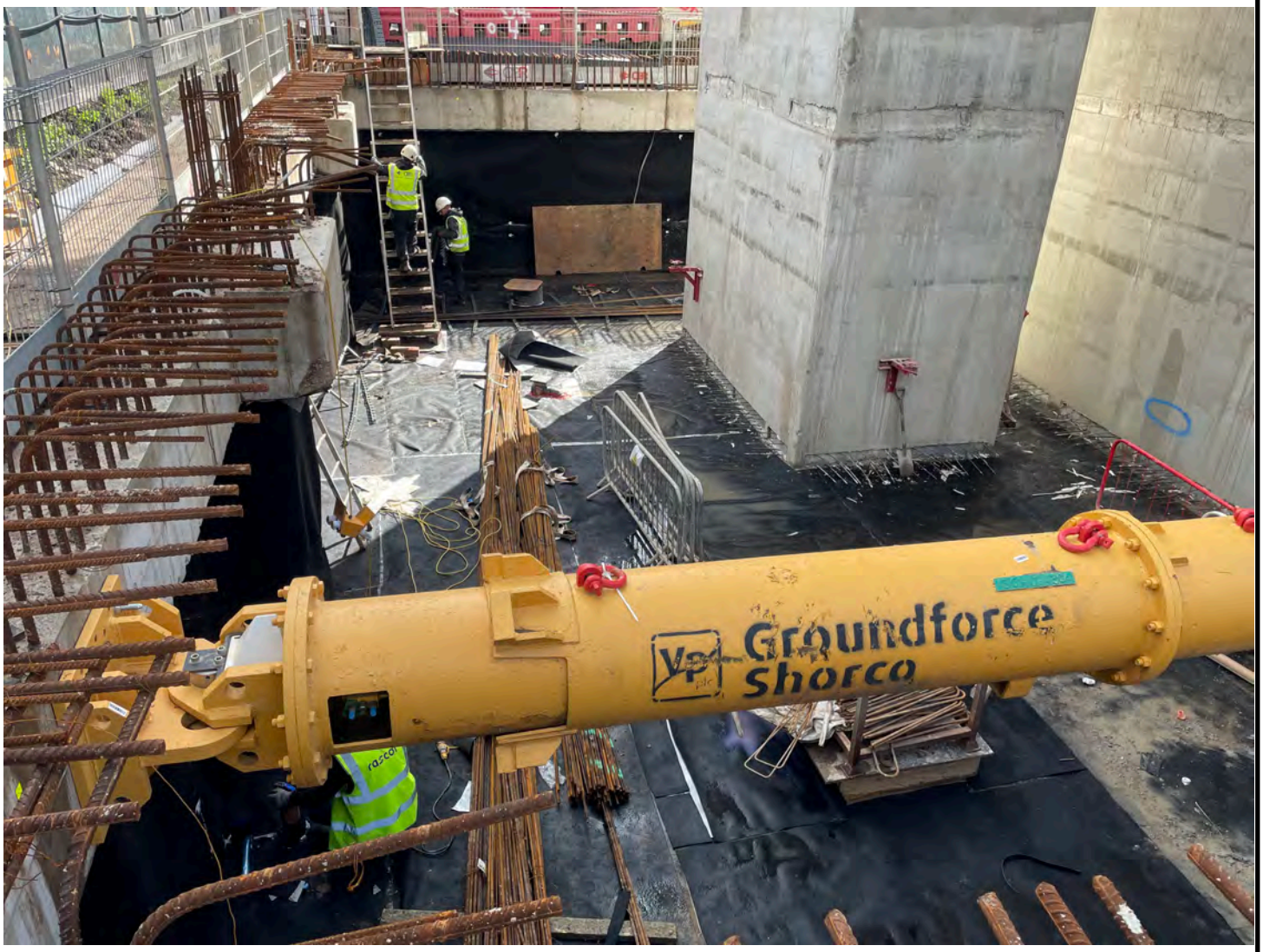
Verification Layout



The photograph above shows a plan layout of the site. The area highlighted in black shows where the inspection took place.

GeoShield Verification Report

OVERVIEW



The photograph above displays an overview Building 1 basement where today's verification inspection took place on site.

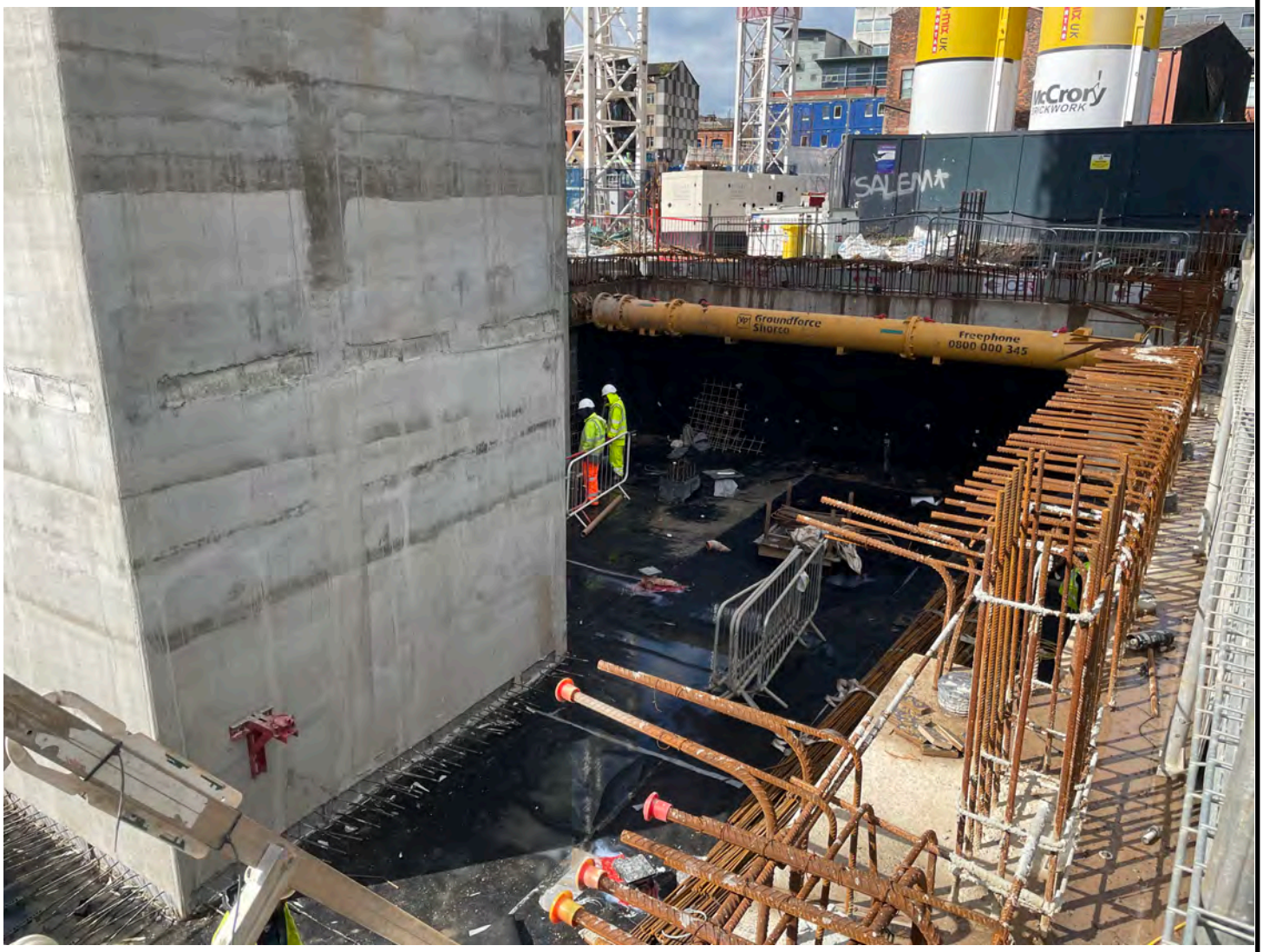
GeoShield Verification Report

OVERVIEW

The photograph above displays an overview Building 1 basement where today's verification inspection took place on site.

GeoShield Verification Report

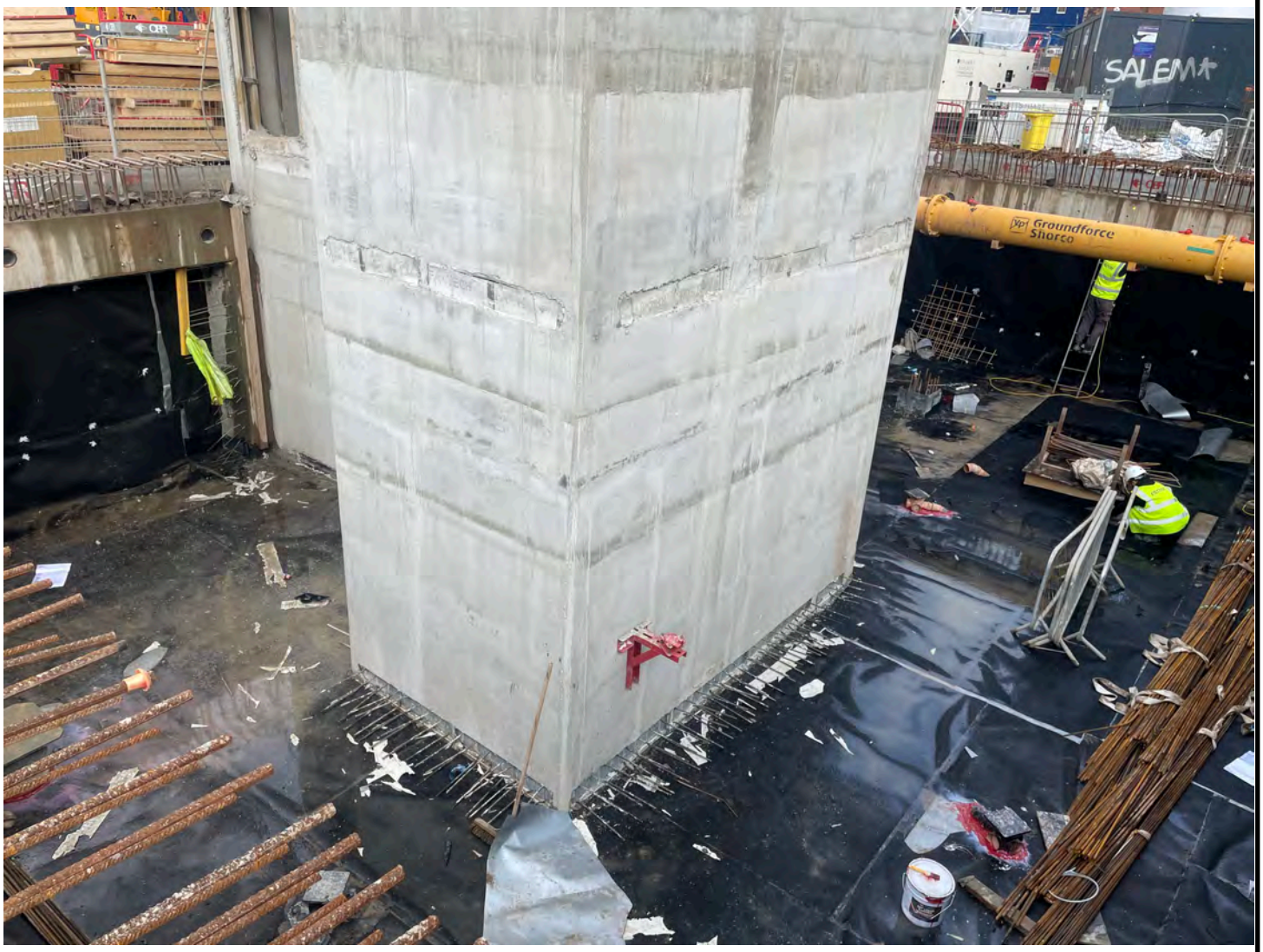
OVERVIEW



The photograph above displays an overview Building 1 basement where today's verification inspection took place on site.

GeoShield Verification Report

OVERVIEW



The photograph above displays an overview Building 1 basement where today's verification inspection took place on site.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Building 1 Basement (See verification layout for mark up)

Installation of Juta TitanBond

NOTES:

A complete line out of the Juta TitanBond has been installed across the walls of the basement and solid concrete floor of the basement. The Juta TitanBond has successfully been taken across all of the basement walls and round all penetrations to ensure continuity throughout.

NOTES:

All lap joints between the adjacent sheets of Juta TitanBond have been overlapped a minimum of 100mm and heat welded using a hot air leister and a silicone roller with adequate pressure applied to ensure a continuous weld is achieved. The Install was in accordance with manufacturer's specifications.

GeoShield Verification Report

VERIFICATION ITEM ONE

All lap joints were subjected to thorough visual inspections, supported by mechanical point stress testing and throughout the installation in which two mis-welded lap joints were identified, these were remediated on site by RASCOR this was carried out in the presence of GeoShield.

GeoShield Verification Report

VERIFICATION ITEM TWO

LOCATION/GRID LINE: Building 1 Basement (See verification layout for mark up)

Pipe Penetrations

NOTES:

Throughout the complete line out installation of the Juta GP1 Gas Barrier to the referenced plots, there were a number of pipe penetrations that had been sealed. This had been achieved by cutting Juta TitanBond tightly around each pipe penetration ensuring there were no voids left around the pipe penetrations.

NOTES:

Each pipe penetration was cleaned off free of any dirt and debris and then each pipe penetration was firstly sealed using PU Sealant, once the PU Sealant had cured each pipe penetration was subjected to a number of coats of Juta GP Liquid Barrier allowing drying time between each coat of Juta GP Liquid Barrier.

GeoShield Verification Report

VERIFICATION ITEM TWO

All pipe penetrations were subjected to visual inspections in which no faults were identified during this procedure.

VERIFICATION ITEM THREE

REMEDIATIONS:

Outstanding Remediations

NOTES:

Two sections of the Basement as seen in the images above and below have not been completed due to having no design detail for the areas, these have been shuttered off and membrane has been extended above finished concrete level.

NOTES:

One a design detail has been received these areas will need completing and verification will be required.

VERIFICATION ITEM THREE

REMEDIATIONS:

Outstanding Remediations

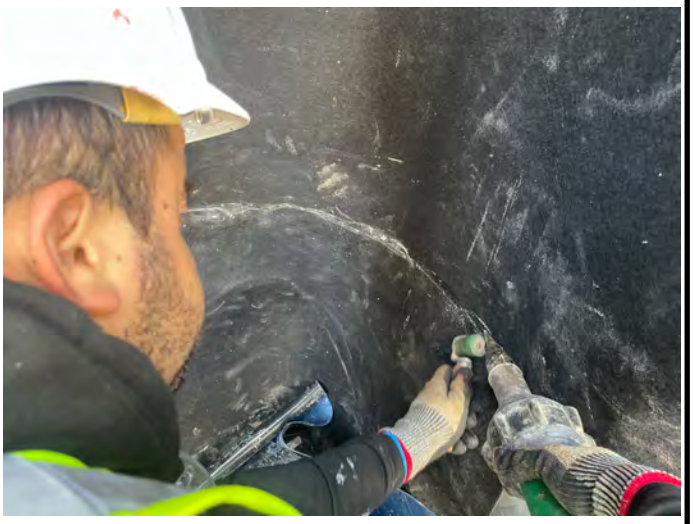
NOTES:

As shown in the above and below images core holes have been drilled into the top of the basement walls, the core holes have been drilled so the concrete pump can use the core holes as access to pour the concrete walls of the basement.

NOTES:

Once the walls of the basement have been poured and have had time to cure these core holes will require sealing from the top.

ADDITIONAL PHOTOGRAPHS



Installers repairing the mis-welds found during the verification.

Installers repairing the mis-welds found during the verification.

Nail holes repaired using PU Sealant once cured Juta GP Liquid Barrier will be applied.

Evidence of the Juta GP Liquid Barrier used throughout the installation.

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing	✔
Gridline/Plot Sign off	Core 4 Slab & Core 5 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Clements Block 2 - Lift Area Walls (Core Slab 5)	✔
Gridline/Plot Sign off	Clements Block 2 - Trench Walls (Core Slab 4)	
Gridline/Plot Sign off	Core 2 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Core 3 Slab (GP5)	✔
Gridline/Plot Sign off	Basement Walls - Block 1 & 2 (Titanbond)	

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Building 1 Lift Pit (No verification carried out due to the	
Gridline/Plot Sign off	area being backfilled)	✔
Gridline/Plot Sign off	Building 1 Basement (No verification carried out due to prep	
Gridline/Plot Sign off	work still being carried out)	✔
Gridline/Plot Sign off	Building 1 Basement (See verification layout for mark up)	✔
Gridline/Plot Sign off	Building 1 Basement (Excluding service pits)	✔
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔
11/07/2024	005	No faults or defects were identified during today's visit.	✔
22/07/2024	006	6 miswelded lap joints, remediated during visit	✔
01/08/2024	007	No faults or defects were identified during todays visit.	✔
06/08/2024	008	3 miswelded lap joints found, remediated during visit	✔
22/08/2024	009	1. A total of 13 miswelded lap joints were identified in the JUTA	✔
		GP5 and JUTA Titanbond Gas Barriers. All were remediated.	✔
		2. Nail fixing punctures in JUTA Titanbond are to be sealed and	✔
		inspected at a future visit. (Basement Walls - Block 2)	✔

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
06/09/2024	010	No verification carried out during today's visit.	✔
11/09/2024	011	Two mis-welds were identified during today's verification visit both	
		mis-welds were remediated on site in the presence of GeoShield.	✔

GeoShield Verification Report

VERIFICATION SUMMARY

This was the 11th visit to the site where verification was required for the complete line out installation of Juta TitanBond to the referenced area the verification process is summarised below.

:> All overlaps between the adjacent sheets of Juta TitanBond have been successfully installed with a 100mm overlap and all heat welded using a hot air tool and silicone roller creating continuous seals throughout the installation.

:> All detailing throughout the installation, such as pipe penetrations have been successfully sealed using PU Sealent followed by Juta GP Liquid Gas Barrier

:> Mechanical Point Stress test was conducted throughout the verification today in which two faults or defects were identified, these were remediated on site in the presence of Geoshield.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 11-Sep-2024

GeoShield Verification Report 12

PROJECT REFERENCE:	GEO104657
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION:	Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer’s instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

GeoShield Verification Report

NAME OF SURVEYOR: Liam England

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07551 259023

EMAIL ADDRESS: lengland@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Building 1 Lift Pit Walls 50% (See verification layout for mark up)

SITE CONDITIONS:

WEATHER:

Sunny

TEMPERATURE:

14ºc

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 14:45 - 15:30

DATE: 13.09.2024

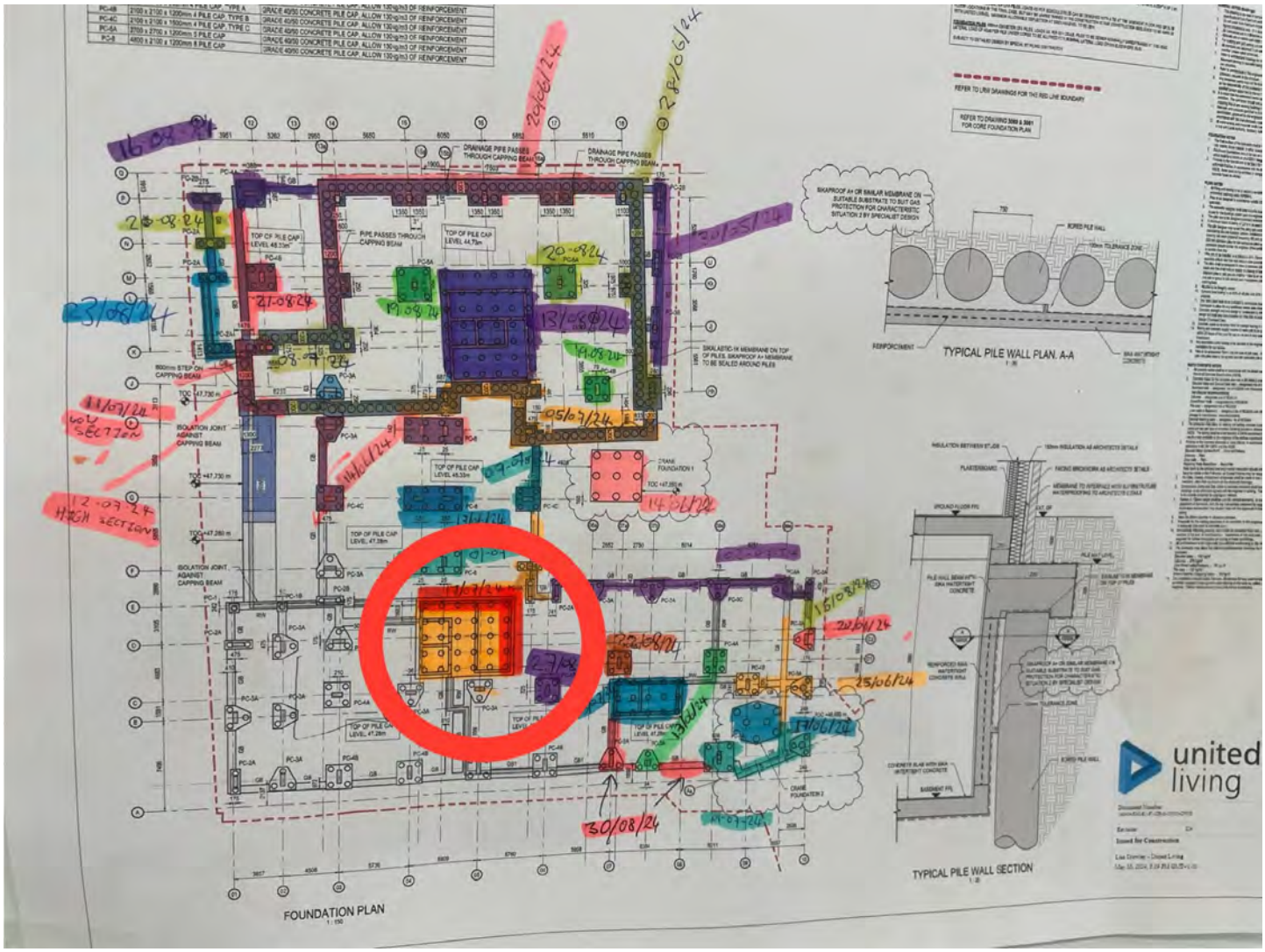
REPORT NUMBER: 012

ACCOMPANIED BY:

Bruno - RASCOR UK Ltd

GeoShield Verification Report

Verification Layout



The photograph above shows a plan layout of the site. The area highlighted in red shows where the inspection took place.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview Building 1 lift pit where today's verification inspection took place on site.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Building 1 Lift Pit Walls 50% (See verification layout)

Installation of Juta TitanTank

NOTES:

A complete line out of the Juta TitanTank has been installed across a solid smooth concrete wall of the lift pit in building 1. The referenced area had firstly been subjected to a primer in which this was left to cure. The Juta TitanTank had been taken down all walls and lapped onto the previously installed Juta TitanBond to

NOTES:

ensure continuity throughout. All lap joints between the sheets of Juta TitanTank have been overlapped a minimum of 80mm and heat welded using a hot air leister and a silicone roller with adequate pressure applied to ensure a continuous bonds were achieved. The Install was in accordance with manufacturer's specifications.

GeoShield Verification Report

VERIFICATION ITEM ONE

All lap joints were subjected to thorough visual inspections, supported by mechanical point stress testing throughout the installation. During this process no faults or defects were identified.

ADDITIONAL PHOTOGRAPHS

Protection board installed to protect the Juta TitanTank from any damage.

Lift Pit wall primed and ready for the installation of Juta TitanTank.

The installers using heat and adequate pressure ensuring all joints had bonded correctly.

Pick and probe test being conducted on a lap joint.

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing	✔
Gridline/Plot Sign off	Core 4 Slab & Core 5 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Clements Block 2 - Lift Area Walls (Core Slab 5)	✔
Gridline/Plot Sign off	Clements Block 2 - Trench Walls (Core Slab 4)	
Gridline/Plot Sign off	Core 2 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Core 3 Slab (GP5)	✔
Gridline/Plot Sign off	Basement Walls - Block 1 & 2 (Titanbond)	

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Building 1 Lift Pit (No verification carried out due to the	
Gridline/Plot Sign off	area being backfilled)	✔
Gridline/Plot Sign off	Building 1 Basement (No verification carried out due to prep	
Gridline/Plot Sign off	work still being carried out)	✔
Gridline/Plot Sign off	Building 1 Basement (See verification layout for mark up)	✔
Gridline/Plot Sign off	Building 1 Basement (Excluding service pits)	✔
Gridline/Plot Sign off	Building 1 Lift Pit Walls 50% (See verification layout)	
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔
11/07/2024	005	No faults or defects were identified during today's visit.	✔
22/07/2024	006	6 miswelded lap joints, remediated during visit	✔
01/08/2024	007	No faults or defects were identified during todays visit.	✔
06/08/2024	008	3 miswelded lap joints found, remediated during visit	✔
22/08/2024	009	1. A total of 13 miswelded lap joints were identified in the JUTA	✔
		GP5 and JUTA Titanbond Gas Barriers. All were remediated.	✔
		2. Nail fixing punctures in JUTA Titanbond are to be sealed and	✔
		inspected at a future visit. (Basement Walls - Block 2)	✔

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
06/09/2024	010	No verification carried out during today's visit.	✔
11/09/2024	011	Two mis-welds were identified during today's verification visit both	
		mis-welds were remediated on site in the presence of GeoShield.	✔
13/09/2024	012	No faults or defects were identical during today's visit.	✔

GeoShield Verification Report

VERIFICATION SUMMARY

This was the 12th visit to the site where verification was required for the complete line out installation of Juta TitanTank to 50% of the lift pit walls (Building 1NQ) the verification process is summarised below.

:> All overlaps between the adjacent sheets of Juta TitanTank have been successfully installed with a 80mm overlap and all heat welded using a hot air tool and silicone roller creating continuous bonds throughout the installation.

:> Mechanical Point Stress test was conducted throughout the verification today in which no faults or defects were identified.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 13-Sep-2024

GeoShield Verification Report 13

PROJECT REFERENCE:	GEO104657
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer’s instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

GeoShield Verification Report

NAME OF SURVEYOR: Niall Hogan

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07423 116951

EMAIL ADDRESS: nhogan@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Ground Floor Slab, gridlines A-C/08.5-09.5
Tanking, gridlines A/5-7 (inside wall)

SITE CONDITIONS:

WEATHER:

Sunny

TEMPERATURE:

20ºc

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 12:00 - 14:00

DATE: 19.09.2024

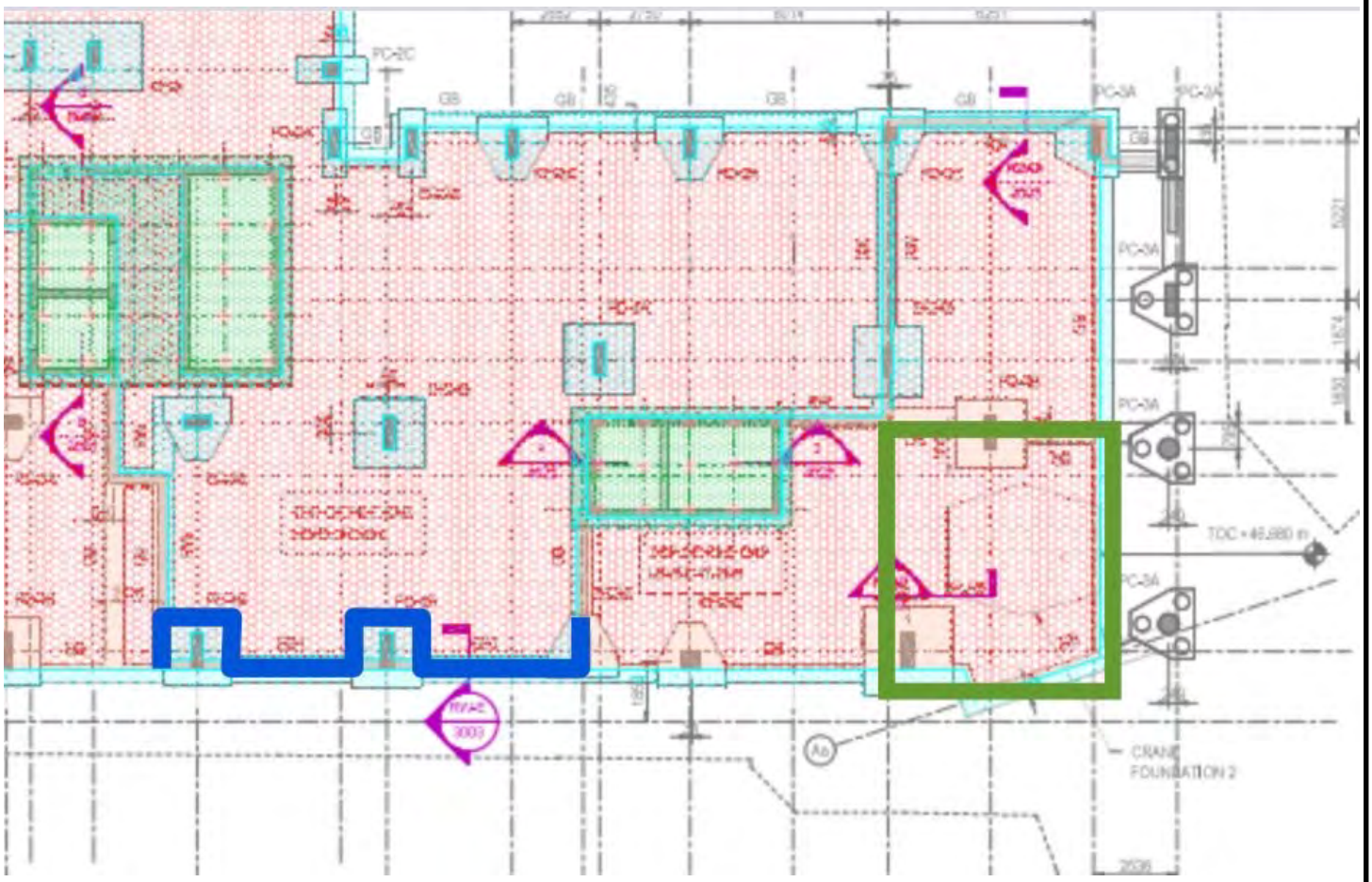
REPORT NUMBER: 013

ACCOMPANIED BY:

Bruno - RASCOR UK Ltd

GeoShield Verification Report

Verification Layout



The photograph above shows a plan layout of the site. The area highlighted in green shows the slab area and the area highlighted in blue shows the section of wall tanking where the inspection took place.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the slab area where today's verification inspection took place on site.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the inside wall section where today's verification inspection took place on site.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Ground Floor Slab, gridlines A-C/08.5-09.5

Installation of JUTA Titanflex Gas Barrier

NOTES:

A complete line out of the JUTA Titanflex Gas Membrane has been installed across the slab section, gridlines referenced. The JUTA Titanflex Gas Membrane has been lined out across the entirety of the slab area with a substantial overhang left to enable further works to be carried out at a later date.

NOTES:

All lap joints between the sheets of JUTA Titanflex Gas Membrane have been overlapped a minimum of 100mm and heat welded using a hot air leister and a silicone roller with adequate pressure applied to ensure a continuous gas resistant seal is achieved.

GeoShield Verification Report

VERIFICATION ITEM ONE

All lap joints were subjected to thorough visual inspections, supported by mechanical point stress testing throughout the installation. During this process one miswelded lap joint and one puncture to the membrane were identified. Both areas were successfully remediated on site in the presence of GeoShield.

VERIFICATION ITEM ONE

REMEDIATIONS:

Faults Identified & Remediated

NOTES:

As mentioned, one miswelded lap joint and one puncture were identified during the testing of the JUTA Titanflex Gas Membrane. Both areas were brought to the attention of the installers and remediated on site in the presence of GeoShield. The dedicated applicators

NOTES:

from Rascor opted to apply a patch of JUTA GP1 SAM over each of the affected areas. Heat and rolled pressure were applied to ensure the JUTA GP1 SAM had fully bonded. Both remediated areas were tested with the probe. No further faults were identified.

GeoShield Verification Report

VERIFICATION ITEM TWO

LOCATION/GRID LINE: Ground Floor Slab, gridlines A-C/08.5-09.5

Pipe Penetrations

NOTES:

Throughout the installation of the JUTA Titanflex Gas Membrane to the referenced slab area, there were a number of pipe penetrations that have been sealed in accordance with manufacturer's specifications and design guidelines. This has been achieved using JUTA GP1 SAM, which is a gas resistant self adhesive

NOTES:

membrane. The installers have first cut the JUTA Titanflex Gas Membrane tight around the base of each pipe penetration to minimise voided areas. Next, patches of JUTA GP1 SAM are placed intricately around the pipe penetration and onto the JUTA Titanflex Gas Membrane, as shown in the above photographs.

GeoShield Verification Report

VERIFICATION ITEM TWO

Heat and rolled pressure is applied to the JUTA GP1 SAM to activate the bitumen backing, creating a secure bond between the pipe penetration and the JUTA Titanflex Gas Membrane. All pipe penetrations throughout the referenced slab were subjected to thorough visual inspections and mechanical point stress testing, where a probe was run along all edges of the JUTA GP1 SAM detailing. No faults or defects were identified.

GeoShield Verification Report

VERIFICATION ITEM THREE

LOCATION/GRID LINE: Ground Floor Slab, gridlines A-C/08.5-09.5

Sealing of Columns

NOTES:

Upon arrival to site it was evident that two columns within the slab area referenced had not yet been sealed. This subsequently left a void where the JUTA Titanflex Gas Membrane was unable to pass through the steel rebar.

NOTES:

Both columns required sealing with JUTA CAB Flex 2C, which is a cementitious sealing slurry. The columns received a generous coating of the JUTA CAB Flex 2C in the presence of GeoShield which was then left to set. Upon visual inspection of the JUTA CAB Flex 2C a sufficient coverage has been achieved.

GeoShield Verification Report

VERIFICATION ITEM FOUR

LOCATION/GRID LINE: Tanking, gridlines A/5-7 (inside wall)

Installation of JUTA GP1 SAM

NOTES:

JUTA GP1 SAM, which is a gas resistant self adhesive membrane has been tanked upon a section of the internal wall to the gridlines referenced. All concrete surfaces have been primed prior to application of the JUTA GP1 SAM to aid in the adhesion. Strips of JUTA GP1 SAM have been lined upon the primed concrete surface

NOTES:

with all lap joints between the adjacent sheets being overlapped a minimum of 100mm. The installers have applied adequate heat and rolled pressure to activate the bitumen backing to create a continuous gas tight seal throughout. Thorough mechanical point stress testing identified no faults or defects.

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing	✔
Gridline/Plot Sign off	Core 4 Slab & Core 5 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Clements Block 2 - Lift Area Walls (Core Slab 5)	✔
Gridline/Plot Sign off	Clements Block 2 - Trench Walls (Core Slab 4)	
Gridline/Plot Sign off	Core 2 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Core 3 Slab (GP5)	✔
Gridline/Plot Sign off	Basement Walls - Block 1 & 2 (Titanbond)	

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Building 1 Lift Pit (No verification carried out due to the	
Gridline/Plot Sign off	area being backfilled)	✔
Gridline/Plot Sign off	Building 1 Basement (No verification carried out due to prep	
Gridline/Plot Sign off	work still being carried out)	✔
Gridline/Plot Sign off	Building 1 Basement (See verification layout for mark up)	✔
Gridline/Plot Sign off	Building 1 Basement (Excluding service pits)	✔
Gridline/Plot Sign off	Building 1 Lift Pit Walls 50% (See verification layout)	
Gridline/Plot Sign off	Ground Floor Slab, gridlines A-C/08.5-09.5	✔
Gridline/Plot Sign off	Tanking, gridlines A/5-7 (inside wall)	✔
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔
11/07/2024	005	No faults or defects were identified during today's visit.	✔
22/07/2024	006	6 miswelded lap joints, remediated during visit	✔
01/08/2024	007	No faults or defects were identified during todays visit.	✔
06/08/2024	008	3 miswelded lap joints found, remediated during visit	✔
22/08/2024	009	1. A total of 13 miswelded lap joints were identified in the JUTA	✔
		GP5 and JUTA Titanbond Gas Barriers. All were remediated.	✔
		2. Nail fixing punctures in JUTA Titanbond are to be sealed and	✔
		inspected at a future visit. (Basement Walls - Block 2)	✔

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
06/09/2024	010	No verification carried out during today's visit.	✔
11/09/2024	011	Two mis-welds were identified during today's verification visit both	
		mis-welds were remediated on site in the presence of GeoShield.	✔
13/09/2024	012	No faults or defects were identical during today's visit.	✔
19/09/2024	013	One miswelded lap joint and one puncture were identified. Both	✔
		were remediated on site.	✔

GeoShield Verification Report

VERIFICATION SUMMARY

This was the 13th visit to the site where verification was required for the installation of JUTA Titanflex Gas Membrane to the ground floor slab area, gridlines A-C/08.5-09.5 and the tanking of JUTA GP1 SAM to a section of the inside wall, gridlines A/5-7.

All overlaps between the adjacent sheets of JUTA Titanflex Gas Membrane and JUTA GP1 SAM have been successfully installed with a 100mm overlap and heat welded using a hot air tool and silicone roller creating continuous seals throughout the installation.

All pipe penetrations have been successfully sealed using strips of JUTA GP1 SAM.

Two columns within the slab section have been sealed using JUTA CAB Flex 2C prior to the concrete being poured.

Thorough visual inspections, supported by mechanical point stress testing conducted upon all aspects of the installation identified one miswelded lap joint and one puncture to the JUTA Titanflex Gas Membrane. Both areas were successfully remediated in the presence of GeoShield.

A very good standard of works have been carried out by the dedicated applicators from Rascor.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 19-Sep-2024

GeoShield Verification Report 14

PROJECT REFERENCE:	GEO104657
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION:	Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer’s instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

GeoShield Verification Report

NAME OF SURVEYOR: Liam England

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07551 259023

EMAIL ADDRESS: lengland@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

E-C/5.5-8.5 - Slab Full Line Out

SITE CONDITIONS:

WEATHER:

Overcast

TEMPERATURE:

12ºc

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 08:30 - 09:20

DATE: 26.09.2024

REPORT NUMBER: 014

ACCOMPANIED BY:

GeoShield Verification Report

Verification Layout

The image above shows a plan layout of the site. The highlighted area shows where the inspection took place.

GeoShield Verification Report

Verification Layout

The area highlighted in red is where today's verification took place, the area highlighted in blue is the termination detail that remains incomplete.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the slab area where today's verification inspection took place on site.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the slab area where today's verification inspection took place on site.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the slab area where today's verification inspection took place on site.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Gridline E-C/5.5-8.5

Installation of JUTA TitanfFex Gas Barrier

NOTES:

A complete line out of the Juta TitanFlex Gas Barrier has been installed across a solid compacted base of the slab area within the referenced gridlines. The Juta TitanFlex Gas Barrier has been taken round all metal rods and lapped onto the pre installed Juta TitanFlex to ensure continuity throughout.

NOTES:

All lap joints between the adjacent sheets of Juta TitanFlex Gas Barrier have been overlapped a minimum of 100mm and heat welded using a hot air leister and a silicone roller with adequate pressure applied to ensure a continuous weld is achieved. The Install was in accordance with manufacturer's specifications.

GeoShield Verification Report

VERIFICATION ITEM ONE

All lap joints were subjected to thorough visual inspections, supported by mechanical point stress testing where no faults or defects were identified at the time of the verification.

GeoShield Verification Report

VERIFICATION ITEM TWO

LOCATION/GRID LINE: Gridline E-C/5.5-8.5

Pipe Penetrations

NOTES:

Throughout the complete line out installation of the Juta TitanFlex Gas Barrier to the referenced area, there were a number of pipe penetrations that have been sealed in accordance with manufacturer's specifications. This had been achieved by cutting Juta TitanFlex Gas Barrier tightly around each pipe

NOTES:

penetration, pre formed top hats were then placed over each pipe penetration with a hot air tool and silicone roller being used to heat weld the base of the pre formed top hat, a strip of Juta GP1 SAM was then placed around the top of the pre formed top hat and hot air was used to activate the bitumen backing on the Juta GP1 SAM to

GeoShield Verification Report

VERIFICATION ITEM ONE

to improve the bond with the pipe penetration. All pipe penetrations were subjected to visual between the inspection as well as a mechanical point stress test where a probe is run along all edges of Juta GP1 SAM to ensure the correct bond is achieved during the installation. No faults were identified during this procedure.

GeoShield Verification Report

LIMITATIONS

SURVEYED AREA: Gridline E-C/5.5-8.5 - Steel Columns

RESTRICTIONS AND LIMITATIONS:

During today's visit a veritable could not be carried out on the steel columns due to these not being sealed, a shuttering will be formed and these will be sealed once the concrete has been poured.

GeoShield Verification Report

LIMITATIONS

SURVEYED AREA: Gridline E-C/5.5-8.5 - Termination to lower floor slab

RESTRICTIONS AND LIMITATIONS:

A verification on the termination to the lower floor slab could not be carried out due to this not being sealed, sufficient overhand has been leapfrog for this to be sealed at a later date once the lower slab is installed.

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing	✔
Gridline/Plot Sign off	Core 4 Slab & Core 5 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Clements Block 2 - Lift Area Walls (Core Slab 5)	✔
Gridline/Plot Sign off	Clements Block 2 - Trench Walls (Core Slab 4)	
Gridline/Plot Sign off	Core 2 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Core 3 Slab (GP5)	✔
Gridline/Plot Sign off	Basement Walls - Block 1 & 2 (Titanbond)	

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Building 1 Lift Pit (No verification carried out due to the	
Gridline/Plot Sign off	area being backfilled)	✔
Gridline/Plot Sign off	Building 1 Basement (No verification carried out due to prep	
Gridline/Plot Sign off	work still being carried out)	✔
Gridline/Plot Sign off	Building 1 Basement (See verification layout for mark up)	✔
Gridline/Plot Sign off	Building 1 Basement (Excluding service pits)	✔
Gridline/Plot Sign off	Building 1 Lift Pit Walls 50% (See verification layout)	
Gridline/Plot Sign off	Ground Floor Slab, gridlines A-C/08.5-09.5	✔
Gridline/Plot Sign off	Tanking, gridlines A/5-7 (inside wall)	✔
Gridline/Plot Sign off	Gridline E-C/5.5-8.5 floor slab (Except Steel Columns &	
Gridline/Plot Sign off	termination to lower floor slab)	✔

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔
11/07/2024	005	No faults or defects were identified during today's visit.	✔
22/07/2024	006	6 miswelded lap joints, remediated during visit	✔
01/08/2024	007	No faults or defects were identified during todays visit.	✔
06/08/2024	008	3 miswelded lap joints found, remediated during visit	✔
22/08/2024	009	1. A total of 13 miswelded lap joints were identified in the JUTA	✔
		GP5 and JUTA Titanbond Gas Barriers. All were remediated.	✔
		2. Nail fixing punctures in JUTA Titanbond are to be sealed and	✔
		inspected at a future visit. (Basement Walls - Block 2)	✔

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
06/09/2024	010	No verification carried out during today's visit.	✔
11/09/2024	011	Two mis-welds were identified during today's verification visit both	
		mis-welds were remediated on site in the presence of GeoShield.	✔
13/09/2024	012	No faults or defects were identical during today's visit.	✔
19/09/2024	013	One miswelded lap joint and one puncture were identified. Both	✔
		were remediated on site.	✔
26/09/2024	014	Steel columns not sealed this remains an outstanding remediation.	
		Termination to lower floor slab remains an outstanding remediation.	
		No faults or defects were identified during today's verification.	✔

GeoShield Verification Report

VERIFICATION SUMMARY

This was the fourteenth visit to the site where verification was required for the complete line out installation of Juta TitanFlex Gas Barrier to the referenced area which was carried out by Rascor the verification process is summarised below.

:> All overlaps have been installed with a minimum of 80mm overlap and all heat welded using a hot air tool.
:> All detailing throughout the installation, such as pipe penetrations have been successfully sealed using pre formed top hats.
:> Thorough visual inspections, supported by mechanical point stress testing was carried out during the inspection in which no faults or defects were identified.
:> The termination of the referenced to the lower slab area hadn't been completed, sufficient overhang has been left in order to lap onto once the Juta TitanFlex is being installed on the lower slab.

:> Steel columns have not been sealed in the referenced area, these will be shuttered off prior to the concrete pour leaving enough Juta TitanFlex visible to seal these once the concrete slab has been poured.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 26-Sep-2024

GeoShield Verification Report 15

PROJECT REFERENCE:	GEO104657
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer’s instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

GeoShield Verification Report

NAME OF SURVEYOR: Liam England

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07551 259023

EMAIL ADDRESS: lengland@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Ground floor slab area A-C1/4.75-7

SITE CONDITIONS:

WEATHER:

Sunny

TEMPERATURE:

9ºc

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 08:20 - 09:10

DATE: 03.10.2024

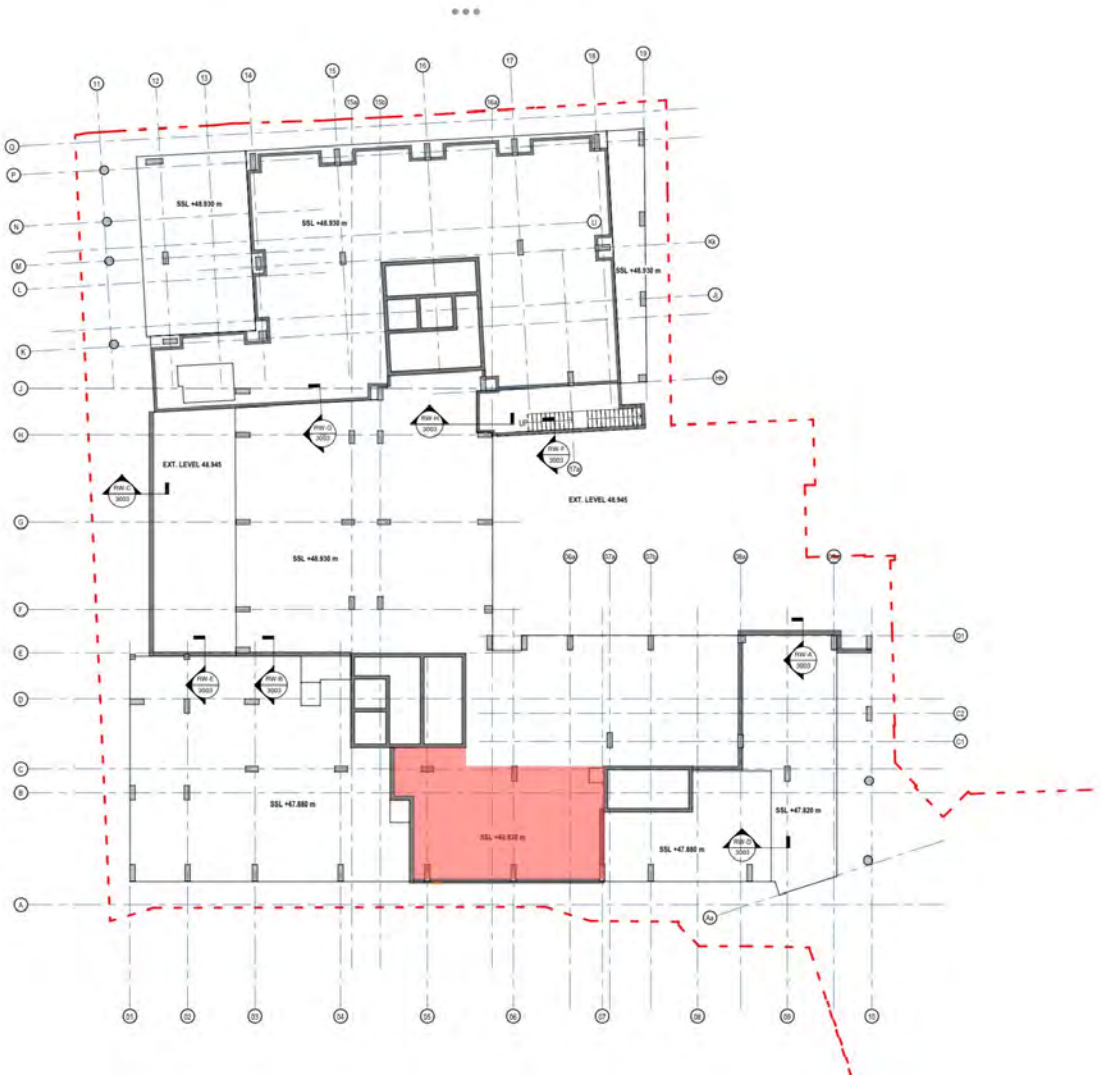
REPORT NUMBER: 015

ACCOMPANIED BY:

Bruno - Rascor

GeoShield Verification Report

Verification Layout



The image above shows a plan layout of the site. The area highlighted in red shows where the inspection took place.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the slab area where today's verification inspection took place on site.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the slab area where today's verification inspection took place on site.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Gridline - A-C1/4.75-7

Installation of JUTA TitanfFex Gas Barrier

NOTES:

A complete line out of the Juta TitanFlex Gas Barrier has been installed across a solid compacted base of the slab area within the referenced gridlines. The Juta TitanFlex Gas Barrier has been taken round all metal rods and lapped onto the pre installed Juta TitanFlex to ensure continuity throughout.

NOTES:

All lap joints between the adjacent sheets of Juta TitanFlex Gas Barrier have been overlapped a minimum of 100mm and heat welded using a hot air leister and a silicone roller with adequate pressure applied to ensure a continuous weld is achieved. The Install was in accordance with manufacturer's specifications.

GeoShield Verification Report

VERIFICATION ITEM ONE

All lap joints were subjected to thorough visual inspections, supported by mechanical point stress testing where no faults or defects were identified at the time of the verification.

GeoShield Verification Report

VERIFICATION ITEM TWO

LOCATION/GRID LINE: Gridline - A-C1/4.75-7

Pipe Penetrations

NOTES:

Throughout the complete line out installation of the Juta TitanFlex Gas Barrier to the referenced area, there were a number of pipe penetrations that have been sealed in accordance with manufacturer's specifications. This had been achieved by cutting Juta TitanFlex Gas Barrier tightly around each pipe

NOTES:

penetration, pre formed top hats were then placed over each pipe penetration with a hot air tool and silicone roller being used to heat weld the base of the pre formed top hat, a strip of Juta GP1 SAM was then placed around the top of the pre formed top hat and hot air was used to activate the bitumen backing on the Juta GP1 SAM to

GeoShield Verification Report

VERIFICATION ITEM ONE

to improve the bond with the pipe penetration. All pipe penetrations were subjected to visual between the inspection as well as a mechanical point stress test where a probe is run along all edges of Juta GP1 SAM to ensure the correct bond is achieved during the installation. No faults were identified during this procedure.

GeoShield Verification Report

LIMITATIONS

SURVEYED AREA: Gridline - A-C1/4.75-7

RESTRICTIONS AND LIMITATIONS:

During today's visit a veritable could not be carried out on the steel columns due to these not being sealed, a shuttering will be formed and these will be sealed once the concrete has been poured.

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing	✔
Gridline/Plot Sign off	Core 4 Slab & Core 5 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Clements Block 2 - Lift Area Walls (Core Slab 5)	✔
Gridline/Plot Sign off	Clements Block 2 - Trench Walls (Core Slab 4)	
Gridline/Plot Sign off	Core 2 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Core 3 Slab (GP5)	✔
Gridline/Plot Sign off	Basement Walls - Block 1 & 2 (Titanbond)	

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Building 1 Lift Pit (No verification carried out due to the	
Gridline/Plot Sign off	area being backfilled)	✔
Gridline/Plot Sign off	Building 1 Basement (No verification carried out due to prep	
Gridline/Plot Sign off	work still being carried out)	✔
Gridline/Plot Sign off	Building 1 Basement (See verification layout for mark up)	✔
Gridline/Plot Sign off	Building 1 Basement (Excluding service pits)	✔
Gridline/Plot Sign off	Building 1 Lift Pit Walls 50% (See verification layout)	
Gridline/Plot Sign off	Ground Floor Slab, gridlines A-C/08.5-09.5	✔
Gridline/Plot Sign off	Tanking, gridlines A/5-7 (inside wall)	✔
Gridline/Plot Sign off	Gridline E-C/5.5-8.5 floor slab (Except Steel Columns &	
Gridline/Plot Sign off	termination to lower floor slab)	✔

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Gridline - A-C1/4.75-7 (Except steel columns)	✔
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔
11/07/2024	005	No faults or defects were identified during today's visit.	✔
22/07/2024	006	6 miswelded lap joints, remediated during visit	✔
01/08/2024	007	No faults or defects were identified during todays visit.	✔
06/08/2024	008	3 miswelded lap joints found, remediated during visit	✔
22/08/2024	009	1. A total of 13 miswelded lap joints were identified in the JUTA	✔
		GP5 and JUTA Titanbond Gas Barriers. All were remediated.	✔
		2. Nail fixing punctures in JUTA Titanbond are to be sealed and	✔
		inspected at a future visit. (Basement Walls - Block 2)	✔

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
06/09/2024	010	No verification carried out during today's visit.	✔
11/09/2024	011	Two mis-welds were identified during today's verification visit both	
		mis-welds were remediated on site in the presence of GeoShield.	✔
13/09/2024	012	No faults or defects were identical during today's visit.	✔
19/09/2024	013	One miswelded lap joint and one puncture were identified. Both	✔
		were remediated on site.	✔
26/09/2024	014	Steel columns not sealed this remains an outstanding remediation.	
		Termination to lower floor slab remains an outstanding remediation.	
		No faults or defects were identified during today's verification.	✔
03/10/2024	015	Steel columns not sealed this remains an outstanding remediation.	
		One fault was identified during today's visit this was remediated	
		on site by the installers in the presence of GeoShield.	✔

GeoShield Verification Report

VERIFICATION SUMMARY

This was the fifteenth visit to the site where verification was required for the complete line out installation of Juta TitanFlex Gas Barrier to the referenced area which was carried out by Rascor the verification process is summarised below.

:> All overlaps between the adjacent sheets of Juta TitanFlex Gas Barrier have been installed with a minimum of 80mm overlap and all heat welded using a hot air tool and silicone roller creating continuous seals throughout the installation.
:> All detailing throughout the installation, such as pipe penetrations have been successfully sealed using pre formed top hats.
:> Thorough visual inspections, supported by mechanical point stress testing was carried out during the inspection in which one fault identified, this was remediated on site at the time of the verification visit and was carried out in the presence of GeoShield.
:> Steel columns have not been sealed in the referenced area, these will be shuttered off prior to the concrete pour leaving enough Juta TitanFlex visible to seal these once the concrete slab has been poured.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 03-Oct-2024

GeoShield Verification Report 16

PROJECT REFERENCE:	GEO104657
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer’s instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

GeoShield Verification Report

NAME OF SURVEYOR: Niall Hogan

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07423 116951

EMAIL ADDRESS: nhogan@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Block 1, Basement Slab - gridlines 12-15b/Hh-L

SITE CONDITIONS:

WEATHER:

Rain

TEMPERATURE:

15ºc

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 16:00 - 17:00

DATE: 08.10.2024

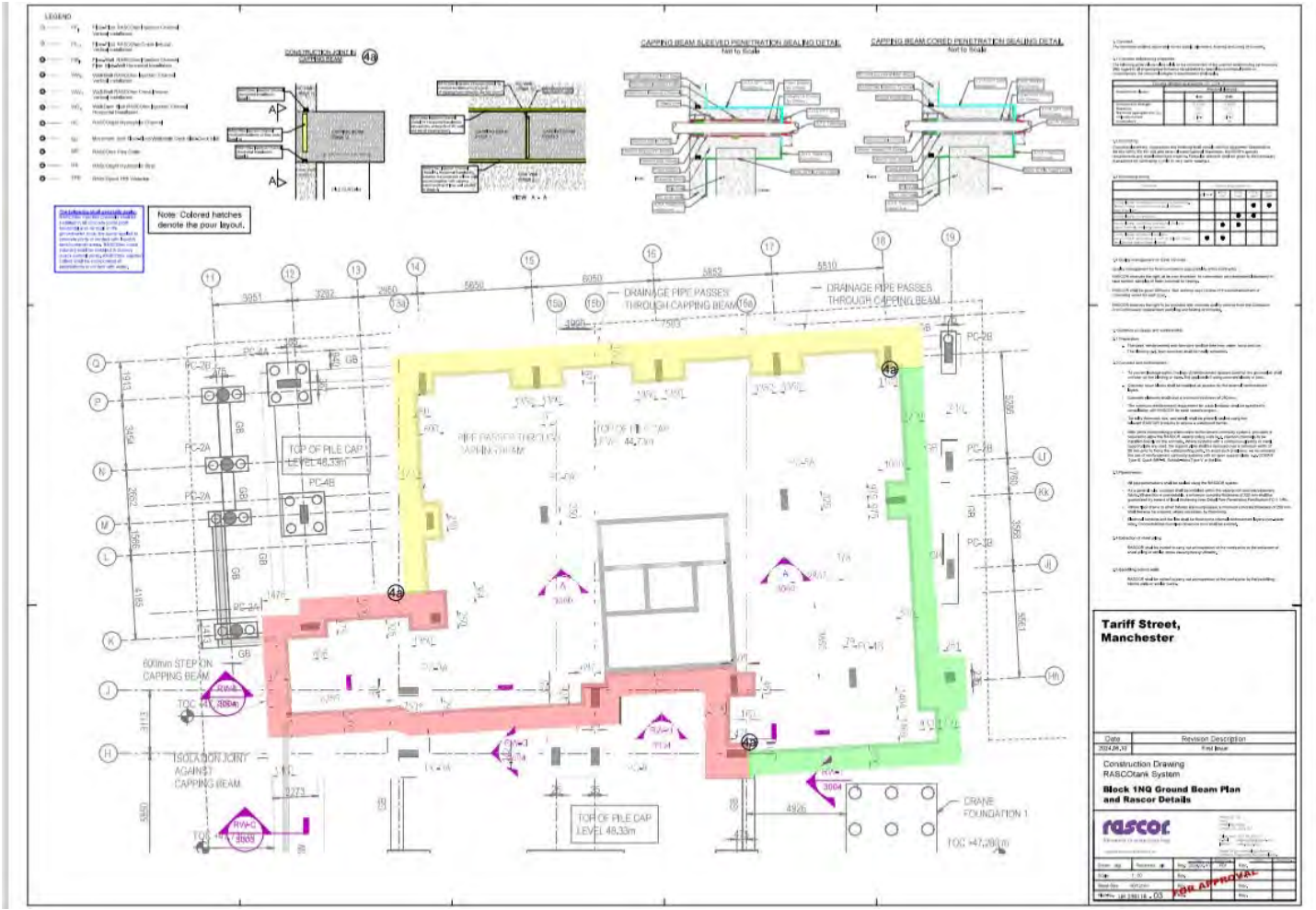
REPORT NUMBER: 016

ACCOMPANIED BY:

Bruno - RASCOR UK Ltd

GeoShield Verification Report

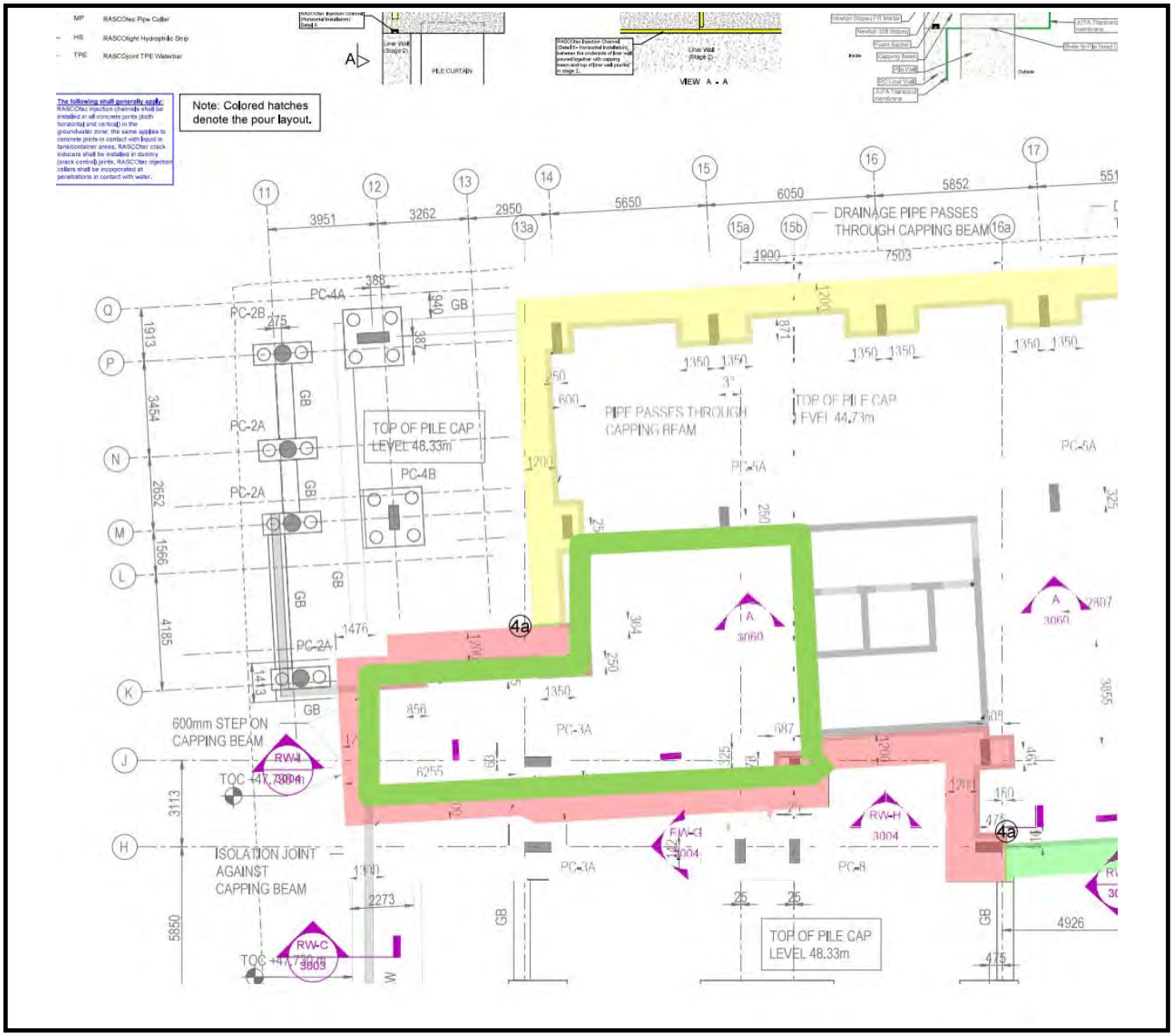
Verification Layout



The photograph above shows a plan layout of Block 1.

GeoShield Verification Report

Verification Layout



The area highlighted in green shows the slab area in Block 1 where the verification inspection took place today.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the slab area where today's verification inspection took place on site.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Block 1, Basement Slab - gridlines 12-15b/Hh-L

Installation of JUTA Titanbond Membrane

NOTES:

A complete line out of the JUTA Titanbond Membrane has been installed across the basement slab section of Block 1, gridlines referenced, in preparation for the concrete pour. The JUTA Titanbond Membrane has been lined out across the entirety of the slab area with a substantial overhang left to enable further works to be carried out at

NOTES:

a later date. All lap joints between the adjacent sheets of JUTA Titanbond Membrane have been overlapped a sufficient amount and heat welded using a hot air tool and a silicone roller with adequate pressure applied to ensure a continuous gas resistant seal is achieved.

GeoShield Verification Report

VERIFICATION ITEM ONE

All lap joints were subjected to thorough visual inspections, supported by mechanical point stress testing throughout the installation. During this process, a total of twelve miswelded lap joints were identified. All faults were successfully remediated on site in the presence of GeoShield.
Tested and verified in accordance with CIRIA 735.

VERIFICATION ITEM ONE

REMEDIATIONS:

Faults Identified & Remediated

NOTES:

As mentioned, twelve miswelded lap joints were identified during the testing of the JUTA Titanbond Membrane. All areas were brought to the attention of the installers and remediated on site in the presence of GeoShield. The dedicated applicators

NOTES:

from Rascor opted to apply additional heat and rolled pressure to the affected areas in order to reinstate a continuous gas resistant seal throughout the slab section. All remediated areas were tested with the probe. No further faults were identified.

GeoShield Verification Report

OUTSTANDING REMEDIATIONS

LOCATION/GRID LINE: Block 1, Basement Slab, gridlines 12-15b/Hh-L

Pipe Penetrations & Manholes

NOTES:

Throughout the installation of the JUTA Titanbond Membrane to the referenced slab area, there are a number of pipe penetrations and manholes that have not yet been sealed, as shown in the above photographs. The various pipes and manholes penetrating the JUTA Titanbond Membrane have received a liberal coat of

NOTES:

Rascobond EP Adhesive around the circumference and left to cure. At the time GeoShield were present on site the Rascobond EP Adhesive had not sufficiently cured and therefore, the pipes and manholes could not be fully sealed.

GeoShield Verification Report

OUTSTANDING REMEDIATIONS

Once cured, the dedicated applicators from Rascor will complete the sealing of the pipes and manholes using strips of JUTA Titan Tank.
All pipe penetrations and manholes throughout the referenced area will need to be inspected and verified prior to full sign off of the slab section being achieved.

GeoShield Verification Report

OUTSTANDING REMEDIATIONS

Upon arrival to site it was also evident that columns within the slab area referenced had not yet been sealed. All columns require sealing with JUTA CAB Flex 2C, which is a cementitious sealing slurry, once the concrete slab has been poured and set.
The columns will need to be inspected at a later date once sealed.

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing	✔
Gridline/Plot Sign off	Core 4 Slab & Core 5 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Clements Block 2 - Lift Area Walls (Core Slab 5)	✔
Gridline/Plot Sign off	Clements Block 2 - Trench Walls (Core Slab 4)	
Gridline/Plot Sign off	Core 2 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Core 3 Slab (GP5)	✔
Gridline/Plot Sign off	Basement Walls - Block 1 & 2 (Titanbond)	

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Building 1 Lift Pit (No verification carried out due to the	
Gridline/Plot Sign off	area being backfilled)	✔
Gridline/Plot Sign off	Building 1 Basement (No verification carried out due to prep	
Gridline/Plot Sign off	work still being carried out)	✔
Gridline/Plot Sign off	Building 1 Basement (See verification layout for mark up)	✔
Gridline/Plot Sign off	Building 1 Basement (Excluding service pits)	✔
Gridline/Plot Sign off	Building 1 Lift Pit Walls 50% (See verification layout)	
Gridline/Plot Sign off	Ground Floor Slab, gridlines A-C/08.5-09.5	✔
Gridline/Plot Sign off	Tanking, gridlines A/5-7 (inside wall)	✔
Gridline/Plot Sign off	Gridline E-C/5.5-8.5 floor slab (Except Steel Columns &	
Gridline/Plot Sign off	termination to lower floor slab)	✔

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Gridline - A-C1/4.75-7 (Except steel columns)	✔
Gridline/Plot Sign off	Block 1, Basement Slab, gridlines 12-15b/Hh-L	
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔
11/07/2024	005	No faults or defects were identified during today's visit.	✔
22/07/2024	006	6 miswelded lap joints, remediated during visit	✔
01/08/2024	007	No faults or defects were identified during todays visit.	✔
06/08/2024	008	3 miswelded lap joints found, remediated during visit	✔
22/08/2024	009	1. A total of 13 miswelded lap joints were identified in the JUTA	✔
		GP5 and JUTA Titanbond Gas Barriers. All were remediated.	✔
		2. Nail fixing punctures in JUTA Titanbond are to be sealed and	✔
		inspected at a future visit. (Basement Walls - Block 2)	✔

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
06/09/2024	010	No verification carried out during today's visit.	✔
11/09/2024	011	Two mis-welds were identified during today's verification visit both	✔
		mis-welds were remediated on site in the presence of GeoShield.	✔
13/09/2024	012	No faults or defects were identical during today's visit.	✔
19/09/2024	013	One miswelded lap joint and one puncture were identified. Both	✔
		were remediated on site.	✔
26/09/2024	014	Steel columns not sealed this remains an outstanding remediation.	
		Termination to lower floor slab remains an outstanding remediation.	
		No faults or defects were identified during today's verification.	✔
03/10/2024	015	Steel columns not sealed this remains an outstanding remediation.	
		One fault was identified during today's visit this was remediated	✔
		on site by the installers in the presence of GeoShield.	✔
08/10/2024	016	1. All pipes and manholes within the slab area of Block 1 (gridlines	
		12-15b/Hh-L) to be sealed with JUTA Titan Tank.	
		2. All columns to be sealed once slab poured. (GL's 12-15/Hh-L).	

GeoShield Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
		3. Twelve miswelded lap joints were identified, all were remediated	✔
		on site.	✔

GeoShield Verification Report

VERIFICATION SUMMARY

This was the 16th visit to the site where verification was required for the installation of JUTA Titanbond Membrane to the basement slab area within Block 1, gridlines 12-15b/Hh-L.
All overlaps between the adjacent sheets of JUTA Titanbond Membrane have been overlapped a sufficient amount and heat welded using a hot air tool and silicone roller creating continuous seals throughout the installation.
Thorough visual inspections, supported by mechanical point stress testing conducted upon all aspects of the installation identified twelve miswelded lap joints of the JUTA Titanbond Membrane. All areas were successfully remediated in the presence of GeoShield.
Outstanding Remediations:
- All pipe penetrations and manholes thorughout the referenced slab section are to be sealed with JUTA Titan Tank once the Rascobond EP Adhesive has cured.
- All columns within the slab section require sealing using JUTA CAB Flex 2C once the slab has been poured.
These will need to be inspected and verified prior to sign off of the slab area being achieved.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 08-Oct-2024

GeoShield Verification Report 17

PROJECT REFERENCE:	GEO104657
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer’s instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

GeoShield Verification Report

NAME OF SURVEYOR: Niall Hogan

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07423 116951

EMAIL ADDRESS: nhogan@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Block 1, Basement Slab - gridlines 12-15b/Hh-L

SITE CONDITIONS:

WEATHER:

Sunny

TEMPERATURE:

12ºc

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 12:30 - 13:00

DATE: 10.10.2024

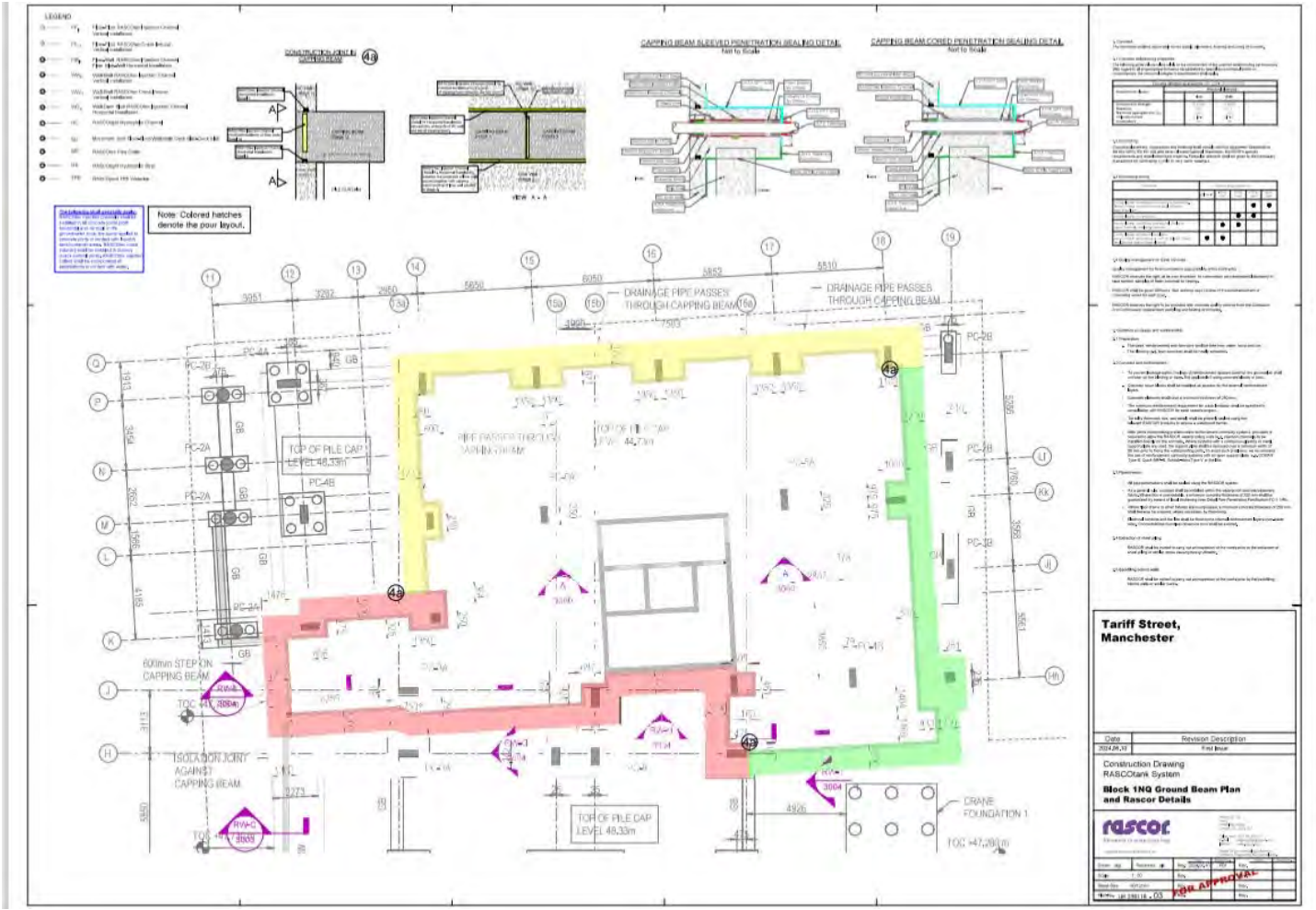
REPORT NUMBER: 017

ACCOMPANIED BY:

Bruno - RASCOR UK Ltd

GeoShield Verification Report

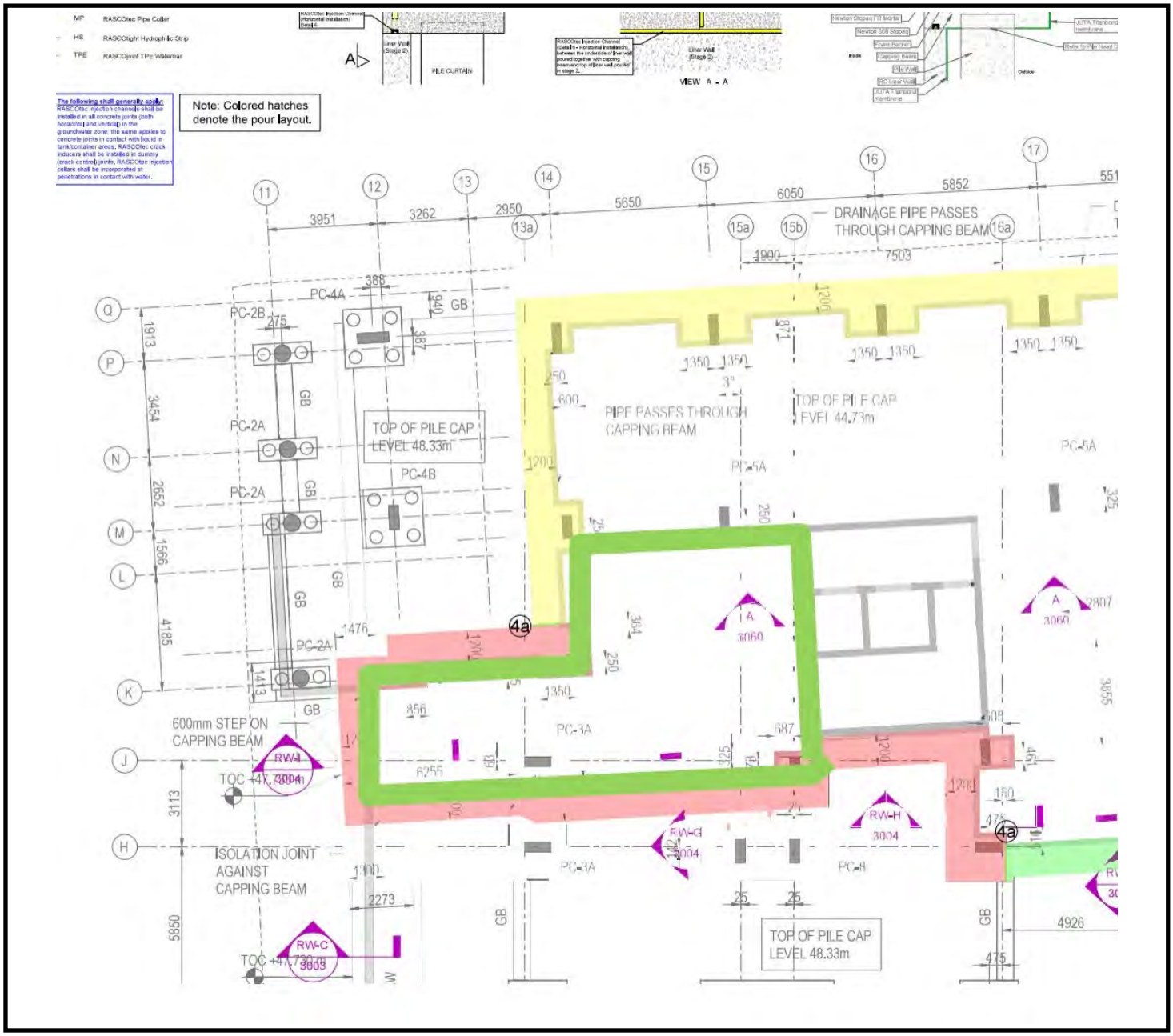
Verification Layout



The photograph above shows a plan layout of Block 1.

GeoShield Verification Report

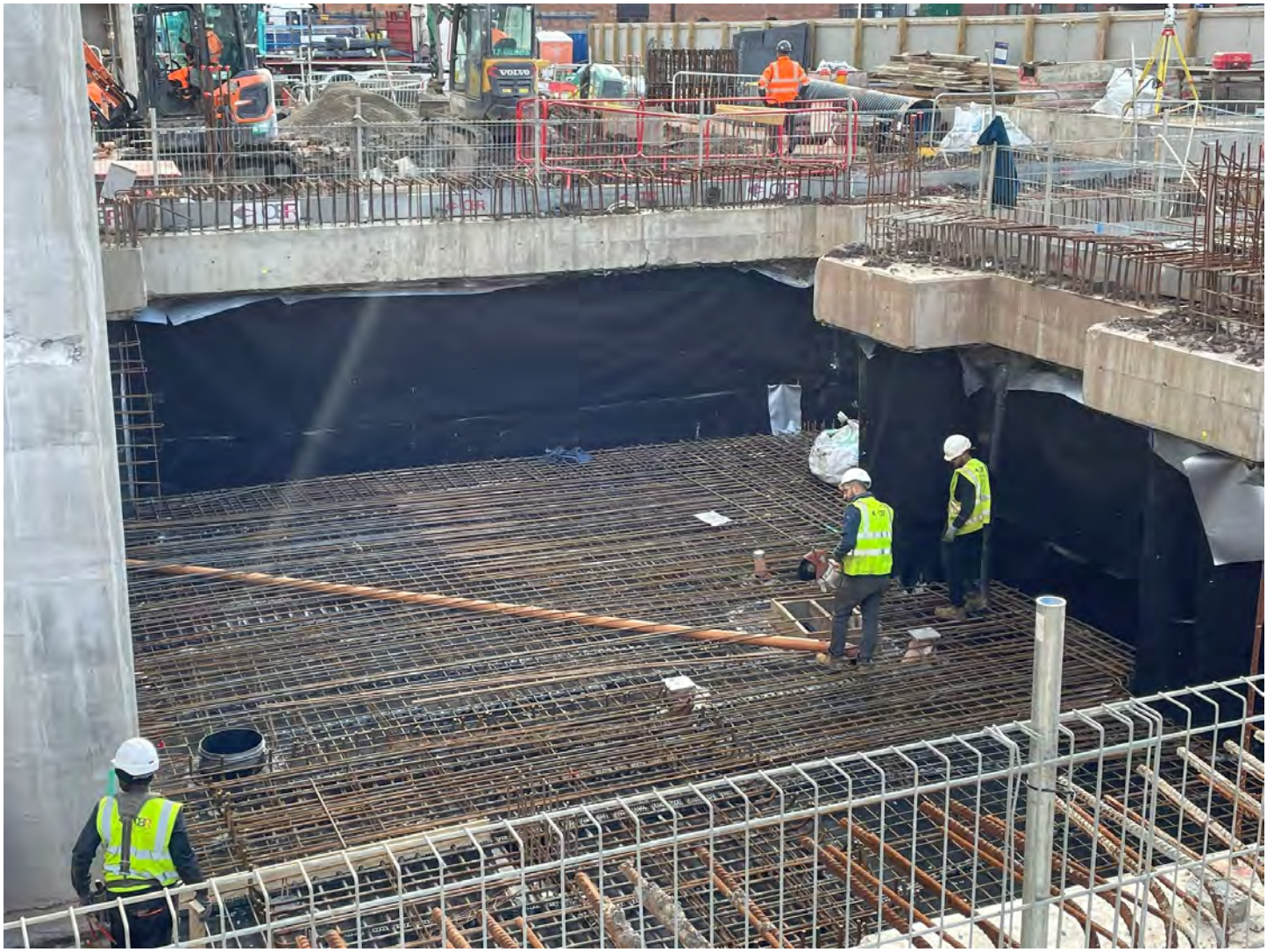
Verification Layout



The area highlighted in green shows the slab area in Block 1 where the verification inspection of pipe penetrations took place today.

GeoShield Verification Report

OVERVIEW



The photograph above displays an overview of the slab area where today's verification inspection took place on site.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Block 1, Basement Slab - gridlines 12-15b/Hh-L

Pipe Penetrations & Manholes - Remediations

NOTES:

During the previous visit, the various pipes and manholes had received a liberal coat of Rascobond EP Adhesive around the circumference however, at the time GeoShield were present on site the Rascobond EP Adhesive had not sufficiently cured and therefore, the pipes and manholes could not be fully sealed.

NOTES:

All pipes and manholes throughout the referenced area have now been sealed using JUTA GP1 SAM. The installers have intricately applied patches of JUTA GP1 SAM around the circumference of the pipes and manholes, onto the cured Rascobond EP Adhesive and the JUTA Titanbond, as shown in the images above.

GeoShield Verification Report

VERIFICATION ITEM TWO

Heat and rolled pressure is applied to activate the bitumen backing, creating a secure bond. All pipe penetrations and manholes throughout the referenced slab area were subjected to thorough visual inspection and mechanical point stress testing, where a probe was run along all edges of the JUTA GP1 SAM detailing. No faults or defects were identified.

GeoShield Verification Report

OUTSTANDING REMEDIATIONS

All columns within the slab area referenced are still to be sealed. All columns require sealing with JUTA CAB Flex 2C, which is a cementitious sealing slurry, once the concrete slab has been poured and set.
The columns will need to be inspected at a later date once sealed in order to sign off the referenced slab area.

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing	✔
Gridline/Plot Sign off	Core 4 Slab & Core 5 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Clements Block 2 - Lift Area Walls (Core Slab 5)	✔
Gridline/Plot Sign off	Clements Block 2 - Trench Walls (Core Slab 4)	
Gridline/Plot Sign off	Core 2 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Core 3 Slab (GP5)	✔
Gridline/Plot Sign off	Basement Walls - Block 1 & 2 (Titanbond)	

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Building 1 Lift Pit (No verification carried out due to the	✔
Gridline/Plot Sign off	area being backfilled)	✔
Gridline/Plot Sign off	Building 1 Basement (No verification carried out due to prep	✔
Gridline/Plot Sign off	work still being carried out)	✔
Gridline/Plot Sign off	Building 1 Basement (See verification layout for mark up)	✔
Gridline/Plot Sign off	Building 1 Basement (Excluding service pits)	✔
Gridline/Plot Sign off	Building 1 Lift Pit Walls 50% (See verification layout)	
Gridline/Plot Sign off	Ground Floor Slab, gridlines A-C/08.5-09.5	✔
Gridline/Plot Sign off	Tanking, gridlines A/5-7 (inside wall)	✔
Gridline/Plot Sign off	Gridline E-C/5.5-8.5 floor slab (Except Steel Columns &	✔
Gridline/Plot Sign off	termination to lower floor slab)	✔

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Gridline - A-C1/4.75-7 (Except steel columns)	✔
Gridline/Plot Sign off	Block 1, Basement Slab, gridlines 12-15b/Hh-L	
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔
11/07/2024	005	No faults or defects were identified during today's visit.	✔
22/07/2024	006	6 miswelded lap joints, remediated during visit	✔
01/08/2024	007	No faults or defects were identified during todays visit.	✔
06/08/2024	008	3 miswelded lap joints found, remediated during visit	✔
22/08/2024	009	1. A total of 13 miswelded lap joints were identified in the JUTA	✔
		GP5 and JUTA Titanbond Gas Barriers. All were remediated.	✔
		2. Nail fixing punctures in JUTA Titanbond are to be sealed and	✔
		inspected at a future visit. (Basement Walls - Block 2)	✔

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
06/09/2024	010	No verification carried out during today's visit.	✔
11/09/2024	011	Two mis-welds were identified during today's verification visit both	✔
		mis-welds were remediated on site in the presence of GeoShield.	✔
13/09/2024	012	No faults or defects were identical during today's visit.	✔
19/09/2024	013	One miswelded lap joint and one puncture were identified. Both	✔
		were remediated on site.	✔
26/09/2024	014	Steel columns not sealed this remains an outstanding remediation.	
		Termination to lower floor slab remains an outstanding remediation.	
		No faults or defects were identified during today's verification.	✔
03/10/2024	015	Steel columns not sealed this remains an outstanding remediation.	
		One fault was identified during today's visit this was remediated	✔
		on site by the installers in the presence of GeoShield.	✔
08/10/2024	016	1. All pipes and manholes within the slab area of Block 1 (gridlines	✔
		12-15b/Hh-L) to be sealed with JUTA Titan Tank.	✔
		2. All columns to be sealed once slab poured. (GL's 12-15/Hh-L).	

GeoShield Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
		3. Twelve miswelded lap joints were identified, all were remediated	✔
		on site.	✔
10/10/2024	017	1. All pipe penetrations and manholes have been sealed (GL's 12-	✔
		15/Hh-L).	✔
		2. All columns still to be sealed post pour (GL's 12-15/Hh-L) **also	
		referenced above 8/10/2024 R016**	

GeoShield Verification Report

VERIFICATION SUMMARY

This was the 17th visit to the site where verification was required for the sealing of the pipe penetrations and manholes within the basement slab area of Block 1, gridlines 12-15b/Hh-L.

All pipe penetrations and manholes (not sealed during the previous visit) have now been sealed using JUTA GP1 SAM.

Thorough visual inspections, supported by mechanical point stress testing conducted upon all sealed pipe penetrations and manholes identified no faults or defects were identified.

Outstanding Remediations:

- All columns within the slab section require sealing using JUTA CAB Flex 2C once the slab has been poured.

These will need to be inspected and verified prior to sign off of the slab area referenced being achieved.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 10-Oct-2024

GeoShield Verification Report 18

PROJECT REFERENCE:	GEO104657
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer's instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

GeoShield Verification Report

NAME OF SURVEYOR: Niall Hogan

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07423 116951

EMAIL ADDRESS: nhogan@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Block 1, Basement Slab - GL's: L-P/14-16a
Block 1, Basement Walls - GL's: Hh/13a-15b

SITE CONDITIONS:

WEATHER:

Overcast

TEMPERATURE:

13ºc

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 12:00 - 13:30

DATE: 15.10.2024

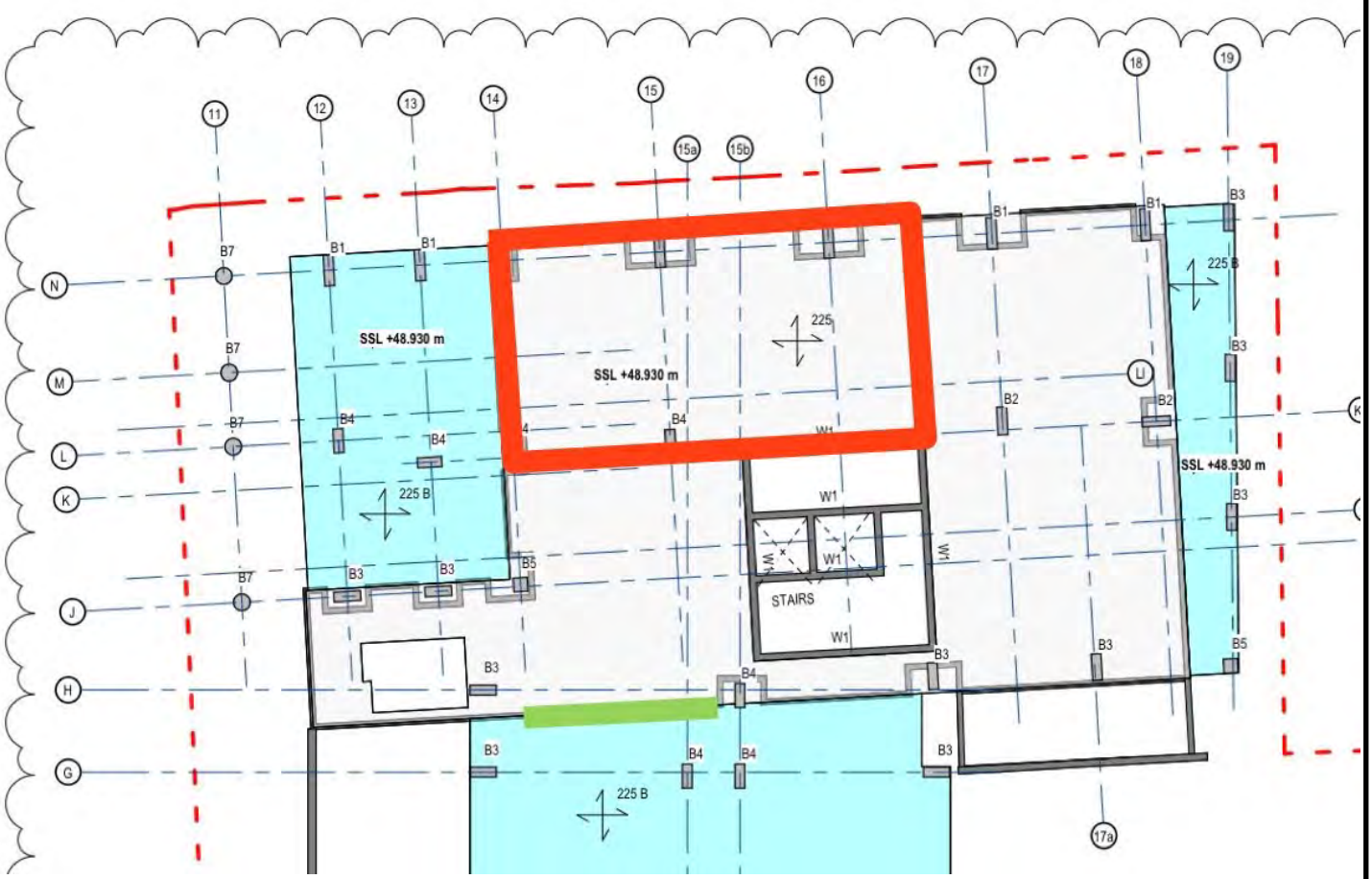
REPORT NUMBER: 018

ACCOMPANIED BY:

Bruno - RASCOR UK Ltd

GeoShield Verification Report

Verification Layout



The area highlighted in red shows the Basement Slab area in Block 1 and the area highlighted in green shows the Basement Walls in Block 1 where the verification inspections took place today.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the slab area where today's verification inspection took place on site.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the basement walls where today's verification inspection took place on site.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Block 1, Basement Slab & Walls (gridlines referenced)

Installation of JUTA Titanbond Membrane

NOTES:

JUTA Titanbond Membrane has been installed across a further basement slab section of Block 1, gridlines referenced and to a section of the basement walls, gridlines referenced. The JUTA Titanbond Membrane has been lined out across the entirety of the slab area with a substantial overhang left to enable further works to be

NOTES:

carried out at a later date. All lap joints between the adjacent sheets of JUTA Titanbond Membrane have been overlapped a sufficient amount and heat welded using a hot air tool and a silicone roller with adequate pressure applied to ensure a continuous gas resistant seal is achieved.

GeoShield Verification Report

VERIFICATION ITEM ONE

All lap joints were subjected to thorough visual inspections, supported by mechanical point stress testing throughout the installation. During this process, a total of four miswelded lap joints were identified. All faults were successfully remediated on site in the presence of GeoShield.
Tested and verified in accordance with CIRIA 735.

VERIFICATION ITEM ONE

REMEDIATIONS:

Faults Identified & Remediated

NOTES:

As mentioned, four miswelded lap joints were identified during the testing of the JUTA Titanbond Membrane. All areas were brought to the attention of the installers and remediated on site in the presence of GeoShield. The dedicated applicators

NOTES:

from Rascor opted to apply additional heat and rolled pressure to the affected areas in order to reinstate a continuous gas resistant seal throughout the slab and walls section. All remediated areas were tested with the probe. No further faults were identified.

GeoShield Verification Report

VERIFICATION ITEM TWO

LOCATION/GRID LINE: Block 1, Basement Slab (gridlines referenced)

Pipe Penetrations

NOTES:

Throughout the installation of the JUTA Titanbond Membrane to the referenced slab area, there were a number of pipe penetrations that have been sealed in accordance with manufacturer's specifications and design guidelines. This has been achieved using either JUTA GP1 SAM, which is a gas resistant self

NOTES:

adhesive membrane, or alternatively JUTA GP Liquid Barrier. The installers have first cut the JUTA Titanbond Membrane tight around the base of each pipe penetration to minimise voided areas. Next, patches of JUTA GP1 SAM are placed intricately around the pipe penetration and onto the JUTA Titanbond Membrane. Heat and

GeoShield Verification Report

VERIFICATION ITEM TWO

rolled pressure is applied to the JUTA GP1 SAM, creating a secure bond. Alternatively, a thick coverage of JUTA GP Liquid Barrier is applied around the base of the pipe penetrations, onto the JUTA Titanbond Membrane. All pipe penetrations were subjected to thorough visual inspections and mechanical point stress testing, where no faults or defects were identified.

GeoShield Verification Report

VERIFICATION ITEM THREE

LOCATION/GRID LINE: Block 1 - Basement Walls (gridlines referenced)

Steel Rebar

NOTES:

Throughout the Basement Walls a number of steel rebars penetrated the newly installed JUTA Titanbond Membrane. These too, required sealing to ensure a continuous gas resistant seal is achieved throughout the area. This has been achieved using JUTA GP Liquid Barrier.

NOTES:

The installers have first cut the JUTA Titanbond Membrane tight around the base of each individual steel rebar to minimise voided areas. A thick, continuous fillet of JUTA GP Liquid Barrier is applied around, and up each steel rebar, as shown in the above photographs.

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing	✔
Gridline/Plot Sign off	Core 4 Slab & Core 5 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Clements Block 2 - Lift Area Walls (Core Slab 5)	✔
Gridline/Plot Sign off	Clements Block 2 - Trench Walls (Core Slab 4)	
Gridline/Plot Sign off	Core 2 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Core 3 Slab (GP5)	✔
Gridline/Plot Sign off	Basement Walls - Block 1 & 2 (Titanbond)	

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Building 1 Lift Pit (No verification carried out due to the	✔
Gridline/Plot Sign off	area being backfilled)	✔
Gridline/Plot Sign off	Building 1 Basement (No verification carried out due to prep	✔
Gridline/Plot Sign off	work still being carried out)	✔
Gridline/Plot Sign off	Building 1 Basement (See verification layout for mark up)	✔
Gridline/Plot Sign off	Building 1 Basement (Excluding service pits)	✔
Gridline/Plot Sign off	Building 1 Lift Pit Walls 50% (See verification layout)	
Gridline/Plot Sign off	Ground Floor Slab, gridlines A-C/08.5-09.5	✔
Gridline/Plot Sign off	Tanking, gridlines A/5-7 (inside wall)	✔
Gridline/Plot Sign off	Gridline E-C/5.5-8.5 floor slab (Except Steel Columns &	✔
Gridline/Plot Sign off	termination to lower floor slab)	✔

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Gridline - A-C1/4.75-7 (Except steel columns)	✔
Gridline/Plot Sign off	Block 1, Basement Slab, gridlines 12-15b/Hh-L	
Gridline/Plot Sign off	Block 1, Basement Slab - GL's: L-P/14-16a	✔
Gridline/Plot Sign off	Block 1, Basement Walls - GL's: Hh/13a-15b	✔
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔
11/07/2024	005	No faults or defects were identified during today's visit.	✔
22/07/2024	006	6 miswelded lap joints, remediated during visit	✔
01/08/2024	007	No faults or defects were identified during todays visit.	✔
06/08/2024	008	3 miswelded lap joints found, remediated during visit	✔
22/08/2024	009	1. A total of 13 miswelded lap joints were identified in the JUTA	✔
		GP5 and JUTA Titanbond Gas Barriers. All were remediated.	✔
		2. Nail fixing punctures in JUTA Titanbond are to be sealed and	✔
		inspected at a future visit. (Basement Walls - Block 2)	✔

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
06/09/2024	010	No verification carried out during today's visit.	✔
11/09/2024	011	Two mis-welds were identified during today's verification visit both	✔
		mis-welds were remediated on site in the presence of GeoShield.	✔
13/09/2024	012	No faults or defects were identical during today's visit.	✔
19/09/2024	013	One miswelded lap joint and one puncture were identified. Both	✔
		were remediated on site.	✔
26/09/2024	014	Steel columns not sealed this remains an outstanding remediation.	
		Termination to lower floor slab remains an outstanding remediation.	
		No faults or defects were identified during today's verification.	✔
03/10/2024	015	Steel columns not sealed this remains an outstanding remediation.	
		One fault was identified during today's visit this was remediated	✔
		on site by the installers in the presence of GeoShield.	✔
08/10/2024	016	1. All pipes and manholes within the slab area of Block 1 (gridlines	✔
		12-15b/Hh-L) to be sealed with JUTA Titan Tank.	✔
		2. All columns to be sealed once slab poured. (GL's 12-15/Hh-L).	

GeoShield Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
		3. Twelve miswelded lap joints were identified, all were remediated	✔
		on site.	✔
10/10/2024	017	1. All pipe penetrations and manholes have been sealed (GL's 12-	✔
		15/Hh-L).	✔
		2. All columns still to be sealed post pour (GL's 12-15/Hh-L) **also	
		referenced above 8/10/2024 R016**	
15/10/2024	018	A total of four faults were identified, all were remediated on site.	✔

GeoShield Verification Report

VERIFICATION SUMMARY

This was the 18th visit to the site where verification was required for the installation of JUTA Titanbond Membrane to a further section of the basement slab area in Block 1, gridlines L-P/14-16a and to a section of the basement walls, gridlines Hh/13a-15b.

All overlaps between the adjacent sheets of JUTA Titanbond Membrane have been overlapped a sufficient amount and heat welded using a hot air tool and silicone roller creating continuous seals throughout the installation.

All pipe penetrations and manholes have been sealed using JUTA GP1 SAM or JUTA GP Liquid Barrier.
All steel rebars have been sealed with JUTA GP Liquid Barrier.

Thorough visual inspections, supported by mechanical point stress testing conducted upon all aspects of the installation identified a total of four faults. All faults were successfully remediated on site in the presence of GeoShield.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 15-Oct-2024

GeoShield Verification Report 19

PROJECT REFERENCE:	GEO104657
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer’s instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

GeoShield Verification Report

NAME OF SURVEYOR: Niall Hogan

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07423 116951

EMAIL ADDRESS: nhogan@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Block 1, Basement Slab - GL's: N-K/16-18

SITE CONDITIONS:

WEATHER:

Sunny

TEMPERATURE:

18ºc

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 15:00 - 16:00

DATE: 17.10.2024

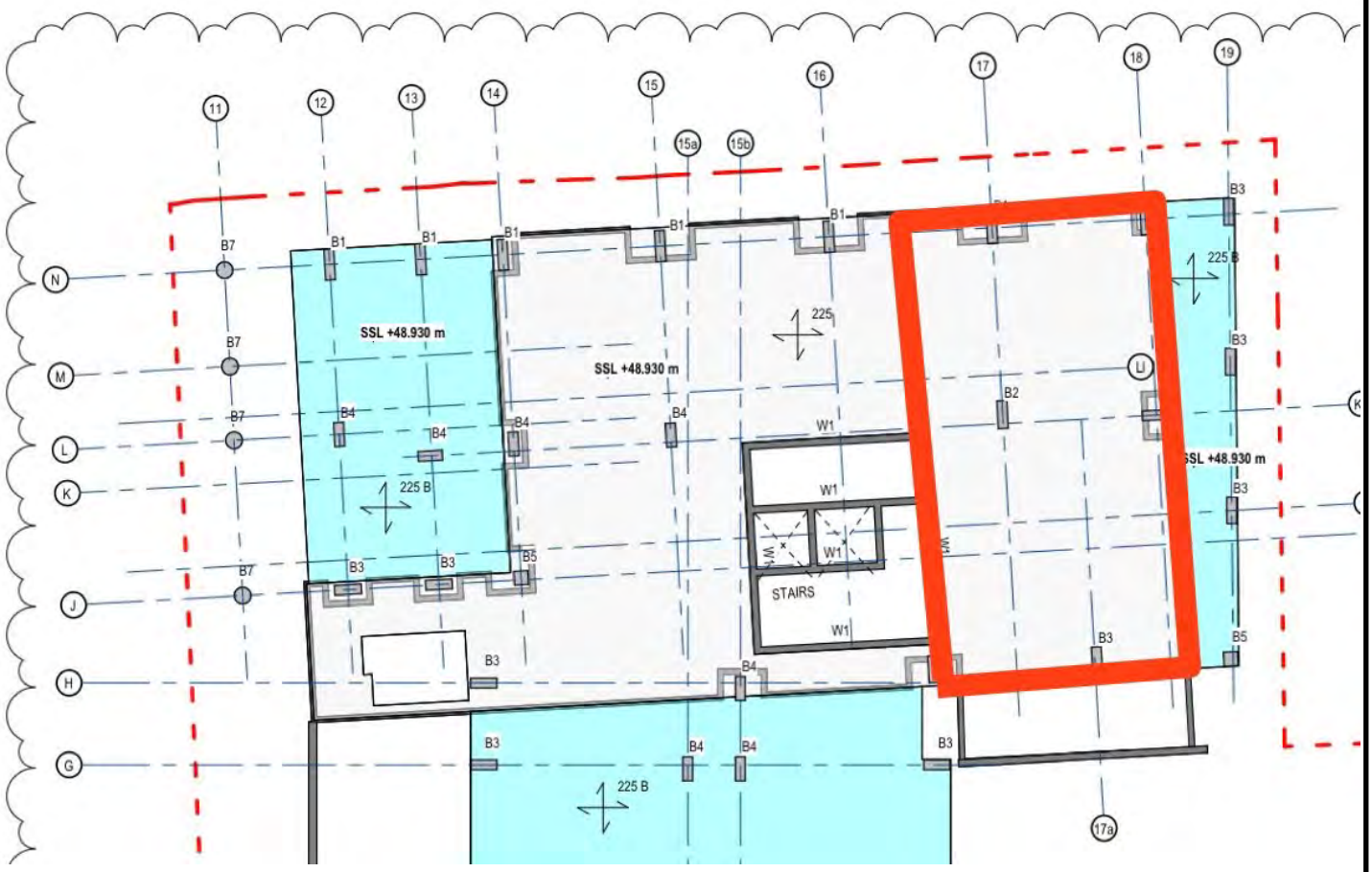
REPORT NUMBER: 019

ACCOMPANIED BY:

Bruno - RASCOR UK Ltd

GeoShield Verification Report

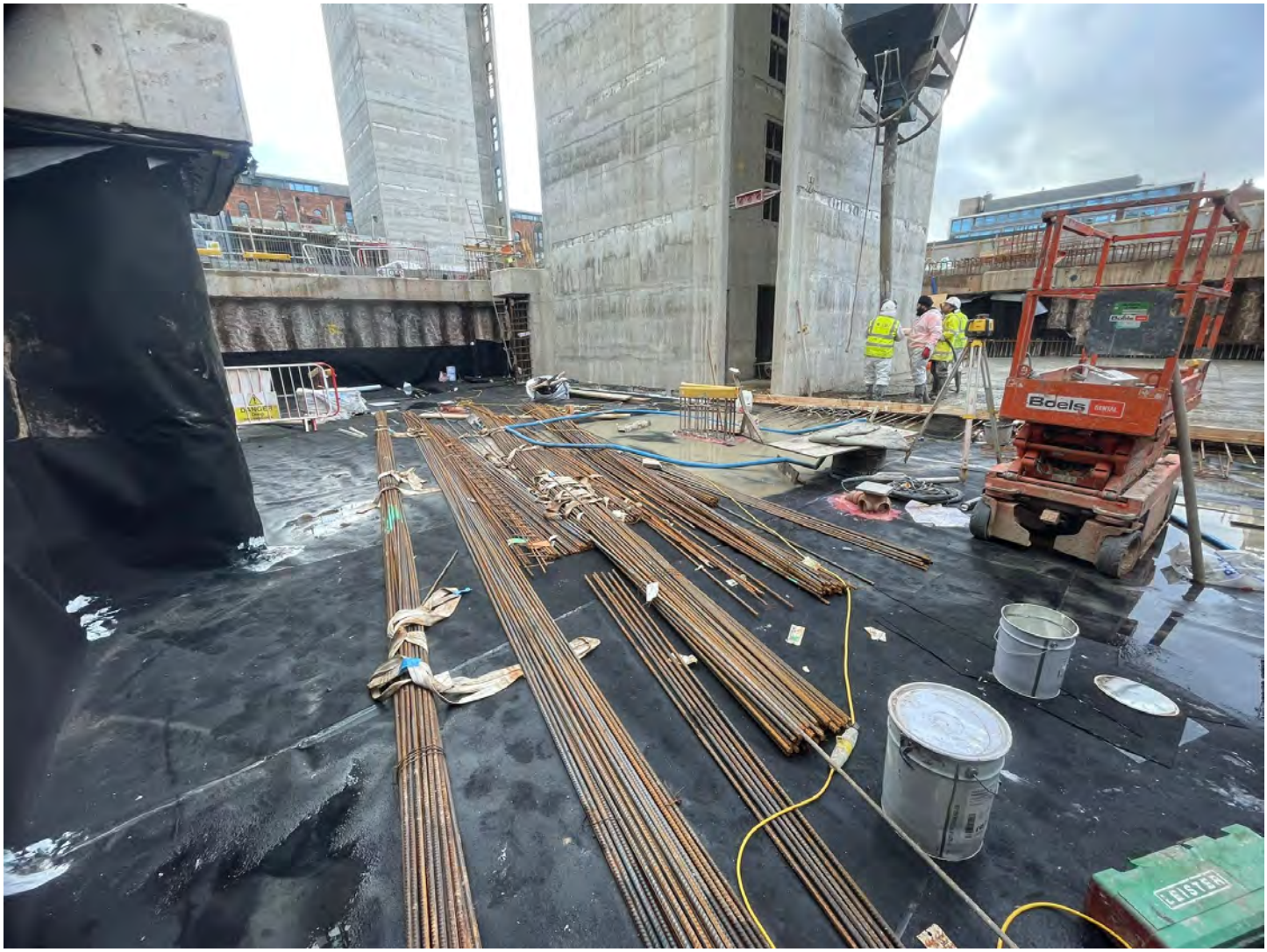
Verification Layout



The area highlighted in red shows the Basement Slab area in Block 1 where the verification inspection took place today.

GeoShield Verification Report

OVERVIEW



The photograph above displays an overview of the slab area where today's verification inspection took place on site.

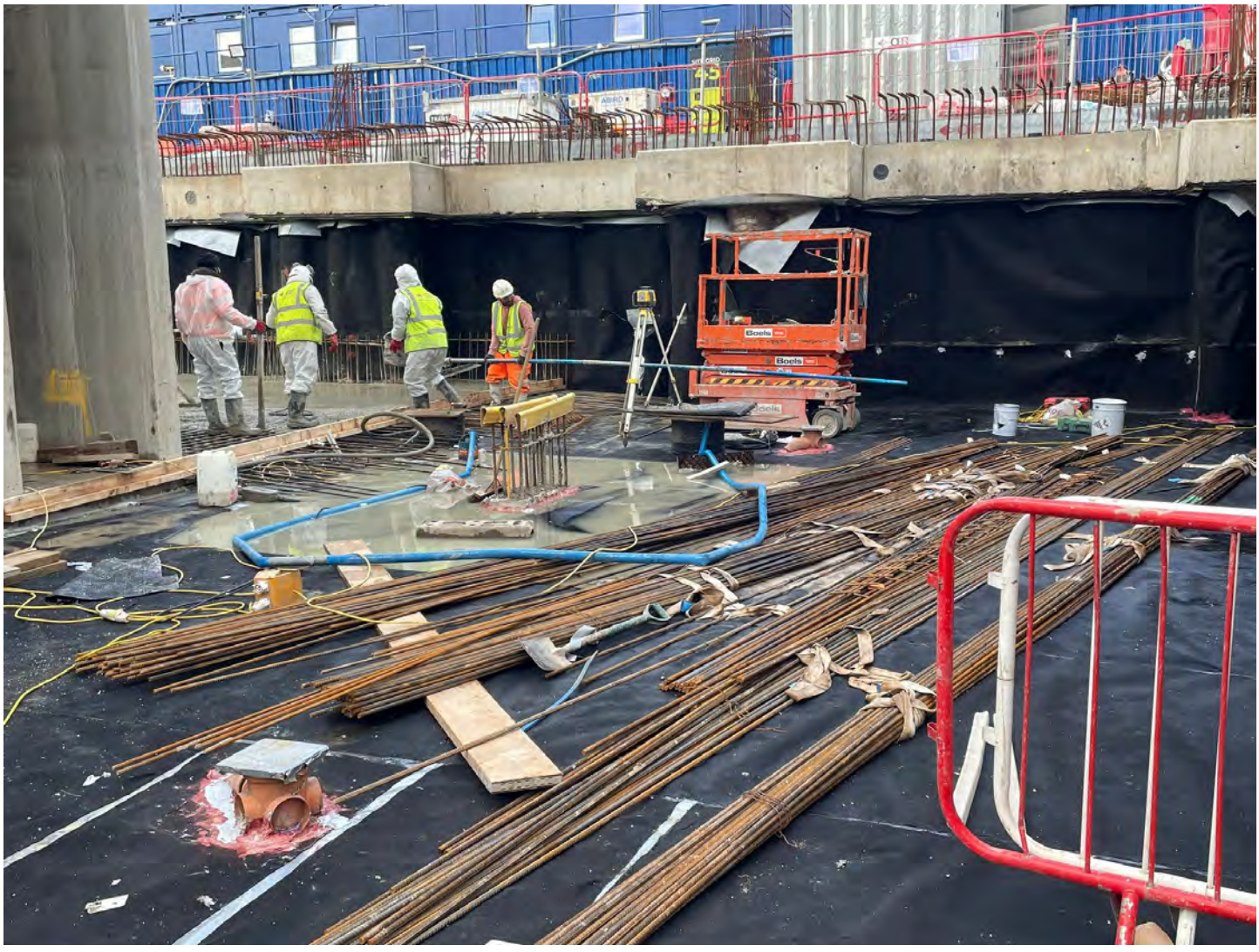
GeoShield Verification Report

LIMITATIONS

SURVEYED AREA: Block 1, Basement Slab - GL's: N-K/16-18

RESTRICTIONS AND LIMITATIONS:

Due to an excessive amount of materials present within sections of the slab area, some parts of the installation could not be tested. Thorough mechanical point stress testing was conducted to all accessible areas.

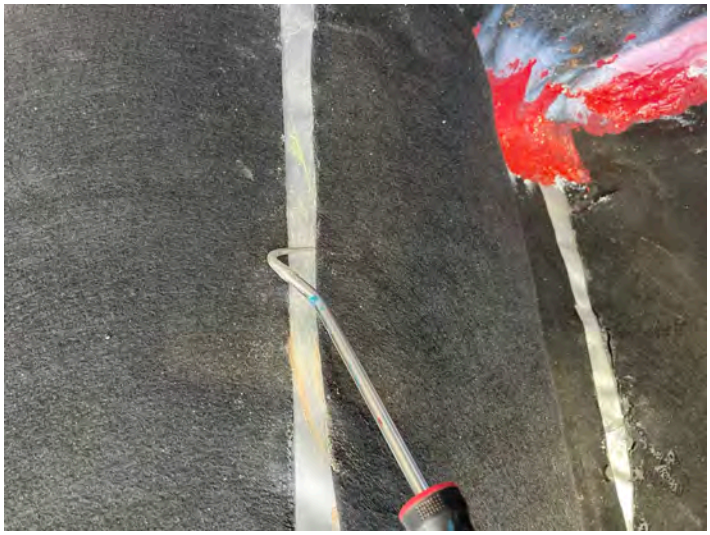


GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Block 1, Basement Slab - GL's: N-K/16-18

Installation of JUTA Titanbond Membrane



NOTES:

JUTA Titanbond Membrane has been installed across a further basement slab section of Block 1, gridlines referenced. The JUTA Titanbond Membrane has been lined out across the entirety of the slab area with a substantial overhang left to enable further works to be carried out at a later date.

NOTES:

All lap joints between the adjacent sheets of JUTA Titanbond Membrane have been overlapped a sufficient amount and heat welded using a hot air tool and a silicone roller with adequate pressure applied to ensure a continuous gas resistant seal is achieved.

GeoShield Verification Report

VERIFICATION ITEM ONE

All accessible lap joints were subjected to thorough visual inspections, supported by mechanical point stress testing throughout the installation. No faults or defects were identified. A complete adhesion has been achieved throughout.
Tested and verified in accordance with CIRIA 735.

GeoShield Verification Report

VERIFICATION ITEM TWO

LOCATION/GRID LINE: Block 1, Basement Slab - GL's: N-K/16-18

Pipe Penetrations

NOTES:

Throughout the installation of the JUTA Titanbond Membrane to the referenced slab area, there were a number of pipe penetrations that have been sealed in accordance with manufacturer's specifications and design guidelines. This has been achieved using either JUTA GP1 SAM, which is a gas resistant self

NOTES:

adhesive membrane, or alternatively JUTA GP Liquid Barrier. The installers have first cut the JUTA Titanbond Membrane tight around the base of each pipe penetration to minimise voided areas. Next, patches of JUTA GP1 SAM are placed intricately around the pipe penetration and onto the JUTA Titanbond Membrane. Heat and

GeoShield Verification Report

VERIFICATION ITEM TWO

rolled pressure is applied to the JUTA GP1 SAM, creating a secure bond. Alternatively, a thick coverage of JUTA GP Liquid Barrier is applied around the base of the pipe penetrations, onto the JUTA Titanbond Membrane. All pipe penetrations were subjected to thorough visual inspections and mechanical point stress testing, where no faults or defects were identified.

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing	✔
Gridline/Plot Sign off	Core 4 Slab & Core 5 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Clements Block 2 - Lift Area Walls (Core Slab 5)	✔
Gridline/Plot Sign off	Clements Block 2 - Trench Walls (Core Slab 4)	
Gridline/Plot Sign off	Core 2 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Core 3 Slab (GP5)	✔
Gridline/Plot Sign off	Basement Walls - Block 1 & 2 (Titanbond)	

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Building 1 Lift Pit (No verification carried out due to the	✔
Gridline/Plot Sign off	area being backfilled)	✔
Gridline/Plot Sign off	Building 1 Basement (No verification carried out due to prep	✔
Gridline/Plot Sign off	work still being carried out)	✔
Gridline/Plot Sign off	Building 1 Basement (See verification layout for mark up)	✔
Gridline/Plot Sign off	Building 1 Basement (Excluding service pits)	✔
Gridline/Plot Sign off	Building 1 Lift Pit Walls 50% (See verification layout)	
Gridline/Plot Sign off	Ground Floor Slab, gridlines A-C/08.5-09.5	✔
Gridline/Plot Sign off	Tanking, gridlines A/5-7 (inside wall)	✔
Gridline/Plot Sign off	Gridline E-C/5.5-8.5 floor slab (Except Steel Columns &	✔
Gridline/Plot Sign off	termination to lower floor slab)	✔

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Gridline - A-C1/4.75-7 (Except steel columns)	✔
Gridline/Plot Sign off	Block 1, Basement Slab, gridlines 12-15b/Hh-L	
Gridline/Plot Sign off	Block 1, Basement Slab - GL's: L-P/14-16a	✔
Gridline/Plot Sign off	Block 1, Basement Walls - GL's: Hh/13a-15b	✔
Gridline/Plot Sign off	Block 1, Basement Slab - GL's: N-K/16-18	✔
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔
11/07/2024	005	No faults or defects were identified during today's visit.	✔
22/07/2024	006	6 miswelded lap joints, remediated during visit	✔
01/08/2024	007	No faults or defects were identified during todays visit.	✔
06/08/2024	008	3 miswelded lap joints found, remediated during visit	✔
22/08/2024	009	1. A total of 13 miswelded lap joints were identified in the JUTA	✔
		GP5 and JUTA Titanbond Gas Barriers. All were remediated.	✔
		2. Nail fixing punctures in JUTA Titanbond are to be sealed and	✔
		inspected at a future visit. (Basement Walls - Block 2)	✔

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
06/09/2024	010	No verification carried out during today's visit.	✔
11/09/2024	011	Two mis-welds were identified during today's verification visit both	✔
		mis-welds were remediated on site in the presence of GeoShield.	✔
13/09/2024	012	No faults or defects were identical during today's visit.	✔
19/09/2024	013	One miswelded lap joint and one puncture were identified. Both	✔
		were remediated on site.	✔
26/09/2024	014	Steel columns not sealed this remains an outstanding remediation.	
		Termination to lower floor slab remains an outstanding remediation.	
		No faults or defects were identified during today's verification.	✔
03/10/2024	015	Steel columns not sealed this remains an outstanding remediation.	
		One fault was identified during today's visit this was remediated	✔
		on site by the installers in the presence of GeoShield.	✔
08/10/2024	016	1. All pipes and manholes within the slab area of Block 1 (gridlines	✔
		12-15b/Hh-L) to be sealed with JUTA Titan Tank.	✔
		2. All columns to be sealed once slab poured. (GL's 12-15/Hh-L).	

GeoShield Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
		3. Twelve miswelded lap joints were identified, all were remediated	✔
		on site.	✔
10/10/2024	017	1. All pipe penetrations and manholes have been sealed (GL's 12-	✔
		15/Hh-L).	✔
		2. All columns still to be sealed post pour (GL's 12-15/Hh-L) **also	
		referenced above 8/10/2024 R016**	
15/10/2024	018	A total of four faults were identified, all were remediated on site.	✔
17/10/2024	019	No faults or defects were identified during this visit.	✔

GeoShield Verification Report

VERIFICATION SUMMARY

This was the 19th visit to the site where verification was required for the installation of JUTA Titanbond Membrane to a further section of the basement slab area in Block 1, gridlines N-K/16-18.

All overlaps between the adjacent sheets of JUTA Titanbond Membrane have been overlapped a sufficient amount and heat welded using a hot air tool and silicone roller creating continuous seals throughout the installation.

All pipe penetrations have been sealed using JUTA GP1 SAM or JUTA GP Liquid Barrier to a good standard.

Thorough visual inspections, supported by mechanical point stress testing conducted upon all aspects of the installation identified no faults or defects.

A very good standard of installation carried out by the specialist applicators from Rascor.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 17-Oct-2024

GeoShield Verification Report 20

PROJECT REFERENCE:	GEO104657
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer’s instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

GeoShield Verification Report

NAME OF SURVEYOR: Liam England

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07551 259023

EMAIL ADDRESS: lengland@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Block 1 Basement Walls & Block 1 Ground floor Slab (see verification layout for mark up)

SITE CONDITIONS:

WEATHER:

Sunny

TEMPERATURE:

14ºc

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 11:30 - 12:20

DATE: 22.10.2024

REPORT NUMBER: 020

ACCOMPANIED BY:

Bruno - RASCOR UK Ltd

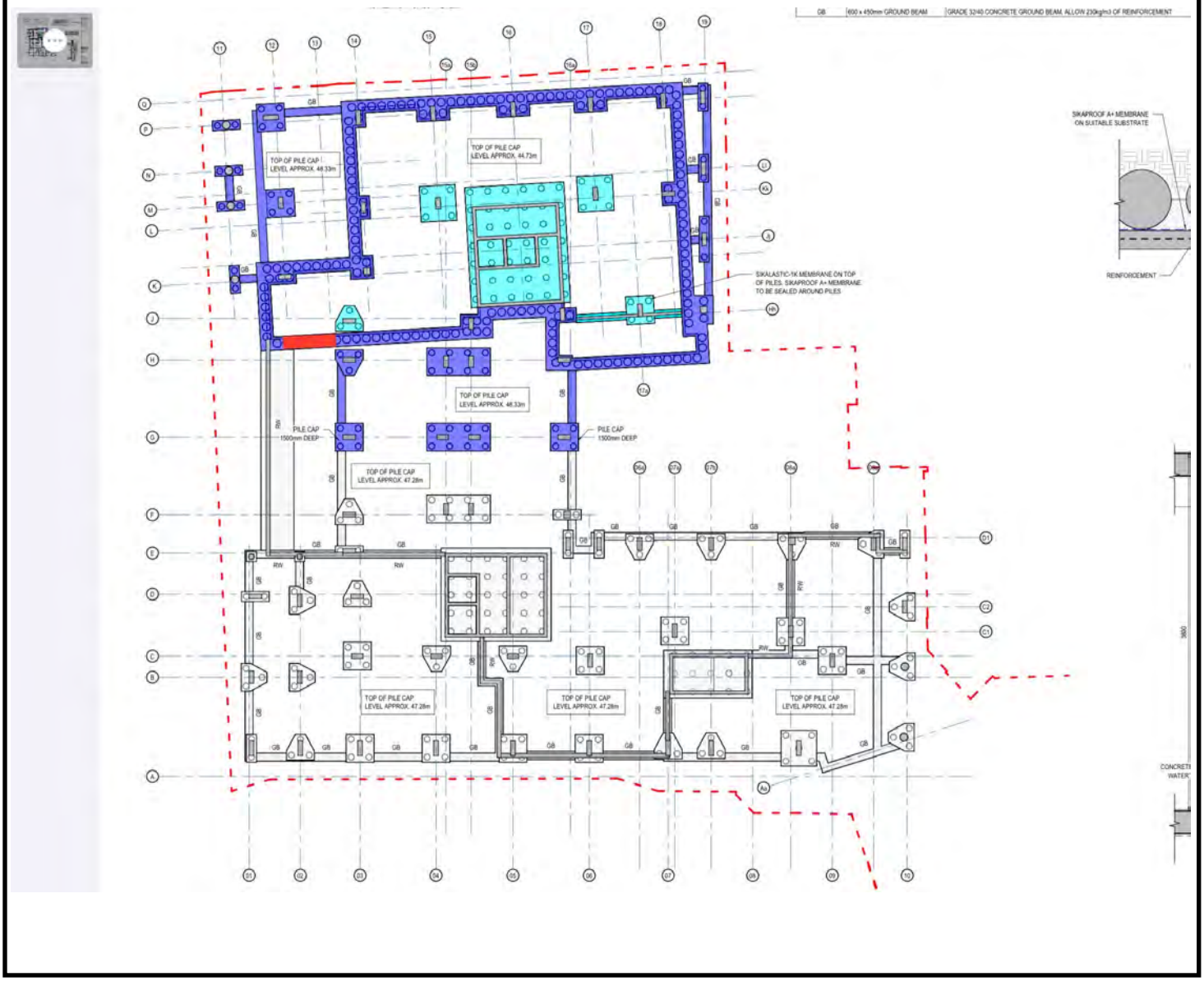
GeoShield Verification Report

Verification Layout

The area highlighted in green shows the Ground Floor Slab area in Block 1 where the verification inspection took place today.

GeoShield Verification Report

Verification Layout



The area highlighted in red shows the Basement Walls in Block 1 where the verification inspection took place today.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of Block 1 Ground Floor Slab area where today's verification inspection took place on site.

GeoShield Verification Report

LIMITATIONS

SURVEYED AREA: Block 1, Basement Walls

RESTRICTIONS AND LIMITATIONS:

Due to the installation of the steel works within the referenced area a mechanical point stress test could not be performed, to mitigate this problem a thorough visual inspection was carried out.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Block 1 Ground Floor Slab - see verification layout

Installation of JUTA Titanflex

NOTES:

A complete line out of the Juta TitanFlex Gas Barrier has been installed across a insulated base of the slab area within the referenced gridlines. The Juta TitanFlex Gas Barrier has been taken round all metal rods and lapped onto the pre installed Juta TitanFlex to ensure continuity throughout.

NOTES:

All lap joints between the adjacent sheets of Juta TitanFlex Gas Barrier have been overlapped a minimum of 70mm and heat welded using a hot air leister and a silicone roller with adequate pressure applied to ensure a continuous weld is achieved.

GeoShield Verification Report

VERIFICATION ITEM ONE

All lap joints were subjected to thorough visual inspections, supported by mechanical point stress testing and non destructive air lance integrity testing throughout the installation. A total of three faults were identified at the time of the verification, which was successfully remediated on site by the installers in the presence of GeoShield.

GeoShield Verification Report

VERIFICATION ITEM TWO

LOCATION/GRID LINE: Block 1 Ground Floor Slab - see verification layout

Pipe Penetrations

NOTES:

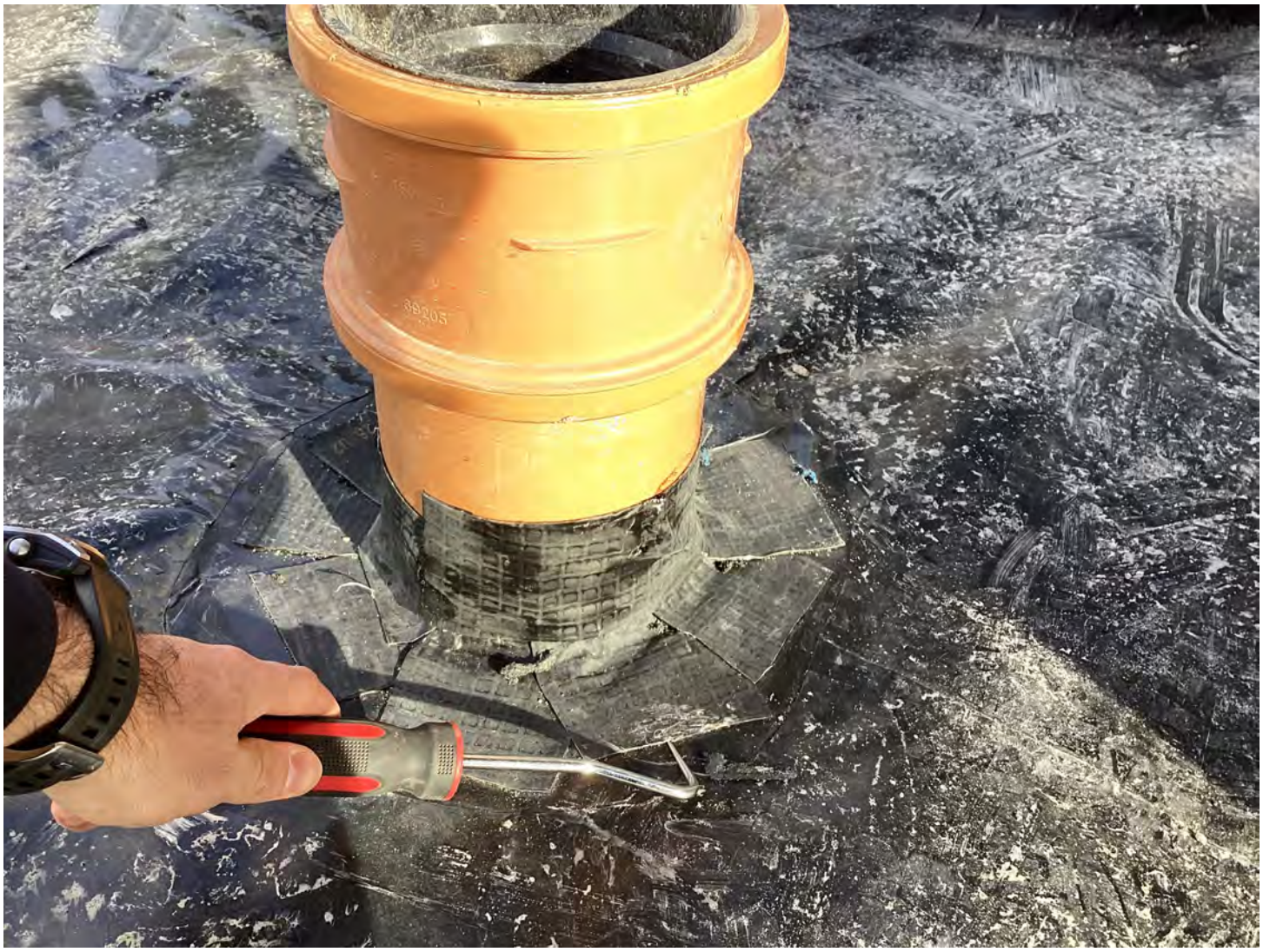
Throughout the complete line out installation of the Juta TitanFlex to the referenced area, there were a number of pipe penetrations that have been sealed in accordance with manufacturer's specifications. This had been achieved by cutting Juta TitanFlex tightly around the pipe penetrations, cutting small strips

NOTES:

of Juta GP1 SAM wrapping them around the pipe to create a tight seal and then finally a square of Juta GP1 SAM was placed over the top of the pipe penetration in a top hat formation. A hot air tool and silicone roller were used to activate the bitumen backing on the Juta GP1 SAM to ensure the correct bond was achieved

GeoShield Verification Report

VERIFICATION ITEM TWO



between the Juta TitanFlex and Juta GP1 SAM. All pipe penetrations were subjected to visual between the inspection as well as a mechanical point stress test where a probe is run along all edges of Juta GP1 SAM to ensure the correct bond is achieved during the installation. No faults were identified during this procedure.

VERIFICATION ITEM THREE

REMEDIATIONS:

Block 1 Ground Floor Slab

NOTES:

During today's verification visit it was noted that the Juta TitanFlex had been cut round all of the steel columns and these had not been sealed.

NOTES:

The steel columns will be shuttered off and will be sealed once the concrete slab has been poured.

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing	✔
Gridline/Plot Sign off	Core 4 Slab & Core 5 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Clements Block 2 - Lift Area Walls (Core Slab 5)	✔
Gridline/Plot Sign off	Clements Block 2 - Trench Walls (Core Slab 4)	
Gridline/Plot Sign off	Core 2 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Core 3 Slab (GP5)	✔
Gridline/Plot Sign off	Basement Walls - Block 1 & 2 (Titanbond)	

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Building 1 Lift Pit (No verification carried out due to the	✔
Gridline/Plot Sign off	area being backfilled)	✔
Gridline/Plot Sign off	Building 1 Basement (No verification carried out due to prep	✔
Gridline/Plot Sign off	work still being carried out)	✔
Gridline/Plot Sign off	Building 1 Basement (See verification layout for mark up)	✔
Gridline/Plot Sign off	Building 1 Basement (Excluding service pits)	✔
Gridline/Plot Sign off	Building 1 Lift Pit Walls 50% (See verification layout)	
Gridline/Plot Sign off	Ground Floor Slab, gridlines A-C/08.5-09.5	✔
Gridline/Plot Sign off	Tanking, gridlines A/5-7 (inside wall)	✔
Gridline/Plot Sign off	Gridline E-C/5.5-8.5 floor slab (Except Steel Columns &	✔
Gridline/Plot Sign off	termination to lower floor slab)	✔

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Gridline - A-C1/4.75-7 (Except steel columns)	✔
Gridline/Plot Sign off	Block 1, Basement Slab, gridlines 12-15b/Hh-L	
Gridline/Plot Sign off	Block 1, Basement Slab - GL's: L-P/14-16a	✔
Gridline/Plot Sign off	Block 1, Basement Walls - GL's: Hh/13a-15b	✔
Gridline/Plot Sign off	Block 1, Basement Slab - GL's: N-K/16-18	✔
Gridline/Plot Sign off	Block 1 Ground Floor Slab - See verification layout	✔
Gridline/Plot Sign off	Block 1 Basement Walls - See verification layout	✔
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔
11/07/2024	005	No faults or defects were identified during today's visit.	✔
22/07/2024	006	6 miswelded lap joints, remediated during visit	✔
01/08/2024	007	No faults or defects were identified during todays visit.	✔
06/08/2024	008	3 miswelded lap joints found, remediated during visit	✔
22/08/2024	009	1. A total of 13 miswelded lap joints were identified in the JUTA	✔
		GP5 and JUTA Titanbond Gas Barriers. All were remediated.	✔
		2. Nail fixing punctures in JUTA Titanbond are to be sealed and	✔
		inspected at a future visit. (Basement Walls - Block 2)	✔

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
06/09/2024	010	No verification carried out during today's visit.	✔
11/09/2024	011	Two mis-welds were identified during today's verification visit both	✔
		mis-welds were remediated on site in the presence of GeoShield.	✔
13/09/2024	012	No faults or defects were identical during today's visit.	✔
19/09/2024	013	One miswelded lap joint and one puncture were identified. Both	✔
		were remediated on site.	✔
26/09/2024	014	Steel columns not sealed this remains an outstanding remediation.	
		Termination to lower floor slab remains an outstanding remediation.	
		No faults or defects were identified during today's verification.	✔
03/10/2024	015	Steel columns not sealed this remains an outstanding remediation.	
		One fault was identified during today's visit this was remediated	✔
		on site by the installers in the presence of GeoShield.	✔
08/10/2024	016	1. All pipes and manholes within the slab area of Block 1 (gridlines	✔
		12-15b/Hh-L) to be sealed with JUTA Titan Tank.	✔
		2. All columns to be sealed once slab poured. (GL's 12-15/Hh-L).	

GeoShield Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
		3. Twelve miswelded lap joints were identified, all were remediated	✔
		on site.	✔
10/10/2024	017	1. All pipe penetrations and manholes have been sealed (GL's 12-	✔
		15/Hh-L).	✔
		2. All columns still to be sealed post pour (GL's 12-15/Hh-L) **also	
		referenced above 8/10/2024 R016**	
15/10/2024	018	A total of four faults were identified, all were remediated on site.	✔
17/10/2024	019	No faults or defects were identified during this visit.	✔
22/10/2024	020	Three faults were identified in which all were remediated on site	
		in the presence of GeoShield.	✔
		Steel columns not sealed this remains an outstanding remediation.	

GeoShield Verification Report

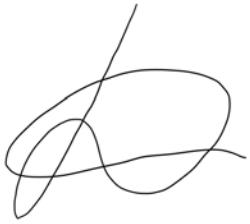
VERIFICATION SUMMARY

This was the twentieth visit to the site where verification was required for the complete line out installation of Juta TitanFlex Gas Barrier to the ground floor slab and the installation of Juta Titanbond to the basement walls, which was carried out by Rascor the verification process is summarised below.

:> A mechanical point stress test could not be carried out on the basements walls due to the steel works being installed, to mitigate this issue a thorough visual inspection was carried out.
:> All overlaps between the adjacent sheets of Juta TitanFlex Gas Barrier have been installed with a minimum of 70mm overlap and all heat welded using a hot air tool and silicone roller creating continuous seals throughout the installation.
:> Mechanical point stress testing was carried out during the inspection these were remediated on site at the time of the verification visit and was carried out in the presence of GeoShield.
:> Steel columns have not been sealed within the ground floor slab, these will be shuttered off prior to the concrete pour leaving enough Juta TitanFlex visible to seal these once the concrete slab has been poured.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:



DATE: 22-Oct-2024

GeoShield Verification Report 21

PROJECT REFERENCE:	GEO104657
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer’s instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

JUTA GP Liquid Barrier

GeoShield Verification Report

NAME OF SURVEYOR: Liam England

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07551 259023

EMAIL ADDRESS: lengland@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Block 1 Basement Walls (see verification layout for mark up)

SITE CONDITIONS:

WEATHER:

Mild

TEMPERATURE:

12ºc

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 14:50 - 15:40

DATE: 23.10.2024

REPORT NUMBER: 021

ACCOMPANIED BY:

Bruno - RASCOR UK Ltd

GeoShield Verification Report

Verification Layout

The area highlighted in red shows the Basement Walls in Block 1 where the verification inspection took place today.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of Block 1 Basement Walls where today's verification inspection took place on site.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of Block 1 Basement Walls where today's verification inspection took place on site.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of Block 1 Basement walls where today's verification inspection took place on site.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Block 1 Basement walls - see verification layout

Installation of JUTA Titanbond to basement walls

NOTES:

A complete line out of the Juta TitanBond Gas Barrier has been installed across the basement walls of building 1. The Juta TitanBond Gas Barrier has been lapped onto the previously installed Juta TitanBond base which was installed behind the all metal rebar, this was continuous throughout the install.

NOTES:

All lap joints between the adjacent sheets of Juta TitanFlex Gas Barrier have been overlapped a minimum of 85mm and heat welded using a hot air leister and a silicone roller with adequate pressure applied to ensure a continuous weld was achieved throughout.

GeoShield Verification Report

VERIFICATION ITEM ONE

All lap joints were subjected to thorough visual inspections, supported by mechanical point stress testing and non destructive air lance integrity testing throughout the installation. A total of three faults were identified at the time of the verification, which was successfully remediated on site by the installers in the presence of GeoShield.

VERIFICATION ITEM THREE

REMEDIATIONS:

Building 1 Basement Walls

NOTES:

During the inspection of the basement walls a number of puncture holes were identified, these puncture holes had been left exposed as reinforcement steel bars will be installed within the holes.

NOTES:

These puncture holes remain an outstanding remediation and will require sealing once the steel bars have been installed. As per the previous steel reinforcement bars these will require sealing using Juta GP Liquid Barrier.

ADDITIONAL PHOTOGRAPHS

Fault 1 which was identified and brought to the attention of the installers.

Fault 1 remediated using a hot air gun and silicone roller, this was carried out in the presence of GeoShield.

Fault 2 which was identified and brought to the attention of the installers.

Fault 2 remediated using a hot air gun and silicone roller, this was carried out in the presence of GeoShield.

ADDITIONAL PHOTOGRAPHS

Fault 3 which was identified and brought to the attention of the installers.

Fault 3 remediated using a hot air gun and silicone roller, this was carried out in the presence of GeoShield.

Pick and probe test being conducted on one of the overlapping joints.

Pick and probe test being conducted on one of the overlapping joints.

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing	✔
Gridline/Plot Sign off	Core 4 Slab & Core 5 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Clements Block 2 - Lift Area Walls (Core Slab 5)	✔
Gridline/Plot Sign off	Clements Block 2 - Trench Walls (Core Slab 4)	
Gridline/Plot Sign off	Core 2 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Core 3 Slab (GP5)	✔
Gridline/Plot Sign off	Basement Walls - Block 1 & 2 (Titanbond)	

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Building 1 Lift Pit (No verification carried out due to the	✔
Gridline/Plot Sign off	area being backfilled)	✔
Gridline/Plot Sign off	Building 1 Basement (No verification carried out due to prep	✔
Gridline/Plot Sign off	work still being carried out)	✔
Gridline/Plot Sign off	Building 1 Basement (See verification layout for mark up)	✔
Gridline/Plot Sign off	Building 1 Basement (Excluding service pits)	✔
Gridline/Plot Sign off	Building 1 Lift Pit Walls 50% (See verification layout)	
Gridline/Plot Sign off	Ground Floor Slab, gridlines A-C/08.5-09.5	✔
Gridline/Plot Sign off	Tanking, gridlines A/5-7 (inside wall)	✔
Gridline/Plot Sign off	Gridline E-C/5.5-8.5 floor slab (Except Steel Columns &	✔
Gridline/Plot Sign off	termination to lower floor slab)	✔

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Gridline - A-C1/4.75-7 (Except steel columns)	✔
Gridline/Plot Sign off	Block 1, Basement Slab, gridlines 12-15b/Hh-L	
Gridline/Plot Sign off	Block 1, Basement Slab - GL's: L-P/14-16a	✔
Gridline/Plot Sign off	Block 1, Basement Walls - GL's: Hh/13a-15b	✔
Gridline/Plot Sign off	Block 1, Basement Slab - GL's: N-K/16-18	✔
Gridline/Plot Sign off	Block 1 Ground Floor Slab - See verification layout	✔
Gridline/Plot Sign off	Block 1 Basement Walls - See verification layout	✔
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔
11/07/2024	005	No faults or defects were identified during today's visit.	✔
22/07/2024	006	6 miswelded lap joints, remediated during visit	✔
01/08/2024	007	No faults or defects were identified during todays visit.	✔
06/08/2024	008	3 miswelded lap joints found, remediated during visit	✔
22/08/2024	009	1. A total of 13 miswelded lap joints were identified in the JUTA	✔
		GP5 and JUTA Titanbond Gas Barriers. All were remediated.	✔
		2. Nail fixing punctures in JUTA Titanbond are to be sealed and	✔
		inspected at a future visit. (Basement Walls - Block 2)	✔

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
06/09/2024	010	No verification carried out during today's visit.	✔
11/09/2024	011	Two mis-welds were identified during today's verification visit both	✔
		mis-welds were remediated on site in the presence of GeoShield.	✔
13/09/2024	012	No faults or defects were identical during today's visit.	✔
19/09/2024	013	One miswelded lap joint and one puncture were identified. Both	✔
		were remediated on site.	✔
26/09/2024	014	Steel columns not sealed this remains an outstanding remediation.	
		Termination to lower floor slab remains an outstanding remediation.	
		No faults or defects were identified during today's verification.	✔
03/10/2024	015	Steel columns not sealed this remains an outstanding remediation.	
		One fault was identified during today's visit this was remediated	✔
		on site by the installers in the presence of GeoShield.	✔
08/10/2024	016	1. All pipes and manholes within the slab area of Block 1 (gridlines	✔
		12-15b/Hh-L) to be sealed with JUTA Titan Tank.	✔
		2. All columns to be sealed once slab poured. (GL's 12-15/Hh-L).	

GeoShield Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
		3. Twelve miswelded lap joints were identified, all were remediated	✔
		on site.	✔
10/10/2024	017	1. All pipe penetrations and manholes have been sealed (GL's 12-	✔
		15/Hh-L).	✔
		2. All columns still to be sealed post pour (GL's 12-15/Hh-L) **also	
		referenced above 8/10/2024 R016**	
15/10/2024	018	A total of four faults were identified, all were remediated on site.	✔
17/10/2024	019	No faults or defects were identified during this visit.	✔
22/10/2024	020	Three faults were identified in which all were remediated on site	
		in the presence of GeoShield.	✔
		Steel columns not sealed this remains an outstanding remediation.	
23/10/2024	021	Three faults were identified during today's visit, all were successfull	
		remediated in the presence of GeoShield.	✔
		Several holes were identified in which steel bars will be installed	
		these require sealing once installed.	

GeoShield Verification Report

VERIFICATION SUMMARY

This was the twenty first visit to the site where verification was required for the complete line out installation of Juta TitanBond to the basement walls of building 1, which was carried out by Rascor the verification process is summarised below.

:> All overlaps between the adjacent sheets of Juta TitanBond have been installed with a minimum of 75mm overlap and all heat welded using a hot air tool and silicone roller creating continuous seals throughout the installation.

:> Thorough visual inspections, supported by mechanical point stress testing was carried out during the inspection in which three faults were identified within the basement walls of building 1, these were remediated on site at the time of the verification visit and was carried out in the presence of GeoShield.

:> Several puncture holes were identified in which steel rebar will be installed these will require sealing once installed.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 23-Oct-2024

GeoShield Verification Report 22

PROJECT REFERENCE:	GEO104657
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer’s instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

JUTA GP Liquid Barrier

GeoShield Verification Report

NAME OF SURVEYOR: Liam England

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07551 259023

EMAIL ADDRESS: lengland@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Block 1 Ground Floor Slab & Basement Walls

SITE CONDITIONS:

WEATHER:

Mild

TEMPERATURE:

12ºc

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 15:00 - 16:30

DATE: 29.10.2024

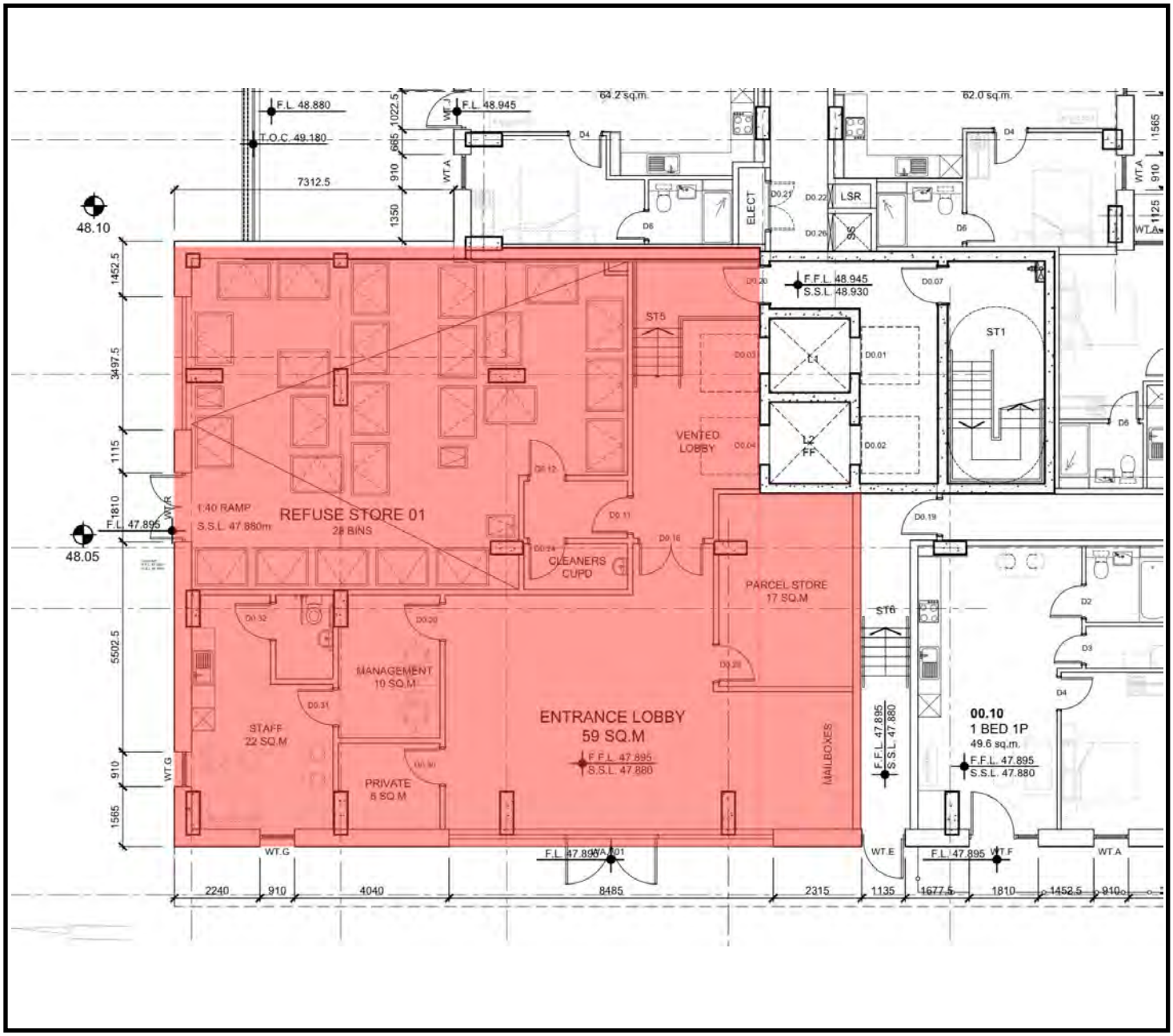
REPORT NUMBER: 022

ACCOMPANIED BY:

Bruno - RASCOR UK Ltd

GeoShield Verification Report

Verification Layout



The area highlighted in red shows Block 1 Ground Floor Slab where the verification inspection took place today.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of Block 1 Ground Floor Slab where today's verification inspection took place on site.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of Block 1 Basement Walls where today's verification inspection took place on site.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of Block 1 Basement walls where today's verification inspection took place on site.

GeoShield Verification Report

LIMITATIONS

SURVEYED AREA: Building 1 Basement walls

RESTRICTIONS AND LIMITATIONS:

Due to steel being installed a mechanical point stress test could not could be carried out to mitigate the issue a visual inspection was conducted in which no faults could be visually identified.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Block 1 Ground Floor Slab - see verification layout

Installation of JUTA TitanFlex to the ground floor slab

NOTES:

A complete line out of the Juta TitanFlex Gas Barrier has been installed across the insulated floor of building 1 ground floor slab. The Juta TitanFlex Gas Barrier has been connected to the previously installed Juta TitanFlex to ensure continuity throughout.

NOTES:

All lap joints between the adjacent sheets of Juta TitanFlex Gas Barrier have been overlapped a minimum of 70mm and heat welded using a hot air leister and a silicone roller with adequate pressure applied to ensure a continuous weld is achieved.

GeoShield Verification Report

VERIFICATION ITEM ONE

All lap joints were subjected to thorough visual inspections, supported by mechanical point stress testing throughout the installation. During this procedure no faults were identified.

GeoShield Verification Report

VERIFICATION ITEM TWO

LOCATION/GRID LINE: Block 1 Ground Floor Slab - see verification layout

Stanchions

NOTES:

Throughout the complete line out installation of the Juta TitanFlex Gas Barrier to the referenced area, there were a number of stanchions that have been sealed in accordance with manufacturer's specifications. This had been achieved by cutting Juta TitanFlex Gas Barrier tightly around each stanchion.

NOTES:

All concrete stanchions had been primed once cured , 500mm strips of Juta GP1 SAM and formed around each stanchion to create a tight seal and then finally a gas torch was used to activate the bitumen backing on the Juta GP1 SAM to ensure the correct bond was achieved between both Gas Barrier and stanchion.

GeoShield Verification Report

VERIFICATION ITEM TWO

All stanchions were subjected to visual inspection as well as a mechanical point stress test where a probe is run along all edges of Juta GP1 SAM to ensure the correct bond is achieved during the installation. No faults were identified during this procedure.

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing	✔
Gridline/Plot Sign off	Core 4 Slab & Core 5 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Clements Block 2 - Lift Area Walls (Core Slab 5)	✔
Gridline/Plot Sign off	Clements Block 2 - Trench Walls (Core Slab 4)	
Gridline/Plot Sign off	Core 2 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Core 3 Slab (GP5)	✔
Gridline/Plot Sign off	Basement Walls - Block 1 & 2 (Titanbond)	

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Building 1 Lift Pit (No verification carried out due to the	✔
Gridline/Plot Sign off	area being backfilled)	✔
Gridline/Plot Sign off	Building 1 Basement (No verification carried out due to prep	✔
Gridline/Plot Sign off	work still being carried out)	✔
Gridline/Plot Sign off	Building 1 Basement (See verification layout for mark up)	✔
Gridline/Plot Sign off	Building 1 Basement (Excluding service pits)	✔
Gridline/Plot Sign off	Building 1 Lift Pit Walls 50% (See verification layout)	
Gridline/Plot Sign off	Ground Floor Slab, gridlines A-C/08.5-09.5	✔
Gridline/Plot Sign off	Tanking, gridlines A/5-7 (inside wall)	✔
Gridline/Plot Sign off	Gridline E-C/5.5-8.5 floor slab (Except Steel Columns &	✔
Gridline/Plot Sign off	termination to lower floor slab)	✔

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Gridline - A-C1/4.75-7 (Except steel columns)	✔
Gridline/Plot Sign off	Block 1, Basement Slab, gridlines 12-15b/Hh-L	
Gridline/Plot Sign off	Block 1, Basement Slab - GL's: L-P/14-16a	✔
Gridline/Plot Sign off	Block 1, Basement Walls - GL's: Hh/13a-15b	✔
Gridline/Plot Sign off	Block 1, Basement Slab - GL's: N-K/16-18	✔
Gridline/Plot Sign off	Block 1 Ground Floor Slab - See verification layout	✔
Gridline/Plot Sign off	Block 1 Basement Walls - See verification layout	✔
Gridline/Plot Sign off	Block 1 Ground Floor Slab - AA-D1/01-4.5	✔
Gridline/Plot Sign off	Block 1 Basement Walls - See verification layout	✔
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔
11/07/2024	005	No faults or defects were identified during today's visit.	✔
22/07/2024	006	6 miswelded lap joints, remediated during visit	✔
01/08/2024	007	No faults or defects were identified during todays visit.	✔
06/08/2024	008	3 miswelded lap joints found, remediated during visit	✔
22/08/2024	009	1. A total of 13 miswelded lap joints were identified in the JUTA	✔
		GP5 and JUTA Titanbond Gas Barriers. All were remediated.	✔
		2. Nail fixing punctures in JUTA Titanbond are to be sealed and	✔
		inspected at a future visit. (Basement Walls - Block 2)	✔

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
06/09/2024	010	No verification carried out during today's visit.	✔
11/09/2024	011	Two mis-welds were identified during today's verification visit both	✔
		mis-welds were remediated on site in the presence of GeoShield.	✔
13/09/2024	012	No faults or defects were identical during today's visit.	✔
19/09/2024	013	One miswelded lap joint and one puncture were identified. Both	✔
		were remediated on site.	✔
26/09/2024	014	Steel columns not sealed this remains an outstanding remediation.	
		Termination to lower floor slab remains an outstanding remediation.	
		No faults or defects were identified during today's verification.	✔
03/10/2024	015	Steel columns not sealed this remains an outstanding remediation.	
		One fault was identified during today's visit this was remediated	✔
		on site by the installers in the presence of GeoShield.	✔
08/10/2024	016	1. All pipes and manholes within the slab area of Block 1 (gridlines	✔
		12-15b/Hh-L) to be sealed with JUTA Titan Tank.	✔
		2. All columns to be sealed once slab poured. (GL's 12-15/Hh-L).	

GeoShield Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
		3. Twelve miswelded lap joints were identified, all were remediated	✔
		on site.	✔
10/10/2024	017	1. All pipe penetrations and manholes have been sealed (GL's 12-	✔
		15/Hh-L).	✔
		2. All columns still to be sealed post pour (GL's 12-15/Hh-L) **also	
		referenced above 8/10/2024 R016**	
15/10/2024	018	A total of four faults were identified, all were remediated on site.	✔
17/10/2024	019	No faults or defects were identified during this visit.	✔
22/10/2024	020	Three faults were identified in which all were remediated on site	
		in the presence of GeoShield.	✔
		Steel columns not sealed this remains an outstanding remediation.	
23/10/2024	021	Three faults were identified during today's visit, all were successfull	
		remediated in the presence of GeoShield.	✔
		Several holes were identified in which steel bars will be installed	
		these require sealing once installed.	

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
29/10/2024	022	No faults were identified during today's visit.	✔

GeoShield Verification Report

VERIFICATION SUMMARY

This was the 22nd visit to the site where verification was required for the complete line out installation of Juta TitanFlex Gas Barrier to the ground floor slab and the installation of Juta Titanbond to the basement walls, which was carried out by Rascor the verification process is summarised below.

:> A mechanical point stress test could not be carried out on the basements walls due to the steel works being installed, to mitigate this issue a thorough visual inspection was carried out.
:> All overlaps between the adjacent sheets of Juta TitanFlex Gas Barrier have been installed with a minimum of 70mm overlap and all heat welded using a hot air tool and silicone roller creating continuous seals throughout the installation.
:> All detailing throughout the installation, such as pipe penetrations and columns have been successfully sealed using Juta GP1 SAM.
:> Thorough visual inspections, supported by mechanical point stress testing was carried out during the inspection in which no faults were identified.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 29-Oct-2024

GeoShield Verification Report 23

PROJECT REFERENCE:	GEO104657
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer’s instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

JUTA GP Liquid Barrier

GeoShield Verification Report

NAME OF SURVEYOR:	Niall Hogan
VERIFICATION COMPANY:	GeoShield Limited
	Icon Business Centre
	4100 Park Approach
	Thorpe Park
	Leeds
CONTACT NUMBER:	07423 116 951
EMAIL ADDRESS:	nhogan@geoshield.co.uk
ORDER NUMBER:	To be confirmed

PER VISIT:	YES:	✔	NO:		PROJECT:	YES:	✔	NO:	

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Block 1 Basement Walls - Within Gridlines 16a-18/P-H

SITE CONDITIONS:

WEATHER:

Overcast

TEMPERATURE:

10ºc

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 09:30 - 10:30

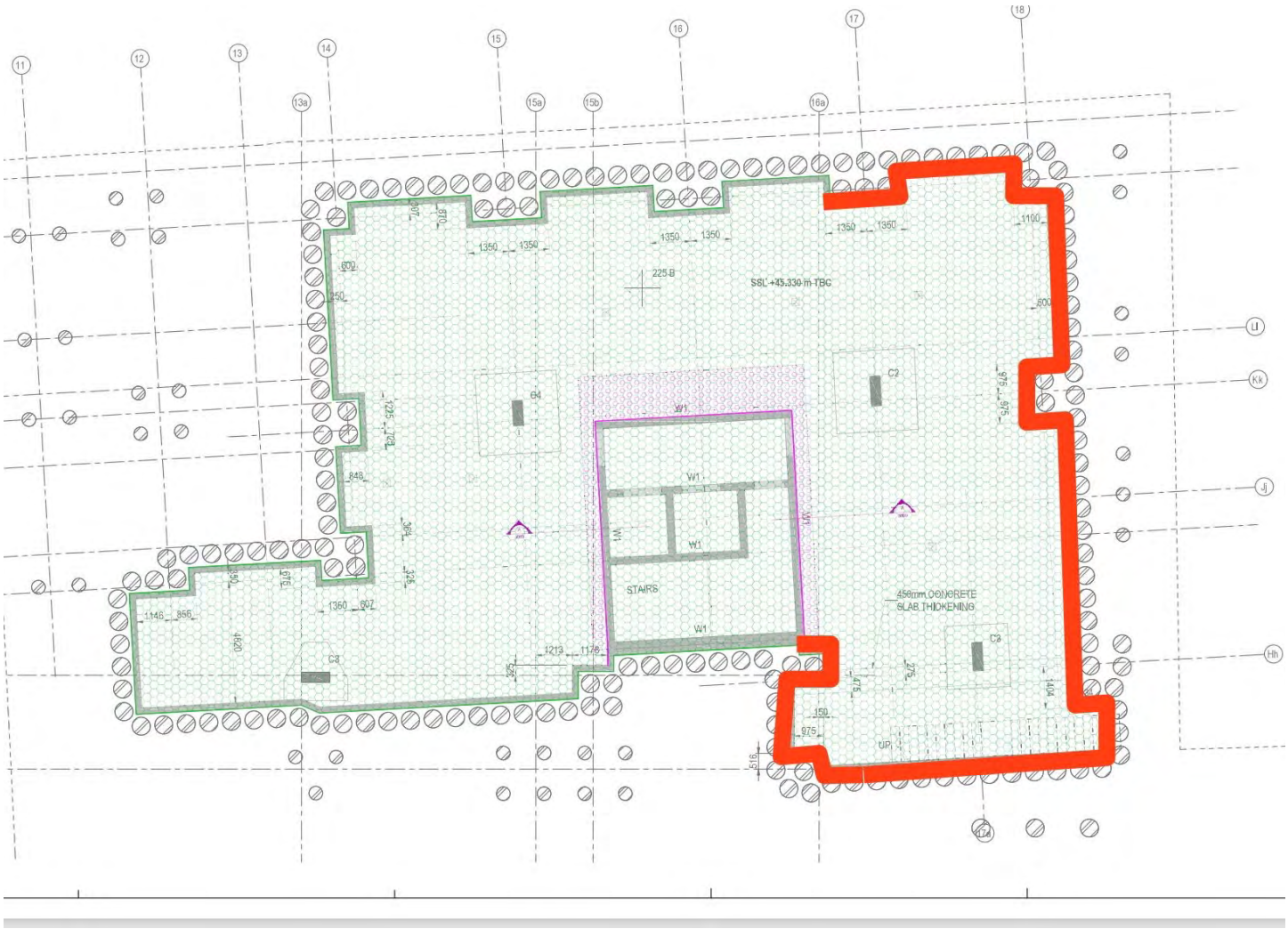
DATE: 04.11.2024

REPORT NUMBER: 023

ACCOMPANIED BY:

GeoShield Verification Report

Verification Layout



The photograph above shows a plan layout of the site. The area highlighted in red shows where the verification inspection took place on site today.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the area where today's verification inspection took place on site.

GeoShield Verification Report

LIMITATIONS

SURVEYED AREA: Block 1 Basement Walls - Within Gridlines 16a-18/P-H

RESTRICTIONS AND LIMITATIONS:

Air Lance testing could not be carried out due to restricted vehicle access to the area requiring verification today. To mitigate this issue, thorough visual inspections supported by mechanical point stress testing were conducted.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Block 1 Basement Walls - Within Gridlines 16a-18/P-H

Installation of Juta Titanbond

NOTES:

Juta Titanbond has been installed across the entire referenced area. All lap joints between the adjacent sheets of Juta Titanbond have been overlapped and welded with a hot air leister and silicone roller with firm rolled pressure applied.

NOTES:

A strong and continuous weld has been achieved. All lap joints between the adjacent sheets of Juta Titanbond have been overlapped at least the minimum amount. Installed in accordance with manufacturer's specifications and design guidelines.

GeoShield Verification Report

VERIFICATION ITEM ONE

The above photograph displays a mechanical point stress test, also known as a pick and probe test, being conducted upon a welded lap joint of the Juta Titanbond. Most lap joints were subjected to thorough mechanical point stress testing throughout the installation. Some were unable to be reached due to the steel structure. Three miswelded lap joints were identified, these were successfully remediated.

GeoShield Verification Report

VERIFICATION ITEM TWO

LOCATION/GRID LINE: Block 1 Basement Walls - Within Gridlines 16a-18/P-H

Faults Identified

NOTES:

The photograph above shows a probe demonstrating a fault identified. All faults which were identified were remediated with a generous amount of Juta GP Liquid Gas Barrier.

NOTES:

Installed in accordance with manufacturer's specifications and design guidelines. This is to ensure a gas tight seal was achieved. A further visual inspection confirmed no damage or defects.

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing	✔
Gridline/Plot Sign off	Core 4 Slab & Core 5 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Clements Block 2 - Lift Area Walls (Core Slab 5)	✔
Gridline/Plot Sign off	Clements Block 2 - Trench Walls (Core Slab 4)	
Gridline/Plot Sign off	Core 2 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Core 3 Slab (GP5)	✔
Gridline/Plot Sign off	Basement Walls - Block 1 & 2 (Titanbond)	

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Building 1 Lift Pit (No verification carried out due to the	✔
Gridline/Plot Sign off	area being backfilled)	✔
Gridline/Plot Sign off	Building 1 Basement (No verification carried out due to prep	✔
Gridline/Plot Sign off	work still being carried out)	✔
Gridline/Plot Sign off	Building 1 Basement (See verification layout for mark up)	✔
Gridline/Plot Sign off	Building 1 Basement (Excluding service pits)	✔
Gridline/Plot Sign off	Building 1 Lift Pit Walls 50% (See verification layout)	
Gridline/Plot Sign off	Ground Floor Slab, gridlines A-C/08.5-09.5	✔
Gridline/Plot Sign off	Tanking, gridlines A/5-7 (inside wall)	✔
Gridline/Plot Sign off	Gridline E-C/5.5-8.5 floor slab (Except Steel Columns &	✔
Gridline/Plot Sign off	termination to lower floor slab)	✔

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Gridline - A-C1/4.75-7 (Except steel columns)	✔
Gridline/Plot Sign off	Block 1, Basement Slab, gridlines 12-15b/Hh-L	
Gridline/Plot Sign off	Block 1, Basement Slab - GL's: L-P/14-16a	✔
Gridline/Plot Sign off	Block 1, Basement Walls - GL's: Hh/13a-15b	✔
Gridline/Plot Sign off	Block 1, Basement Slab - GL's: N-K/16-18	✔
Gridline/Plot Sign off	Block 1 Ground Floor Slab - See verification layout	✔
Gridline/Plot Sign off	Block 1 Basement Walls - See verification layout	✔
Gridline/Plot Sign off	Block 1 Ground Floor Slab - AA-D1/01-4.5	✔
Gridline/Plot Sign off	Block 1 Basement Walls - See verification layout	✔
Gridline/Plot Sign off	Block 1 Basement Walls - Within Gridlines 16a-18/P-H	✔
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔
11/07/2024	005	No faults or defects were identified during today's visit.	✔
22/07/2024	006	6 miswelded lap joints, remediated during visit	✔
01/08/2024	007	No faults or defects were identified during todays visit.	✔
06/08/2024	008	3 miswelded lap joints found, remediated during visit	✔
22/08/2024	009	1. A total of 13 miswelded lap joints were identified in the JUTA	✔
		GP5 and JUTA Titanbond Gas Barriers. All were remediated.	✔
		2. Nail fixing punctures in JUTA Titanbond are to be sealed and	✔
		inspected at a future visit. (Basement Walls - Block 2)	✔

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
06/09/2024	010	No verification carried out during today's visit.	✔
11/09/2024	011	Two mis-welds were identified during today's verification visit both	✔
		mis-welds were remediated on site in the presence of GeoShield.	✔
13/09/2024	012	No faults or defects were identical during today's visit.	✔
19/09/2024	013	One miswelded lap joint and one puncture were identified. Both	✔
		were remediated on site.	✔
26/09/2024	014	Steel columns not sealed this remains an outstanding remediation.	
		Termination to lower floor slab remains an outstanding remediation.	
		No faults or defects were identified during today's verification.	✔
03/10/2024	015	Steel columns not sealed this remains an outstanding remediation.	
		One fault was identified during today's visit this was remediated	✔
		on site by the installers in the presence of GeoShield.	✔
08/10/2024	016	1. All pipes and manholes within the slab area of Block 1 (gridlines	✔
		12-15b/Hh-L) to be sealed with JUTA Titan Tank.	✔
		2. All columns to be sealed once slab poured. (GL's 12-15/Hh-L).	

GeoShield Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
		3. Twelve miswelded lap joints were identified, all were remediated	✔
		on site.	✔
10/10/2024	017	1. All pipe penetrations and manholes have been sealed (GL's 12-	✔
		15/Hh-L).	✔
		2. All columns still to be sealed post pour (GL's 12-15/Hh-L) **also	
		referenced above 8/10/2024 R016**	
15/10/2024	018	A total of four faults were identified, all were remediated on site.	✔
17/10/2024	019	No faults or defects were identified during this visit.	✔
22/10/2024	020	Three faults were identified in which all were remediated on site	
		in the presence of GeoShield.	✔
		Steel columns not sealed this remains an outstanding remediation.	
23/10/2024	021	Three faults were identified during today's visit, all were successfull	
		remediated in the presence of GeoShield.	✔
		Several holes were identified in which steel bars will be installed	
		these require sealing once installed.	

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
29/10/2024	022	No faults were identified during today's visit.	✔
04/11/2024	023	Three faults were identified and remediated during today's visit.	✔

GeoShield Verification Report

VERIFICATION SUMMARY

This was the 23rd visit to the site where verification was required for the complete line out installation of Juta Titanbond Gas Barrier to the Block 1 Basement Walls - Within Gridlines 16a-18/P-H.

A mechanical point stress test could not be carried out on all of the basements walls due to the steel works being installed, to mitigate this issue a thorough visual inspection was carried out.

All overlaps between the adjacent sheets of Juta Titanbond have been heat welded using a hot air tool and silicone roller creating continuous seals throughout the installation.

Any faults identified were remediated by applying a generous amount of Juta GP Liquid Gas Barrier.

Thorough visual inspections, supported by mechanical point stress testing was carried out during the inspection in which no faults were identified.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 04-Nov-2024

GeoShield Verification Report 24

PROJECT REFERENCE:	GEO104657
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer's instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

JUTA GP Liquid Barrier

GeoShield Verification Report

NAME OF SURVEYOR: Niall Hogan

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07423 116 951

EMAIL ADDRESS: nhogan@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Boris

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Block 1 Ground Floor Slab - Gridlines 11-13a/P-K

SITE CONDITIONS:

WEATHER:

Overcast

TEMPERATURE:

10ºc

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 14:30-16:09

DATE: 06.11.2024

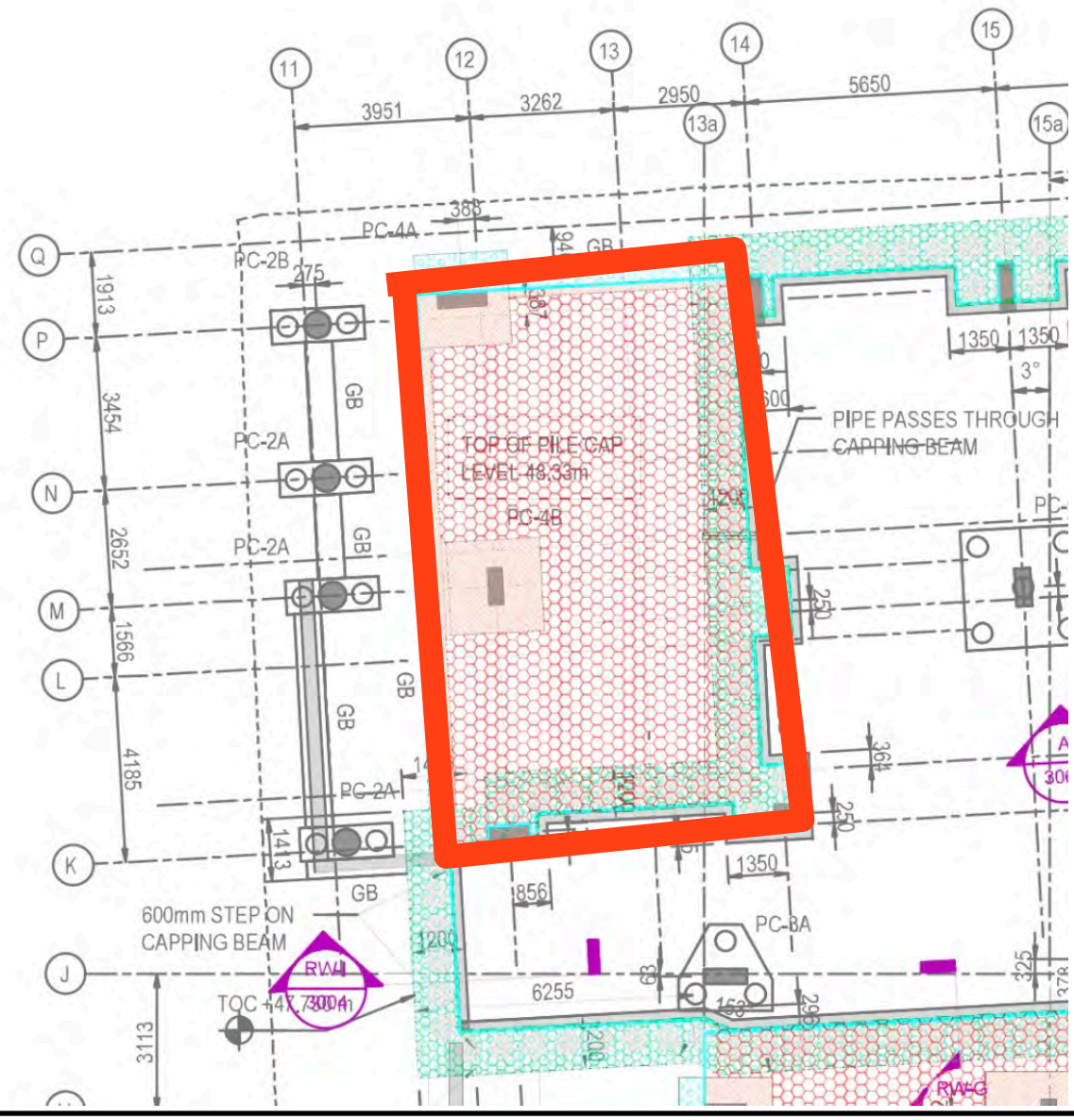
REPORT NUMBER: 024

ACCOMPANIED BY:

Boris

GeoShield Verification Report

Verification Layout



The photograph above shows a plan layout of the site. The area highlighted in red shows where the verification inspection took place on site today.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the area where today's verification inspection took place on site.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Block 1 Ground Floor Slab - Gridlines 11-13a/P-K

Outstanding Pipe Penetrations

NOTES:

Upon arrival to site it was noticed that various pipe penetrations had not been completed due to a concrete pile obstructing access to the existing Titanbond membrane below. This was brought up to site where it has now been broken and moved and will be dug up exposing the Juta Titanbond membrane

NOTES:

allowing installers to weld the Titanflex to the existing Titanbond membrane. Once this has been complete the pipes will need sealed using strips of Juta Titantank, cutting the membrane flush with the base of the pipe and placing strips of Juta Titantank intricately around to seal it.

GeoShield Verification Report

VERIFICATION ITEM ONE

The above photo shows where the base needs dug out to expose the Titanbond membrane in order for the installers to then weld the Titanflex to it, creating the continuous protection.

GeoShield Verification Report

VERIFICATION ITEM TWO

LOCATION/GRID LINE: Block 1 Ground Floor Slab - Gridlines 11-13a/P-K

Column Beams

NOTES:

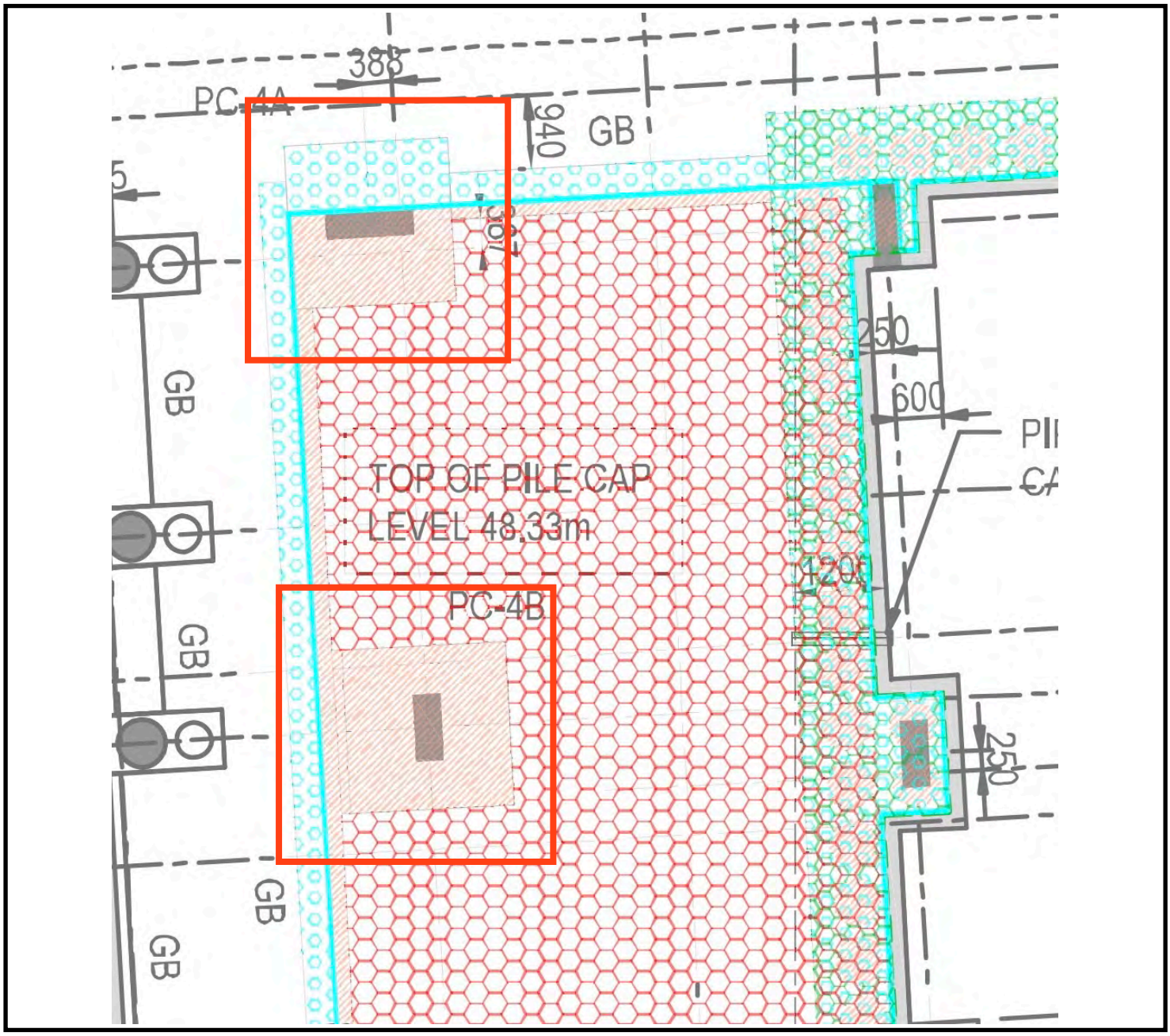
Upon inspection to the columns that require sealing with Juta GP CAB Flex 2C, it appears that the CAB Flex 2C was poured beneath the Titanflex prior to installation. This needs to be poured ontop of the Titanflex membrane to ensure a seal is formed

NOTES:

Installers have been informed and will carry this out prior to next visit. Once good coverage has been achieved the CAB Flex 2C will be left to dry and harden forming a successful sealing of these columns

GeoShield Verification Report

VERIFICATION ITEM ONE



The above photo shows the RASCOR drawing that shows the Juta GP CAB Flex 2C ontop of the Juta Titanflex Membrane

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing	✔
Gridline/Plot Sign off	Core 4 Slab & Core 5 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Clements Block 2 - Lift Area Walls (Core Slab 5)	✔
Gridline/Plot Sign off	Clements Block 2 - Trench Walls (Core Slab 4)	
Gridline/Plot Sign off	Core 2 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Core 3 Slab (GP5)	✔
Gridline/Plot Sign off	Basement Walls - Block 1 & 2 (Titanbond)	

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Building 1 Lift Pit (No verification carried out due to the	✔
Gridline/Plot Sign off	area being backfilled)	✔
Gridline/Plot Sign off	Building 1 Basement (No verification carried out due to prep	✔
Gridline/Plot Sign off	work still being carried out)	✔
Gridline/Plot Sign off	Building 1 Basement (See verification layout for mark up)	✔
Gridline/Plot Sign off	Building 1 Basement (Excluding service pits)	✔
Gridline/Plot Sign off	Building 1 Lift Pit Walls 50% (See verification layout)	
Gridline/Plot Sign off	Ground Floor Slab, gridlines A-C/08.5-09.5	✔
Gridline/Plot Sign off	Tanking, gridlines A/5-7 (inside wall)	✔
Gridline/Plot Sign off	Gridline E-C/5.5-8.5 floor slab (Except Steel Columns &	✔
Gridline/Plot Sign off	termination to lower floor slab)	✔

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Gridline - A-C1/4.75-7 (Except steel columns)	✔
Gridline/Plot Sign off	Block 1, Basement Slab, gridlines 12-15b/Hh-L	
Gridline/Plot Sign off	Block 1, Basement Slab - GL's: L-P/14-16a	✔
Gridline/Plot Sign off	Block 1, Basement Walls - GL's: Hh/13a-15b	✔
Gridline/Plot Sign off	Block 1, Basement Slab - GL's: N-K/16-18	✔
Gridline/Plot Sign off	Block 1 Ground Floor Slab - See verification layout	✔
Gridline/Plot Sign off	Block 1 Basement Walls - See verification layout	✔
Gridline/Plot Sign off	Block 1 Ground Floor Slab - AA-D1/01-4.5	✔
Gridline/Plot Sign off	Block 1 Basement Walls - See verification layout	✔
Gridline/Plot Sign off	Block 1 Basement Walls - Within Gridlines 16a-18/P-H	✔
Gridline/Plot Sign off	Block 1 Ground Floor Slab - Gridlines 11-13a/P-K	

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔
11/07/2024	005	No faults or defects were identified during today's visit.	✔
22/07/2024	006	6 miswelded lap joints, remediated during visit	✔
01/08/2024	007	No faults or defects were identified during todays visit.	✔
06/08/2024	008	3 miswelded lap joints found, remediated during visit	✔
22/08/2024	009	1. A total of 13 miswelded lap joints were identified in the JUTA	✔
		GP5 and JUTA Titanbond Gas Barriers. All were remediated.	✔
		2. Nail fixing punctures in JUTA Titanbond are to be sealed and	✔
		inspected at a future visit. (Basement Walls - Block 2)	✔

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
06/09/2024	010	No verification carried out during today's visit.	✔
11/09/2024	011	Two mis-welds were identified during today's verification visit both	✔
		mis-welds were remediated on site in the presence of GeoShield.	✔
13/09/2024	012	No faults or defects were identical during today's visit.	✔
19/09/2024	013	One miswelded lap joint and one puncture were identified. Both	✔
		were remediated on site.	✔
26/09/2024	014	Steel columns not sealed this remains an outstanding remediation.	
		Termination to lower floor slab remains an outstanding remediation.	
		No faults or defects were identified during today's verification.	✔
03/10/2024	015	Steel columns not sealed this remains an outstanding remediation.	
		One fault was identified during today's visit this was remediated	✔
		on site by the installers in the presence of GeoShield.	✔
08/10/2024	016	1. All pipes and manholes within the slab area of Block 1 (gridlines	✔
		12-15b/Hh-L) to be sealed with JUTA Titan Tank.	✔
		2. All columns to be sealed once slab poured. (GL's 12-15/Hh-L).	

GeoShield Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
		3. Twelve miswelded lap joints were identified, all were remediated	✔
		on site.	✔
10/10/2024	017	1. All pipe penetrations and manholes have been sealed (GL's 12-	✔
		15/Hh-L).	✔
		2. All columns still to be sealed post pour (GL's 12-15/Hh-L) **also	
		referenced above 8/10/2024 R016**	
15/10/2024	018	A total of four faults were identified, all were remediated on site.	✔
17/10/2024	019	No faults or defects were identified during this visit.	✔
22/10/2024	020	Three faults were identified in which all were remediated on site	
		in the presence of GeoShield.	✔
		Steel columns not sealed this remains an outstanding remediation.	
23/10/2024	021	Three faults were identified during today's visit, all were successfull	
		remediated in the presence of GeoShield.	✔
		Several holes were identified in which steel bars will be installed	
		these require sealing once installed.	

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
29/10/2024	022	No faults were identified during today's visit.	✔
04/11/2024	023	Three faults were identified and remediated during today's visit.	✔
06/11/2024	024	Pipe penetrations to be sealed to Titanflex Membrane.	
		Area highlighted beneath pipe to be dug out and Titanflex welded	
		to Titanbond membrane.	
		Columns to have full coverage of Juta GP CAB Flex 2C.	

GeoShield Verification Report

VERIFICATION SUMMARY

24th visit to site for the inspection and verification of the installation of Juta Titanflex to an area of Ground Floor Slab, verification process is as follows:

.: Job incomplete and unable to verify as signed off

.: Pipe penetrations still to be sealed with Juta Titantank

.: Columns to be sealed with Juta GP CAB Flex 2c

.: Titanflex still to be sealed to Titanbond in area highlighted to installers

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 06-Nov-2024

GeoShield Verification Report 25

PROJECT REFERENCE:	GEO104657
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer’s instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

JUTA GP Liquid Barrier

GeoShield Verification Report

NAME OF SURVEYOR: Liam England

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07551 259023

EMAIL ADDRESS: lengland@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Block 1 Ground Floor Slab - Gridlines 11-13a/P-K

SITE CONDITIONS:

WEATHER:

Overcast

TEMPERATURE:

10ºc

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 10:00-11:25

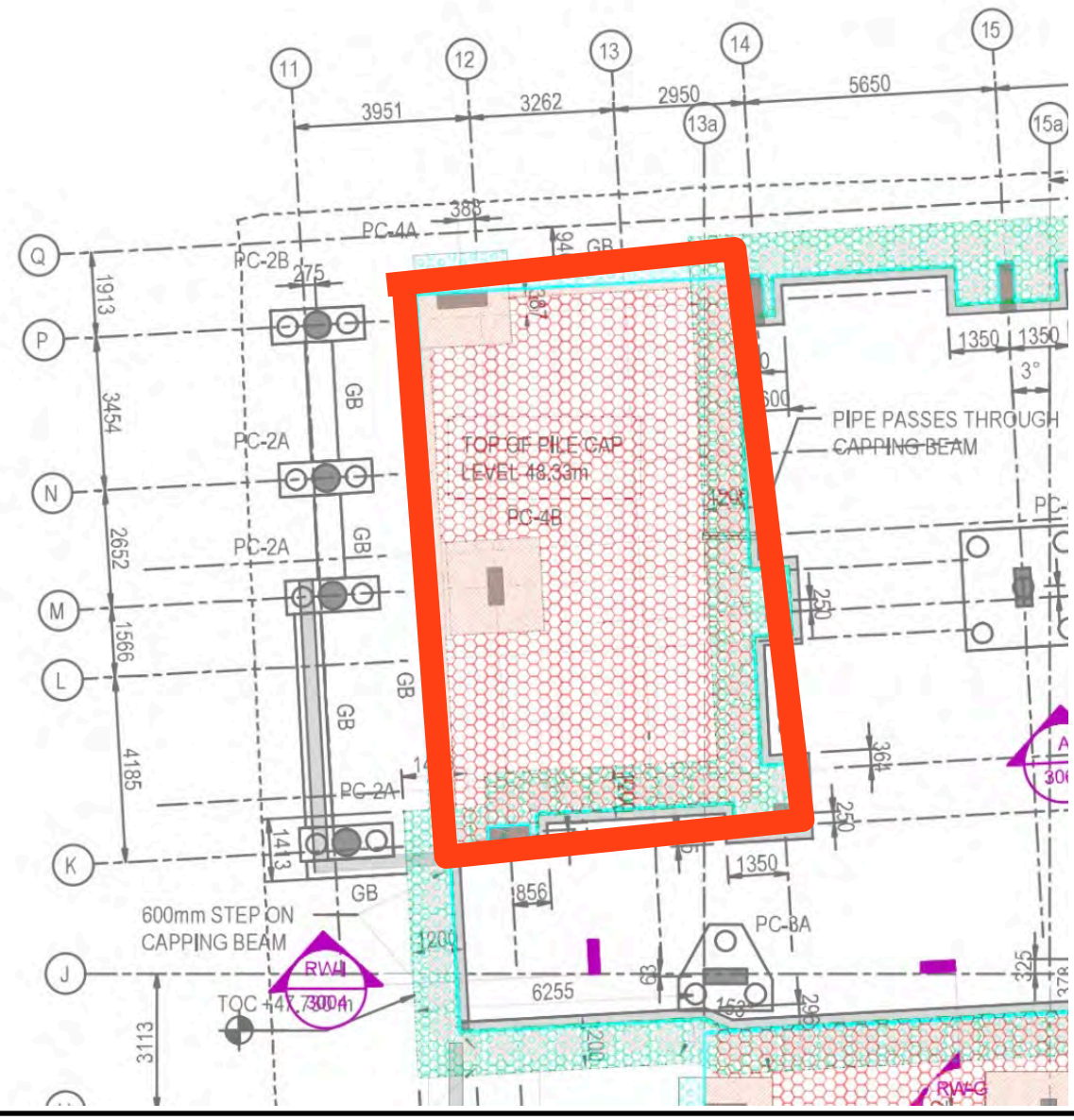
DATE: 07.11.2024

REPORT NUMBER: 025

ACCOMPANIED BY:

GeoShield Verification Report

Verification Layout



The photograph above shows a plan layout of the site. The area highlighted in red shows where the verification inspection took place on site today.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the area where today's verification inspection took place on site.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the area where today's verification inspection took place on site.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Block 1 Ground Floor Slab - Gridlines 11-13a/P-K

Installation of Juta TitanFlex

NOTES:

A complete line out of the Juta TitanFlex has been installed across an insulated base to the referenced gridlines. The referenced area had firstly been cleaned off exposing the Juta TitanBond. The Juta TitanFlex has been installed and lapped onto the previously installed Juta TitanBond to ensure continuity throughout.

NOTES:

All lap joints between the adjacent sheets of Juta TitanFlex have been overlapped a minimum of 70mm and heat welded using a hot air leister and a silicone roller with adequate pressure applied to ensure a continuous weld is achieved.

GeoShield Verification Report

VERIFICATION ITEM ONE

All lap joints were subjected to thorough visual inspections, supported by mechanical point stress testing throughout the installation in which no further faults or defects were identified.

GeoShield Verification Report

VERIFICATION ITEM TWO

LOCATION/GRID LINE: Block 1 Ground Floor Slab - Gridlines 11-13a/P-K

Outstanding Pipe Penetrations

NOTES:

Throughout the complete line out installation of the Juta TitanFlex to the referenced area, there were a number of pipe penetrations that have been sealed in accordance with manufacturer's specifications. This had been achieved by tightly around the pipe penetrations, strips of Juta GP1 SAM was the cut and

NOTES:

around each pipe to create a tight seal and then finally a square of Juta GP1 SAM was placed over the top of the pipe penetration in a top hat formation. A hot air tool and silicone roller were used to activate the bitumen backing on the Juta GP1 SAM to ensure the correct bond was achieved between the

GeoShield Verification Report

VERIFICATION ITEM TWO

Juta TitanFlex and Juta GP1 SAM, In addition to this a small number of pipe penetrations were sealed using pre formed top hats. These pre formed top hats were fitted over the top of each pipe and heat welded to the Juta TitanFlex followed by a strip of Juta GP1 SAM round the top of the pipe creating a tight seal.

GeoShield Verification Report

VERIFICATION ITEM TWO

All pipe penetrations were subjected to visual between the inspection as well as a mechanical point stress test where a probe is run along all edges of Juta GP1 SAM to ensure the correct bond is achieved during the installation. No further faults were identified during this procedure.

GeoShield Verification Report

VERIFICATION ITEM THREE

LOCATION/GRID LINE: Block 1 Ground Floor Slab - Gridlines 11-13a/P-K

Column Beams

NOTES:

Following on from the previous failed visit further inspections were carried out on all of the referenced columns that were left outstanding, as GeoShield were not present at the time of mixing or applicating the Juta GP CAB Flex 2C a conversation was held with a Rascor operative in which it was confirmed that the Juta GP CAB

NOTES:

Flex 2C had been mixed and applied within the accordance with the manufacturers specification. During today's visit the Juta GP CAB Flex 2C had been applied around all of the referenced columns, this product had not cured and was still wet. It was advised to on site management for OBR that further works

GeoShield Verification Report

VERIFICATION ITEM THREE

should not be carried out until the Juta GP CAB Flex 2C had cured. Recommended curing time is approximately 48 hours.

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing	✔
Gridline/Plot Sign off	Core 4 Slab & Core 5 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Clements Block 2 - Lift Area Walls (Core Slab 5)	✔
Gridline/Plot Sign off	Clements Block 2 - Trench Walls (Core Slab 4)	
Gridline/Plot Sign off	Core 2 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Core 3 Slab (GP5)	✔
Gridline/Plot Sign off	Basement Walls - Block 1 & 2 (Titanbond)	

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Building 1 Lift Pit (No verification carried out due to the	✔
Gridline/Plot Sign off	area being backfilled)	✔
Gridline/Plot Sign off	Building 1 Basement (No verification carried out due to prep	✔
Gridline/Plot Sign off	work still being carried out)	✔
Gridline/Plot Sign off	Building 1 Basement (See verification layout for mark up)	✔
Gridline/Plot Sign off	Building 1 Basement (Excluding service pits)	✔
Gridline/Plot Sign off	Building 1 Lift Pit Walls 50% (See verification layout)	
Gridline/Plot Sign off	Ground Floor Slab, gridlines A-C/08.5-09.5	✔
Gridline/Plot Sign off	Tanking, gridlines A/5-7 (inside wall)	✔
Gridline/Plot Sign off	Gridline E-C/5.5-8.5 floor slab (Except Steel Columns &	✔
Gridline/Plot Sign off	termination to lower floor slab)	✔

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Gridline - A-C1/4.75-7 (Except steel columns)	✔
Gridline/Plot Sign off	Block 1, Basement Slab, gridlines 12-15b/Hh-L	
Gridline/Plot Sign off	Block 1, Basement Slab - GL's: L-P/14-16a	✔
Gridline/Plot Sign off	Block 1, Basement Walls - GL's: Hh/13a-15b	✔
Gridline/Plot Sign off	Block 1, Basement Slab - GL's: N-K/16-18	✔
Gridline/Plot Sign off	Block 1 Ground Floor Slab - See verification layout	✔
Gridline/Plot Sign off	Block 1 Basement Walls - See verification layout	✔
Gridline/Plot Sign off	Block 1 Ground Floor Slab - AA-D1/01-4.5	✔
Gridline/Plot Sign off	Block 1 Basement Walls - See verification layout	✔
Gridline/Plot Sign off	Block 1 Basement Walls - Within Gridlines 16a-18/P-H	✔
Gridline/Plot Sign off	Block 1 Ground Floor Slab - Gridlines 11-13a/P-K	

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔
11/07/2024	005	No faults or defects were identified during today's visit.	✔
22/07/2024	006	6 miswelded lap joints, remediated during visit	✔
01/08/2024	007	No faults or defects were identified during todays visit.	✔
06/08/2024	008	3 miswelded lap joints found, remediated during visit	✔
22/08/2024	009	1. A total of 13 miswelded lap joints were identified in the JUTA	✔
		GP5 and JUTA Titanbond Gas Barriers. All were remediated.	✔
		2. Nail fixing punctures in JUTA Titanbond are to be sealed and	✔
		inspected at a future visit. (Basement Walls - Block 2)	✔

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
06/09/2024	010	No verification carried out during today's visit.	✔
11/09/2024	011	Two mis-welds were identified during today's verification visit both	✔
		mis-welds were remediated on site in the presence of GeoShield.	✔
13/09/2024	012	No faults or defects were identical during today's visit.	✔
19/09/2024	013	One miswelded lap joint and one puncture were identified. Both	✔
		were remediated on site.	✔
26/09/2024	014	Steel columns not sealed this remains an outstanding remediation.	
		Termination to lower floor slab remains an outstanding remediation.	
		No faults or defects were identified during today's verification.	✔
03/10/2024	015	Steel columns not sealed this remains an outstanding remediation.	
		One fault was identified during today's visit this was remediated	✔
		on site by the installers in the presence of GeoShield.	✔
08/10/2024	016	1. All pipes and manholes within the slab area of Block 1 (gridlines	✔
		12-15b/Hh-L) to be sealed with JUTA Titan Tank.	✔
		2. All columns to be sealed once slab poured. (GL's 12-15/Hh-L).	

GeoShield Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
		3. Twelve miswelded lap joints were identified, all were remediated	✔
		on site.	✔
10/10/2024	017	1. All pipe penetrations and manholes have been sealed (GL's 12-	✔
		15/Hh-L).	✔
		2. All columns still to be sealed post pour (GL's 12-15/Hh-L) **also	
		referenced above 8/10/2024 R016**	
15/10/2024	018	A total of four faults were identified, all were remediated on site.	✔
17/10/2024	019	No faults or defects were identified during this visit.	✔
22/10/2024	020	Three faults were identified in which all were remediated on site	
		in the presence of GeoShield.	✔
		Steel columns not sealed this remains an outstanding remediation.	
23/10/2024	021	Three faults were identified during today's visit, all were successfull	
		remediated in the presence of GeoShield.	✔
		Several holes were identified in which steel bars will be installed	
		these require sealing once installed.	

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
29/10/2024	022	No faults were identified during today's visit.	✔
04/11/2024	023	Three faults were identified and remediated during today's visit.	✔
06/11/2024	024	Pipe penetrations to be sealed to Titanflex Membrane.	✔
		Area highlighted beneath pipe to be dug out and Titanflex welded	
		to Titanbond membrane.	✔
		Columns to have full coverage of Juta GP CAB Flex 2C.	✔
07/11/2024	025	All outstanding remediations from the previous visit have been	
		remediated and are no longer outstanding.	✔
		During today's visit no further faults or defects were identified.	✔

GeoShield Verification Report

VERIFICATION SUMMARY

This was the twenty fifth visit to the site where verification was required for installation of Juta TitanFlex to an area of the ground floor slab which was carried out by Rascor the verification process is summarised below.

:> All overlaps between the adjacent sheets of Juta TitanFlex have been installed with a 70mm overlap and all heat welded using a hot air tool and silicone roller creating continuous seals throughout the installation.

:> All Juta TitanFlex had been lapped onto the previously installed Juta TitanBond and heat welded creating successful seals.

:> All detailing throughout the installation, such as pipe penetrations have been successfully sealed using pre formed top hats followed by Juta TItanTank.
:> All columns have successfully been sealed using Juta GP CAB Flex 2C.
:> Thorough visual inspections, supported by mechanical point stress testing was carried out to all area in which no faults or defects were identified.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 07-Nov-2024

GeoShield Verification Report 26

PROJECT REFERENCE:	GEO104657
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer’s instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

JUTA GP Liquid Barrier

GeoShield Verification Report

NAME OF SURVEYOR: Liam England

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07551 259023

EMAIL ADDRESS: lengland@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Block 1 Ground Floor Slab Area - Gridlines: 19/P-K
Block Clements Termination Detail - Gridlines: 5/A-E

SITE CONDITIONS:

WEATHER:

Dry

TEMPERATURE:

14ºc

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 13:45-14:55

DATE: 15.11.2024

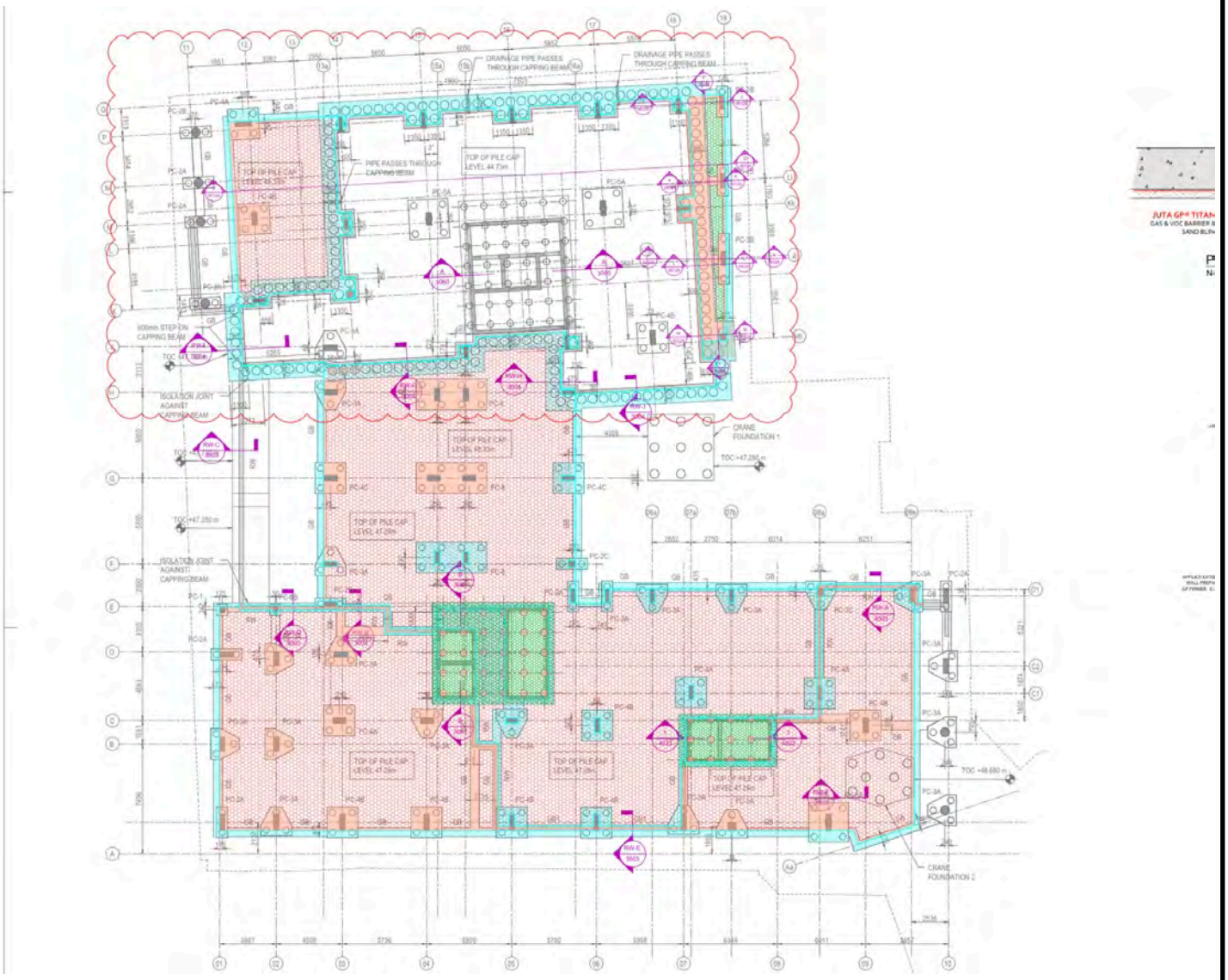
REPORT NUMBER: 026

ACCOMPANIED BY:

Bruno - RASCOR

GeoShield Verification Report

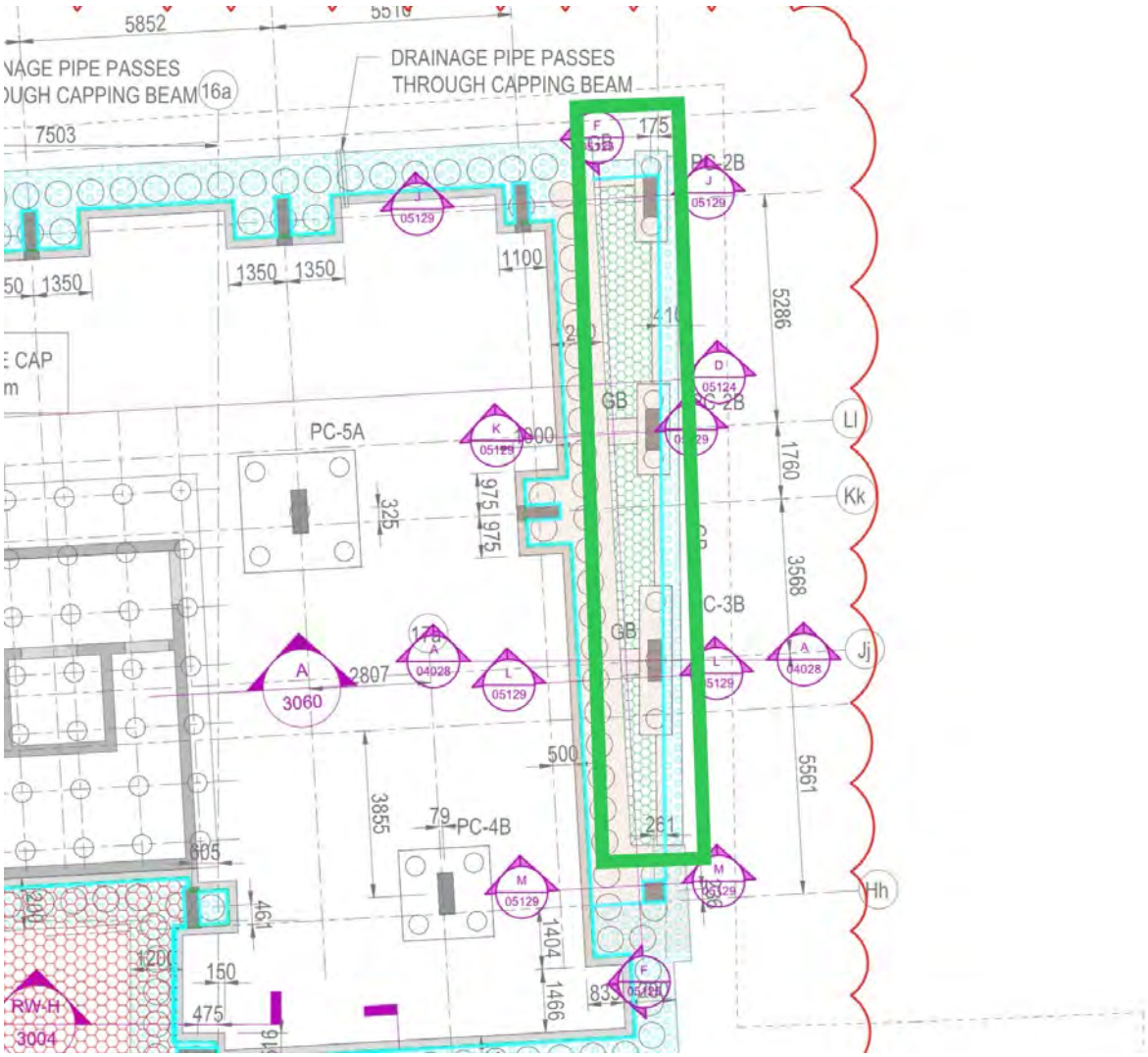
Verification Layout



The photograph above shows a plan layout of the site.

GeoShield Verification Report

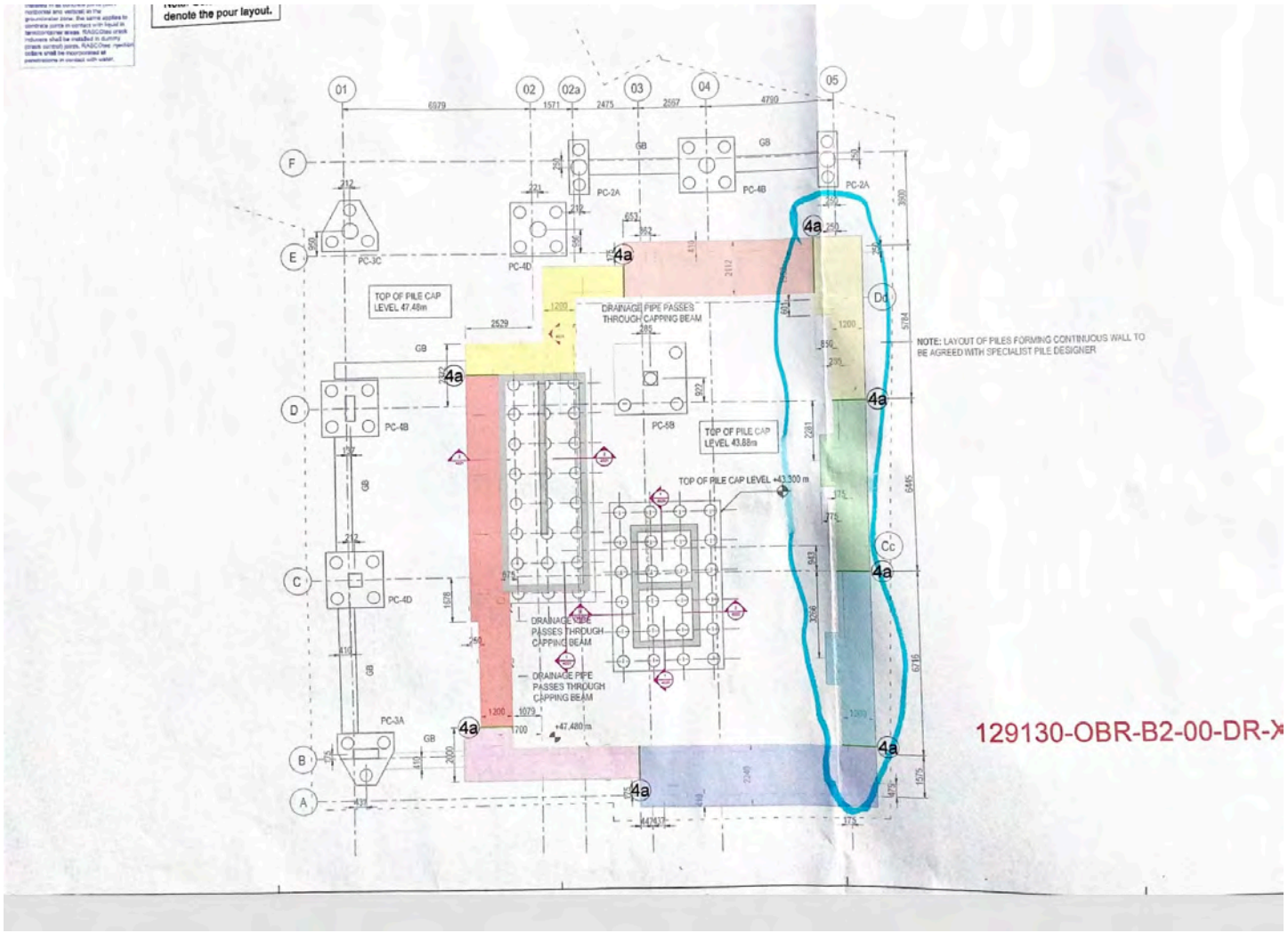
Verification Layout



The photograph above shows a plan layout of the site. The area highlighted in green shows Block 1 Ground Floor Slab Area - Gridlines: 19/P-K where the verification inspection took place on site today.

GeoShield Verification Report

Verification Layout



The photograph above shows a plan layout of the site. The area highlighted in blue shows Block Clements Termination Detail - Gridlines: 5/A-E where the verification inspection took place on site today.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the area Block 1 Ground Floor Slab Area - Gridlines: 19/P-K where today's verification inspection took place on site.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the area Block Clements Termination Detail - Gridlines: 5/A-E where today's verification inspection took place on site.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Block 1 Ground Floor Slab Area - Gridlines: 19/P-K

Installation of Juta TitanBond

NOTES:

A complete line out of the Juta TitanBond has been installed across an insulated base to the referenced gridlines. The referenced area had firstly been cleaned off exposing the previously installed basement Juta TitanBond. The Juta TitanBond has been installed and lapped onto the previously installed Juta.

NOTES:

TitanBond to ensure continuity throughout. All lap joints between the adjacent sheets of Juta TitanFlex have been overlapped a minimum of 50mm and heat welded using a hot air leister and a silicone roller with adequate pressure applied to ensure a continuous weld is achieved.

GeoShield Verification Report

VERIFICATION ITEM ONE

All lap joints were subjected to thorough visual inspections, supported by mechanical point stress testing throughout the installation in which no further faults or defects were identified.

GeoShield Verification Report

VERIFICATION ITEM TWO

LOCATION/GRID LINE: Block 1 Ground Floor Slab Area - Gridlines: 19/P-K

Column Beams

NOTES:

Throughout the installation of the Juta TitanBond to the referenced area there were a number of columns that required sealing, as GeoShield were not present at the time of mixing or applicating the Juta GP CAB Flex 2C a conversation was held with a Rascor operative in which it was confirmed that the Juta GP CAB

NOTES:

Flex 2C had been mixed and applied within the accordance with the manufacturers specification. During today's visit the Juta GP CAB Flex 2C had been applied around all of the referenced columns, this product had not cured and was still wet. It was advised to on site management for OBR/RASCOR that

GeoShield Verification Report

VERIFICATION ITEM TWO

further works should not be carried out until the Juta GP CAB Flex 2C had cured. Recommended curing time is approximately 48 hours.

GeoShield Verification Report

VERIFICATION ITEM THREE

LOCATION/GRID LINE: Block 1 Ground Floor Slab Area - Gridlines: 19/P-K

Pipe Penetrations

NOTES:

Throughout the complete line out installation of the Juta TitanBond to the referenced area, there was a pipe penetrations that had been sealed in accordance with manufacturer's specifications. This had been achieved by tightly around the pipe penetrations, strips of Juta GP1 SAM was the cut and

NOTES:

around each pipe to create a tight seal and then finally a square of Juta GP1 SAM was placed over the top of the pipe penetration in a top hat formation. A hot air tool and silicone roller were used to activate the bitumen backing on the Juta GP1 SAM to ensure the correct bond was achieved between the

GeoShield Verification Report

VERIFICATION ITEM THREE

Juta TitanBond and Juta GP1 SAM. The pipe penetration underwent a visual inspection supported by a mechanical point stress test in which no faults were identified at the time of the verification.

GeoShield Verification Report

VERIFICATION ITEM THREE

LOCATION/GRID LINE: Block Clements Termination Detail - Gridlines: 5/A-E

Installation of Juta GP1 SAM (Termination detailing)

NOTES:

A full line out of Juta GP1 SAM has been successfully installed within the referenced gridlines, this had been achieved by clearing the referenced area free of any debris and dirt, a fillet was then applied to the floor wall joint, this was then followed with a coat of Juta GP Primer was then painted onto the floor and walls once this

NOTES:

had dried a second coat was applied, once the second coat had dried two meter strips of Juta GP1 SAM were cut and applied to the walls and floor in continuous sheet ensuring all Juta GP1 SAM had been lapped onto the previous installed ground floor Juta TitanBond. All Juta GP1 SAM had been applied with heat and adequate

GeoShield Verification Report

VERIFICATION ITEM THREE

pressure ensuring all sheets had the required bond needed to create continuous seals throughout. All Juta GP1 SAM underwent thorough visual inspections followed by mechanical point stress testing in which no faults were identified throughout the verification process.

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing	✔
Gridline/Plot Sign off	Core 4 Slab & Core 5 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Clements Block 2 - Lift Area Walls (Core Slab 5)	✔
Gridline/Plot Sign off	Clements Block 2 - Trench Walls (Core Slab 4)	
Gridline/Plot Sign off	Core 2 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Core 3 Slab (GP5)	✔
Gridline/Plot Sign off	Basement Walls - Block 1 & 2 (Titanbond)	

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Building 1 Lift Pit (No verification carried out due to the	✔
Gridline/Plot Sign off	area being backfilled)	✔
Gridline/Plot Sign off	Building 1 Basement (No verification carried out due to prep	✔
Gridline/Plot Sign off	work still being carried out)	✔
Gridline/Plot Sign off	Building 1 Basement (See verification layout for mark up)	✔
Gridline/Plot Sign off	Building 1 Basement (Excluding service pits)	✔
Gridline/Plot Sign off	Building 1 Lift Pit Walls 50% (See verification layout)	
Gridline/Plot Sign off	Ground Floor Slab, gridlines A-C/08.5-09.5	✔
Gridline/Plot Sign off	Tanking, gridlines A/5-7 (inside wall)	✔
Gridline/Plot Sign off	Gridline E-C/5.5-8.5 floor slab (Except Steel Columns &	✔
Gridline/Plot Sign off	termination to lower floor slab)	✔

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Gridline - A-C1/4.75-7 (Except steel columns)	✔
Gridline/Plot Sign off	Block 1, Basement Slab, gridlines 12-15b/Hh-L	
Gridline/Plot Sign off	Block 1, Basement Slab - GL's: L-P/14-16a	✔
Gridline/Plot Sign off	Block 1, Basement Walls - GL's: Hh/13a-15b	✔
Gridline/Plot Sign off	Block 1, Basement Slab - GL's: N-K/16-18	✔
Gridline/Plot Sign off	Block 1 Ground Floor Slab - See verification layout	✔
Gridline/Plot Sign off	Block 1 Basement Walls - See verification layout	✔
Gridline/Plot Sign off	Block 1 Ground Floor Slab - AA-D1/01-4.5	✔
Gridline/Plot Sign off	Block 1 Basement Walls - See verification layout	✔
Gridline/Plot Sign off	Block 1 Basement Walls - Within Gridlines 16a-18/P-H	✔
Gridline/Plot Sign off	Block 1 Ground Floor Slab - Gridlines 11-13a/P-K	

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 Ground Floor Slab Area - Gridlines: 19/P-K	✔
Gridline/Plot Sign off	Block Clements Termination Detail - Gridlines: 5/A-E	✔
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔
11/07/2024	005	No faults or defects were identified during today's visit.	✔
22/07/2024	006	6 miswelded lap joints, remediated during visit	✔
01/08/2024	007	No faults or defects were identified during todays visit.	✔
06/08/2024	008	3 miswelded lap joints found, remediated during visit	✔
22/08/2024	009	1. A total of 13 miswelded lap joints were identified in the JUTA	✔
		GP5 and JUTA Titanbond Gas Barriers. All were remediated.	✔
		2. Nail fixing punctures in JUTA Titanbond are to be sealed and	✔
		inspected at a future visit. (Basement Walls - Block 2)	✔

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
06/09/2024	010	No verification carried out during today's visit.	✔
11/09/2024	011	Two mis-welds were identified during today's verification visit both	✔
		mis-welds were remediated on site in the presence of GeoShield.	✔
13/09/2024	012	No faults or defects were identical during today's visit.	✔
19/09/2024	013	One miswelded lap joint and one puncture were identified. Both	✔
		were remediated on site.	✔
26/09/2024	014	Steel columns not sealed this remains an outstanding remediation.	
		Termination to lower floor slab remains an outstanding remediation.	
		No faults or defects were identified during today's verification.	✔
03/10/2024	015	Steel columns not sealed this remains an outstanding remediation.	
		One fault was identified during today's visit this was remediated	✔
		on site by the installers in the presence of GeoShield.	✔
08/10/2024	016	1. All pipes and manholes within the slab area of Block 1 (gridlines	✔
		12-15b/Hh-L) to be sealed with JUTA Titan Tank.	✔
		2. All columns to be sealed once slab poured. (GL's 12-15/Hh-L).	

GeoShield Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
		3. Twelve miswelded lap joints were identified, all were remediated	✔
		on site.	✔
10/10/2024	017	1. All pipe penetrations and manholes have been sealed (GL's 12-	✔
		15/Hh-L).	✔
		2. All columns still to be sealed post pour (GL's 12-15/Hh-L) **also	
		referenced above 8/10/2024 R016**	
15/10/2024	018	A total of four faults were identified, all were remediated on site.	✔
17/10/2024	019	No faults or defects were identified during this visit.	✔
22/10/2024	020	Three faults were identified in which all were remediated on site	
		in the presence of GeoShield.	✔
		Steel columns not sealed this remains an outstanding remediation.	
23/10/2024	021	Three faults were identified during today's visit, all were successfull	
		remediated in the presence of GeoShield.	✔
		Several holes were identified in which steel bars will be installed	
		these require sealing once installed.	

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
29/10/2024	022	No faults were identified during today's visit.	✔
04/11/2024	023	Three faults were identified and remediated during today's visit.	✔
06/11/2024	024	Pipe penetrations to be sealed to Titanflex Membrane.	✔
		Area highlighted beneath pipe to be dug out and Titanflex welded	
		to Titanbond membrane.	✔
		Columns to have full coverage of Juta GP CAB Flex 2C.	✔
07/11/2024	025	All outstanding remediations from the previous visit have been	
		remediated and are no longer outstanding.	✔
		During today's visit no further faults or defects were identified.	✔
15/11/2024	026	No faults or defects were identified during today's visit.	✔

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N

GeoShield Verification Report

VERIFICATION SUMMARY

This was the 26th visit to the site where verification was required for the complete line out of Juta GP1 Gas SAM to Gridlines 5/A-E of Block Clements and Juta TitanBond to Gridlines 19/ P-K of building 1 which was carried out by RASCOR the verification process is summarised below.

:> All overlaps between the adjacent sheets of Juta GP1 SAM have been successfully installed with a minimum of 60mm overlap and all heat welded using a hot air tool and silicone roller as well as a gas torch creating continuous bonds throughout the installation.

:> All overlaps between the adjacent sheets of Juta TitanBond have been successfully installed with a minimum of 70mm overlap and all heat welded using a hot air tool and silicone roller creating continuous welds throughout the installation.

:> All detailing throughout the installation, such as pipe penetrations have been successfully sealed using Juta GP1 SAM.

:> All columns have been sealed using Juta GP CAB Flex 2C

:> Thorough visual inspections, supported by mechanical point stress testing a was carried out during today's visit in which no faults were identified.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 15-Nov-2024

GeoShield Verification Report 27

PROJECT REFERENCE:	GEO104657
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer’s instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

JUTA GP Liquid Barrier

GeoShield Verification Report

NAME OF SURVEYOR: Niall Hogan

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07423 116951

EMAIL ADDRESS: nhogan@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME: Shane

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Clements Block, Ground Floor Slab - GL's: 01-02/B-D

SITE CONDITIONS:

WEATHER:

Sunny

TEMPERATURE:

4ºc

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 15:00 - 16:00

DATE: 28.11.2024

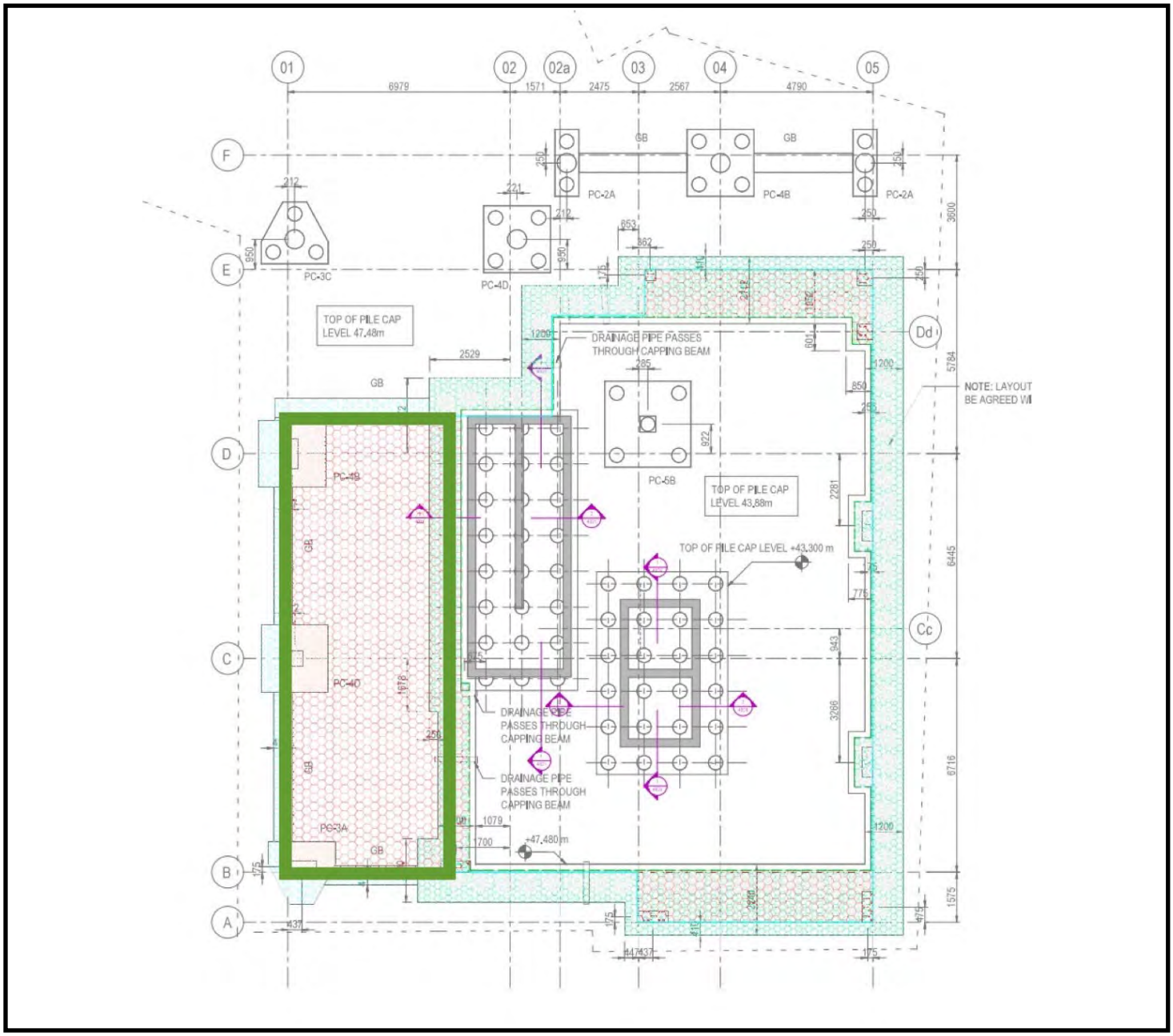
REPORT NUMBER: 027

ACCOMPANIED BY:

Bruno & Shane - RASCOR UK Ltd

GeoShield Verification Report

Verification Layout



The photograph above shows a plan layout. The area highlighted in green shows the ground floor slab area within the clements block where the verification inspection took place today.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the slab area where today's verification inspection took place on site.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Clements Block, Ground Floor Slab - GL's: 01-02/B-D

Installation of JUTA Titanflex Gas Barrier

NOTES:

JUTA Titanflex Gas Barrier has been installed across a slab section within the ground floor clements block, gridlines referenced. The JUTA Titanflex Gas Barrier has been lined out across the entirety of the slab area with a substantial overhang left to enable further works to be carried out at a later date. All lap joints between

NOTES:

the adjacent sheets of JUTA Titanflex Gas Barrier have been overlapped a minimum of 100mm, conforming to manufacturer's specifications and guidelines, and heat welded using a hot air leister and a silicone roller with adequate pressure applied to ensure a continuous gas resistant seal is achieved.

GeoShield Verification Report

VERIFICATION ITEM ONE

All accessible lap joints were subjected to thorough visual inspections, supported by mechanical point stress testing throughout the installation. No faults or defects were identified. A complete adhesion has been achieved throughout. A couple of punctures to the JUTA Titanflex Gas Barrier were identified, both of which were remediated. Tested and verified in accordance with CIRIA 735.

GeoShield Verification Report

VERIFICATION ITEM TWO

LOCATION/GRID LINE: Clements Block, Ground Floor Slab - GL's: 01-02/B-D

Pipe Penetrations

NOTES:

Throughout the installation of the JUTA Titanflex Gas Barrier to the referenced slab area, there were a number of pipe penetrations that have been sealed in accordance with manufacturer's specifications and design guidelines. This has been achieved using JUTA GP1 SAM, which is a gas resistant self adhesive

NOTES:

membrane. The installers have first cut the JUTA Titanflex Gas Barrier tight around the base of each individual pipe penetration to minimise voided areas. Next, patches of JUTA GP1 SAM are placed intricately around the pipe penetration and onto the JUTA Titanflex Gas Barrier. Heat and firm rolled pressure have been applied to

GeoShield Verification Report

VERIFICATION ITEM TWO

activate the bitumen backing to ensure the JUTA GP1 SAM has fully bonded. All pipe penetrations were subjected to thorough visual inspections and mechanical point stress testing, where a probe was run along all JUTA GP1 SAM edges to identify any potential weak areas. No faults or defects were identified.
Tested and verified in accordance with CIRIA 735.

GeoShield Verification Report

VERIFICATION ITEM THREE

LOCATION/GRID LINE: Clements Block, Ground Floor Slab - GL's: 01-02/B-D

Concrete Columns

NOTES:

Throughout the installation of the JUTA Titanflex Gas Barrier to the referenced slab area, there were a number of concrete columns that required sealing. Upon arrival to site it was evident that the columns within the slab area referenced had not yet been sealed.

NOTES:

During the visit, GeoShield witnessed the application of JUTA GP CAB Flex 2C, which is a cementitious sealing slurry, around the base of the columns. This has then been left to dry and harden.
Upon visual inspection of the JUTA GP CAB Flex 2C, a generous coverage has been achieved.

ADDITIONAL PHOTOGRAPHS

The installer heat welding a lap joint of the JUTA Titanflex Gas Barrier.

A puncture identified within the JUTA Titanflex Gas Barrier.

The puncture remediated using a patch of JUTA GP1 SAM.

The JUTA Titanflex Gas Barrier welded onto the adjacent JUTA GP1 Tanking around the present lift shaft.

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing	✔
Gridline/Plot Sign off	Core 4 Slab & Core 5 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Clements Block 2 - Lift Area Walls (Core Slab 5)	✔
Gridline/Plot Sign off	Clements Block 2 - Trench Walls (Core Slab 4)	
Gridline/Plot Sign off	Core 2 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Core 3 Slab (GP5)	✔
Gridline/Plot Sign off	Basement Walls - Block 1 & 2 (Titanbond)	

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Building 1 Lift Pit (No verification carried out due to the	✔
Gridline/Plot Sign off	area being backfilled)	✔
Gridline/Plot Sign off	Building 1 Basement (No verification carried out due to prep	✔
Gridline/Plot Sign off	work still being carried out)	✔
Gridline/Plot Sign off	Building 1 Basement (See verification layout for mark up)	✔
Gridline/Plot Sign off	Building 1 Basement (Excluding service pits)	✔
Gridline/Plot Sign off	Building 1 Lift Pit Walls 50% (See verification layout)	
Gridline/Plot Sign off	Ground Floor Slab, gridlines A-C/08.5-09.5	✔
Gridline/Plot Sign off	Tanking, gridlines A/5-7 (inside wall)	✔
Gridline/Plot Sign off	Gridline E-C/5.5-8.5 floor slab (Except Steel Columns &	✔
Gridline/Plot Sign off	termination to lower floor slab)	✔

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Gridline - A-C1/4.75-7 (Except steel columns)	✔
Gridline/Plot Sign off	Block 1, Basement Slab, gridlines 12-15b/Hh-L	
Gridline/Plot Sign off	Block 1, Basement Slab - GL's: L-P/14-16a	✔
Gridline/Plot Sign off	Block 1, Basement Walls - GL's: Hh/13a-15b	✔
Gridline/Plot Sign off	Block 1, Basement Slab - GL's: N-K/16-18	✔
Gridline/Plot Sign off	Block 1 Ground Floor Slab - See verification layout	✔
Gridline/Plot Sign off	Block 1 Basement Walls - See verification layout	✔
Gridline/Plot Sign off	Block 1 Ground Floor Slab - AA-D1/01-4.5	✔
Gridline/Plot Sign off	Block 1 Basement Walls - See verification layout	✔
Gridline/Plot Sign off	Block 1 Basement Walls - Within Gridlines 16a-18/P-H	✔
Gridline/Plot Sign off	Block 1 Ground Floor Slab - Gridlines 11-13a/P-K	

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 Ground Floor Slab Area - Gridlines: 19/P-K	✔
Gridline/Plot Sign off	Block Clements Termination Detail - Gridlines: 5/A-E	✔
Gridline/Plot Sign off	Clements Block, Ground Floor Slab - GL's: 01-02/B-D	✔
Gridline/Plot Sign off		
Gridline/Plot Sign off		
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Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔
11/07/2024	005	No faults or defects were identified during today's visit.	✔
22/07/2024	006	6 miswelded lap joints, remediated during visit	✔
01/08/2024	007	No faults or defects were identified during todays visit.	✔
06/08/2024	008	3 miswelded lap joints found, remediated during visit	✔
22/08/2024	009	1. A total of 13 miswelded lap joints were identified in the JUTA	✔
		GP5 and JUTA Titanbond Gas Barriers. All were remediated.	✔
		2. Nail fixing punctures in JUTA Titanbond are to be sealed and	✔
		inspected at a future visit. (Basement Walls - Block 2)	✔

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
06/09/2024	010	No verification carried out during today's visit.	✔
11/09/2024	011	Two mis-welds were identified during today's verification visit both	✔
		mis-welds were remediated on site in the presence of GeoShield.	✔
13/09/2024	012	No faults or defects were identical during today's visit.	✔
19/09/2024	013	One miswelded lap joint and one puncture were identified. Both	✔
		were remediated on site.	✔
26/09/2024	014	Steel columns not sealed this remains an outstanding remediation.	
		Termination to lower floor slab remains an outstanding remediation.	
		No faults or defects were identified during today's verification.	✔
03/10/2024	015	Steel columns not sealed this remains an outstanding remediation.	
		One fault was identified during today's visit this was remediated	✔
		on site by the installers in the presence of GeoShield.	✔
08/10/2024	016	1. All pipes and manholes within the slab area of Block 1 (gridlines	✔
		12-15b/Hh-L) to be sealed with JUTA Titan Tank.	✔
		2. All columns to be sealed once slab poured. (GL's 12-15/Hh-L).	

GeoShield Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
		3. Twelve miswelded lap joints were identified, all were remediated	✔
		on site.	✔
10/10/2024	017	1. All pipe penetrations and manholes have been sealed (GL's 12-	✔
		15/Hh-L).	✔
		2. All columns still to be sealed post pour (GL's 12-15/Hh-L) **also	
		referenced above 8/10/2024 R016**	
15/10/2024	018	A total of four faults were identified, all were remediated on site.	✔
17/10/2024	019	No faults or defects were identified during this visit.	✔
22/10/2024	020	Three faults were identified in which all were remediated on site	✔
		in the presence of GeoShield.	✔
		Steel columns not sealed this remains an outstanding remediation.	
23/10/2024	021	Three faults were identified during today's visit, all were successfull	✔
		remediated in the presence of GeoShield.	✔
		Several holes were identified in which steel bars will be installed	
		these require sealing once installed.	

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
29/10/2024	022	No faults were identified during today's visit.	✔
04/11/2024	023	Three faults were identified and remediated during today's visit.	✔
06/11/2024	024	Pipe penetrations to be sealed to Titanflex Membrane.	✔
		Area highlighted beneath pipe to be dug out and Titanflex welded	✔
		to Titanbond membrane.	✔
		Columns to have full coverage of Juta GP CAB Flex 2C.	✔
07/11/2024	025	All outstanding remediations from the previous visit have been	✔
		remediated and are no longer outstanding.	✔
		During today's visit no further faults or defects were identified.	✔
15/11/2024	026	No faults or defects were identified during today's visit.	✔
28/11/2024	027	Two punctures were identified, both were remediated.	✔

GeoShield Verification Report

VERIFICATION SUMMARY

This was the 27th visit to the site where verification was required for the installation of JUTA Titanflex Gas Membrane to the ground floor slab area within the Clements Block, gridlines 01-02/B-D.
All overlaps between the adjacent sheets of JUTA Titanflex Gas Membrane have been successfully installed with a 100mm overlap and heat welded using a hot air leister and silicone roller, creating continuous seals throughout the installation.
All pipe penetrations have been successfully sealed using strips of JUTA GP1 SAM.
Columns within the slab section have received an application of JUTA GP CAB Flex 2C during the visit. At the time this had not sufficiently hardened and therefore the columns could not be fully tested. Upon visual inspection, a generous coverage had been achieved.
Thorough visual inspections, supported by mechanical point stress testing conducted upon all aspects of the installation identified a couple of punctures to the JUTA Titanflex Gas Membrane. Both areas were successfully remediated in the presence of GeoShield.
A very good standard of works have been carried out by the dedicated applicators from Rascor.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 28-Nov-2024

GeoShield Verification Plan

PROJECT DESCRIPTION

GEO104657
RASCOR UK Ltd
Tariff Street, Manchester City Centre
between Tariff Street and Port Street
Manchester
M1 2FJ

The proposed development involves the construction of two residential blocks..

In accordance with BS8485:2015 + A1 2019 for a type B building and the building must conform to a Characteristic Specification (CS) rating of 2, so mitigation will need to be 3.5 points.

Geoshield have adopted the highest design and verification principles associated with BS8485:2015 + A1 2019, BR 211, Public Health England, NHBC Technical Extra April 2016 and CIRIA 735.

This pre-verification plan reviews the design to ensure it is compliant with the developer and planning authority requirements and in conjunction with the relevant investigation report in accordance with BS8485:2015 +A1 2019.

In summary, the design does achieve a required level of attention to detail with its robust specific gas membrane design (2 points), the structural barrier of a cast in situ reinforced monolithic slab (1.5 points)

Also with basement floor and walls conforming to Grade 3 waterproofing (2.5 points).

The pre-verification plan confirms how the installation will be tested in accordance with CIRIA735. The verification visits will be documented in verification reports during the project that are suitable for submission to the local planning authority in order to satisfy and discharge planning consent.

All faults identified during inspection and the verification site visit of the ground gas system will be itemised as remediations which will need to be signed off in the remediation log for the proposed building.

GeoShield Verification Plan

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GeoShield Verification Plan

PROJECT REFERENCE: GEO104657

PROJECT: Tariff Street, Manchester City Centre

PROJECT ADDRESS: Between Tariff Street and Port Street

Manchester, M1 2FJ

SPECIFICATION: Verified in accordance CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in-accordance with manufactures instructions.

JUTA Titanbond

JUTA Titan Flex

JUTA GP1 SAM

JUTA TITAN TANK

JUTA (CAB) FLEX 2C

GeoShield Verification Plan

NAME OF SURVEYOR: Paul Colbeck

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds, LS15 8GB

CONTACT NUMBER: 07462 546 926

EMAIL ADDRESS: pcolbeck@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ☐ NO: ☐ PROJECT: YES: ☐ NO: ☐

GeoShield Verification Plan

INFORMATION INCLUDED

- Remediation Method Statement
- RASCOR design
- Material Specification Technical Data Sheets
- Radon Maps UK

Information presented to at the pre-verification stage assumed correct

Any change client will let GeoShield know or this Pre-verification Plan will be void.

GeoShield Verification Plan

SPECIFICATION

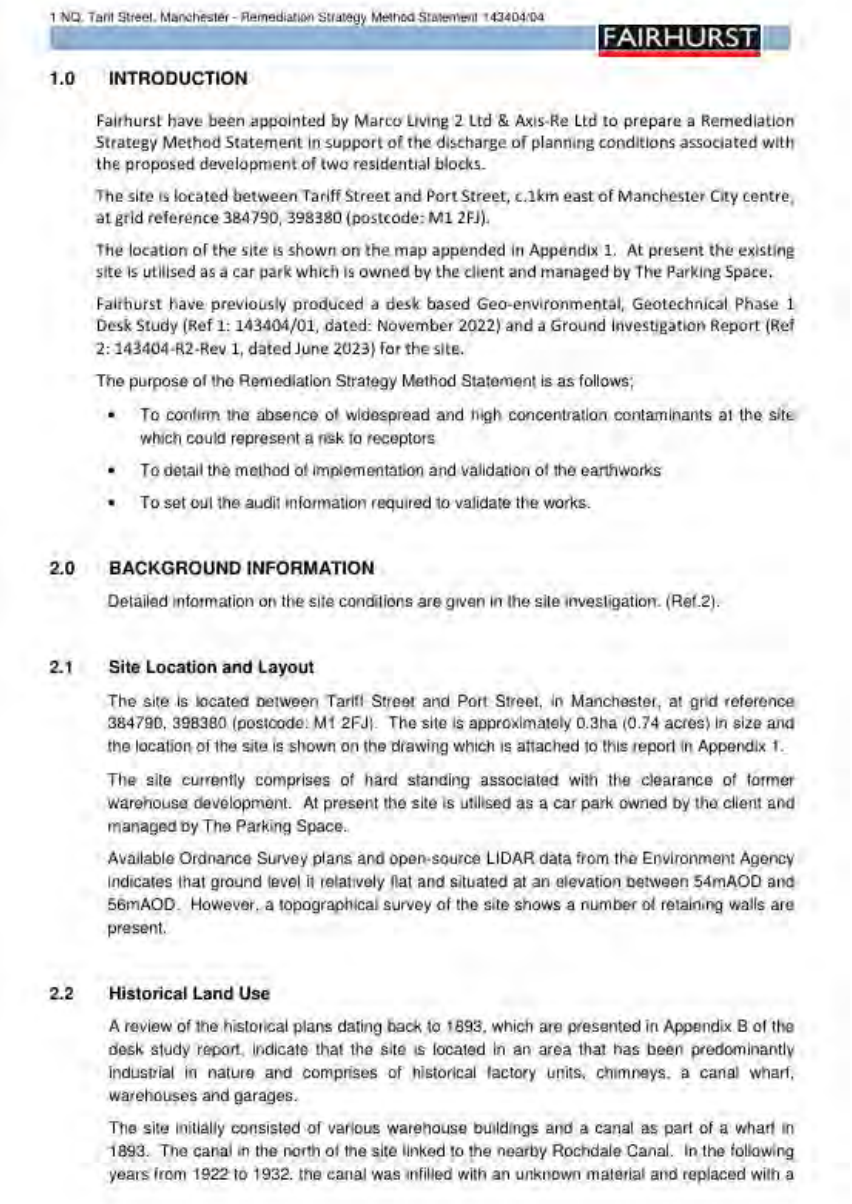
Title Reference & Description:

Remediation Method Statement

Front Page

GeoShield Verification Plan

SPECIFICATION



1 NQ, Tariff Street, Manchester - Remediation Strategy Method Statement 143404/04

FAIRHURST

1.0 INTRODUCTION

Fairhurst have been appointed by Marco Living 2 Ltd & Axis-Re Ltd to prepare a Remediation Strategy Method Statement in support of the discharge of planning conditions associated with the proposed development of two residential blocks.

The site is located between Tariff Street and Port Street, c.1km east of Manchester City centre, at grid reference 384790, 398380 (postcode: M1 2FJ).

The location of the site is shown on the map appended in Appendix 1. At present the existing site is utilised as a car park which is owned by the client and managed by The Parking Space.

Fairhurst have previously produced a desk based Geo-environmental, Geotechnical Phase 1 Desk Study (Ref 1: 143404/01, dated: November 2022) and a Ground Investigation Report (Ref 2: 143404-R2-Rev 1, dated June 2023) for the site.

The purpose of the Remediation Strategy Method Statement is as follows;

- To confirm the absence of widespread and high concentration contaminants at the site which could represent a risk to receptors
- To detail the method of implementation and validation of the earthworks
- To set out the audit information required to validate the works.

2.0 BACKGROUND INFORMATION

Detailed information on the site conditions are given in the site investigation. (Ref.2).

2.1 Site Location and Layout

The site is located between Tariff Street and Port Street, in Manchester, at grid reference 384790, 398380 (postcode: M1 2FJ). The site is approximately 0.3ha (0.74 acres) in size and the location of the site is shown on the drawing which is attached to this report in Appendix 1.

The site currently comprises of hard standing associated with the clearance of former warehouse development. At present the site is utilised as a car park owned by the client and managed by The Parking Space.

Available Ordnance Survey plans and open-source LIDAR data from the Environment Agency indicates that ground level it relatively flat and situated at an elevation between 54mAOD and 56mAOD. However, a topographical survey of the site shows a number of retaining walls are present.

2.2 Historical Land Use

A review of the historical plans dating back to 1893, which are presented in Appendix B of the desk study report, indicate that the site is located in an area that has been predominantly industrial in nature and comprises of historical factory units, chimneys, a canal wharf, warehouses and garages.

The site initially consisted of various warehouse buildings and a canal as part of a wharf in 1893. The canal in the north of the site linked to the nearby Rochdale Canal. In the following years from 1922 to 1932, the canal was infilled with an unknown material and replaced with a

Title Reference & Description:

Remediation Method Statement

Proposed site development

GeoShield Verification Plan

SPECIFICATION

hardstanding).		PAH (16USEPA speciation) Asbestos.	
Greenfield/manufactured Soils.	Minimum of 3 or 1 per 200m³ (whichever is greater).	Standard Metals/metalloids (As above) PAH (16USEPA speciation) Asbestos.	
Brownfield/Screened Soils (including site won made ground that is to be re used).	Minimum of 3 or 1 per 50m³ (whichever is greater).	Standard Metals/metalloids (As above) PAH (16USEPA speciation) TPH (CWG banded) Asbestos.	

4.3 Landscape Clean Cover

In order to provide a rooting zone and to prevent direct contact by end users to made ground as in with Section 6.1 of the Manchester City Council Planning and Contaminated Land Technical Guidance, February 2021. The strata beneath the landscape strips should include the following construction;

- A minimum 450mm clean cover should be incorporated into soft landscaping areas to provide a suitable rooting zone for proposed planting and incorporating a basal geotextile separator layer.
- All materials are to be validated as clean, inert and free from man made debris in accordance with Section 4.1.7.

The topsoil clean cover will be imported topsoil/subsoil which should be from a 'Greenfield' source and will be tested at the frequency set out in Section 4.1.7.

Contaminant concentrations for imported topsoil will be reviewed in relation to Assessment Criteria in **Appendix A** to confirm that contaminants are below assessment level.

The thickness of clean cover to the area of landscaping will be validated in accordance with the Manchester City Council Planning and Contaminated Land Technical Guidance, February 2021 as detailed below;

- Digital photographs to be taken of the formation level.
- Thickness of capping layer to be verified via hand dug exploratory holes. Digital photographs to be taken of excavation.
- Digital photographs of soft landscaped area post capping to be taken.
- All data to be included within the Validation Report which will include digital photographs titled with location of soft landscape area.

4.4 Gas Protection Measures for Built Development

Based on the site investigations (Ref.1 - 4) the following potential sources of soil gas have been identified;

- Made Ground as granular fill - **Low** soil gas generating potential.
- Superficial deposits - **Very Low** soil gas generating potential.
- Bedrock– **Very Low** soil gas generating potential.

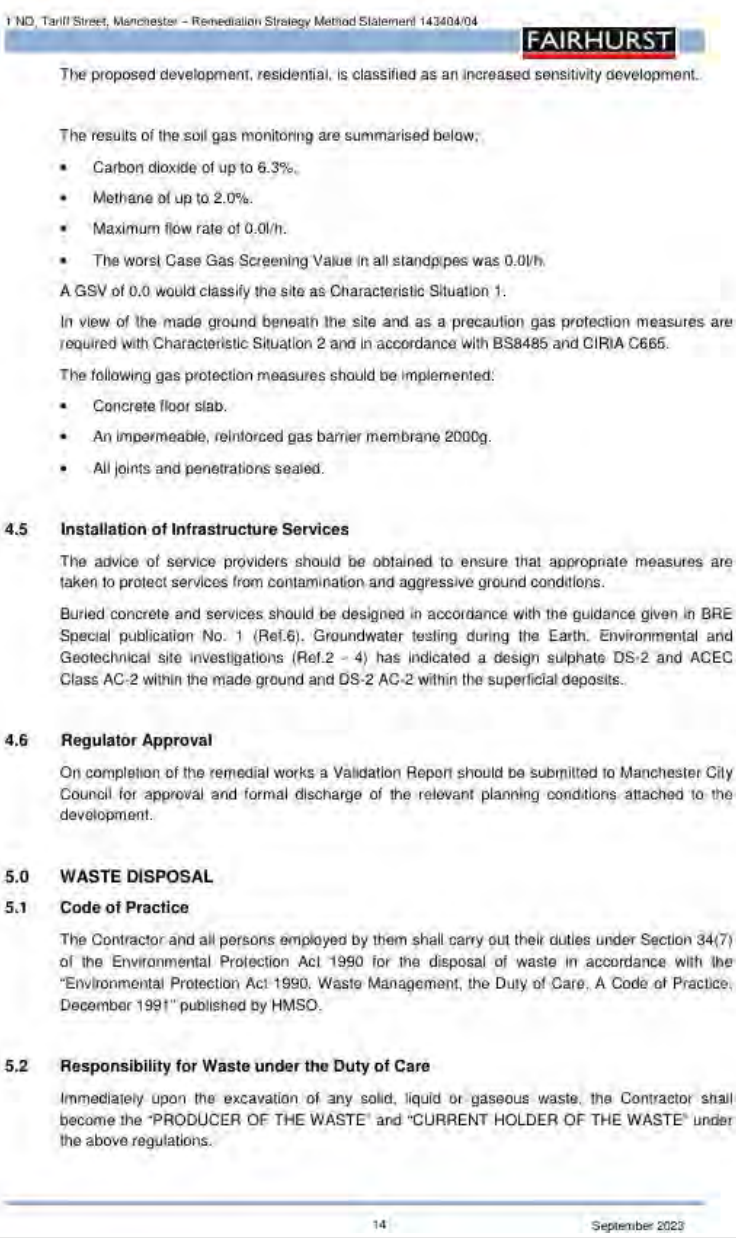
Title Reference & Description:

Remediation Method Statement

Gas Protection Measures

GeoShield Verification Plan

SPECIFICATION



1 NQ, Tariff Street, Manchester – Remediation Strategy Method Statement 143404/04

FAIRHURST

The proposed development, residential, is classified as an increased sensitivity development.

The results of the soil gas monitoring are summarised below;

- Carbon dioxide of up to 6.3%.
- Methane of up to 2.0%.
- Maximum flow rate of 0.0l/h.
- The worst Case Gas Screening Value in all standpipes was 0.0l/h.

A GSV of 0.0 would classify the site as Characteristic Situation 1.

In view of the made ground beneath the site and as a precaution gas protection measures are required with Characteristic Situation 2 and in accordance with BS8485 and CIRIA C665.

The following gas protection measures should be implemented:

- Concrete floor slab.
- An impermeable, reinforced gas barrier membrane 2000g.
- All joints and penetrations sealed.

4.5 Installation of Infrastructure Services

The advice of service providers should be obtained to ensure that appropriate measures are taken to protect services from contamination and aggressive ground conditions.

Buried concrete and services should be designed in accordance with the guidance given in BRE Special publication No. 1 (Ref.6). Groundwater testing during the Earth, Environmental and Geotechnical site investigations (Ref.2 – 4) has indicated a design sulphate DS-2 and ACEC Class AC-2 within the made ground and DS-2 AC-2 within the superficial deposits.

4.6 Regulator Approval

On completion of the remedial works a Validation Report should be submitted to Manchester City Council for approval and formal discharge of the relevant planning conditions attached to the development.

5.0 WASTE DISPOSAL

5.1 Code of Practice

The Contractor and all persons employed by them shall carry out their duties under Section 34(7) of the Environmental Protection Act 1990 for the disposal of waste in accordance with the "Environmental Protection Act 1990, Waste Management, the Duty of Care, A Code of Practice, December 1991" published by HMSO.

5.2 Responsibility for Waste under the Duty of Care

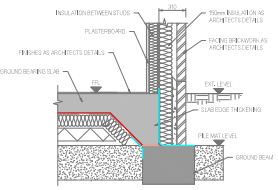
Immediately upon the excavation of any solid, liquid or gaseous waste, the Contractor shall become the "PRODUCER OF THE WASTE" and "CURRENT HOLDER OF THE WASTE" under the above regulations.

14 September 2023

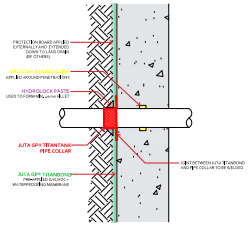
Title Reference & Description:

Remediation Method Statement

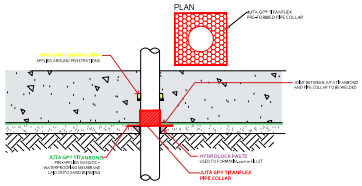
Gas Protection Measures Continued stating the as CS2.



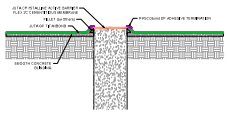
Typical Ground Bearing Slab Edge
Scale 1:20



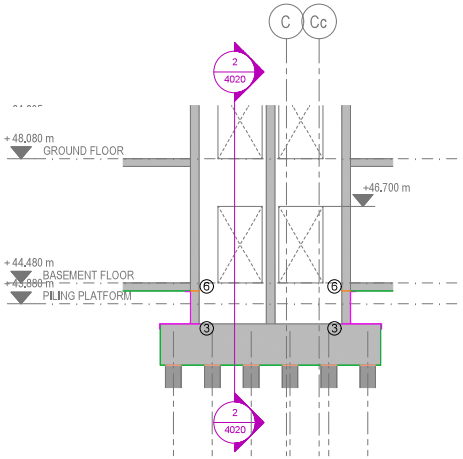
Pipe Penetration through Wall
Not to Scale



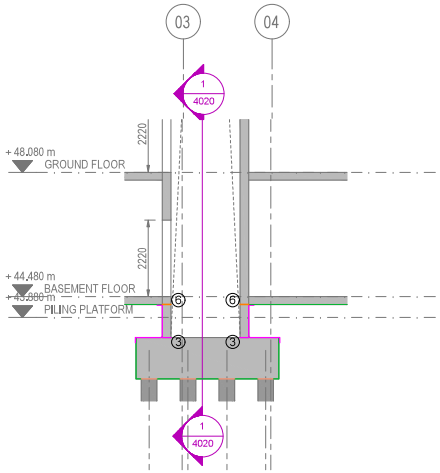
Pipe Penetration through Slab
Not to Scale



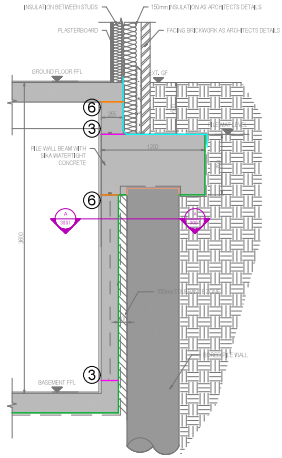
Typical Pile Head Detail
Not to Scale



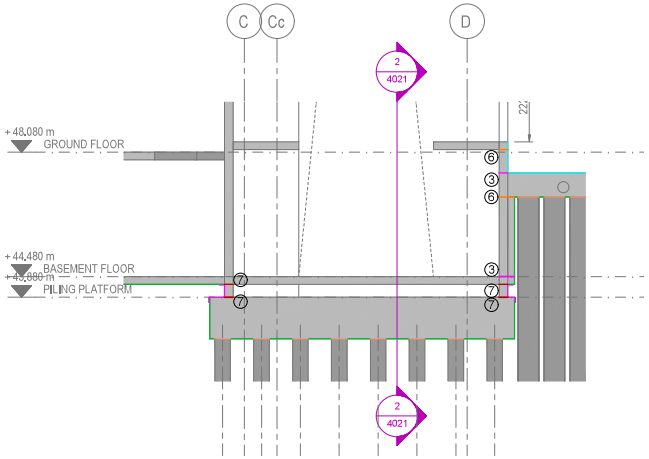
Core Section 01
Scale 1:50



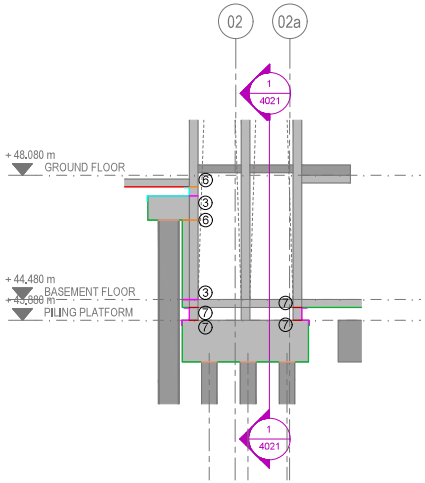
Core Section 02
Scale 1:50



Typical Pile Wall Section
Scale 1:20

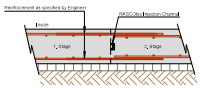


Stair Core Section 01
Scale 1:50

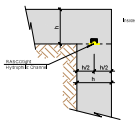


Stair Core Section 02
Scale 1:50

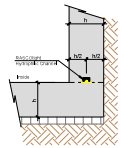
CONSTRUCTION JOINT IN GROUND SLAB ①



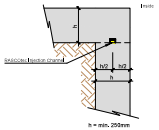
WALL / SUSPENDED SLAB JUNCTION WITH HYDROPHILIC CHANNEL ⑦



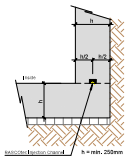
GROUND SLAB / WALL JUNCTION WITH HYDROPHILIC CHANNEL ⑦



WALL / SUSPENDED SLAB JUNCTION ⑥



GROUND SLAB / WALL JUNCTION ③



RASCOtank LEGEND

①	FF_{IC}	Floor-Floor RASCOtec Injection Channel Vertical installation
③	FW_{IC}	Floor-Wall RASCOtec Injection Channel Horizontal Installation
⑥	WW_{IC}	Wall-Deck RASCOtec Injection Channel Horizontal installation
⑦	HC	RASCOtight Hydrophilic Channel Horizontal installation

LEGEND

MEM	JUTA TITANBOND Pre-applied Fully Bonded Membrane
MEM	JUTA TITANBOND Pre-applied Fully Bonded Membrane
MEM	JUTA GP1 SAM Post Applied Self Adhesive Membrane
MEM	JUTA GP1 SAM Post Applied Self Adhesive Membrane
MEM	JUTA TITANFLEX Loose Laid Membrane
MEM	JUTA TITANFLEX Loose Laid Membrane
MEM	JUTA Crystaline Active Barrier Flex 2C Cementitious Membrane
MEM	JUTA Crystaline Active Barrier Flex 2C Cementitious Membrane
MEM	JUTA TITANTANK Post Applied Self Adhesive Membrane
MEM	JUTA TITANTANK Post Applied Self Adhesive Membrane

Note: Membrane laps to be minimum 100mm as per manufacturer specifications.

Note: Protection board against exposed membrane to be installed by others before backfilling.

General Notes & Guidance:

- The need for continuity in the waterproofing protection should be considered when selecting a type of protection. In most circumstances, the protection should be continuous.
- This drawing is to be read in conjunction with all relevant product data sheets.
- Dimensions are not to be scaled from this drawing. All written measurements are to be checked on site by the contractor.
- Tool box talks to be provided for "other trades" to ensure waterproofing systems are not compromised. All design decisions made by others that might have impact on the gas and/or waterproof design should be brought to the attention of the design team and Rascor Ltd.

Tariff Street, Manchester

Date	Revision Description
2024.06.10	First Issue

Construction Drawing
RASCOtank and Membrane System

Block Clements Sections and Details

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Telephone: +353 149 160 80
Email: engineering@rascor.com
Internet: www.rascor.com

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Based on the technical specifications of Rascor Engineering AG (Switzerland).

Drawn: dag	Reviewed: mg	Rev.: 2024.06.10	P01	Rev.:	
Scale: as stated		Rev.:			
Sheet Size: 90/121cm		Rev.:		Rev.:	
Plan-No. UK 230118 - 61		Rev.:		Rev.:	

FOR APPROVAL

LEGEND

①	FF_{Ic}	Floor-Floor RASCOtec Injection Channel Vertical installation
②	FF_{Cr}	Floor-Floor RASCOtec Crack Inducer Vertical installation
③	FW_{Ic}	Floor-Wall RASCOtec Injection Channel Floor Slab-Wall Horizontal Installation
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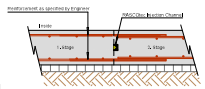
⑨	MP	RASCOtec Pipe Collar
⑩	HS	RASCOtight Hydrophilic Strip
⑪	TPE	RASCOjoint TPE Waterbar

The following shall generally apply: RASCOtec injection channels shall be installed in all concrete joints (both horizontal and vertical) in the groundwater zone, the same applies to concrete joints in contact with liquid in tank/container areas. RASCOtec crack inducers shall be installed in dummy (crack control) joints. RASCOtec injection collars shall be incorporated at penetrations in contact with water.

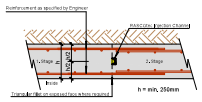
Note: For Membrane system refer to drawing UK230118-50

Note: Crack Inducers in walls shown at indicative locations. Their exact position to be updated upon confirming of the pour layout and receiving of RC drawings for walls.

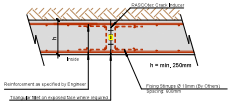
CONSTRUCTION JOINT IN GROUND SLAB ①



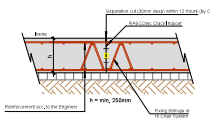
CONSTRUCTION JOINT IN WALL ④



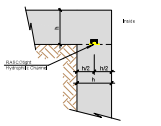
CRACK INDUCER IN WALL ⑤



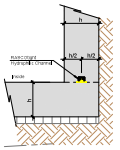
CRACK INDUCER IN GROUND SLAB ②

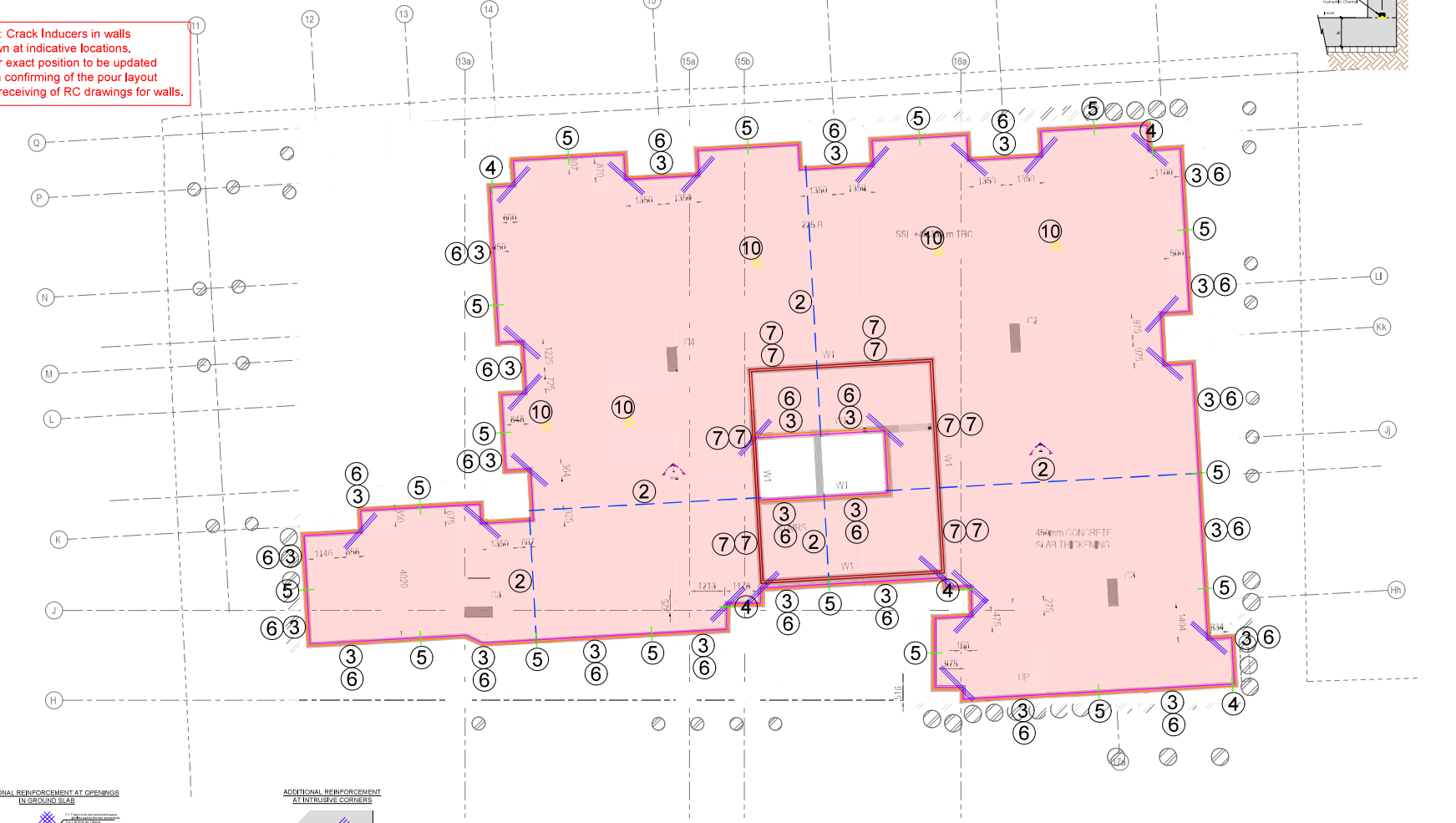


WALL / SUSPENDED SLAB JUNCTION WITH HYDROPHILIC CHANNEL ⑦

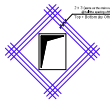


GROUND SLAB / WALL JUNCTION WITH HYDROPHILIC CHANNEL ⑦



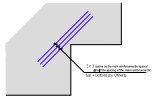


ADDITIONAL REINFORCEMENT AT OPENINGS IN GROUND SLAB

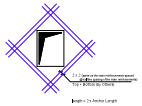


ADDITIONAL REINFORCEMENT AT CIRCULAR OPENINGS IN GROUND SLAB

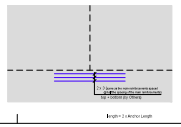
ADDITIONAL REINFORCEMENT AT INTRUSIVE CORNERS



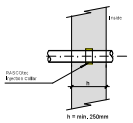
ADDITIONAL REINFORCEMENT AT OPENINGS IN WALLS



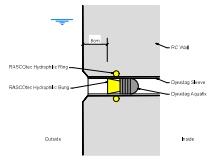
ADDITIONAL REINFORCEMENT AT BUTT JOINTS (CONSTRUCTION + CRACK INDUCING JOINTS)



IN SITU WALL PENETRATION

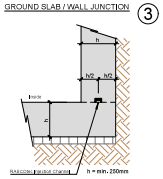


TYPICAL DYMDAG OPENING WATERPROOFING DETAIL

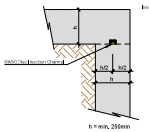


Installation by Others

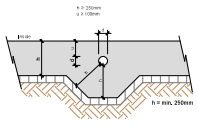
GROUND SLAB / WALL JUNCTION ③



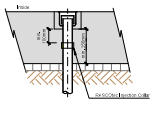
WALL / SUSPENDED SLAB JUNCTION ⑥



PIPE PENTRATION FORTIFICATION IF d ≥ 1/4 h



INLAID FLOOR DRAIN ⑩



1, Concrete
The Contractor shall be responsible for the supply, placement, finishing and curing of concrete,

1,1 Concrete definition by properties
The following guide values relate solely to the achievement of the required waterproofing performance. With regard to all properties/performance necessitated by special environmental action or circumstances, the structural designer's specifications shall apply.

Concrete definition by properties (BS 8500-1:2015+A2:2019)				
Requirement classes	Structural elements			
	Slabs		Walls	
Compressive strength	C 32/40		C 32/40	
Exposure	XC2		XC2	
Maximum aggregate size D_{max}	20		20	
Chloride content	Cl 0,1		Cl 0,1	
Consistance	S5		S5	

1,2 Concreting
Concrete placement, compaction and finishing shall comply with the Engineers Specification BS EN13670, BS EN 206 and other relevant National Standards. RASCOR's specific requirements and established best practice. Particular attention shall be given to the necessary precautions for concreting in cold or very warm weather.

1,3 Concreting curing

Measures	Outdoor temperatures °C				
	below +5 °C	+5° to +10°	+10° to +25°	over +25°	
Curing (protect membrane or continuous dampening - Wooden timber formwork; protect steel formwork against sunlight			●	●	●
Curing (protect) at membrane			●	●	
Curing (protect membrane and thermal insulation Use of thermally insulating formwork		●	●		
Curing (protect and thermal insulation keep concrete temperature at >10° for at least 3 days (embrace and heat concrete element)	●	●			

1,4 Quality management for fresh concrete

Quality management for fresh concrete is responsibility of the Contractor

RASCOR reserves the right, at its own discretion, to commission an independent laboratory to take random samples of fresh concrete for testing.

RASCOR shall be given 48 hours' (two working days') notice of the commencement of concreting works for each pour.

RASCOR reserves the right to be provided with concrete quality records from the Contractor or to commission independent sampling and testing of concrete.

2, Guidance on design and workmanship

2,1 Preparation
- The base, reinforcement and formwork shall be free from water, snow and ice,
- The blinding (e.g. lean concrete) shall be neatly screeded,

2,2 Concrete and reinforcement
- To prevent leakage paths, the legs of reinforcement spacers used for the groundslab shall not bear on the blinding or base, Not applicable if using concrete blocks or bars.
- Concrete cover blocks shall be installed as spacers for the external reinforcement layers.
- Concrete elements shall have a minimum thickness of 250 mm.
- The minimum reinforcement requirement for crack limitation shall be specified in consultation with RASCOR for each specific project.
- Tie bolts (formwork ties, see detail) shall be properly sealed using the relevant RASCOR products to ensure a waterproof barrier.
- With joints incorporating prefabricated reinforcement continuity systems, provision is required to allow the RASCOR waterproofing units (e.g. injection channels) to be installed directly on the concrete. Where systems with a continuous plastics or metal support plate are used, the support plate shall be removed over a minimum width of 50 mm prior to fixing the waterproofing units. To avoid such problems, we recommend the use of reinforcement continuity systems with an open support plate, e.g. COMAX Type B, Quick BRA-B, Schöck-Idea Type V or the like.

2,3 Pipes/inserts
- All pipe penetrations shall be sealed using the RASCOR system.
- As a general rule, no pipes shall be installed within the waterproof concrete basement fabric. Where this is unavoidable, a minimum concrete thickness of 250 mm shall be guaranteed by means of local thickening (see Detail *Pipe Penetration Fortification if D ≥ 1/4h*).
- Where floor drains or other fixtures are incorporated, a minimum concrete thickness of 250 mm shall likewise be ensured, where necessary by thickening.
- Electrical conduits and the like shall be fixed to the internal reinforcement layers (non-water side). Concentrations (bundles) of service runs shall be avoided.

2,4 Extraction of sheet piling

RASCOR shall be invited to carry out an inspection of the works prior to the extraction of sheet piling or similar works causing heavy vibration.

2,5 Backfilling behind walls

RASCOR shall be invited to carry out an inspection of the works prior to the backfilling behind walls or similar works.

Tariff Street, Manchester

Date	Revision Description
2024,06,06	First Issue

Construction Drawing
RASCOtank System

Block 1NQ Basement Plan and Rascor Details

rascor
Pioneers in waterproofing
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Unit 2
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Telephone: +353 149 160 90
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Internet: www.rascor.com

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Based on the technical specifications of Rascor Engineering AG (Switzerland).

Drawn: dag	Reviewed: alk	Rev.: 2024,06,06	Revision No. P01	Rev.:	Date / Revision No.
Scale: 1 : 50		Rev.:		Rev.:	
Sheet Size: 90/121cm		Rev.:		Rev.:	
Plan-No. UK 230118 - 01		Rev.:		Rev.:	

FOR APPROVAL

LEGEND

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②	FF_{CI}	Floor-Floor RASCOtec Crack Inducer Vertical installation
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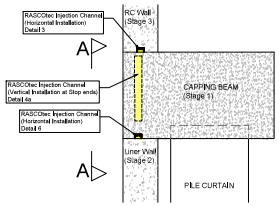
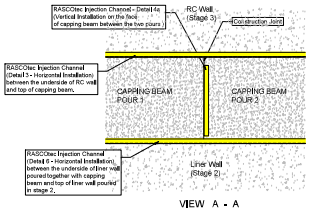
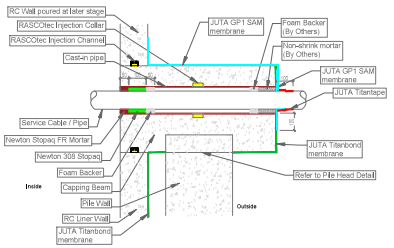
Note: Colored hatches denote the pour layout.

CONSTRUCTION JOINT IN CAPPING BEAM 4a

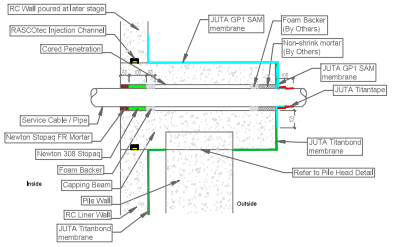


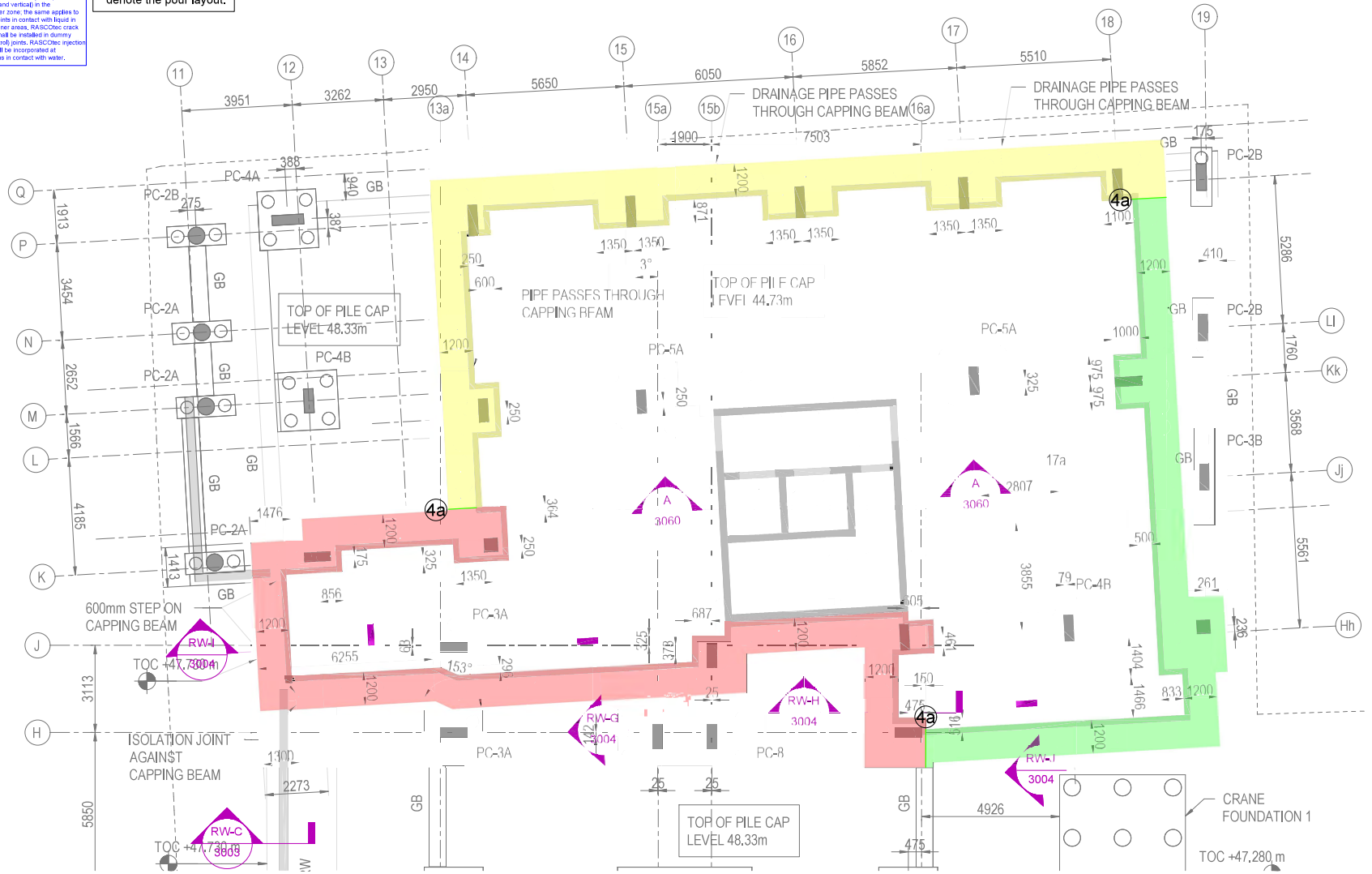


CAPPING BEAM SLEEVED PENETRATION SEALING DETAIL
Not to Scale



CAPPING BEAM CORED PENETRATION SEALING DETAIL
Not to Scale





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Chloride content	Cl 0.1		Cl 0.1	
Consistence	S5		S5	

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Curing (protect) at membrane			●	●		
Curing (protect membrane and thermal insulation Use of thermally insulating formwork		●	●			
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Tariff Street, Manchester

Date	Revision Description
2024.06.10	First Issue

Construction Drawing
RASCOtank System

Block 1NQ Ground Beam Plan and Rascor Details

rascor
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Email: engineering@rascor.com
Internet: www.rascor.com

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Based on the technical specifications of Rascor Engineering AG (Switzerland).

Drawn: dag	Reviewed: alk	Date	Revision No.	Date	Revision No.	
		Rev.: 2024.06.10	P01	Rev.:		
Scale: 1 : 50		Rev.:		Rev.:		
Sheet Size: 90/121cm		Rev.:		Rev.:		
Plan-No. UK 230118 - 03		Rev.:		Rev.:		

FOR APPROVAL

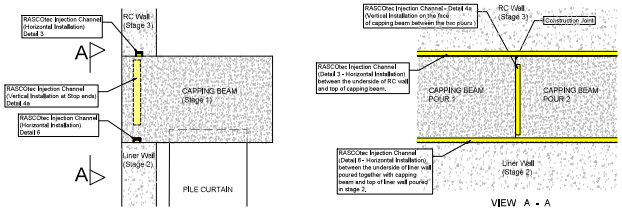
LEGEND

①	FF_{I}	Floor-Floor RASCOtec Injection Channel Vertical installation
②	FF_{CI}	Floor-Floor RASCOtec Crack Inducer Vertical installation
③	FW_{IC}	Floor-Wall RASCOtec Injection Channel Floor Slab-Wall Horizontal Installation
④	WW_{IC}	Wall-Wall RASCOtec Injection Channel Vertical installation
⑤	WW_{CI}	Wall-Wall RASCOtec Crack Inducer Vertical installation
⑥	WD_{IC}	Wall-Deck Slab RASCOtec Injection Channel Horizontal Installation
⑦	HC	RASCOtight Hydrophilic Channel
⑧	MJ	Movement Joint Floor-Floor/Wall-Wall/ Deck Slab-Deck Slab
⑨	MP	RASCOtec Pipe Collar
⑩	HS	RASCOtight Hydrophilic Strip
⑪	TPE	RASCOjoint TPE Waterbar

The following shall generally apply:
RASCOtec injection channels shall be installed in all concrete joints (both horizontal and vertical) in the groundwater zone; the same applies to concrete joints in contact with liquid in tank/container areas, RASCOtec crack inducers shall be installed in dummy (crack control) joints; RASCOtec injection collars shall be incorporated at penetrations in contact with water.

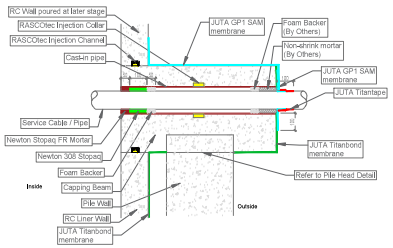
Note: Colored hatches denote the pour layout.

CONSTRUCTION JOINT IN CAPPING BEAM 4a

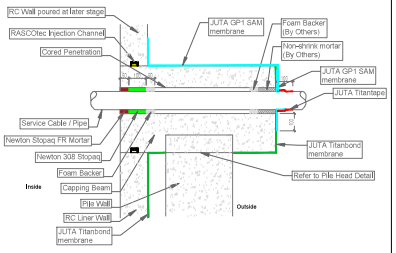


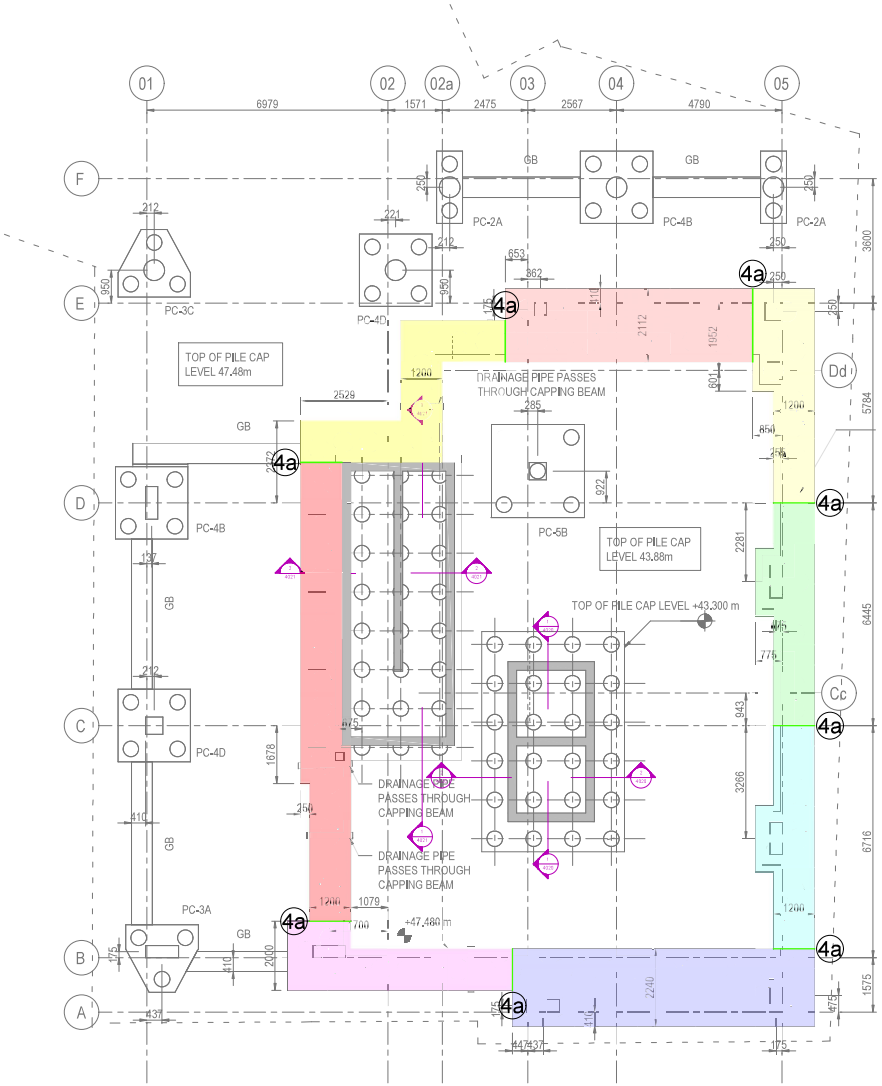
VIEW A - A

CAPPING BEAM SLEEVED PENETRATION SEALING DETAIL
Not to Scale



CAPPING BEAM CORED PENETRATION SEALING DETAIL
Not to Scale





NOTE: LAYOUT OF PILES FORMING CONTINUOUS WALL TO BE AGREED WITH SPECIALIST PILE DESIGNER

1, Concrete
The Contractor shall be responsible for the supply, placement, finishing and curing of concrete,

1.1 Concrete definition by properties
The following guide values relate solely to the achievement of the required waterproofing performance. With regard to all properties/performance necessitated by special environmental action or circumstances, the structural designer's specifications shall apply.

Concrete definition by properties (BS 8500-1:2015+A2:2019)				
Requirement classes	Structural elements			
	Slabs		Walls	
Compressive strength Exposure Maximum aggregate size D_{max} Chloride content Consistence	C 32/40 DC2 20 Cl 0,1 S5		C 32/40 DC2 20 Cl 0,1 S5	

1,2 Concreting
Concrete placement, compaction and finishing shall comply with the Engineers Specification BS EN13670, BS EN 206 and other relevant National Standards, RASCOR's specific requirements and established best practice. Particular attention shall be given to the necessary precautions for concreting in cold or very warm weather.

1,3 Concreting curing

Measures	Outdoor temperatures °C				
	below +5	+5° to +10°	+10° to +15°	over +15°	
Curing (protect membrane or continuous dampening - Moisten timber formwork; protect steel formwork against sunlight				●	●
Curing (protect membrane			●	●	
Curing (protect membrane and thermal insulation Use of thermally insulating formwork		●	●		
Curing (protect and thermal insulation keep concrete temperature at +10° for at least 3 days (enclose and heat concrete element)	●	●			

1,4 Quality management for fresh concrete

Quality management for fresh concrete is responsibility of the Contractor

RASCOR reserves the right, at its own discretion, to commission an independent laboratory to take random samples of fresh concrete for testing.

RASCOR shall be given 48 hours' (two working days') notice of the commencement of concreting works for each pour.

RASCOR reserves the right to be provided with concrete quality records from the Contractor or to commission independent sampling and testing of concrete.

2, Guidance on design and workmanship

2.1 Preparation
- The base, reinforcement and formwork shall be free from water, snow and ice.
- The blinding (e.g. lean concrete) shall be neatly screeded.

2.2 Concrete and reinforcement
- To prevent leakage paths, the legs of reinforcement spacers used for the groundslab shall not bear on the blinding or base. Not applicable if using concrete blocks or bars.
- Concrete cover blocks shall be installed as spacers for the external reinforcement layers.
- Concrete elements shall have a minimum thickness of 250 mm.
- The minimum reinforcement requirement for crack limitation shall be specified in consultation with RASCOR for each specific project.
- Tie bolts (formwork ties, see detail) shall be properly sealed using the relevant RASCOR products to ensure a waterproof barrier.
- With joints incorporating prefabricated reinforcement continuity systems, provision is required to allow the RASCOR waterproofing units (e.g. injection channels) to be installed directly on the concrete. Where systems with a continuous plastics or metal support plate are used, the support plate shall be removed over a minimum width of 50 mm prior to fixing the waterproofing units. To avoid such problems, we recommend the use of reinforcement continuity systems with an open support plate, e.g. COMAX Type B, Quick BRA-B, Schöck-Idea Type V or the like.

2,3 Pipes/inserts
- All pipe penetrations shall be sealed using the RASCOR system.
- As a general rule, no pipes shall be installed within the waterproof concrete basement fabric. Where this is unavoidable, a minimum concrete thickness of 250 mm shall be guaranteed by means of local thickening (see Detail *Pipe Penetration Fortification if D ≥ 1/4h*).
- Where floor drains or other fixtures are incorporated, a minimum concrete thickness of 250 mm shall likewise be ensured, where necessary by thickening.
- Electrical conduits and the like shall be fixed to the internal reinforcement layers (non-water side). Concentrations (bundles) of service runs shall be avoided.

2,4 Extraction of sheet piling

RASCOR shall be invited to carry out an inspection of the works prior to the extraction of sheet piling or similar works causing heavy vibration.

2,5 Backfilling behind walls

RASCOR shall be invited to carry out an inspection of the works prior to the backfilling behind walls or similar works.

Tariff Street, Manchester

Date	Revision Description
2024.06.10	First Issue

Construction Drawing
RASCOtank System

Block Clements Ground Beam Plan and Rascor Details

rascor
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Based on the technical specifications of Rascor Engineering AG (Switzerland)

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Plan-No. UK 230118 - 04		Rev.:		Rev.:		

FOR APPROVAL

LEGEND

①	FF_{Ic}	Floor-Floor RASCOtec Injection Channel Vertical installation
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③	FW_{Ic}	Floor-Wall RASCOtec Injection Channel Floor Slab-Wall Horizontal Installation
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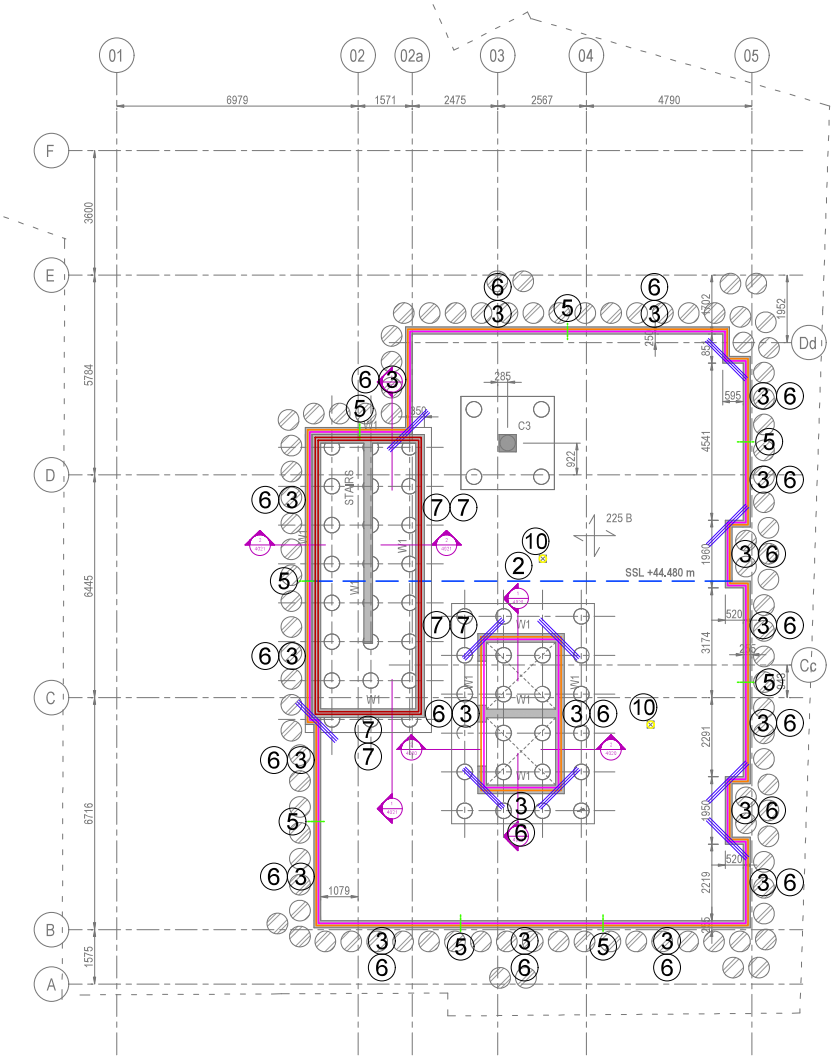
⑪	TPE	RASCOjoint TPE Waterbar

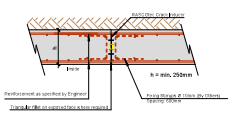
The following shall generally apply: RASCOtec injection channels shall be installed in all concrete joints (both horizontal and vertical) in the groundwater zone; the same applies to concrete joints in contact with liquid in tank/container areas. RASCOtec crack inducers shall be installed in dummy (crack control) joints. RASCOtec injection collars shall be incorporated at penetrations in contact with water.

Note: Crack Inducers in walls shown at indicative locations. Their exact position to be updated upon confirming of the pour layout and receiving of RC drawings for walls.

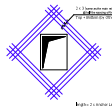
Note: For Membrane system refer to drawing UK230118-52



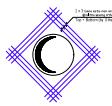
CRACK INDUCER IN WALL ⑤



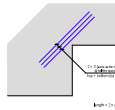
ADDITIONAL REINFORCEMENT AT OPENINGS IN GROUND SLAB



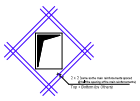
ADDITIONAL REINFORCEMENT AT CIRCULAR OPENINGS IN GROUND SLAB



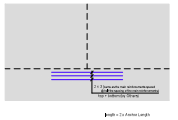
ADDITIONAL REINFORCEMENT AT INTRUSIVE CORNERS



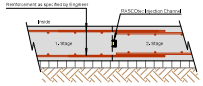
ADDITIONAL REINFORCEMENT AT OPENINGS IN WALLS



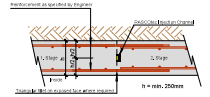
ADDITIONAL REINFORCEMENT AT BUTT JOINTS (CONSTRUCTION + CRACK INDUCING JOINTS)



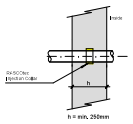
CONSTRUCTION JOINT IN GROUND SLAB ①



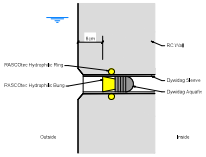
CONSTRUCTION JOINT IN WALL ④



IN SITU WALL PENETRATION

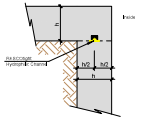


TYPICAL DYWIDAG OPENING WATERPROOFING DETAIL

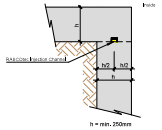


Installation by Others

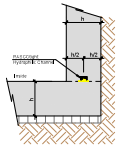
WALL / SUSPENDED SLAB JUNCTION WITH HYDROPHILIC CHANNEL ⑦



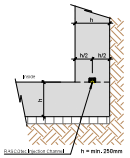
WALL / SUSPENDED SLAB JUNCTION ⑥



GROUND SLAB / WALL JUNCTION WITH HYDROPHILIC CHANNEL ⑦



GROUND SLAB / WALL JUNCTION ③



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Tariff Street, Manchester

Date	Revision Description
2024.06.10	First Issue

Construction Drawing
RASCOtank System

Block Clements Basement Plan and Rascor Details

rascor
Pioneers in waterproofing

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Based on the technical specifications of Rascor Engineering AG (Switzerland)

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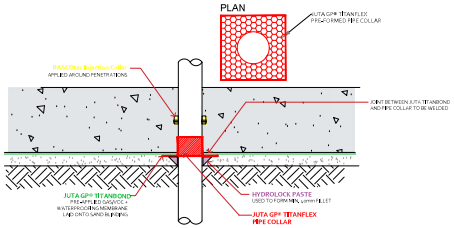
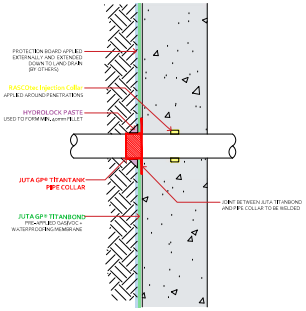
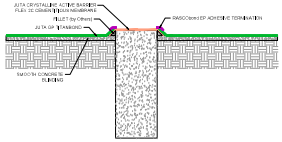
FOR APPROVAL



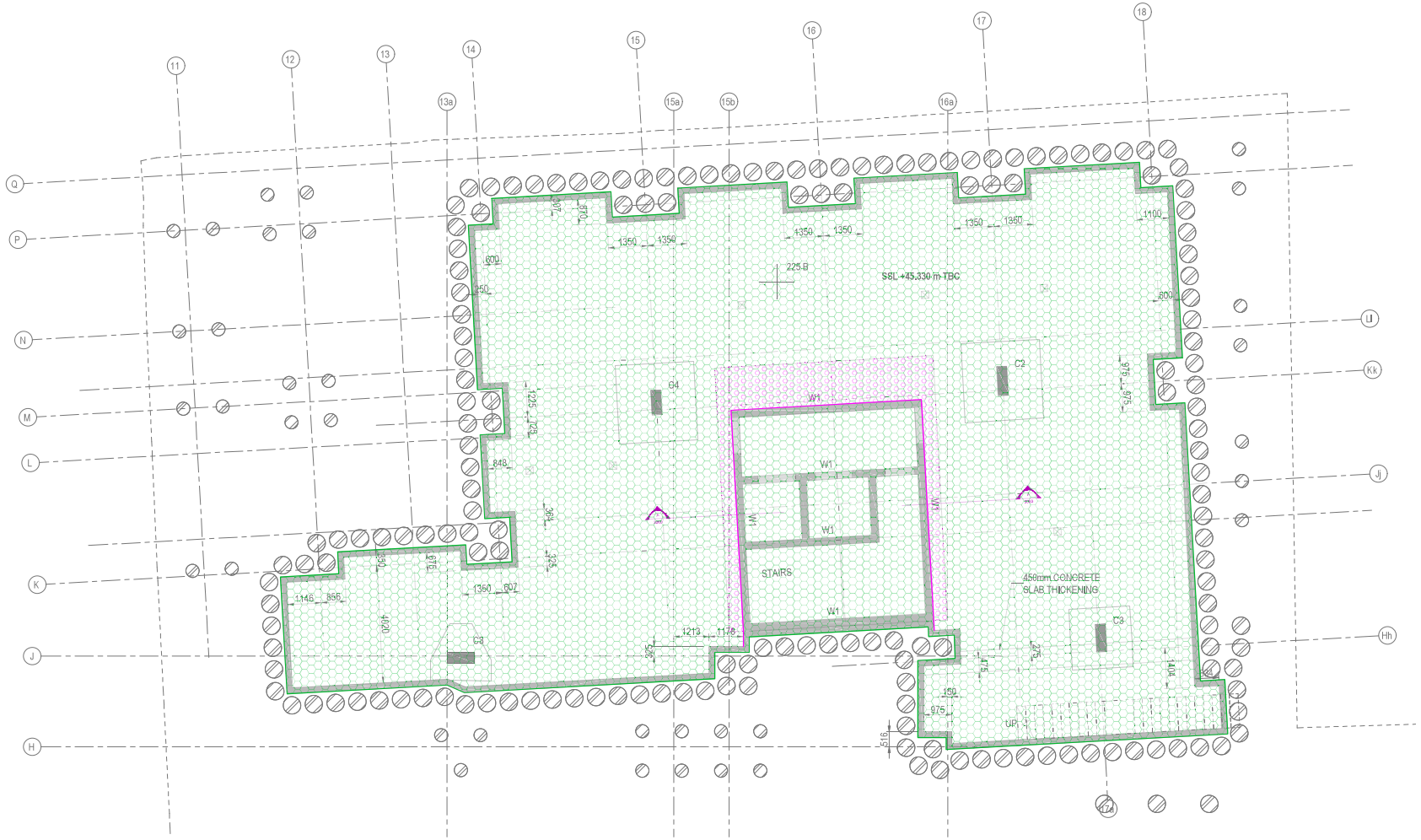
Pipe Penetration through Slab
Not to Scale



Pipe Penetration through Wall
Not to Scale



Typical Pile Head Detail
Not to Scale



LEGEND

	MEM	JUTA TITANBOND Pre-applied Fully Bonded Membrane
	MEM	JUTA TITANBOND Pre-applied Fully Bonded Membrane
	MEM	JUTA GP1 SAM Post Applied Self Adhesive Membrane
	MEM	JUTA GP1 SAM Post Applied Self Adhesive Membrane
	MEM	JUTA TITANFLEX Loose Laid Membrane
	MEM	JUTA TITANFLEX Loose Laid Membrane
	MEM	JUTA Crystaline Active Barrier Flex 2C Cementitious Membrane
	MEM	JUTA Crystaline Active Barrier Flex 2C Cementitious Membrane
	MEM	JUTA TITANTANK Post Applied Self Adhesive Membrane
	MEM	JUTA TITANTANK Post Applied Self Adhesive Membrane

Note: For RASCOtank system refer to drawing UK230118-01

Note: Membrane laps to be minimum 100mm as per manufacturer specifications.

Note: Protection board against exposed membrane to be installed by others before backfilling.

General Notes & Guidance:

- The need for continuity in the waterproofing protection should be considered when selecting a type of protection. In most circumstances, the protection should be continuous.
- This drawing is to be read in conjunction with all relevant product data sheets.
- Dimensions are not to be scaled from this drawing. All written measurements are to be checked on site by the contractor.
- Tool box talks to be provided for "other trades" to ensure waterproofing systems are not compromised. All design decisions made by others that might have impact on the gas and/or waterproof design should be brought to the attention of the design team and Rascor Ltd.

Tariff Street, Manchester

Date	Revision Description
2024.06.06	First Issue

Construction Drawing
Membrane System

Block 1NQ Basement Plan and JUTA Details

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Pioneers in waterproofing

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Based on the technical specifications of Rascor Engineering AG (Switzerland).

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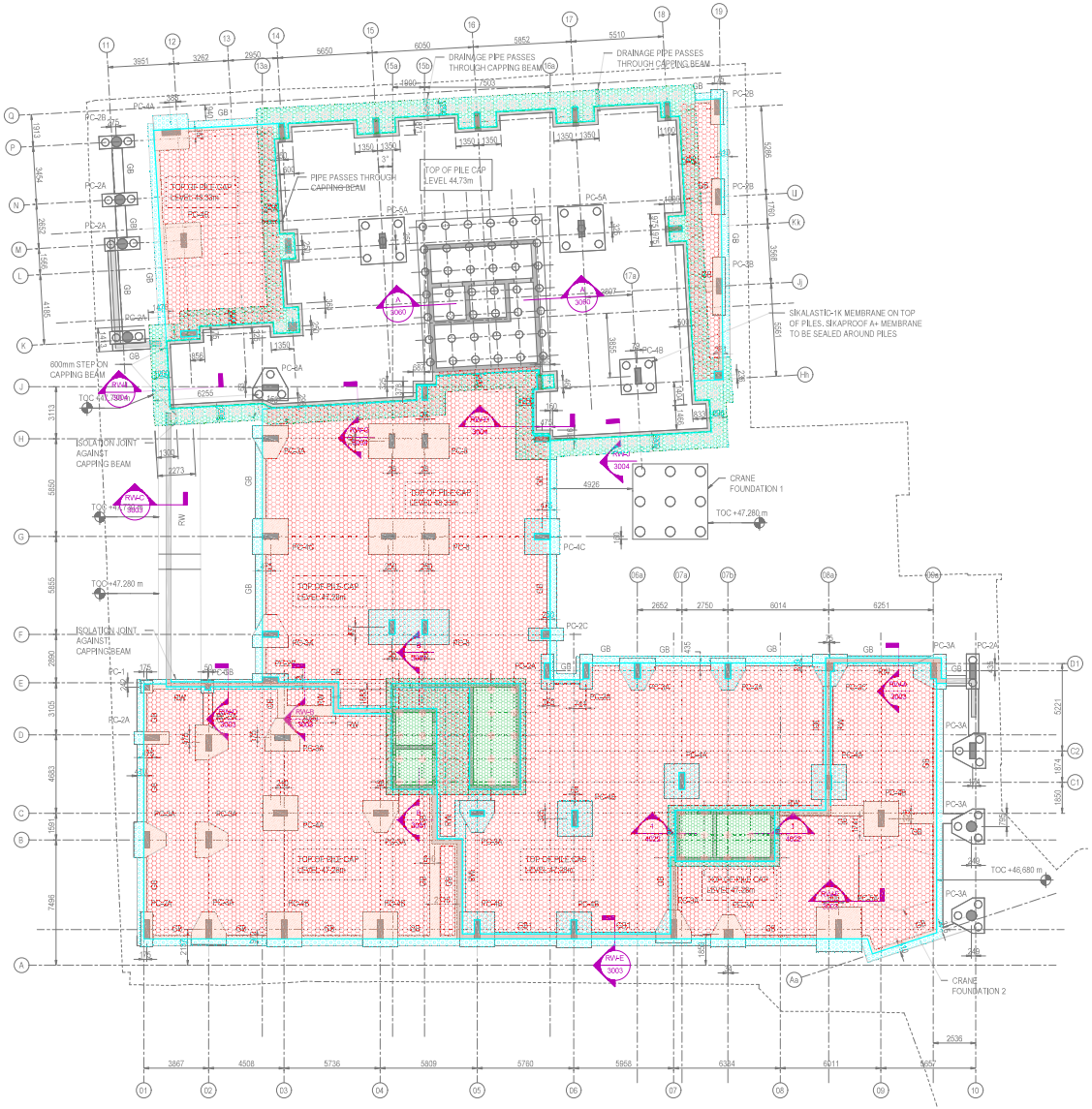
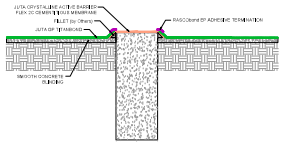
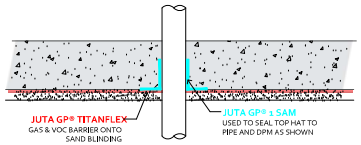
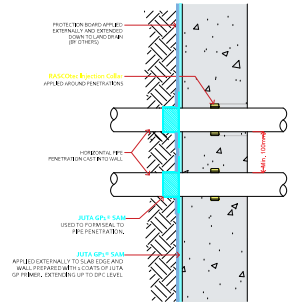




Typical Pile Head Detail
Not to Scale



Pipe Penetration through Slab
Not to Scale



Pipe Penetration through Wall
Not to Scale

LEGEND

	MEM	JUTA TITANBOND Pre-applied Fully Bonded Membrane
	MEM	JUTA TITANBOND Pre-applied Fully Bonded Membrane
	MEM	JUTA GP1 SAM Post Applied Self Adhesive Membrane
	MEM	JUTA GP1 SAM Post Applied Self Adhesive Membrane
	MEM	JUTA TITANFLEX Loose Laid Membrane
	MEM	JUTA TITANFLEX Loose Laid Membrane
	MEM	JUTA Crystaline Active Barrier Flex 2C Cementitious Membrane
	MEM	JUTA Crystaline Active Barrier Flex 2C Cementitious Membrane
	MEM	JUTA TITANTANK Post Applied Self Adhesive Membrane
	MEM	JUTA TITANTANK Post Applied Self Adhesive Membrane

Note: For RASCOtank system refer to drawing UK230118-02

Note: Membrane laps to be minimum 100mm as per manufacturer specifications.

Note: Protection board against exposed membrane to be installed by others before backfilling.

General Notes & Guidance:

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Tariff Street, Manchester

Date	Revision Description
2024,06,06	First Issue

Construction Drawing
Membrane System

Block 1NQ Ground Floor Plan and JUTA Details

rascor
Pioneers in waterproofing
Rascor Uk Ltd
Unit 2
3A Gelhurst Road
London, UK, SE25 5QF
Telephone: +353 140 160 10
E-Mail: engineering@rascor.com
Internet: www.rascor.com

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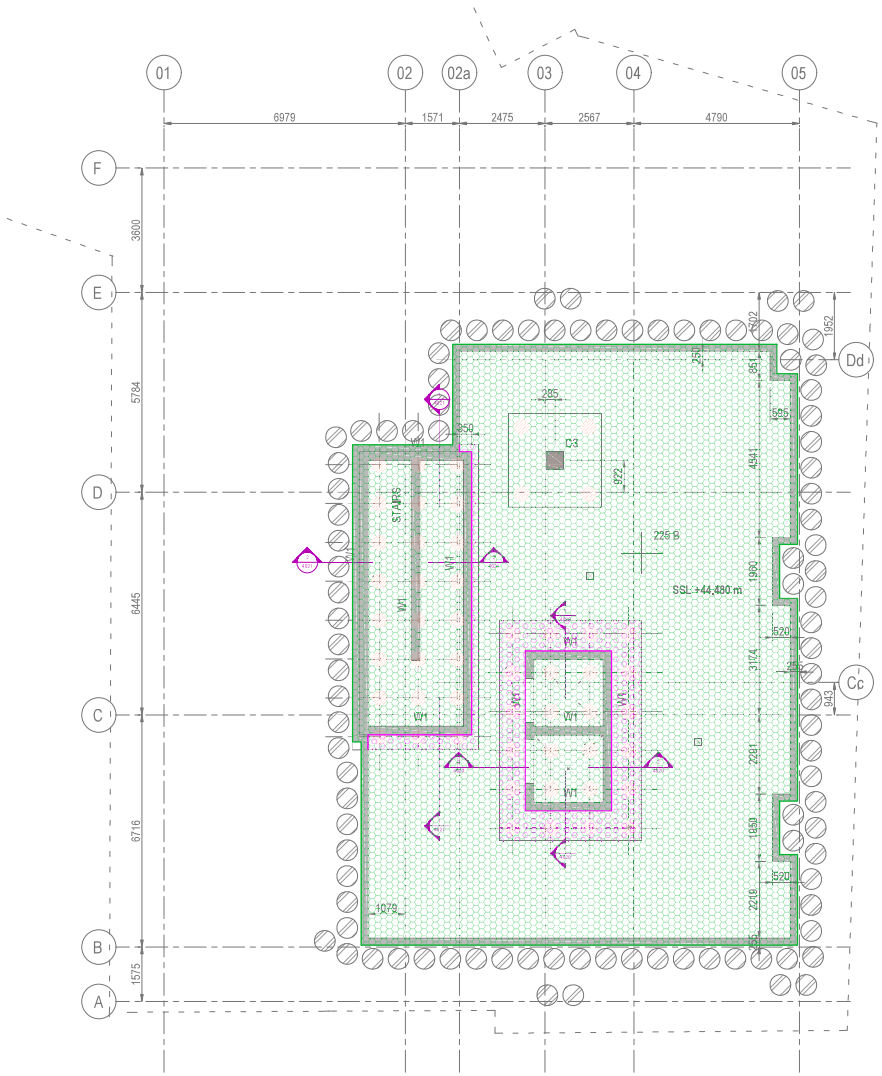
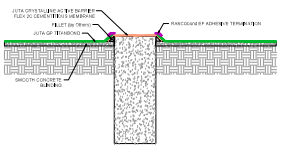
Based on the technical specifications of Rascor Engineering AG (Switzerland).

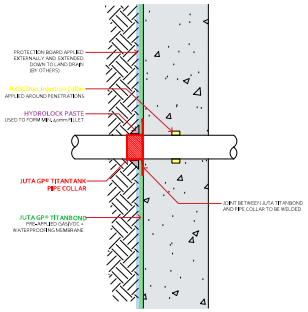
Drawn: dag	Reviewed: mg	Rev.: 2024.06.06	P01	Rev.:	
Scale: 1 : 100		Rev.:			
Sheet Size: 90/121cm		Rev.:		Rev.:	
Plan-No.: UK 230118 - 51		Rev.:		Rev.:	

FOR APPROVAL

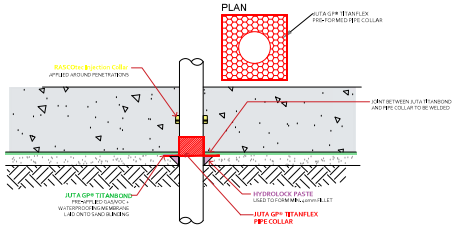




Typical Pile Head Detail
Not to Scale



Pipe Penetration through Wall
Not to Scale



Pipe Penetration through Slab
Not to Scale

LEGEND

MEM	JUTA TITANBOND Pre-applied Fully Bonded Membrane
MEM	JUTA TITANBOND Pre-applied Fully Bonded Membrane
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Note: For RASCOtank system refer to drawing UK230118-05

Note: Membrane laps to be minimum 100mm as per manufacturer specifications.

Note: Protection board against exposed membrane to be installed by others before backfilling.

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Tariff Street, Manchester

Date	Revision Description
2024.06.10	First Issue

Construction Drawing
Membrane System

Block Clements Basement Plan and JUTA Details

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Based on the technical specifications of Rascor Engineering AG (Switzerland)

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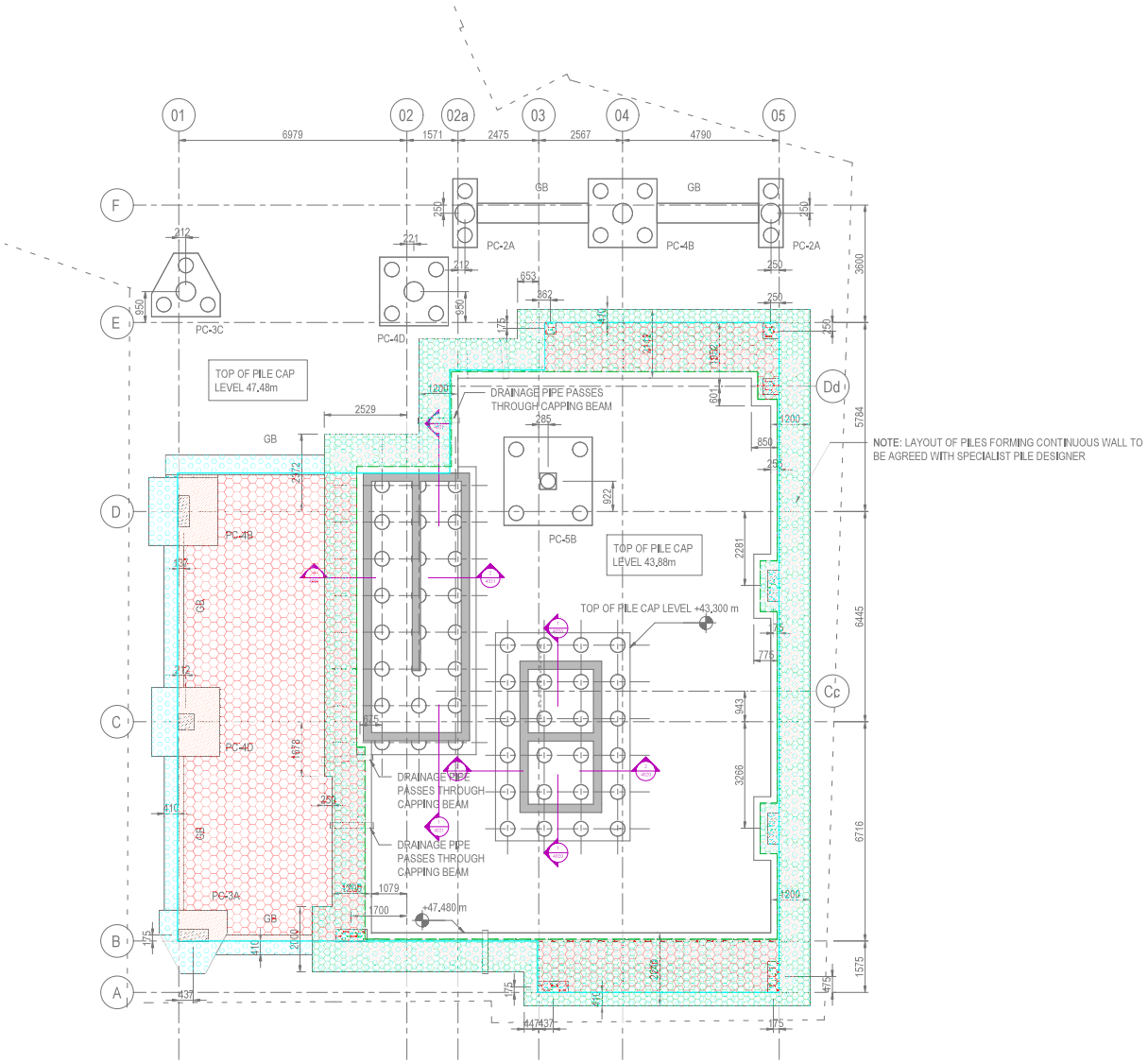
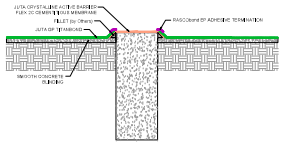
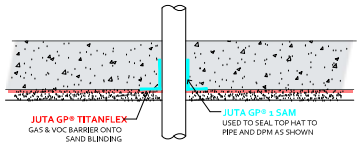
Scale: 1 : 50		Rev.:				
Sheet Size: 90/121cm		Rev.:			Rev.:	
Plan-No.: UK 230118 - 52		Rev.:			Rev.:	

FOR APPROVAL

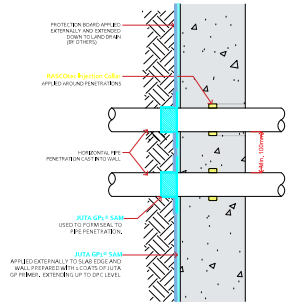




Typical Pile Head Detail
Not to Scale



Pipe Penetration through Slab
Not to Scale



Pipe Penetration through Wall
Not to Scale

LEGEND

	MEM	JUTA TITANBOND Pre-applied Fully Bonded Membrane
	MEM	JUTA TITANBOND Pre-applied Fully Bonded Membrane
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Tariff Street, Manchester

Date	Revision Description
2024.06.10	First Issue

Construction Drawing
Membrane System

Block Clements Ground Floor Plan and JUTA Details

rascor
Pioneers in waterproofing

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Scale: 1 : 50		Rev.:			
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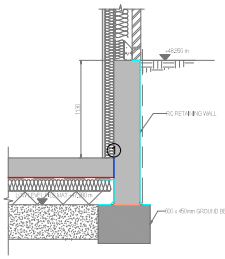
Plan-No.: UK 230118 - 53		Rev.:		Rev.:	

FOR APPROVAL



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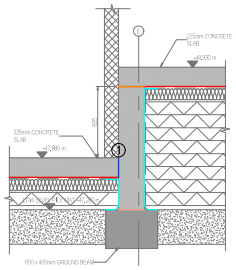

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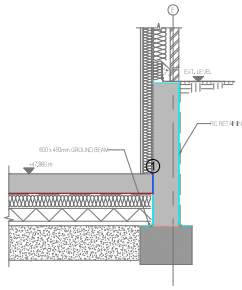

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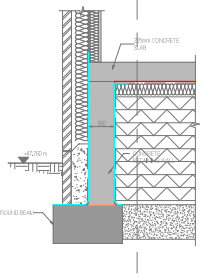

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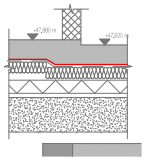

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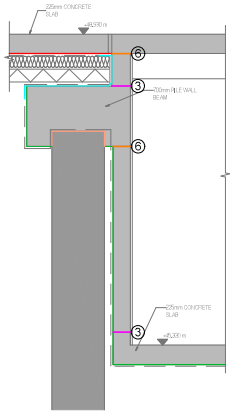

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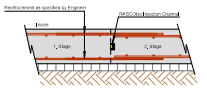
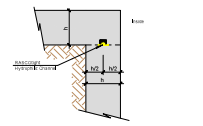
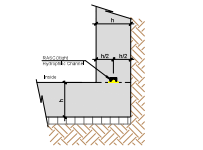


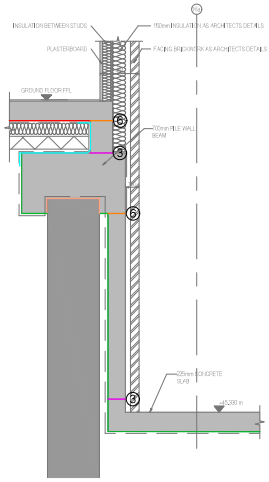
CONSTRUCTION JOINT IN GROUND SLAB (1)



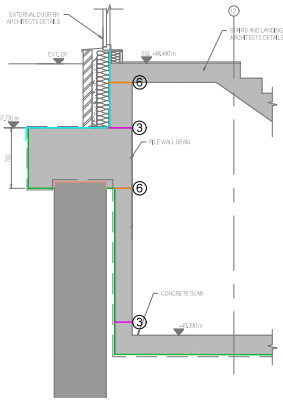
WALL / SUSPENDED SLAB JUNCTION WITH HYDROPHILIC CHANNEL (7)



GROUND SLAB / WALL JUNCTION WITH HYDROPHILIC CHANNEL (7)



Section RW-H
Scale 1:20



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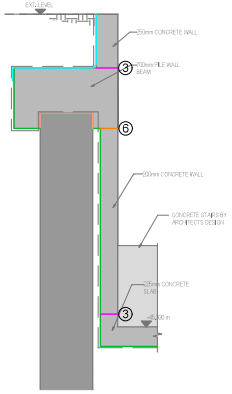
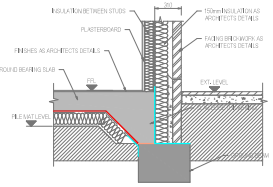
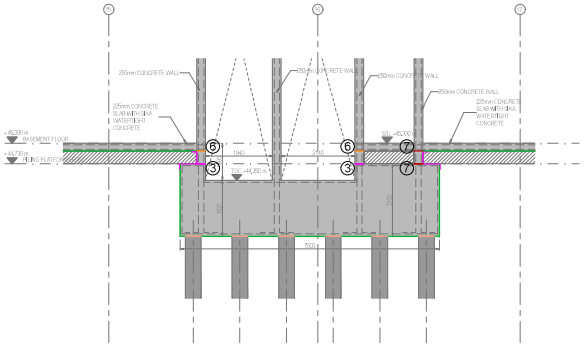


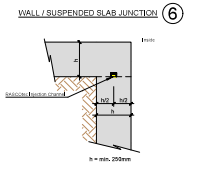
Section RW-J
Scale 1:20



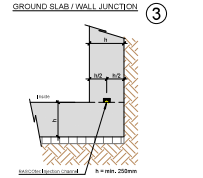
Typical Slab Edge Detail
Scale 1:20



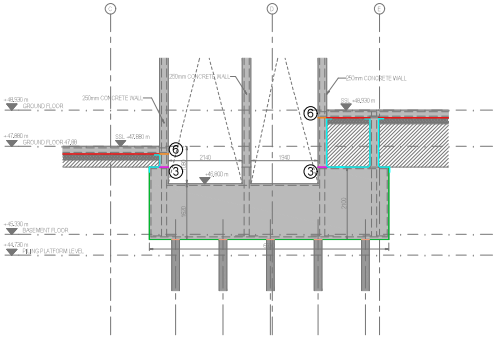
Core 2 Section A
Scale 1:50



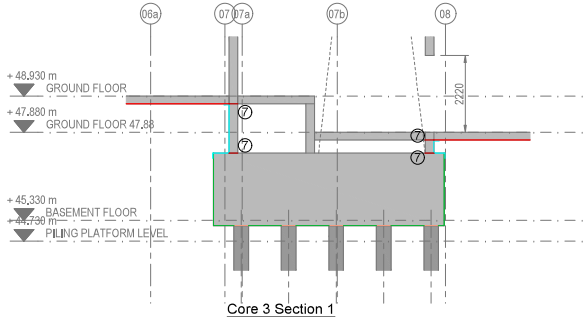
WALL / SUSPENDED SLAB JUNCTION (6)



GROUND SLAB / WALL JUNCTION (3)



Core 1 Section B
Scale 1:50



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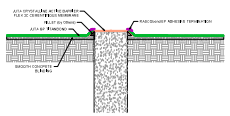
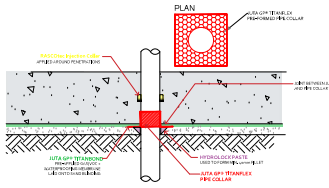


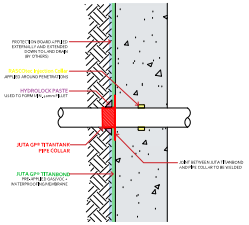
Typical Pile Head Detail
Not to Scale

RASCOtank LEGEND

(1)	FF_{IC}	Floor-Floor RASCOtec Injection Channel Vertical installation
(3)	FW_{IC}	Floor-Wall RASCOtec Injection Channel Horizontal Installation
(6)	WW_{IC}	Wall-Deck RASCOtec Injection Channel Horizontal installation
(7)	HC	RASCOtight Hydrophilic Channel Horizontal installation



Pipe Penetration through Slab
Not to Scale



Pipe Penetration through Wall
Not to Scale

LEGEND

MEM	JUTA TITANBOND Pre-applied Fully Bonded Membrane
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Tariff Street, Manchester

Date	Revision Description
2024.06.06	First Issue

Construction Drawing
RASCOtank and Membrane System

Block 1NQ Sections and Details

rascor
Pioneers in waterproofing

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Scale: as stated		Rev.:			Rev.:	
Sheet Size: 90/121cm		Rev.:			Rev.:	
Plan-No.: UK 230118 - 60		Rev.:			Rev.:	

FOR APPROVAL

GROUND GAS PROTECTION
GP® TITANBOND®
TECHNICAL DATA SHEET

GP® TITANBOND®

Feature	Characteristics	Test Method	GP® TITANBOND®
Physical Properties	Thickness	EN 1849-2	2.0 mm
	Width	EN 1849-2	1.9 m
	Length	EN 1849-2	25 m
	Weight	EN 1849-2	650 g/m^2
Hydraulic Press	Water Vapour Transmission Rate	EN 1931	0.11 - 0.18 g/m^2/day
	Water Tightness (60 kPa)	EN 1928	Pass
	Water Tightness (196 kPa - 20 m Water Head) (Basement Application)	EN 1928	Pass
Mechanical Properties	Resistance to Static Load	EN 12730-B	≥ 20 kg
	Puncture Resistance	EN 12236	≥ 2.0 kN
	Tensile Strength (MD)	EN 12311-1	> 550 N/50mm
	Tensile Strength (CMD)	EN 12311-1	> 400 N/50mm
	Tensile Elongation (MD/CMD)	EN 12310-1	> 550 %
	Tear Resistance (MD/CMD)	EN 12310-1	> 300 N
	Resistance to Impact	EN 12691-B	> 1650 mm
	Reaction to Fire	EN 13501-1	E Class
	Concrete Peel Adhesion	ASTM D903 (MOD)	> 3.0 kN/m
	Resistance to Artificial Ageing	EN 1296/EN 1928	Pass
	Resistance to Chemicals	EN 1296/EN 1928	Pass
Compliance and Certification	CE Mark - EN13967:2012		
	NHBC Standards Compliant		
	BS 8485:2015 Compliant (Methane and Carbon Dioxide barrier)		
	CIRIA C748 Compliant (VOC Barrier)		
	BS 8102:2009 Compliant (Type A Waterproofing Barrier)		
Vapour Permeability 100% Concentration	Transmission Rate of Benzene	EN ISO 15105-2	< 3.6 mg/m^2/day
	Transmission Rate of Toluene	EN ISO 15105-2	< 13.8 mg/m^2/day
	Transmission Rate of Ethyl Benzene	EN ISO 15105-2	< 2.7 mg/m^2/day
	Transmission Rate of Xylenes (M,P,O)	EN ISO 15105-2	< 7.7 mg/m^2/day
	Transmission Rate of Hexane	EN ISO 15105-2	< 0.6 mg/m^2/day
	Transmission Rate of Vinyl Chloride	EN ISO 15105-2	< 0.05 mg/m^2/day
	Transmission Rate of Trichloroethene (TCE)	EN ISO 15105-2	< 54.7 mg/m^2/day
	Transmission Rate of Tetrachloroethene (PCE)	EN ISO 15105-2	< 26.2 mg/m^2/day
	Transmission Rate of Naphthalene	EN ISO 15105-2	< 0.0006 mg/m^2/day
	Transmission Rate of CIS-1,2-Dichloroethylene	EN ISO 15105-2	< 1.1 mg/m^2/day
Gas Permeability	Methane Permeability	EN ISO 15105-1	0.13 ml/m^2/day/atm
	Methane Permeability (Jointed)	EN ISO 15105-1	1.00 ml/m^2/day/atm
	Carbon Dioxide Permeability	EN ISO 15105-1	3.01 ml/m^2/day/atm
	Vinyl Chloride Gas Permeability	EN ISO 15105-1	0.04 ml/m^2/day/atm
	Radon Permeability	K124/02/95	1.0 x 10^{-12} m^2/S

GROUND GAS PROTECTION
GP® TITANBOND®
TECHNICAL DATA SHEET

GP® TITANBOND®

Feature	Characteristics	Test Method	GP® TITANFBOND®
Durability and Chemical Resistance	Chemical Resistance - Sulfuric ACID (10% Solution of Sulfuric Acid (H_2SO_4)) 50° For 56 Days	EN 14414-A	TENSILE STRENGTH RETAINED 100% RESULT - PASS
	Chemical Resistance - BASIC (Calcium Hydroxide Saturated Suspension) 50° For 56 Days	EN 14414-B	TENSILE STRENGTH RETAINED 100% RESULT - PASS
	Chemical Resistance - SOLVENTS (35% Diesel, 35% Paraffin, 30% Oil Hd3O (Vol)) 50° For 56 Days	EN 14414-C	TENSILE STRENGTH RETAINED >80% RESULT - PASS
	Chemical Resistance - SYNTHETIC LEACHATE (Mixture of 14 Acids, Chlorides, Sulphates & Phosphates) 50° For 56 Days	EN 14414-D	TENSILE STRENGTH RETAINED 100% RESULT - PASS
	Resistance to Leaching - HOT WATER (Deionised Water) 50° For 56 Days	EN 14415-A	TENSILE STRENGTH RETAINED 100% RESULT - PASS
	Resistance to leaching - AQUEOUS ALKALINE (Saturated Calcium Hydroxide) 50° For 56 Days	EN 14415-B	TENSILE STRENGTH RETAINED 100% RESULT - PASS
	Resistance to Leaching - ORGANIC ALCOHOL (30% Methanol, 30% Isopropanol, 40% Glycol) 50° For 56 Days	EN 14415-C	TENSILE STRENGTH RETAINED 100% RESULT - PASS
	Chemical Resistance - BENZENE - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 95% (MD), 102% (CMD) RESULT - PASS
	Chemical Resistance - TOLUENE - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 94% (MD), 91% (CMD) RESULT - PASS
	Chemical Resistance - ETHYL BENZENE - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 99% (MD), 97% (CMD) RESULT - PASS
	Chemical Resistance - XYLENES - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 91% (MD), 106% (CMD) RESULT - PASS
	Chemical Resistance - TCE - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 99% (MD), 93% (CMD) RESULT - PASS
	Chemical Resistance - PCE - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 93% (MD), 93% (CMD) RESULT - PASS
	Chemical Resistance - NAPTHALENE - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 101% (MD), 93% (CMD) RESULT - PASS
	Chemical Resistance - HEXANE - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 99% (MD), 104% (CMD) RESULT - PASS

GROUND GAS PROTECTION
GP® TITANBOND®
TECHNICAL DATA SHEET

GP® TITANBOND®

JUTA UK

Please contact JUTA UK Directly for more information on GP® TITANBOND®

Installation

GP® TITANFBOND® should be installed in accordance with the product installation guidelines, and in accordance with best practice.

Jointing and Sealing

GP® TITANBOND® can be heat welded or taped, with jointing carried out by competent personnel with suitable qualifications in accordance with best practice. GP® TITANFBOND® should be overlapped by at least 100mm. If taping joints, only suitable tape must be used, ensuring application with a silicone roller to remove trapped air. JUTA pre-formed details, or self adhesive gas membrane are available for sealing around protuberances.

Accessory Products

- GP® DPC
- GP® TAPE
- GP® OVERTAPE
- JUTA 300TT

GROUND GAS PROTECTION
GP® TITANFLEX®
TECHNICAL DATA SHEET

JUTA | TITANTECH®

GP® TITANFLEX®

GP® TITANFLEX® gas and hydrocarbon barrier is a multi-layer, polyethylene membrane. GP® TITANFLEX® is specifically designed, manufactured, tested and certified to perform as a methane, carbon dioxide, radon ground gas, VOC, Air moisture and hydrocarbon protection system.

Thickness	0.5 mm
Width	2 m
Length	50 m
Weight	500 g/m²

TITANTECH®

For developers of brownfield and contaminated sites the TITANTECH® family of products represent a major step forward in safeguarding projects against gaseous and chemical contamination.

GP® TITANFLEX® complies with the latest codes of practice as published by BRE, CIRIA (C748) and BSI (BS8485:2015). Suitable for use as ground gas/hydrocarbon protection for NHBC, Green, Amber 1, Amber 2 and Red site characterisations.

Handling

Roll weights can be in excess of 20kg and hence appropriate care and equipment is required for unloading and handling.

Storage

Rolls of GP® TITANFLEX® should be stored on stable/level ground and stacked not more than five rolls high, with no other material stacked on top. The rolls can be stored outdoors when packaged, but should be protected from exposure to UV.

Installation

GP® TITANFLEX® should be installed in accordance with the product installation guidelines, and in accordance with best practice.

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GROUND GAS PROTECTION
GP® TITANFLEX®
TECHNICAL DATA SHEET

GP® TITANFLEX®

Feature	Characteristics	Test Method	GP® TITANFLEX®
Physical Properties	Thickness	EN 1849-2	0.5 mm
	Width	EN 1849-2	2 m
	Length	EN 1849-2	50 m
	Weight	EN 1849-2	500 g/m^2
Hydraulic Press	Water Vapour Transmission Rate	EN 1931	0.11 - 0.18 g/m^2/day
	Water Tightness (60 kPa)	EN 1928	Pass
	Water Tightness (196 kPa - 20 m Water Head) (Basement Application)	EN 1928	Pass
Mechanical Properties	Resistance to Static Load	EN 12730-B	≥ 20 kg
	Puncture Resistance	EN 12236	≥ 2.0 kN
	Tensile Strength (MD)	EN 12311-1	> 550 N/50mm
	Tensile Strength (CMD)	EN 12311-1	> 400 N/50mm
	Tensile Elongation (MD/CMD)	EN 12310-1	> 550 %
	Tear Resistance (MD/CMD)	EN 12310-1	> 300 N
	Resistance to Impact	EN 12691-B	650 mm
	Reaction to Fire	EN 13501-1	E Class
	Resistance to Artificial Ageing	EN 1296/EN 1928	Pass
	Resistance to Chemicals	EN 1296/EN 1928	Pass
Compliance and Certification	CE Mark - EN13967:2012		
	NHBC Standards Compliant		
	CIRIA C748 Compliant		
	BS 8485:2015 Compliant		
Vapour Permeability 100% Concentration	Transmission Rate of Benzene	EN ISO 15105-2	< 3.6 mg/m^2/day
	Transmission Rate of Toluene	EN ISO 15105-2	< 13.8 mg/m^2/day
	Transmission Rate of Ethyl Benzene	EN ISO 15105-2	< 2.7 mg/m^2/day
	Transmission Rate of Xylenes (M,P,O)	EN ISO 15105-2	< 7.7 mg/m^2/day
	Transmission Rate of Hexane	EN ISO 15105-2	< 0.6 mg/m^2/day
	Transmission Rate of Vinyl Chloride	EN ISO 15105-2	< 0.05 mg/m^2/day
	Transmission Rate of Trichloroethene (TCE)	EN ISO 15105-2	< 54.7 mg/m^2/day
	Transmission Rate of Tetrachloroethene (PCE)	EN ISO 15105-2	< 26.2 mg/m^2/day
	Transmission Rate of Naphthalene	EN ISO 15105-2	< 0.0006 mg/m^2/day
	Transmission Rate of CIS-1,2-Dichloroethylene	EN ISO 15105-2	< 1.1 mg/m^2/day
Gas Permeability	Methane Permeability	EN ISO 15105-1	0.13 ml/m^2/day/atm
	Methane Permeability (Jointed)	EN ISO 15105-1	1.00 ml/m^2/day/atm
	Carbon Dioxide Permeability	EN ISO 15105-1	3.01 ml/m^2/day/atm
	Vinyl Chloride Gas Permeability	EN ISO 15105-1	0.04 ml/m^2/day/atm
	Radon Permeability	K124/02/95	1.0 x 10^{-12} m^2/S

GROUND GAS PROTECTION
GP® TITANFLEX®
TECHNICAL DATA SHEET

GP® TITANFLEX®

Feature	Characteristics	Test Method	GP® TITANFLEX®
Durability and Chemical Resistance	Chemical Resistance - Sulfuric ACID (10% Solution of Sulfuric Acid (H_2SO_4)) 50° For 56 Days	EN 14414-A	TENSILE STRENGTH RETAINED 100% RESULT - PASS
	Chemical Resistance - BASIC (Calcium Hydroxide Saturated Suspension) 50° For 56 Days	EN 14414-B	TENSILE STRENGTH RETAINED 100% RESULT - PASS
	Chemical Resistance - SOLVENTS (35% Diesel, 35% Paraffin, 30% Oil Hd3O (Vol)) 50° For 56 Days	EN 14414-C	TENSILE STRENGTH RETAINED >80% RESULT - PASS
	Chemical Resistance - SYNTHETIC LEACHATE (Mixture of 14 Acids, Chlorides, Sulphates & Phosphates) 50° For 56 Days	EN 14414-D	TENSILE STRENGTH RETAINED 100% RESULT - PASS
	Resistance to Leaching - HOT WATER (Deionised Water) 50° For 56 Days	EN 14415-A	TENSILE STRENGTH RETAINED 100% RESULT - PASS
	Resistance to leaching - AQUEOUS ALKALINE (Saturated Calcium Hydroxide) 50° For 56 Days	EN 14415-B	TENSILE STRENGTH RETAINED 100% RESULT - PASS
	Resistance to Leaching - ORGANIC ALCOHOL (30% Methanol, 30% Isopropanol, 40% Glycol) 50° For 56 Days	EN 14415-C	TENSILE STRENGTH RETAINED 100% RESULT - PASS
	Chemical Resistance - BENZENE - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 95% (MD), 102% (CMD) RESULT - PASS
	Chemical Resistance - TOLUENE - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 94% (MD), 91% (CMD) RESULT - PASS
	Chemical Resistance - ETHYL BENZENE - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 99% (MD), 97% (CMD) RESULT - PASS
	Chemical Resistance - XYLENES - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 91% (MD), 106% (CMD) RESULT - PASS
	Chemical Resistance - TCE - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 99% (MD), 93% (CMD) RESULT - PASS
	Chemical Resistance - PCE - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 93% (MD), 93% (CMD) RESULT - PASS
	Chemical Resistance - NAPTHALENE - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 101% (MD), 93% (CMD) RESULT - PASS
	Chemical Resistance - HEXANE - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 99% (MD), 104% (CMD) RESULT - PASS

GROUND GAS PROTECTION
GP® TITANFLEX®
TECHNICAL DATA SHEET

GP® TITANFLEX®

JUTA UK

Please contact JUTA UK Directly for more information on GP® TITANFLEX®

Jointing and Sealing

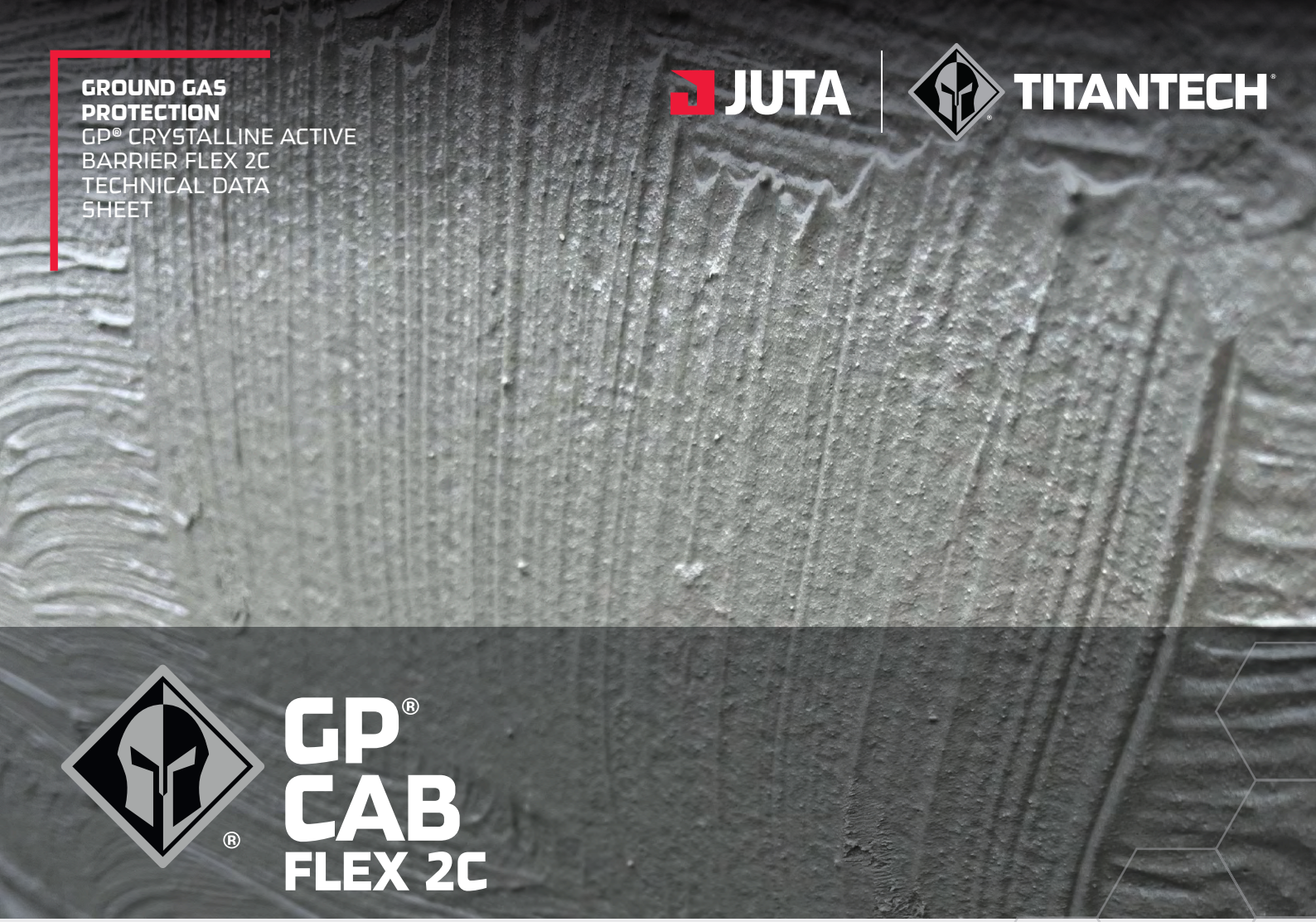
GP® TITANFLEX® can be heat welded or taped, with jointing carried out by competent personnel with suitable qualifications in accordance with best practice. GP® TITANFLEX® should be overlapped by at least 100mm. If taping joints, only suitable tape must be used, ensuring application with a silicone roller to remove trapped air. JUTA pre-formed details, or self adhesive gas membrane are available for sealing around protuberances.

Accessory Products

- GP® DPC
- GP® Tape
- GP® Self Adhesive Membrane (SAM)
- GP® Primer
- GP® Top Hats and Preformed Corners
- GP® Protection Fleece
- GP® Void Vent (24/40mm)

GROUND GAS PROTECTION
GP® CRYSTALLINE ACTIVE BARRIER FLEX 2C TECHNICAL DATA SHEET

JUTA | TITANTECH®



GP® CAB FLEX 2C

Two component cementitious/polymer sealing slurry - (Fast drying, hydrophobic, waterproof).

GP® Crystalline Active Barrier (CAB) Flex 2C is a two component, fast drying grey waterproofing coating system. The A component is a cement-based powder and B component is a liquid polymer. Due to the polymer the coating system is semi flexible. CAB Flex 2C migrates into the substrate and seals the pores of the substrate to achieve excellent bonding to the surface. It is shrinkage compensated and has quick strength development. CAB Flex 2C also has very good abrasion resistance on the substrate.

Colour	Grey
Delivery Form	33 kg units (25 kg comp. A + 8 kg comp. B)
Accordance	EN 1504-3 - Class 3 repair mortar barrier

TITANTECH®
For developers of brownfield and contaminated sites the TITANTECH® family of products represent a major step forward in safeguarding projects against gaseous and chemical contamination.

Features

- Dry mortar
- EN 1504-3 – Class 3 repair mortar barrier
- Watertight against pressurized water (50 bar, depend on surface)
- Frost resistant
- High compressive strength
- Capillary blocking
- Low consumption
- Easy application
- Sprayable
- Suitable as Pile head/Cap sealing

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GROUND GAS PROTECTION
GP® CRYSTALLINE ACTIVE BARRIER FLEX 2C TECHNICAL DATA SHEET

GP® CAB FLEX 2C

Feature	Characteristics	GP® Crystalline Active Barrier (CAB) Flex 2C
Physical Properties	Base component A	Cement, quartz sand, additives
	Base component B	Rubber dispersion, additives
	Colour	Grey
	Processing temperature	+ 5°C up to + 35°C
	Bulk density component A	Approx.1.6 g/cm³
	Density component B	Approx. 1,01 g/ml Page 2
Properties	Water vapour diffusion resistance factor µ	Approx. 65
	Trafficable	After approx. 4-6 hours
	Loadable	After approx. 3 days
	Applicable	Approx. 45 minutes at 20°C/50% rel. h.
	Curing time	After approx. 48 hours
	Complete curing	After 28 days
	Shrinkage	<0.02%
	Consumption	2.0mm approx. 3 - 3.5 kg/m²
		2.5mm approx. 3.5 - 5 kg/m²
	Minimum thickness	Approx. 2 mm where no pressurised water
		Approx. 2.5 mm where anticipating pressurised water
	Compressive strength	Class R3 (>25 MPa)
	Chloride ion content	< 0.05 %
	Adhesive bond	> 1.0 MPa
	Elastic modulus	> 10 GPa
	Capillary absorption	≤ 0.5 kg/m² × h 0.5
	Reaction to fire	Class A1

JUTA UK
For additional information or assistance, please contact JUTA UK directly.

Application areas
CAB Flex 2C is used for reliable and permanent waterproofing against pressurised water on positive side (outside) as well as on negative side (inside) of buildings. CAB Flex 2C can be used on vertical and on horizontal surfaces to be waterproofed. It is applicable on nearly all mineral sufficiently solid surfaces with an ideal strength of >1.5 N/mm². Typical application areas are basements, concrete elements, car parking, tunnels, water tanks, wet rooms, or manholes. CAB Flex 2C is also usable as waterproofing under walls, and across pile heads/caps against rising dampness.

Delivery form
33 kg units (25 kg comp. A + 8 kg comp. B).

Storage
6 months (frost-free and dry, +5°C up to +25°C in original packaging).

GROUND GAS PROTECTION
GP® CRYSTALLINE ACTIVE BARRIER FLEX 2C TECHNICAL DATA SHEET

GP® CAB FLEX 2C

JUTA UK

For additional information or assistance, please contact JUTA UK directly.

Application - Surface preparation

The surface must be dry or slightly damp, sound, absorbent and clean. Bonding inhibiting agents such as grease, oil, formwork oil and all loose particles and dust must be removed before application of CAB Flex 2C. Damaged area like cracks, holes or cavities must be reprofiled. Cavities or surface damages >5mm must be reprofiled. The pores of substrate must be open, so CAB Flex 2C can penetrate. Dusty or salt damaged surface must be treated with Deep Primer prior application of the slurry so the substrate is re-solidified and salts are transferred from soluble to insoluble and during curing time of the slurry no salts can penetrate into the CAB Flex 2C during curing.

Application - Negative/ Positive side waterproofing

CAB Flex 2C must be mixed with using of a slow speed mixer in the designed mixing ration (25 kg by 8 kg). Put component B (please shake it before using) in a mixer (or container provided) and add the whole bag of sealing slurry (component A), mix it until a lump-free compound is attained. After mixing wait 1 minute and mix again. The application on the surface must be done with a hard brush or spraying device. The coating in principle is done by minimum 2 layers, whereby the minimum thickness has to be observed. The first layer must not be completely cured before the second layer is applied or the surface has to be pre-wetted.

The whole system has to be secured against over fast drying (wind, sun etc.), frost and rain. At negative side waterproofing the rel. air humidity should not be higher than 65%. CAB Flex 2C can be covered with coating for water vapor diffusion or plasters.

Recommended tools.

- Hard brush
- Roller
- Gloves
- Safety glasses
- Mixer
- Spraying device

GROUND GAS PROTECTION
GP®1 SAM
TECHNICAL DATA SHEET

JUTA | TITANTECH®

GP®1 SAM

GP®1 SAM, gas protection self adhesive membrane, is a bituminous gas proof and water proof sheet, composed of self-adhesive SBS polymer modified bitumen incorporating GP®1 with an upper surface finish of black reinforced LDPE, and a lower surface finish of siliconized release film. GP®1 SAM is used for the gas/ waterproofing of underground structures where harmful ground gasses are anticipated, and as a self adhesive accessory to GP®1.

Thickness	1.2 mm
Width	0.9 m or 0.3 m
Length	20 m
Weight	1100 g/m²

TITANTECH®
For developers of brownfield and contaminated sites the TITANTECH® family of products represent a major step forward in safeguarding projects against gaseous and chemical contamination.

Handling
Roll weights can be in excess of 20 kg (approx 33 kg/roll) and hence appropriate care and equipment is required for unloading and handling. This product is non-toxic nor flammable.

Storage
Rolls of GP®1 SAM should be stored on in a cool, dry place, and be protected from exposure to rain, sun, heat and cold temperatures prior to installation. Exposure to sunlight for extended period of time could cause difficulty with removal of the release film.

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GROUND GAS PROTECTION
GP®1 SAM
TECHNICAL DATA SHEET

GP®1 SAM

Feature	Characteristics	Test Method	GP®1 SAM
Physical Properties	Thickness	EN 1849-2	1.2 mm
	Width	EN 1849-2	0.9 or 0.3 m
	Length	EN 1849-2	20 m
	Weight	EN 1849-2	1100 g/m^2
Hydraulic Press	Water Tightness	EN 1928	Pass
	Water Vapour Transmission	EN 1931	0.013 g/m^2/day
Mechanical Properties	Tensile Strength (MD/CMD)	EN 12311-2 (A)	500 N/50mm
	Elongation (MD/CMD)	EN 12311-2 (A)	> 12 %
	Resistance to Static Load	EN 12370	20 kg
	Joint Strength	EN 12317-2	> 30 N
	Durability and Water Tightness (Ageing and Chemicals) 60 kPa	EN 1847	Pass
	Resistance to Nail Tear (MD/CMD)	EN 12310-1	> 300 N
	Resistance to Fire	EN 13501	F Euro Class
Gas Permeability	Methane Permeability	EN ISO 15105-1	< 0.68 ml/m^2/day/atm
	Carbon Dioxide Permeability	EN ISO 15105-1	< 2.81 ml/m^2/day/atm
	Radon Permeability	K124/02/95	8.0 x 10^{-15} m^2/S
Compliance and Certification	CE Mark - EN13967:2012 + A1:2017 Type (A/T)		
	BS 8485:2015 Compliant (Methane and Carbon Dioxide Barrier)		

JUTA UK

Please contact JUTA UK Directly for more information on GP®1 SAM

Installation

GP®1 SAM should be installed in accordance with the product installation guidelines, and in accordance with BS 8485:2015, and/or BS 8102:2009.

It is recommended that GP®1 SAM is not applied in temperatures below 10°C, in colder weather the material can be warmed slightly to aid adhesion.

Accessory Products

- GP® Primer
- GP® Protection Board
- GP® Protection Fleece

GROUND GAS PROTECTION
GP® TITANTANK®
TECHNICAL DATA SHEET

JUTA | TITANTECH®

GP® TITANTANK®

GP® TITANTANK® is a self adhesive version of the GP® TITANFLEX®; composed of self-adhesive with an upper surface finish of GP® TITANFLEX®, and a lower surface finish of siliconized polypropylene release film. TITANTANK® is used for the gas /waterproofing/ tanking of underground structures where harmful ground gases are anticipated, as a post applied fully bonded membrane.

Thickness	1.2 mm
Width	0.9 m or 0.3 m
Length	20 m
Weight	1350 g/m^2

TITANTECH®

For developers of brownfield and contaminated sites the TITANTECH® family of products represent a major step forward in safeguarding projects against gaseous and chemical contamination.

Handling

Roll weights can be in excess of 20kg and hence appropriate care and equipment is required for unloading and handling.

Storage

Rolls of GP® TITANTANK® should be stored on stable/level ground and stacked not more than five rolls high, with no other material stacked on top. The rolls can be stored outdoors when packaged, but should be protected from exposure to UV.

Installation

GP® TITANTANK® should be installed in accordance with the product installation guidelines, and in accordance with best practice.

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GROUND GAS PROTECTION
GP® TITANTANK®
TECHNICAL DATA SHEET

GP® TITANTANK®

Feature	Characteristics	Test Method	GP® TITANTANK®
Physical Properties	Thickness	EN 1849-2	1.2 mm
	Width	EN 1849-2	0.9 or 0.3 m
	Length	EN 1849-2	20 m
	Weight	EN 1849-2	1350 g/m^2
Hydraulic Press	Water Vapour Transmission Rate	EN 1931	0.11 - 0.18 g/m^2/day
	Water Tightness (60 kPa)	EN 1928	Pass
	Water Tightness (196 kPa - 20 m Water Head) (Basement Application)	EN 1928	Pass
Mechanical Properties	Resistance to Static Load	EN 12730-B	≥ 20 kg
	Puncture Resistance	EN 12236	≥ 2.0 kN
	Tensile Strength (MD)	EN 12311-1	> 550 N/50mm
	Tensile Strength (CMD)	EN 12311-1	> 400 N/50mm
	Tensile Elongation (MD/CMD)	EN 12310-1	> 550 %
	Tear Resistance (MD/CMD)	EN 12310-1	> 300 N
	Resistance to Impact	EN 12691-B	650 mm
	Reaction to Fire	EN 13501-1	E Class
	Resistance to Artificial Ageing	EN 1296/EN 1928	Pass
	Resistance to Chemicals	EN 1296/EN 1928	Pass
Compliance and Certification	CE Mark - EN13967:2012		
	NHBC Standards Compliant		
	CIRIA C748 Compliant (VOC Barrier)		
	BS 8485:2015 Compliant (Methane and Carbon Dioxide Barrier)		
	BS 8102:2009 Compliant (Type A Waterproofing)		
Vapour Permeability 100% Concentration	Transmission Rate of Benzene	EN ISO 15105-2	< 3.6 mg/m^2/day
	Transmission Rate of Toluene	EN ISO 15105-2	< 13.8 mg/m^2/day
	Transmission Rate of Ethyl Benzene	EN ISO 15105-2	< 2.7 mg/m^2/day
	Transmission Rate of Xylenes (M,P,O)	EN ISO 15105-2	< 7.7 mg/m^2/day
	Transmission Rate of Hexane	EN ISO 15105-2	< 0.6 mg/m^2/day
	Transmission Rate of Vinyl Chloride	EN ISO 15105-2	< 0.05 mg/m^2/day
	Transmission Rate of Trichloroethene (TCE)	EN ISO 15105-2	< 54.7 mg/m^2/day
	Transmission Rate of Tetrachloroethene (PCE)	EN ISO 15105-2	< 26.2 mg/m^2/day
	Transmission Rate of Naphthalene	EN ISO 15105-2	< 0.0006 mg/m^2/day
	Transmission Rate of CIS-1,2-Dichloroethylene	EN ISO 15105-2	< 1.1 mg/m^2/day
Gas Permeability	Methane Permeability	EN ISO 15105-1	0.13 ml/m^2/day/atm
	Methane Permeability (Jointed)	EN ISO 15105-1	1.00 ml/m^2/day/atm
	Carbon Dioxide Permeability	EN ISO 15105-1	3.01 ml/m^2/day/atm
	Vinyl Chloride Gas Permeability	EN ISO 15105-1	0.04 ml/m^2/day/atm
	Radon Permeability	K124/02/95	1.0 x 10^{-12} m^2/S
	Hydrogen Sulphide Permeability	EN ISO 15105-1	< 0.16 ml/m^2/day/atm

GROUND GAS PROTECTION
GP® TITANTANK®
TECHNICAL DATA SHEET

GP® TITANTANK®

Feature	Characteristics	Test Method	GP® TITANFLEX®
Durability and Chemical Resistance	Chemical Resistance - Sulfuric ACID (10% Solution of Sulfuric Acid (H_2SO_4)) 50° For 56 Days	EN 14414-A	TENSILE STRENGTH RETAINED 100% RESULT - PASS
	Chemical Resistance - BASIC (Calcium Hydroxide Saturated Suspension) 50° For 56 Days	EN 14414-B	TENSILE STRENGTH RETAINED 100% RESULT - PASS
	Chemical Resistance - SOLVENTS (35% Diesel, 35% Paraffin, 30% Oil Hd3O (Vol)) 50° For 56 Days	EN 14414-C	TENSILE STRENGTH RETAINED >80% RESULT - PASS
	Chemical Resistance - SYNTHETIC LEACHATE (Mixture of 14 Acids, Chlorides, Sulphates & Phosphates) 50° For 56 Days	EN 14414-D	TENSILE STRENGTH RETAINED 100% RESULT - PASS
	Resistance to Leaching - HOT WATER (Deionised Water) 50° For 56 Days	EN 14415-A	TENSILE STRENGTH RETAINED 100% RESULT - PASS
	Resistance to leaching - AQUEOUS ALKALINE (Saturated Calcium Hydroxide) 50° For 56 Days	EN 14415-B	TENSILE STRENGTH RETAINED 100% RESULT - PASS
	Resistance to Leaching - ORGANIC ALCOHOL (30% Methanol, 30% Isopropanol, 40% Glycol) 50° For 56 Days	EN 14415-C	TENSILE STRENGTH RETAINED 100% RESULT - PASS
	Chemical Resistance - BENZENE - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 95% (MD), 102% (CMD) RESULT - PASS
	Chemical Resistance - TOLUENE - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 94% (MD), 91% (CMD) RESULT - PASS
	Chemical Resistance - ETHYL BENZENE - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 99% (MD), 97% (CMD) RESULT - PASS
	Chemical Resistance - XYLENES - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 91% (MD), 106% (CMD) RESULT - PASS
	Chemical Resistance - TCE - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 99% (MD), 93% (CMD) RESULT - PASS
	Chemical Resistance - PCE - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 93% (MD), 93% (CMD) RESULT - PASS
	Chemical Resistance - NAPTHALENE - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 101% (MD), 93% (CMD) RESULT - PASS
	Chemical Resistance - HEXANE - 100% Saturated Concentration	EN 14414-D (MOD)	TENSILE STRENGTH RETAINED 99% (MD), 104% (CMD) RESULT - PASS

GROUND GAS PROTECTION
GP® TITANTANK®
TECHNICAL DATA SHEET

GP® TITANTANK®

JUTA UK

Please contact JUTA UK Directly for more information on GP® TITANTANK®

Jointing and Sealing

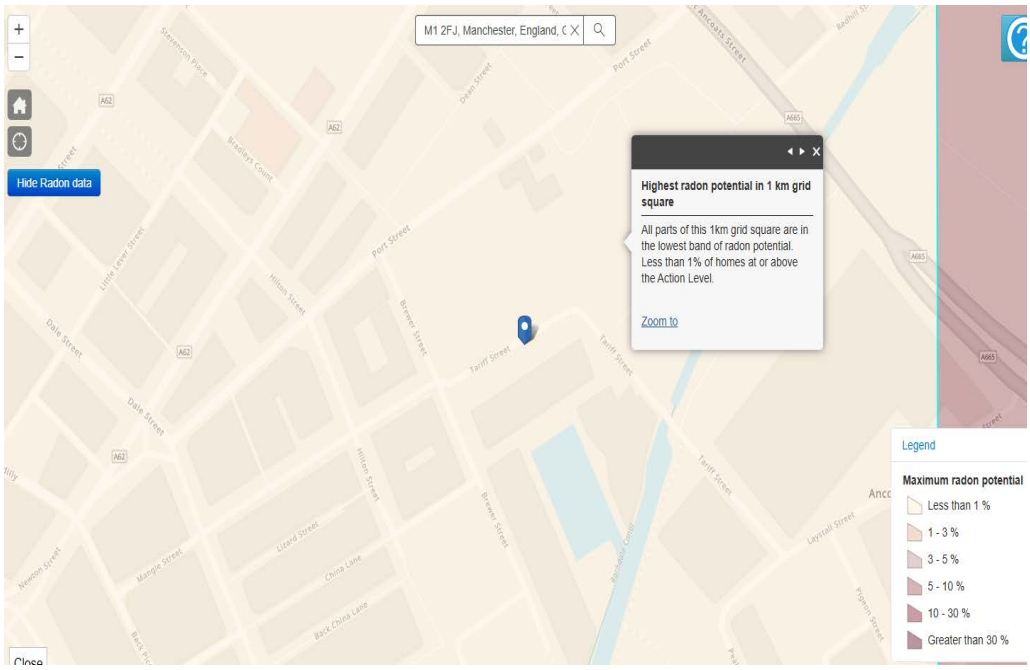
GP® TITANTANK® can be heat welded or taped, with jointing carried out by competent personnel with suitable qualifications in accordance with best practice. GP® TITANTANK® should be overlapped by at least 100mm. If taping joints, only suitable tape must be used, ensuring application with a silicone roller to remove trapped air. JUTA pre-formed details, or self adhesive gas membrane are available for sealing around protuberances.

Accessory Products

- GP® Primer
- GP® Protection Board
- GP® Protection Fleece
- PD1700

GeoShield Verification Plan

RADON MAPS UK - (Map 1) Site Location



Maximum Radon Potential: Less than 1%

Description: No Radon protection measures are required.

Postcode: M1 2FJ

GeoShield Verification Plan

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Technical Director
MOBILE PHONE:	07458 141 655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Plan

APPLICATOR'S DETAILS

APPLICATOR NAME:

COMPANY: RASCOR

APPLICATOR TEL:

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: The name of the installers are unknown at this point so the installers will either be identified at the pre-verification meeting or the first site visit.

GeoShield Verification Plan

HEALTH AND SAFETY

INDUCTION:	YES		NO:	✔
INDUCTION TIME:				

CSCS CARD:	YES	✔	NO:	
CSCS CARD NUMBER:	13466546			

METHOD STATEMENT:	YES	✔	NO:	
RISK ASSESSMENT:	YES	✔	NO:	
COSHH:	YES	✔	NO:	

SITE SPECIFIC HAZARDS: Materials falling from height

Slips, trips and falls

Excavations

Confined spaces

Plant

GeoShield Verification Plan

APPLICATOR'S DETAILS

TRAINING LEVEL:

SPECIALIST CONTRACTOR:	YES	✓	NO		
NVQ LEVEL 2:	YES	✓	NO		
COMPETENT APPLICATOR:	YES	✔	NO		
TOOLBOX BY GEOSHIELD:	YES		NO	✓	

REASON FOR VISIT:

DURING INSTALLATION:	✔	UNDERSLAB VENTILATION	
PRE - POUR:	✔	DPC MEMBRANE CONNECTION	
TESTING:	✔	OTHER (PLEASE SPECIFY):	✔

NOTIFICATION:

24 HOURS:	YES	✔	48 HOURS:	YES	✔

NOTES: It will be deemed that these applicators are at an appropriate skill level for the job of installing the ground gas protection measures.

Toolbox talk training can be provided by Geoshield for the management team and installers, should it be required.

GeoShield Verification Plan

In accordance with guidance from CIRIA 735 & CIRIA C748.

Radon gas protection measures specify to the guidance from the BR 211 document:

VOC/Hydrocarbons	☐	RADON BASIC	☐
		RADON FULL	☐

Characteristic Specification (CS) Rating	CS2
Building Type:	TYPE B
POINTS REQUIRED UNDER BS8485:2019	3.5 POINTS

POINTS GAINED FROM BS8485:2019

Score for Structural Barrier:	1.5
Grade 2 Basement:	N/A
Grade 3 Basement:	N/A
Score for Venting:	N/A
Car Park:	N/A
Score for Membrane:	2.0 POINTS
POINTS ACHIEVED UNDER BS8485 2019:	3.5 POINTS

GeoShield Verification Plan

Basement Areas

In accordance with guidance from CIRIA 735 & CIRIA C748.

Radon gas protection measures specify to the guidance from the BR 211 document:

VOC/Hydrocarbons ☐

RADON BASIC ☐

RADON FULL ☐

Characteristic Specification (CS) Rating	CS2
Building Type:	TYPE B
POINTS REQUIRED UNDER BS8485:2019	3.5 POINTS

POINTS GAINED FROM BS8485:2019

Score for Structural Barrier:	N/A
Grade 2 Basement:	N/A
Grade 3 Basement:	2.5 POINTS
Score for Venting:	0 POINTS
Car Park:	N/A
Score for Membrane:	2.0 POINTS
POINTS ACHIEVED UNDER BS8485 2019:	4.5 POINTS

GeoShield Verification Plan

TESTING PROCEDURES

VISUAL: PICK & PROBE/MECHANICAL POINT STRESS TEST:	✔
NON-DESTRUCTIVE COMPRESSED AIR LANCE TEST:	✔
NON-DESTRUCTIVE SMOKE TEST:	
DESTRUCTIVE JOINT TESTING:	
NON-DESTRUCTIVE TRACER GAS TESTING:	
DIELECTRIC POROSITY TEST:	
PUMP TEST FOR "Twinny" WELD	

NOTES: From the risk assessment GeoShield will initially conduct a visual

NOTES: and pick and probe testing regime for this project.

NOTES: Air lance testing with be conducted to test the installed membrane in

NOTES: accordance with CIRIA 735.

NOTES:

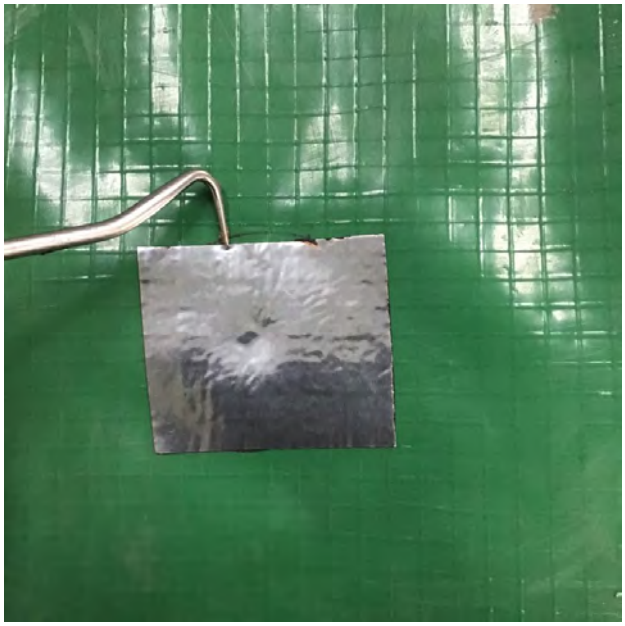
NOTES: Only if the application falls below the accepted standard will other testing

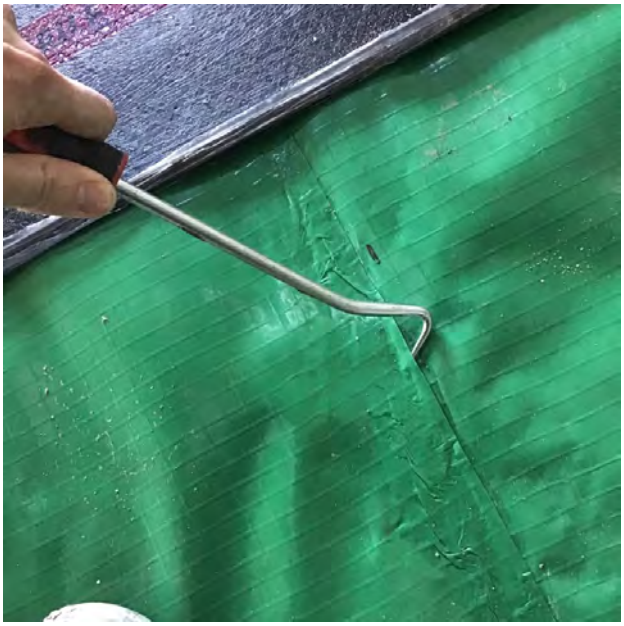
NOTES: be used.

GeoShield Verification Plan

SPECIFICATION

Mechanical Point Stress/ ‘Pick and Probe’ Testing





CIRIA 735

4.3.2 - Mechanical point stress tests involve running a blunt instrument (e.g. a screwdriver) along the edge of a seam to identify any unbonded seams. This method is not as effective as air lancing but it can be especially useful in hard to reach areas where it is not possible to air lance.

The instrument used should not puncture the gas membrane. This method is less appropriate for materials that are easily punctured where an air lance test is more suitable (although if a gas membrane can be easily punctured its suitability as a membrane is open to question).

GeoShield Verification Plan

SPECIFICATION

Air Lance Testing

CIRIA 735

4.3.3 - Air lance testing identifies unbonded areas of seam by directing a high pressure jet of air at the seam. The air is at a minimum pressure of 345kPa via a 4.8mm nozzle and is located no more than 50mm from the seam being tested.

In order to achieve the requirements of ASTM D4437-08:2013 bespoke specialist equipment is required to maintain the required pressure.

GeoShield Verification Plan

RISK ASSESSMENT

SITE SPECIFIC CIRCUMSTANCES	1	2	3	4	5
Complexity of Design			✔		
Repetition of Design		✔			
Experience of Workforce		✔			
Gas Regime		✔			
Project Management Experience			✔		
Installation Conditions (exposed?)			✔		
Robust Project Specific Gas Design		✔			

TYPE OF RISK	RANGE	RISK
High Risk	23 - 30	
Medium High Risk	19 - 22	
Medium Risk	15 - 18	17
Medium Low Risk	11 - 14	
Low Risk	0 - 10	

GeoShield have classed this project as a medium risk.

GeoShield will lay all parameters down for standards at the pre-verification meeting to

assist both the installer and the main contractor.

GeoShield Verification Plan

VERIFICATION REPORT

These items will be included in the report

NUMBER 1	GAS MEMBRANE SPECIFICATION
NUMBER 2	ELEMENTS OF THE GAS MEMBRANE
NUMBER 3	DATE, TIME and WEATHER CONDITIONS
NUMBER 4	PLANS and DETAILS ISSUED
NUMBER 5	INSTALLATION PHOTOS RELATING TO GRID LINES
NUMBER 6	REPORTING DEFECTS AND LOGGING IN REMEDIATION LOG
NUMBER 7	AREAS OF LIMITATION (areas unable to inspect)
NUMBER 8	LOGGING AND REPORTING RESULTS OF TESTING

VERIFICATION REPORT ISSUE

HARD COPY:	YES	✔	NO		EMAIL:	YES	✔	NO	
DROP BOX LINK:	YES	✔	NO		FLASH DRIVE:	YES		NO	✔

GeoShield Verification Plan

GEOSHIELD COMPETENCE

>GeoShield was founded in 2015.

>GeoShield solely verifies, they are fully independent of installers, manufacturers and geotechnical companies.

>GeoShield follow guidance in CIRIA 735 (sufficient experience, membership of relevant professional organisations). GeoShield are members of the BVC, BGA, ERA, The RADON Council, and UKRA.

>Currently GeoShield hold the Chairmanship of the British Verification Council.

>Two employees are NSAC Level 3 Assessors for the NVQ 2 Gas Membrane install.

>GeoShield were key in forming the NVQ 4 Verification qualification in which 2 Verification Officers are undertaking this qualification.

>GeoShield have the only qualified Assessor for the NVQ 4 Verification qualification.

>GeoShield Verification Officers currently keep up to date CPDs.

>All GeoShield Verification Officers have a full understanding of gas membrane install, including 3 experienced (NVQ 2) Installers in the GeoShield team.

>GeoShield Verification Officers are all independent carrying their own air compressors. Other testing equipment GeoShield have access to are 2 x Buckley Dielectric Testing machines and also inert gas testing equipment.

GeoShield Verification Plan

VERIFICATION PLAN

METHOD STATEMENT

EXPECTED VISITS:- 14 site visits are deemed necessary for verification, however extra visits may be considered for potential remediations before sign off.

5No visits for Building 2 and 9No visits for Building 1

TESTING:- Mechanical Point Stress (Pick & Probe) testing taped/welded areas.

Air lance testing will be conducted where access allows for use of equipment.

PURPOSE:- Geoshield are 3rd party gas membrane verifiers and in order for this project to be compliant with BS8485:2019 and in accordance with CIRIA 735, this project will NOT achieve sign off for gas membrane installation unless independent verification is carried out.

REPORTING:- Each site visit be accompanied with a written and electronic report. Any remediations either completed on the visit or outstanding for a later date will be recorded and logged, sign off will not be achieved for each section area until all remediations has been completed. This will be fully recorded at all times.

GeoShield Verification Plan

VERIFICATION PLAN

METHOD STATEMENT	
GROUND GAS RISK:-	From detail design drawings this project has been classified as a Type B building and a CS2 rating in accordance with BS8485:2019. This will require to mitigate a minimum score of 3.5 points. This will be achieved by 3rd party verificationof the gas membrane, slab substrate and waterproofing to Grade 3 design a combination of which will achieve the necessary requirements.
GAS MEMBRANE PROTECTION:-	It is essential that upon satisfactory install of gas membrane and after verification work is completed. In addition warning labels will be issued by Geoshield to advise on the need to restrict access to the installed area by follow on trades and their due diligence. This will help to reduce potential damage caused. This is essential before the final slab or screed is poured over the membrane.
FINAL:-	Geoshield will liaise with the projects site supervision and all relevant parties prior to the installation start. This plan will be presented and reviewed, all points made clear as previously stated. Any alterations will be listed at the end of this plan as an all party agreed way forward.

GeoShield Verification Plan

SUBSTRATE METHOD STATEMENT

SUBSTRATE TYPE:

Block and Beam Construction	Yes		No	✔				
Minimum Preparation	Swept Clear	Yes		No				
Minimum Preparation	Vacuuming	Yes		No				
Minimum Preparation	Compressed air to remove	Yes		No				
Minimum Preparation	Remove Mortar Droppings	Yes		No				
Stone Substrate	Yes	✔						
Minimum Preparation	Minimum 25mm Sand Blinding	Yes		No	✔			
Minimum Preparation	Limestone Dust	Yes		No	✔			
Minimum Preparation	Compacted Substrate	Yes	✔	No				
Minimum Preparation	No large stones	Yes	✔	No				
Concrete Substrate	Yes	✔	No					
Minimum Preparation	No Hollows	Yes	✔	No				
Minimum Preparation	Troweled Surface	Yes	✔	No				
Remarks:	a cast in situ reinforced monolithic slab with basement floor and							
walls conforming to Grade 3 waterproofing.								

GeoShield Verification Plan

PRE-CONTRACT MEETING

Items for discussion at the Pre-Contract meeting:-	
>Induction Procedure	
>Identification of Installation team and point of contact	
>Identification of Project Management team	
>Identification of Sub-Contractors associated with membrane installation	
>Validation of Membrane and Design Specification	
>Verification Procedure	
>Notifications for Verification	
>Preparation of Substrate	
>Program of Works	
>Utility Entry	
>Protection of Membrane	
>Remediation Procedure	
>Testing Procedures	
>Sign off Procedure	
>Installer PI	

All information is assumed correct at time of issue.

DATE:	

GeoShield Verification Plan

PRE-CONTRACT MEETING SUMMARY

As discussed in this Pre Verification Plan, the installation and verification of the

JUTA products. All details and drawings in this verification plan have been discussed

so now the installers must run through how they will install the JUTA products. The

intended method and manufacturers specification have been discussed in relation

to the details provided for the project. Methods for preparation before installation have

been laid out so the workers are made aware of the standards required to gain consent

from the local authorities in order to satisfy and discharge planning consent. In

addition to this aftercare of the JUTA products such as the JUTA Titanbond during

, after installation, and after verification.

Finally GeoShield have discussed the site visits that are required and what testing and

verification will be carried out to the highest standard and verification principles

associated with CIRIA 735 and BS8485:2015 +A1 2019.

GeoShield Verification Plan

PRE-CONTRACT MEETING SUMMARY

A proforma quality assurance document will be discussed during the Pre-Verification

meeting and training undertaken with the management team for non verified areas.

The Pre-Verification meeting will be led by Geoshield and should include all relevant

parties who have an impact on the installation and future protection. Geoshield will

provide guidance and strategy for all parties.

The site specific checklist will be covered as well as the risk assessment.

This site has been classified as a CS2 gas regime rating.

Any design alterations will be discussed and included in a revised Pre-Verification Plan.

Any specification changes must also be included in a revised Pre-Verification Plan.

All items will be minuted by the Geoshield representative.

This Pre-Verification plan follows all current guidance and the aim is to make all parties

aware of the ramifications of poor installation and their responsibilities if they damage

the membrane.

rascor®

Pioneers in waterproofing

TECHNICAL SUBMITTAL

Below Ground Waterproofing and Ground Gas Protection

Project : 1 NORTHERN QUARTER TARIFF STREET MANCHESTER

Client : OBR CONSTRUCTION LTD

Date : 11th JUNE 2024 Rev : 2

(Drawings updated)

OBR CONSTRUCTION GROUP

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RASCOR

RASCOR UK Ltd is a specialist preventative and remedial waterproofing company and part of the international. Swiss based RASCOR Group who have operations worldwide. RASCOR manufactures, designs, and installs waterproofing solutions for a wide range of water-retaining and water-excluding structures including basements, tunnels, water and wastewater facilities and data centers.

In the United Kingdom RASCOR have provided waterproofing solutions to prestigious projects such as Crossrail C305 and C310, Thames Tideway, the Claridge's Hotel Mega-basement, the Royal Central School of Speech and Drama and the new Eton College Sports Centre.

The Writer

The writer of this report is Pat Mulligan who is a Civil Engineer (MIEI), a qualified and experienced Concrete Technologist (MICT) and Certified Surveyor in Structural Waterproofing (CSSW).

The Project

The proposed 1 Northern Quarter (1NQ) scheme will consist of two new residential tower blocks (Block 1 and Block 2). Block 1 will provide a build to rent residential tower, consisting of 211 apartment units. The proposal for Block 2 includes a new tower block consisting of 56 apartments.
Both Blocks have a single storey basement.
The basement to Block 1 (1NQ) accommodates a Tank Room, Cycle Storage, Comms Room and Cleaners Store.
The basement to Block 2 (Clements) accommodates a Tank Room, Comms Room and Cycle Storage.
The Lift Pits for both blocks are in the basement.

Site History

The site initially consisted of various warehouse buildings and a canal as part of a wharf in 1893. The canal in the north of the site linked to the nearby Rochdale Canal. In the following years from 1922 to 1932, the canal was infilled with an unknown material and replaced with a garage, paint works, and furniture warehouse. By 1951, the furniture warehouse was removed and between 1963 and 1981, Hills Service Garage was divided into two units. From 1983 to 1990, the site had two main buildings with a shared wall and hardstanding. These buildings were demolished between 1990 and 1992. Since then, there have been no significant changes to the site.
In 1893, the land surrounding the site consisted of residential and industrial units connected to the wharf, with a rail line to the south, with additional buildings developed around the wharf by 1908. Between 1922 and 1932, new outbuildings were constructed to the east, with additional units and chimneys to the north and south. A machine tool warehouse was recorded in 1948 to the east of the site, with some of the outbuildings having been demolished. Between 1990 and 1992, remaining structures to the east of the site were combined into one. Since 1992, no significant changes have taken place, and the structures on the eastern side remain combined.

The site is currently utilised as a car park.

Geology

The site includes Made Ground beneath asphalt or concrete hardstanding. Most exploratory holes encountered Granular Made Ground at depths of around 1.8mbgl, with Cohesive Made Ground observed typically to depths of 2.8mbgl. The Made Ground, associated with the infilled canal, is typically about 1m deeper than the surrounding area ranging from 3.5mbgl to 4.0mbgl. The infilled canal similar to the wider site, consists of a layer of Granular Made Ground over laying Cohesive Made Ground. The upper layer of Cohesive Glacial Till was encountered across the entire site, ranging in depth from 4.5m to 18.0mbgl. This layer is described as firm to stiff slightly gravelly Clay. It contains fine to medium gravels, including flint, sandstone, siltstone, and limestone. This is underlain by an upper layer of Granular Glacial Till which ranges in depth from 8.0mbgl to 18.1mbgl, with a thickness between 0.5m and 3.1m and comprises a slightly silty clayey gravelly fine Sand. It directly overlays a second lower layer of Cohesive Glacial Till present to depths between 16.5m and 24.0mbgl and comprises a firm to stiff brown sandy gravelly Clay with occasional cobble content. The Lower Granular Glacial Till ranges in depth from 19.0m to 27.2mbgl. It is often found above the sandstone bedrock and consists of dense to very dense sandy gravel with low cobble content. Deposits from the Chester Formation Sandstone are present beneath the site at elevations of between 20.72m and 21.76m AOD (27.2m and 26.8mbgl), indicating the bedrock level beneath the site is relatively uniform. The sandstone is recorded as comprising an upper weathered zone (<0.7m thick), grading with depth into intact rock.

Groundwater

Groundwater seepage was encountered in the boreholes at depths of between 0.8 and 2.0 mbgl (metres below ground level) in the cohesive made ground and a groundwater strike was encountered in the Glacial Till (sand) at a depth of 7.5mbgl.

It is possible that localised pockets of perched water may exist within the Made Ground deposits anticipated at the site. Furthermore, perched water may be present within the infilled former canal basin.

Ground Gases

Radon

The UK Radon Atlas (Health Protection Agency 2007)2 indicates the site to lie within a lower probability radon area where less than 1% of properties are estimated to be at or above the radon action level. Radon protection measures are therefore not considered to be required for the proposed development.

Methane and Carbon Dioxide

Ground gas protection measures as required for a site classified as characteristic gas situation Cs2 are to be provided.

The revised Fairhurst Remediation Method Statement 143404/04 of January 2024 says that considering the gas monitoring data the site should be classified as being of Characteristic Gas Situation Cs1 for which ground gas protection measures would not be required. However, the Report also states that ‘’ I***n view of the made ground beneath the site and as a precaution gas protection measures are required with Characteristic Situation 2 and in accordance with BS8485 and CIRIA C665***’’.

RASCOR Ground Gas Protection Strategy

The RASCOR Ground Gas Protection Strategy is based on the principles set out in BS8485:2015+A1:2019 *Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings*.
The Remediation Method Statement says that the site has to be considered as having a Characteristic Situation CS2 and the building is defined as a Type B building when referencing BS 8485:2015+A1:2019 *Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings.*

Protection from VOCs is also required.

Table 4 — *Gas protection score by CS and type of building*

CS	Minimum gas protection score (points)			
	High risk		Medium risk	Low risk
	Type A building	Type B building	Type C building	Type D building
1	0	0	0	0
2	3.5	3.5	2.5	1.5
3	4.5	4	3	2.5
4	6.5 [A)]	5.5 [A)]	4.5	3.5
5	— [B)]	[A1] 6 〈A1〉 [A)]	5.5	4.5
6	— [B)]	— [B)]	[A1] — [B)] 〈A1〉	[A1] 6 〈A1〉

[A)] Residential buildings should not be built on CS4 or higher sites unless the type of construction or site circumstances allow additional levels of protection to be incorporated, e.g. high-performance ventilation or pathway intervention measures, and an associated sustainable system of management of maintenance of the gas control system, e.g. in institutional and/or fully serviced contractual situations.

[B)] The gas hazard is too high for this empirical method to be used to define the gas protection measures.

Following the procedures in BS 8485 a minimum gas protection score of 3.5 points is required and this score must come from two of the three available gas protection methodologies, ventilation, the structural barrier, and a gas membrane.

The structural barrier can be utilised to contribute to the ground gas protection regime throughout the basement.

The ground gas protection to be provided in addition to that provided by the structural barrier is achieved using a gas membrane. This membrane must satisfy the requirements for protection against methane and carbon dioxide as well as the VOCs present.

Table 5 — *Gas protection scores for the structural barrier*

Floor and substructure design (see Annex A)	Score [A]
Precast suspended segmental subfloor (i.e. beam and block)	0
Cast in situ ground-bearing floor slab (with only nominal mesh reinforcement)	0.5
Cast in situ monolithic reinforced ground bearing raft or reinforced cast in situ suspended floor slab with minimal penetrations	1 or 1.5 [B]
Basement floor and walls conforming to BS 8102:2009, Grade 2 waterproofing [C] A1 [D] A1	2
Basement floor and walls conforming to BS 8102:2009, Grade 3 waterproofing [C] A1 [D] A1	2.5

[A] The scores are conditional on breaches of floor slabs, etc., being effectively sealed.

[B] To achieve a score of 1.5 the raft or suspended slab should be well reinforced to control cracking and have minimal penetrations cast in (see **A.2.2.2**).

[C] The score is conditional on the waterproofing A1 being provided by a suitable structural barrier with the design and detailing of the walls and floor meeting the requirements for Type B protection. The score cannot be assigned for Type A (waterproof membrane) or Type C (drained cavity wall). A1

[D] A1 If a membrane is installed beneath and around the basement to provide Type A waterproofing (BS 8102:2009), it can be assigned a gas protection score in accordance with Table 7, if it meets all the criteria for a gas resistant membrane in that table. A1

The basement is waterproofed to at least Grade 2 as defined in BS 8102 so we can achieve a score of **2 points** from this solution. If the necessary ventilation or other environmental controls are provided to achieve a grade 3 waterproofing environment, we can achieve a score of 2.5 points from the structural barrier. Please see table 5 from BS 8485 above.

Referencing Table 7 of BS 8485 above the membrane proposed will provide a gas protection score of **2 points.**

The gas membrane selected must satisfy the requirements set out in Table 7 of BS 8485. The membrane must also be installed by people who hold the NVQ Level 2 qualification for installing gas membranes and the installation must be independently verified in accordance with CIRIA 735.
If all of these criteria are not met, then the gas protection score attributable to the membrane is zero.

Table 7 — *Gas protection score for the gas resistant membrane*

Protection element/system	Score	Comments
Gas resistant membrane meeting all of the following criteria: • sufficiently impervious 〈A1〉 , both in the sheet material [A)] and in the sealing of sheets and sealing around sheet penetrations, to prevent any significant passage of methane and/or carbon dioxide through the membrane; 〈A1〉 • sufficiently durable to remain serviceable for the anticipated life of the building and duration of gas emissions; • 〈A1〉 *Text deleted* 〈A1〉 • sufficiently strong 〈A1〉 [B)] 〈A1〉 to withstand the installation process and following trades until covered (e.g. penetration from steel fibres in fibre reinforced concrete, penetration of reinforcement ties, tearing due to working above it, dropping tools, etc); 〈A1〉 and to withstand in-service stresses (e.g. settlement if placed below a floor slab); 〈A1〉 • capable, after installation, of providing a complete barrier to the entry of the relevant gas; and • verified in accordance with CIRIA C735 [N1].	2	The performance of membranes is heavily dependent on the quality and design of the installation, resistance to damage after installation and integrity of joints. 〈A1〉 *Text deleted* 〈A1〉 If a membrane is installed that does not meet all the criteria in column 1 then the score is zero.

[A)] 〈A1〉 A membrane with a methane gas transmission rate <40.0 ml/day/m²/atm (average) for sheets and joints (tested in accordance with BS ISO 15105-1:2007 manometric method) is regarded as sufficiently impervious.

[B)] For example, reinforced LDPE (virgin polymer) membranes having a minimum mass per unit area of 370 g/m² and not significantly less than 0.4 mm thickness between the reinforcement scrim (tested in accordance with Procedure D (2 mm diameter tip) of BS EN ISO 9863-1:2016) installed above floor slabs are considered sufficiently strong to meet the performance criteria (see also **C.3**). Thicker and more robust membranes or an additional membrane protection layer should be installed directly beneath cast-in-situ floor slabs. 〈A1〉

We therefore have a total gas protection score of **4 points** which is in excess of the 3.5 points required.

The total score is 4.5 points if we consider the environmental controls necessary for Grade 3 waterproofing protection.

The Juta Titanbond membrane product selected for the project provides the necessary waterproofing properties as well as protection against the ingress of ground gases that are of concern on this project.

Extract from Juta Titanbond Technical Datasheet

Feature	Characteristics	Test Method	GP® TITANBOND®
Compliance and Certification	CE Mark - EN13967:2012		
	NHBC Standards Compliant		
	BS 8485:2015 Compliant (Methane and Carbon Dioxide barrier)		
	CIRIA C748 Compliant (VOC Barrier)		
	BS 8102:2009 Compliant (Type A Waterproofing Barrier)		
Vapour Permeability 100% Concentration	Transmission Rate of Benzene	EN ISO 15105-2	< 3.6 mg/m²/day
	Transmission Rate of Toluene	EN ISO 15105-2	< 13.8 mg/m²/day
	Transmission Rate of Ethyl Benzene	EN ISO 15105-2	< 2.7 mg/m²/day
	Transmission Rate of Xylenes (M,P,O)	EN ISO 15105-2	< 7.7 mg/m²/day
	Transmission Rate of Hexane	EN ISO 15105-2	< 0.6 mg/m²/day
	Transmission Rate of Vinyl Chloride	EN ISO 15105-2	< 0.05 mg/m²/day
	Transmission Rate of Trichloroethene (TCE)	EN ISO 15105-2	< 54.7 mg/m²/day
	Transmission Rate of Tetrachloroethene (PCE)	EN ISO 15105-2	< 26.2 mg/m²/day
	Transmission Rate of Naphthalene	EN ISO 15105-2	< 0.0006 mg/m²/day
	Transmission Rate of CIS-1,2-Dichloroethylene	EN ISO 15105-2	< 1.1 mg/m²/day
Gas Permeability	Methane Permeability	EN ISO 15105-1	0.13 ml/m²/day/atm
	Methane Permeability (Jointed)	EN ISO 15105-1	1.00 ml/m²/day/atm
	Carbon Dioxide Permeability	EN ISO 15105-1	3.01 ml/m²/day/atm
	Vinyl Chloride Gas Permeability	EN ISO 15105-1	0.04 ml/m²/day/atm
	Radon Permeability	K124/02/95	1.0 x 10^{-12} m²/S

Extract from Juta Titanflex Technical Datasheet

Feature	Characteristics	Test Method	GP® TITANFLEX®
Vapour Permeability 100% Concentration	Transmission Rate of Benzene	EN ISO 15105-2	< 3.6 mg/m²/day
	Transmission Rate of Toluene	EN ISO 15105-2	< 13.8 mg/m²/day
	Transmission Rate of Ethyl Benzene	EN ISO 15105-2	< 2.7 mg/m²/day
	Transmission Rate of Xylenes (M,P,O)	EN ISO 15105-2	< 7.7 mg/m²/day
	Transmission Rate of Hexane	EN ISO 15105-2	< 0.6 mg/m²/day
	Transmission Rate of Vinyl Chloride	EN ISO 15105-2	< 0.05 mg/m²/day
	Transmission Rate of Trichloroethene (TCE)	EN ISO 15105-2	< 54.7 mg/m²/day
	Transmission Rate of Tetrachloroethene (PCE)	EN ISO 15105-2	< 26.2 mg/m²/day
	Transmission Rate of Naphthalene	EN ISO 15105-2	< 0.0006 mg/m²/day
	Transmission Rate of CIS-1,2-Dichloroethylene	EN ISO 15105-2	< 1.1 mg/m²/day
Gas Permeability	Methane Permeability	EN ISO 15105-1	0.13 ml/m²/day/atm
	Methane Permeability (Jointed)	EN ISO 15105-1	1.00 ml/m²/day/atm
	Carbon Dioxide Permeability	EN ISO 15105-1	3.01 ml/m²/day/atm
	Vinyl Chloride Gas Permeability	EN ISO 15105-1	0.04 ml/m²/day/atm
	Radon Permeability	K124/02/95	1.0 x 10^{-12} m²/S

Vapours and other contaminants in the made ground.
The Remediation Method Statement says that there may be a risk that there are hydrocarbons or other potential vapour sources present in the made ground because of the historic and current use of the site.
The measures proposed by RASCOR to address the methane and carbon dioxide risks will provide the required level of protection from the risks associated with the possibility of harmful vapour sources in the made ground.

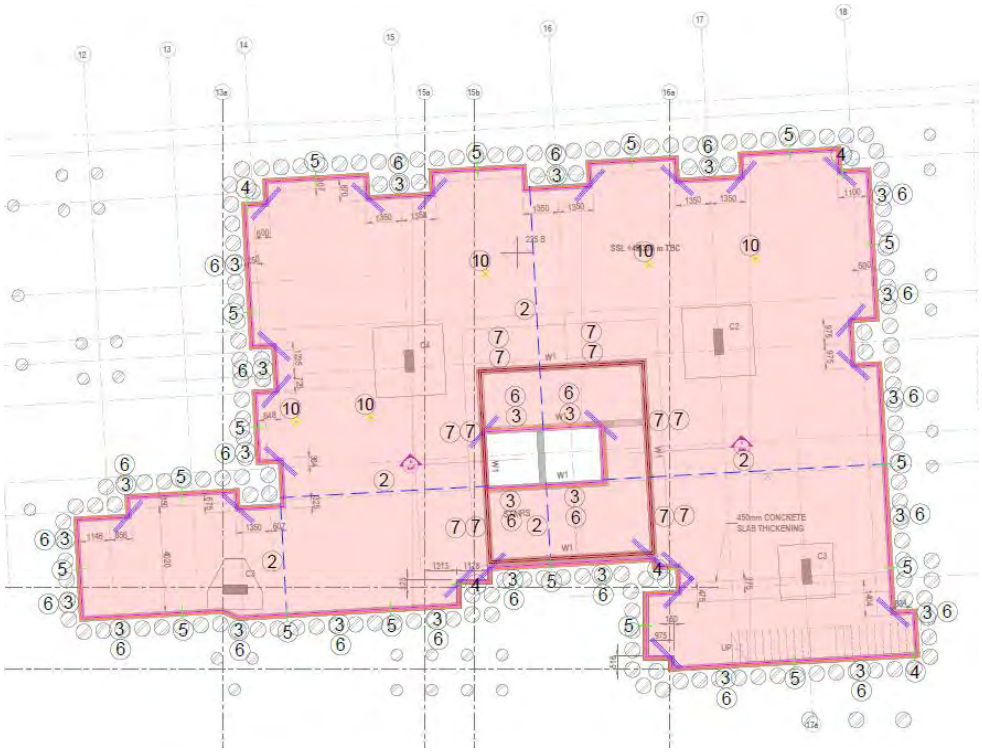
Waterproofing Design Considerations
RASCOR will design on the basis that all of the waterproofed structural elements will require waterproofing protection to resist full hydrostatic head.
The Site Investigation Report did identify ground water in the boreholes during drilling or during subsequent monitoring visits.
The site includes an infilled canal.
There is also a risk of water ingress from perched water, burst water mains, blocked drains or the like.

Structural Design Considerations
.
The basements will be constructed inside contiguous pile walls.
The liner wall is indicated as being 200mm thick.
The Basement Slab is 225mm thick supported on pile caps on bored concrete piles.

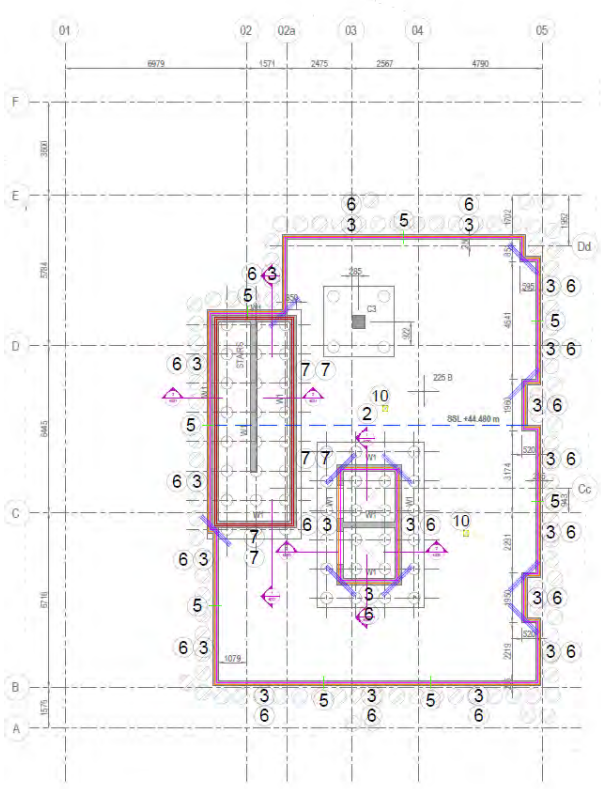
Watertight reinforced concrete elements are normally designed to a minimum thickness of 250mm. This advice is contained in NHBC Technical Standards and the Institution of Structural Engineers Guidance on designing structures to BS EN 1992-3 Eurocode 2. Design of concrete structures - Liquid retaining and containing structures.

RASCOR will review the structural design and the reinforcement arrangement proposed to ensure a robust Type B structurally integral waterproofing solution with appropriately controlled maximum shrinkage crack widths is provided.

Use of Spaces
The basement to Block 1 (1NQ) accommodates a Tank Room, Cycle Storage, Comms Room and Cleaners Store.
The basement to Block 2 (Clements) accommodates a Tank Room, Comms Room and Cycle Storage.
The Lift Pits for both blocks are in the basement.



Basement to Block 1 (1NQ)



Basement to Block 2 (Clements)

Grades of Waterproofing Protection

BS 8102:2022 *Protection of below ground structures against water ingress. Code of practice* defines four grades of waterproofing protection, Grades 1a, 1b, 2 and 3. The essential difference between the grades are as follows:

BRITISH STANDARD BS 8102:2022

Table 2 — *Waterproofing protection – Grades of performance for below ground spaces*

Grade[A]	Performance definition
1a	Seepage[B] and damp areas[C] from internal and external sources are tolerable, where this does not impact on the proposed use of below ground structure. Internal drainage might be necessary to deal with seepage.
1b	No seepage[B]. Damp areas[C] from internal and external sources are tolerable.
2	No seepage[B] is acceptable. Damp areas[C] as a result of internal air moisture/condensation are tolerable; measures might be required to manage water vapour/condensation[D].
3	No water ingress or damp areas[C] is acceptable. Ventilation, dehumidification or air conditioning necessary; appropriate to the intended use[D], [E].

[A] The agreed grade should meet with the client's expectations for the intended use of the below ground space. Reducing the grade could increase the risk of not meeting the expectations of the client for the intended use of the below ground space.

[B] Seepage (sometimes referred to as weeping) is defined in 3.15. If there is seepage, there is a possibility of mineral deposits forming.

[C] Damp area is defined in 3.4.

[D] The scope of this document is limited to detailing the process and best practices that can be followed when creating a waterproof or water-resistant structure below ground. The additional considerations that are required to achieve the required environment are beyond the scope of this document.

[E] See BS 5454 for recommendations for the storage and exhibition of archival documents.

The internal spaces in the basement in this development are classified as Grade 2 or in some cases, possibly Grade 3 environments.
Therefore, the migration of ground water through the basement structure will have to be fully comply with the requirement in the Standard that say ‘’no seepage is permissible’’.
For the Grade 3 areas there is the additional requirement for the environmental controls to address the risk of moisture and dampness cause by the condensation of moisture in the atmosphere.
These additional measures could take the form of ventilation, heating, insulation, or whatever measures are appropriate to the use of the spaces.
These measures are likely to be part of the design of the building and the mechanical and electrical services design.

Combined Waterproofing Protection.

BS 8102:2022 *Protection of below ground structures against water ingress. Code of practice* states that the use of two waterproofing system types in combination should be considered in cases where the consequences of failure to achieve the required internal environment are deemed too high. This means that, for example in the case of a basement carpark where the basement slab is trowelled and finished, and the retaining walls are off the form concrete a single line of waterproofing defence is sufficient because in the event of a leak occurring it would be immediately obvious and could be repaired with minimal cost or disturbance to the building users. In this case the cost of providing two lines of waterproofing defence would not be justified. On the other hand, if we have a habitable space with insulation, screed and finishes on the floor and studwork or blockwork lining to the walls and a leak were to occur the space would have to be taken out of service and the finishes removed and reinstated in order to find and repair the leak. In this case it is appropriate to provide two lines of defence in the first place to reduce the risk of such a leak occurring.

''Combined Waterproofing Protection'' is being provided to the basement areas in this project because the gas membrane must be able to withstand the hydrostatic pressure in the basement so it must also act as a waterproofing membrane.

RASCOR Waterproofing Solution.

RASCOR are providing the RASCOtank Type B structurally integral waterproofing system to the basements of both blocks.

In addition, a fully compliant Type A waterproofing solution is being provided using the Juta Titanbond membrane system.

RASCOR Ground Gas Protection Solution.

The gas protection strategy for the project is developed in accordance with BS 8485 above.

Below ground gas protection is provided by a combination of the reinforced concrete structure and the fully bonded membrane Juta Titanbond.

At Ground Floor the gas protection is provided by a combination of the structural barrier provided by the reinforced concrete ground floor slab and the loose laid Juta Titanflex membrane.

The membrane, in both cases will be detailed to form a continuous waterproofing / gas barrier to above ground.

The RASCOtank System

As primary waterproofing protection RASCOR propose providing our RASCOtank structurally integral waterproofing system. The RASCOtank system is a Type B structurally integral waterproofing system as defined in BS 8102:2022 *Protection of below ground structures against water ingress. Code of practice*.

In type B construction the fabric of the structure itself (in this case the reinforced concrete basement slabs and walls) keep the ground water out.

The standard says that reinforced concrete elements that are correctly designed, of sufficient thickness, constructed from concrete suitable for structural work in the ground and placed properly provide protection from water ingress.

The standard highlights that from a waterproofing perspective the potential weaknesses in this type of waterproofing protection are defectively sealed construction joints and penetrations and cracking in the concrete.

The RASCOtank system addresses these issues so that a watertight basement can be guaranteed.

Joints

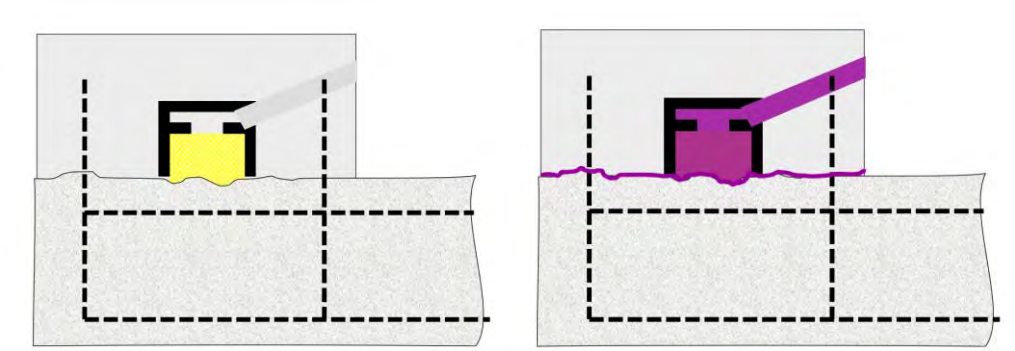
PVC waterbars or hydrophilic strips are not used to seal day joints in the RASCOtank solution.

Instead, a plastic injection channel with an open cell foam insert is fixed to the joint.

This channel is subsequently injected with a hydrophilic resin that is injected at the

consistency of water and at sufficient pressure to infiltrate all of the void age in the joint as well as the microcracking, honeycombing and the like that is often found at joint locations in

concrete structures.



The advantages of this methodology are.

- If there are any defects around the joint, they will be waterproofed by the resin injection.

- The injection takes place sometime after the concrete is placed so it cannot be damaged during concrete placement, and it accommodates all of the early age shrinkage and has a capacity to accommodate a further 30% opening in the joints so it facilitates the long-term shrinkage.

Cracking

Cracking in concrete is caused by a variety of factors.

Permissible cracking due to flexural strains or loading are not the most critical from a waterproofing perspective as the crack opens on one side and closes on the other.

A minimum proportion of the cross section of the element at flexural cracks must be in compression. Therefore, water ingress through flexural cracks in correctly designed structures is not a considerable issue.

Cracking caused by restrained shrinkage and thermal effects are of more concern as these cracks are likely to extend through the full depth of the element.

By design, and following the relevant design codes, in particular BS EN 1992-3:2006 Eurocode 2. *Design of concrete structures. Liquid retaining and containing structures* the width of these cracks is limited to that which will self-heal by autogenous healing.

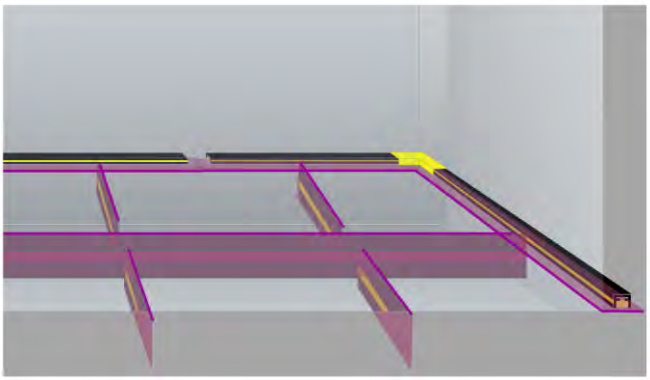
The default design crack width for such cracks is 0.2mm but this may have to be reduced depending on the hydraulic gradient referencing BS EN1992-3 and CIRIA 766 *Control of cracking caused by restrained deformation in concrete*.

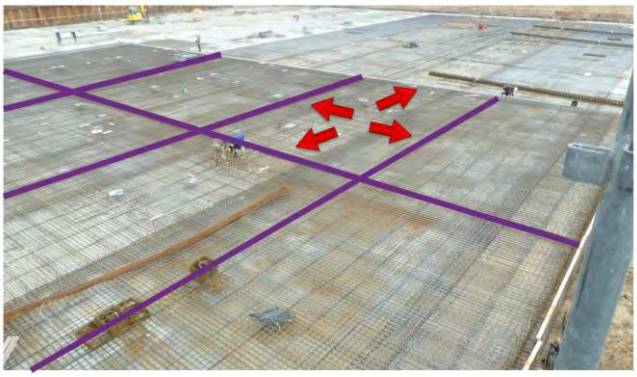
- The factors that determine the width of these cracks are
- The grade of concrete
- The thickness of the element
- The amount of reinforcement available control the crack width
- The distance between the locations where the shrinkage and thermal stresses can be accommodated by opening of the joints.

The RASCOtank system guarantees the crack widths to that which will be of a width that they will self-heal and therefore prevent water ingress.

It does this by introducing induced joints or crack inducers at strategic locations so that the day joints and these induced joints accommodate the stresses and, in virtually all cases without the need for additional reinforcement to control cracking.

The induced joints or crack inducers are also injected with the hydrophilic waterproofing resin similar to the day joints.





RASCOR will do the necessary checks to ensure that the design width of cracks that result from shrinkage or thermal effects (that are likely to extend through the thickness of the structural element and therefore permit water ingress if wide enough) are limited to maximum 0.2mm and will therefore because of autogenous healing prevent water ingress.

Penetrations

Pipe Penetrations and the like are normally waterproofed using puddle flanges.

However, if the concrete is not fully compacted around the puddle flange water ingress can occur following shrinkage of the concrete.

RASCORs solution is to wrap the pipe in the open cell foam which is held in place by a special collar that facilitates the resin injection process.

These collars are resin injected after the initial shrinkage in the concrete has occurred.

External Type A Waterproofing / Gas Membrane

For the external membrane in the basements RASCOR proposes the use of the Juta Titanbond. system.

GP® TITANBOND® is a pre-applied fully bonded waterproofing membrane incorporating the GP® TITANFLEX® membrane and a heavy-duty virgin polypropylene geotextile. The geotextile is laminated to the membrane to provide a dual function; protecting the membrane from damage and providing an integrated 'bond' to poured concrete, ensuring a fully bonded waterproofing barrier which has exceptionally high resistance to ground gases and VOCs. GP® TITANBOND® is used for the gas/waterproofing/tanking of underground structure where harmful ground gases are anticipated.

Juta Titanbond

For the external membrane beneath the ground floor slab RASCOR proposes the use of the Juta Titanflex system.

GP® TITANFLEX® gas and hydrocarbon barrier is a multi-layer, polyethylene membrane. GP® TITANFLEX® is specifically designed, manufactured, tested and certified to perform as a methane, carbon dioxide, radon ground gas, VOC, Air moisture and hydrocarbon protection system.

Juta Titanflex

Warranties and Insurances

As RASCOR design, supply and install the entire waterproofing solution specific to the project we can provide a warranty that is unrivalled in the market.

The RASCOtank Warranty guarantees the waterproofing performance of the structural elements of the basement waterproofed with the system for a period of 10 years.
We will also provide Product Guarantees for all of the products installed as part of our solution.

RASCOR Ltd hold Professional Indemnity Insurance for design and construction to the value of £5.0 million. We also hold the necessary Public and Employers Liability Insurances.

RASCOR, unlike any other waterproofing specialists are appointed as sub-contractors to design, supply and install the complete waterproofing solution for the project. Therefore we, uniquely can and do sign the Collateral Warranties and commit to the contractual obligations that that entails.

CSSW Qualifications

The RASCOR design and construction team includes Structural waterproofing professionals, structural and civil engineers, project managers, concrete technologists, and other construction professionals.

The requirement of the major structural warranty providers is that the person responsible for the waterproofing design to hold the Certified Surveyor in Structural Waterproofing qualification and be suitably experienced.
RASCOR have number of CSSW qualified waterproofing designers.

Accreditation of Installers

The RASCOtank Type B structural waterproofing system is only installed by RASCOR directly employed and specifically trained operatives.
The RASCOtank Type B structural waterproofing system is only installed by RASCOR directly employed and specifically trained operatives.
RASCOR are approved installers of Juta Type A waterproofing membrane systems and have been trained by Juta in the use of their products and systems.
A number of RASCOR installers hold the NVQ Level 2 Diploma for the installation of gas membranes.
RASCORs operatives hold the appropriate CSCS Skills cards.

RASCOR Project-specific Drawings and Calculations

RASCOR will provide bespoke project-specific drawings for the entire waterproofing solution to the project.

Reference Documents

Structural Engineers Drawings – Fairhurst 143404 – FAI Series- …….
Architects Drawings – Leach Rhodes Walker 8198 – LRW Series ……
Remediation Statement – Fairhurst Remediation Method Statement143404/04 January 2024
Interpretative Ground Investigation Report – WSP 70084785-WSP-GEO-IGR-001 Nov 2021

Supporting Documentation

Please find all of the supporting documentation to this submittal in this dropbox link
https://www.dropbox.com/scl/fo/vp65rbai78ts0qj5qt64e/AHchgxEpP7QXtJimsg6_b_4?rlkey=vk34lrz6n33glig4q6ngf7s3g&dl=0

RASCOR Drawings

LEGEND

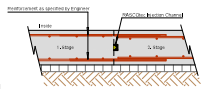
①	FF_{Ic}	Floor-Floor RASCOtec Injection Channel Vertical installation
②	FF_{Cr}	Floor-Floor RASCOtec Crack Inducer Vertical installation
③	FW_{Ic}	Floor-Wall RASCOtec Injection Channel Floor Slab-Wall Horizontal Installation
④	WW_{Ic}	Wall-Wall RASCOtec Injection Channel Vertical installation
⑤	WW_{Cr}	Wall-Wall RASCOtec Crack Inducer Vertical installation
⑥	WD_{Ic}	Wall-Deck Slab RASCOtec Injection Channel Horizontal Installation
⑦	HC	RASCOtight Hydrophilic Channel
⑧	MJ	Movement Joint Floor-Floor/Wall-Wall/ Deck Slab-Deck Slab
⑨	MP	RASCOtec Pipe Collar
⑩	HS	RASCOtight Hydrophilic Strip
⑪	TPE	RASCOjoint TPE Waterbar

The following shall generally apply:
RASCOtec injection channels shall be installed in all concrete joints (both horizontal and vertical) in the groundwater zone, the same applies to concrete joints in contact with liquid in tank/container areas. RASCOtec crack inducers shall be installed in dummy (crack control) joints. RASCOtec injection collars shall be incorporated at penetrations in contact with water.

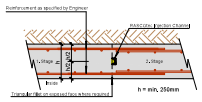
Note: For Membrane system refer to drawing UK230118-50

Note: Crack Inducers in walls shown at indicative locations. Their exact position to be updated upon confirming of the pour layout and receiving of RC drawings for walls.

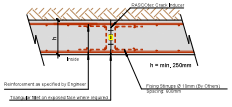
CONSTRUCTION JOINT IN GROUND SLAB ①



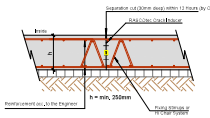
CONSTRUCTION JOINT IN WALL ④



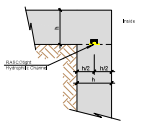
CRACK INDUCER IN WALL ⑤



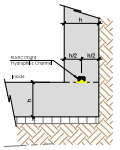
CRACK INDUCER IN GROUND SLAB ②

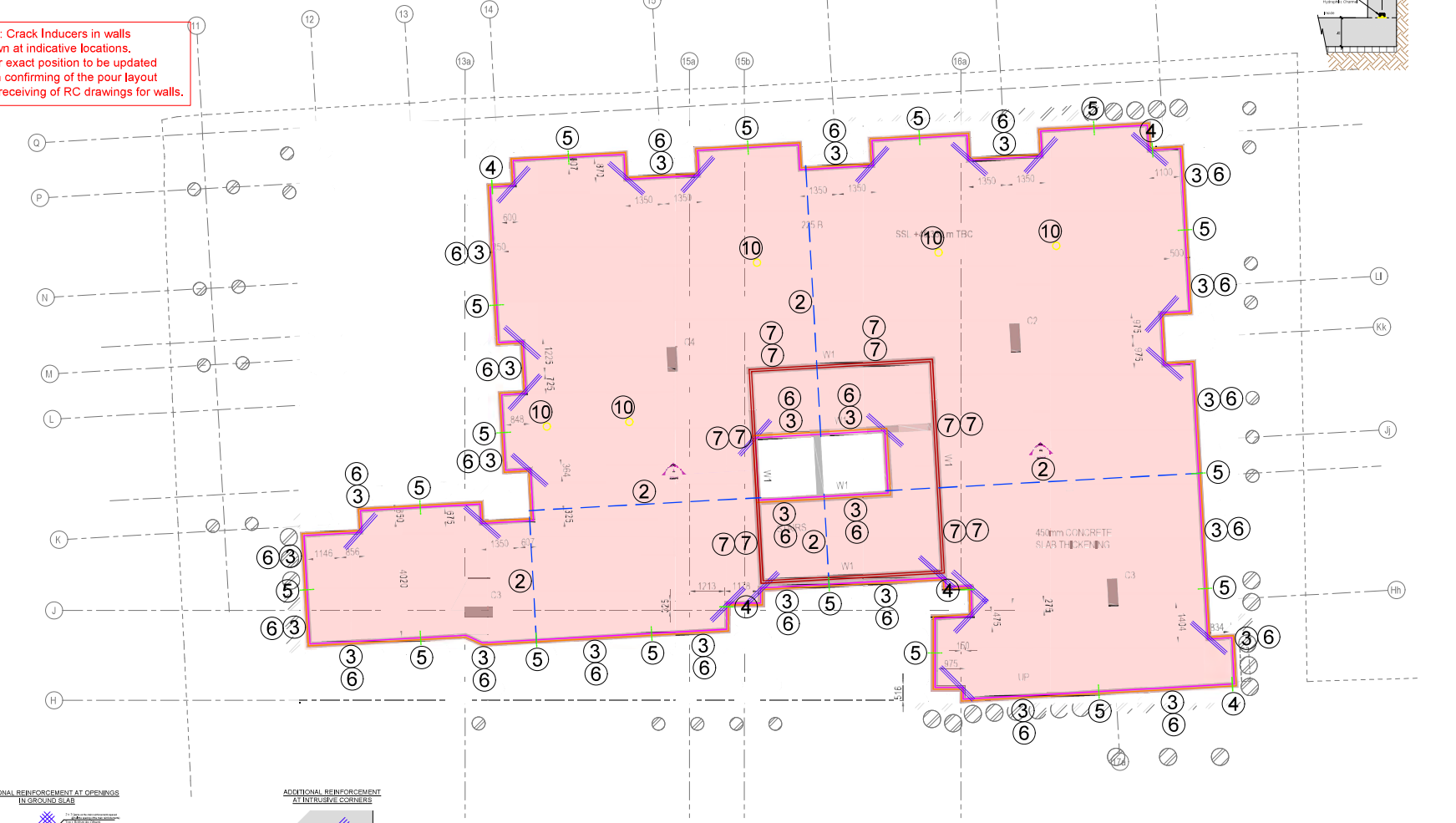


WALL / SUSPENDED SLAB JUNCTION WITH HYDROPHILIC CHANNEL ⑦

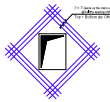


GROUND SLAB / WALL JUNCTION WITH HYDROPHILIC CHANNEL ⑦



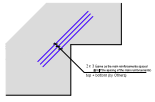


ADDITIONAL REINFORCEMENT AT OPENINGS IN GROUND SLAB

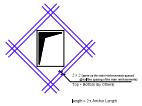


ADDITIONAL REINFORCEMENT AT CIRCULAR OPENINGS IN GROUND SLAB

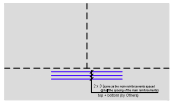
ADDITIONAL REINFORCEMENT AT INTRUSIVE CORNERS



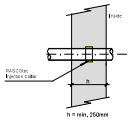
ADDITIONAL REINFORCEMENT AT OPENINGS IN WALLS



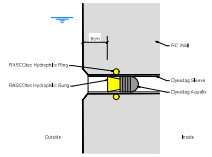
ADDITIONAL REINFORCEMENT AT BUTT JOINTS (CONSTRUCTION + CRACK INDUCING JOINTS)



IN SITU WALL PENETRATION

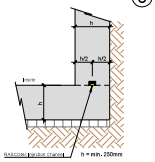


TYPICAL DYMDAG OPENING WATERPROOFING DETAIL

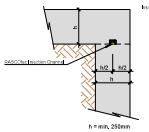


Installation by Others

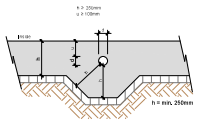
GROUND SLAB / WALL JUNCTION ③



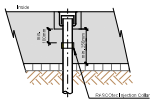
WALL / SUSPENDED SLAB JUNCTION ⑥



PIPE PENTRATION FORTIFICATION IF d ≥ 1/4 h



INLAID FLOOR DRAIN ⑩



1, Concrete
The Contractor shall be responsible for the supply, placement, finishing and curing of concrete,

1,1 Concrete definition by properties
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Concrete definition by properties (BS 8500-1:2015+A2:2019)				
Requirement classes	Structural elements			
	Slabs		Walls	
Compressive strength	C 32/40		C 32/40	
Exposure	DC2		DC2	
Maximum aggregate size D_{max}	20		20	
Chloride content	Cl 0,1		Cl 0,1	
Consistance	S5		S5	

1,2 Concreting
Concrete placement, compaction and finishing shall comply with the Engineers Specification BS EN13670, BS EN 206 and other relevant National Standards. RASCOR's specific requirements and established best practice. Particular attention shall be given to the necessary precautions for concreting in cold or very warm weather.

1,3 Concreting curing

Measures	Outdoor temperatures °C					
	below +5 °C	+5° to +10°	+10° to +15°	+15° to +25°	over +25°
Curing (protect membrane or continuous dampening - Moisten timber formwork; protect steel formwork against sunlight				●	●	
Curing (protect a) membrane			●	●		
Curing (protect membrane and thermal insulation Use of thermally insulating formwork		●	●			
Curing (protect and thermal insulation keep concrete temperature at >10° for at least 3 days (and case and heat corrosive element)	●	●				

1,4 Quality management for fresh concrete

Quality management for fresh concrete is responsibility of the Contractor

RASCOR reserves the right, at its own discretion, to commission an independent laboratory to take random samples of fresh concrete for testing.

RASCOR shall be given 48 hours' (two working days') notice of the commencement of concreting works for each pour.

RASCOR reserves the right to be provided with concrete quality records from the Contractor or to commission independent sampling and testing of concrete.

2, Guidance on design and workmanship

2,1 Preparation
- The base, reinforcement and formwork shall be free from water, snow and ice,
- The blinding (e.g. lean concrete) shall be neatly screeded,

2,2 Concrete and reinforcement
- To prevent leakage paths, the legs of reinforcement spacers used for the groundslab shall not bear on the blinding or base, Not applicable if using concrete blocks or bars.
- Concrete cover blocks shall be installed as spacers for the external reinforcement layers.
- Concrete elements shall have a minimum thickness of 250 mm.
- The minimum reinforcement requirement for crack limitation shall be specified in consultation with RASCOR for each specific project.
- Tie bolts (formwork ties, see detail) shall be properly sealed using the relevant RASCOR products to ensure a waterproof barrier.
- With joints incorporating prefabricated reinforcement continuity systems, provision is required to allow the RASCOR waterproofing units (e.g. injection channels) to be installed directly on the concrete. Where systems with a continuous plastics or metal support plate are used, the support plate shall be removed over a minimum width of 50 mm prior to fixing the waterproofing units. To avoid such problems, we recommend the use of reinforcement continuity systems with an open support plate, e.g. COMAX Type B, Quick BRA-B, Schöck-Idea Type V or the like.

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RASCOR shall be invited to carry out an inspection of the works prior to the extraction of sheet piling or similar works causing heavy vibration.

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Tariff Street, Manchester

Date	Revision Description
2024,06,06	First Issue

Construction Drawing
RASCOtank System

Block 1NQ Basement Plan and Rascor Details

rascor
Pioneers in waterproofing
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Email: engineering@rascor.com
Internet: www.rascor.com

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Based on the technical specifications of Rascor Engineering AG (Switzerland).

Drawn: dag	Reviewed: alk	Rev.:	Date: 2024,06,06	Revision No.: P01	Date: Rev.:	Revision No.:
Scale: 1 : 50		Rev.:			Rev.:	
Sheet Size: 90/121cm		Rev.:			Rev.:	
Plan-No.: UK 230118 - 01		Rev.:			Rev.:	

FOR APPROVAL

LEGEND

①	FF_{IC}	Floor-Floor RASCOtec Injection Channel Vertical installation
②	FF_{CI}	Floor-Floor RASCOtec Crack Inducer Vertical installation
③	FW_{IC}	Floor-Wall RASCOtec Injection Channel Floor Slab-Wall Horizontal Installation
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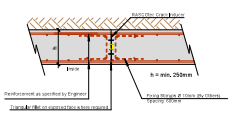
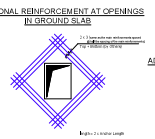
Note: Crack Inducers in walls shown at indicative locations. Their exact position to be updated upon confirming of the pour layout and receiving of RC drawings for walls.

Note: For Membrane system refer to drawing UK230118-51

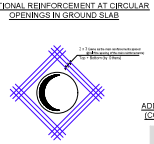
CRACK INDUCER IN WALL ⑤



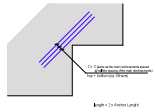
ADDITIONAL REINFORCEMENT AT OPENINGS IN GROUND SLAB



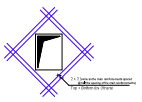
ADDITIONAL REINFORCEMENT AT CIRCULAR OPENINGS IN GROUND SLAB



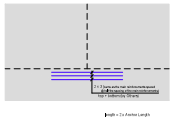
ADDITIONAL REINFORCEMENT AT INTRUSIVE CORNERS



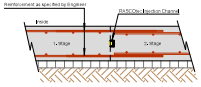
ADDITIONAL REINFORCEMENT AT OPENINGS IN WALLS



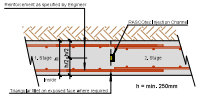
ADDITIONAL REINFORCEMENT AT BUTT JOINTS (CONSTRUCTION + CRACK INDUCING JOINTS)



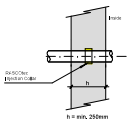
CONSTRUCTION JOINT IN GROUND SLAB ①



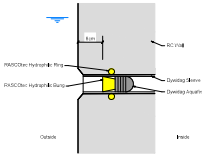
CONSTRUCTION JOINT IN WALL ④



IN SITU WALL PENETRATION

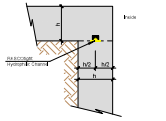


TYPICAL DYWIDAG OPENING WATERPROOFING DETAIL

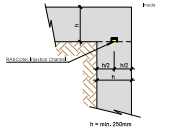


Installation by Others

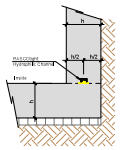
WALL / SUSPENDED SLAB JUNCTION WITH HYDROPHILIC CHANNEL ⑦



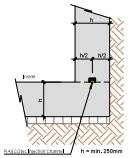
WALL / SUSPENDED SLAB JUNCTION ⑥



GROUND SLAB / WALL JUNCTION WITH HYDROPHILIC CHANNEL ⑦



GROUND SLAB / WALL JUNCTION ③



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Measures	Outdoor temperatures °C					
	below +1	+1° to +3°	+3° to +10°	+10° to +25°	over +25°	
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Curing (protect at membrane			●	●		
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Tariff Street, Manchester

Date	Revision Description
2024.06.06	First Issue

Construction Drawing
RASCOtank System

Block 1NQ Ground Level Plan and Rascor Details

rascor
Pioneers in waterproofing

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Unit 2
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Based on the technical specifications of Rascor Engineering AG (Switzerland).

Drawn: dag	Reviewed: alk	Rev.: 2024.06.06	P01	Rev.:			
Scale: 1 : 100		Rev.:		Rev.:			
Sheet Size: 90/121cm		Rev.:		Rev.:			
Plan-No.: UK 230118 - 02		Rev.:		Rev.:			

FOR APPROVAL

LEGEND

①	FF_{IC}	Floor-Floor RASCOtec Injection Channel Vertical installation
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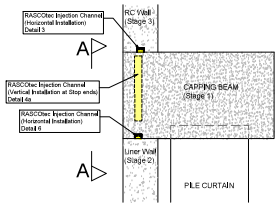
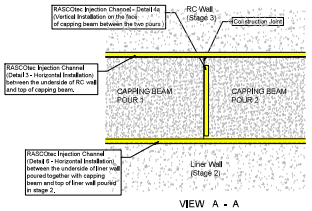
Note: Colored hatches denote the pour layout.

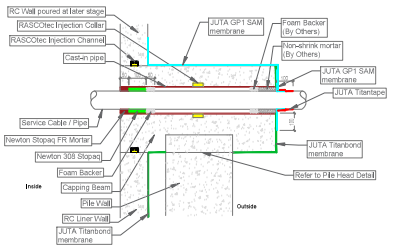
CONSTRUCTION JOINT IN CAPPING BEAM 4a



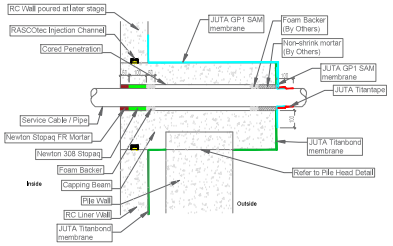


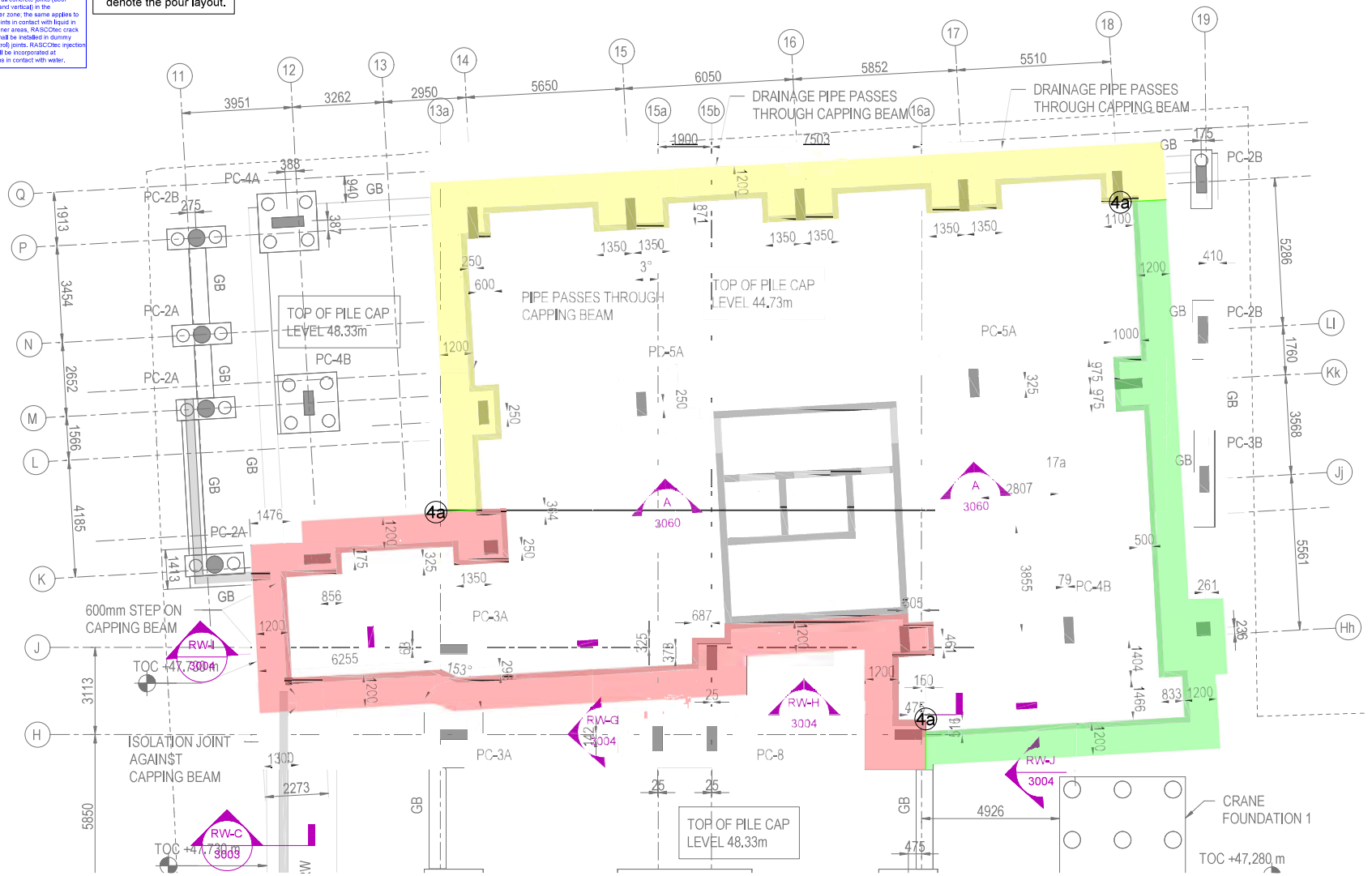
VIEW A - A

CAPPING BEAM SLEEVED PENETRATION SEALING DETAIL
Not to Scale



CAPPING BEAM CORED PENETRATION SEALING DETAIL
Not to Scale





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Tariff Street, Manchester

Date	Revision Description
2024.06.10	First Issue

Construction Drawing
RASCOtank System

Block 1NQ Ground Beam Plan and Rascor Details

rascor
Pioneers in waterproofing
Rascor Uk Ltd
Unit 2
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London, UK, SE25 5QF
Telephone: +353 149 160 90
Email: engineering@rascor.com
Internet: www.rascor.com

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Based on the technical specifications of Rascor Engineering AG (Switzerland).

Drawn: dag	Reviewed: alk	Date	Revision No.	Date	Revision No.
Scale: 1 : 50		Rev.: 2024.06.10	P01	Rev.:	
Sheet Size: 90/121cm		Rev.:		Rev.:	
Plan-No.: UK 230118 - 03		Rev.:		Rev.:	

FOR APPROVAL

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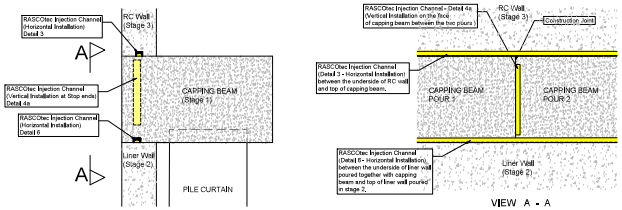
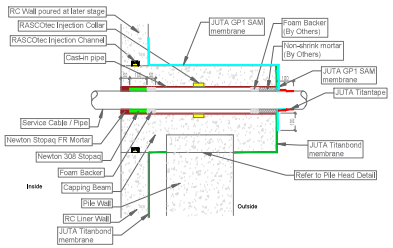
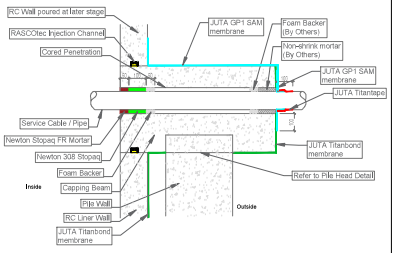


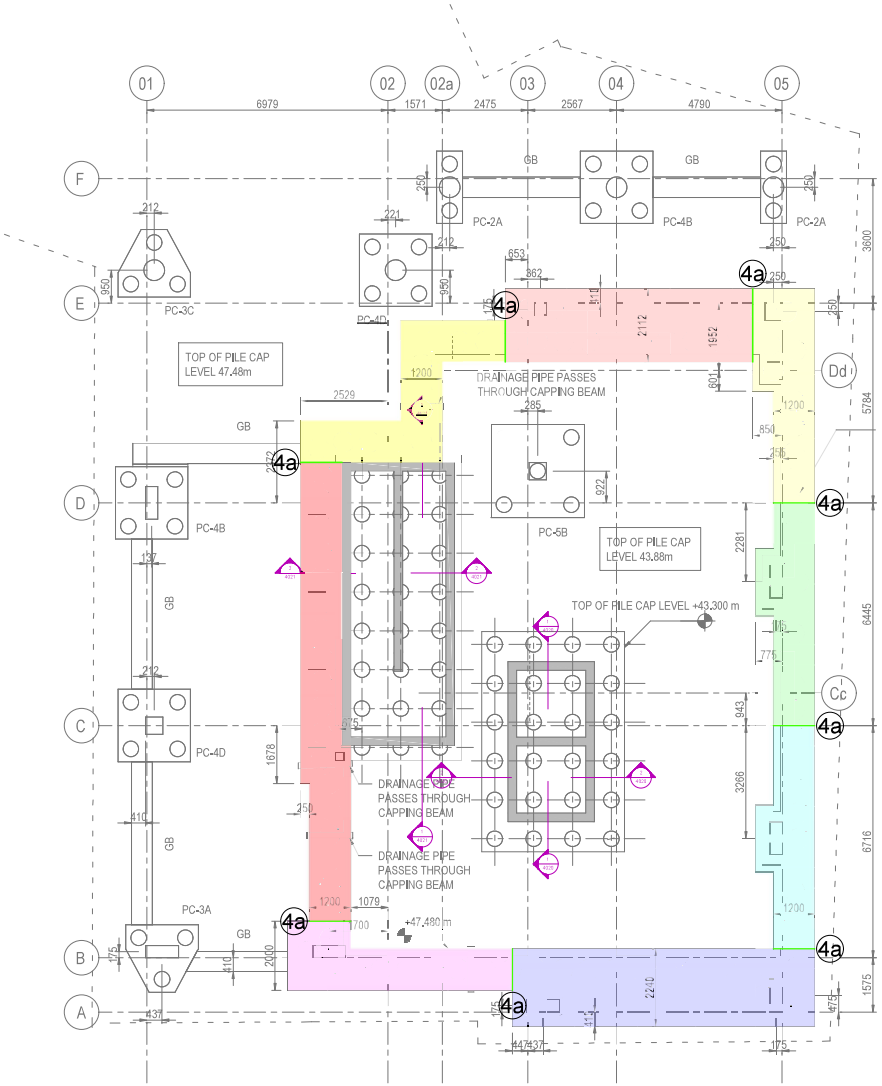
VIEW A - A

CAPPING BEAM SLEEVED PENETRATION SEALING DETAIL
Not to Scale



CAPPING BEAM CORED PENETRATION SEALING DETAIL
Not to Scale





NOTE: LAYOUT OF PILES FORMING CONTINUOUS WALL TO BE AGREED WITH SPECIALIST PILE DESIGNER

1, Concrete
The Contractor shall be responsible for the supply, placement, finishing and curing of concrete,

1.1 Concrete definition by properties
The following guide values relate solely to the achievement of the required waterproofing performance. With regard to all properties/performance necessitated by special environmental action or circumstances, the structural designer's specifications shall apply.

Concrete definition by properties (BS 8500-1:2015+A2:2019)				
Requirement classes	Structural elements			
	Slabs		Walls	
Compressive strength Exposure Maximum aggregate size D_{max} Chloride content Consistence	C 32/40 DC2 20 Cl 0,1 S5		C 32/40 DC2 20 Cl 0,1 S5	

1,2 Concreting
Concrete placement, compaction and finishing shall comply with the Engineers Specification BS EN13670, BS EN 206 and other relevant National Standards, RASCOR's specific requirements and established best practice. Particular attention shall be given to the necessary precautions for concreting in cold or very warm weather.

1,3 Concreting curing

Measures	Outdoor temperatures °C				
	below +5	+5° to +10°	+10° to +15°	+15° to +25°	over +25°
Curing (protect membrane or continuous dampening, Moisten timber formwork, protect steel formwork against sunlight				●	●
Curing (protect membrane			●	●	
Curing (protect membrane and thermal insulation Use of thermally insulating formwork		●	●		
Curing (protect and thermal insulation Keep concrete temperature at +10° for at least 3 days (endless and heat connote element)	●	●			

1,4 Quality management for fresh concrete
Quality management for fresh concrete is responsibility of the Contractor
RASCOR reserves the right, at its own discretion, to commission an independent laboratory to take random samples of fresh concrete for testing.
RASCOR shall be given 48 hours' (two working days') notice of the commencement of concreting works for each pour.
RASCOR reserves the right to be provided with concrete quality records from the Contractor or to commission independent sampling and testing of concrete.

2, Guidance on design and workmanship
2.1 Preparation
- The base, reinforcement and formwork shall be free from water, snow and ice.
- The blinding (e.g. lean concrete) shall be neatly screeded.

2.2 Concrete and reinforcement
- To prevent leakage paths, the legs of reinforcement spacers used for the groundslab shall not bear on the blinding or base. Not applicable if using concrete blocks or bars.
- Concrete cover blocks shall be installed as spacers for the external reinforcement layers.
- Concrete elements shall have a minimum thickness of 250 mm.
- The minimum reinforcement requirement for crack limitation shall be specified in consultation with RASCOR for each specific project.
- Tie bolts (formwork ties, see detail) shall be properly sealed using the relevant RASCOR products to ensure a waterproof barrier.
- With joints incorporating prefabricated reinforcement continuity systems, provision is required to allow the RASCOR waterproofing units (e.g. injection channels) to be installed directly on the concrete. Where systems with a continuous plastics or metal support plate are used, the support plate shall be removed over a minimum width of 50 mm prior to fixing the waterproofing units. To avoid such problems, we recommend the use of reinforcement continuity systems with an open support plate, e.g. COMAX Type B, Quick BRA-B, Schöck-Idea Type V or the like.

2,3 Pipes/inserts
- All pipe penetrations shall be sealed using the RASCOR system.
- As a general rule, no pipes shall be installed within the waterproof concrete basement fabric. Where this is unavoidable, a minimum concrete thickness of 250 mm shall be guaranteed by means of local thickening (see Detail *Pipe Penetration Fortification if D ≥ 1/4h*).
- Where floor drains or other fixtures are incorporated, a minimum concrete thickness of 250 mm shall likewise be ensured, where necessary by thickening.
- Electrical conduits and the like shall be fixed to the internal reinforcement layers (non-water side). Concentrations (bundles) of service runs shall be avoided.

2,4 Extraction of sheet piling
RASCOR shall be invited to carry out an inspection of the works prior to the extraction of sheet piling or similar works causing heavy vibration.

2,5 Backfilling behind walls
RASCOR shall be invited to carry out an inspection of the works prior to the backfilling behind walls or similar works.

Tariff Street, Manchester

Date	Revision Description
2024.06.10	First Issue

Construction Drawing
RASCOtank System

Block Clements Ground Beam Plan and Rascor Details

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Based on the technical specifications of Rascor Engineering AG (Switzerland).

Drawn: dag	Reviewed: alk	Rev.: 2024.06.10	Revision No. P01	Date Rev.:	Revision No.	
Scale: 1 : 50		Rev.:		Rev.:		
Sheet Size: 90/121cm		Rev.:		Rev.:		
Plan-No. UK 230118 - 04		Rev.:		Rev.:		

FOR APPROVAL

LEGEND

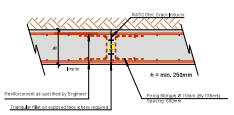
①	FF_{Ic}	Floor-Floor RASCOtec Injection Channel Vertical installation
②	FF_{Cr}	Floor-Floor RASCOtec Crack Inducer Vertical installation
③	FW_{Ic}	Floor-Wall RASCOtec Injection Channel Floor Slab-Wall Horizontal Installation
④	WW_{Ic}	Wall-Wall RASCOtec Injection Channel Vertical installation
⑤	WW_{Cr}	Wall-Wall RASCOtec Crack Inducer Vertical installation
⑥	WD_{Ic}	Wall-Deck Slab RASCOtec Injection Channel Horizontal Installation
⑦	HC	RASCOtight Hydrophilic Channel
⑧	MJ	Movement Joint Floor-Floor/Wall-Wall/ Deck Slab-Deck Slab
⑨	MP	RASCOtec Pipe Collar
⑩	HS	RASCOtight Hydrophilic Strip
⑪	TPE	RASCOjoint TPE Waterbar

The following shall generally apply: RASCOtec injection channels shall be installed in all concrete joints (both horizontal and vertical) in the groundwater zone; the same applies to concrete joints in contact with liquid in tank/container areas. RASCOtec crack inducers shall be installed in dummy (crack control) joints. RASCOtec injection collars shall be incorporated at penetrations in contact with water.

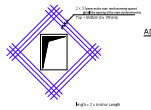
Note: Crack Inducers in walls shown at indicative locations. Their exact position to be updated upon confirming of the pour layout and receiving of RC drawings for walls.

Note: For Membrane system refer to drawing UK230118-52

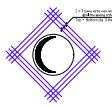
CRACK INDUCER IN WALL ⑤



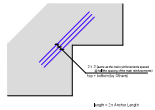
ADDITIONAL REINFORCEMENT AT OPENINGS IN GROUND SLAB



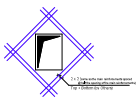
ADDITIONAL REINFORCEMENT AT CIRCULAR OPENINGS IN GROUND SLAB



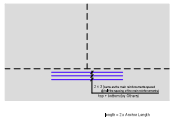
ADDITIONAL REINFORCEMENT AT INTRUSIVE CORNERS



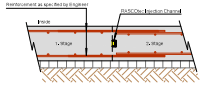
ADDITIONAL REINFORCEMENT AT OPENINGS IN WALLS



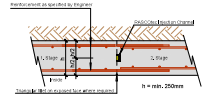
ADDITIONAL REINFORCEMENT AT BUTT JOINTS (CONSTRUCTION + CRACK INDUCING JOINTS)



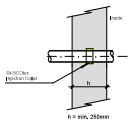
CONSTRUCTION JOINT IN GROUND SLAB ①



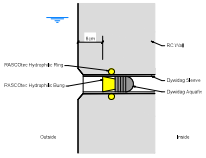
CONSTRUCTION JOINT IN WALL ④



IN SITU WALL PENETRATION

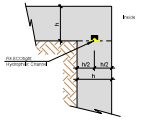


TYPICAL DYWIDAG OPENING WATERPROOFING DETAIL

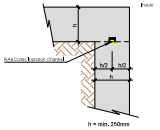


Installation by Others

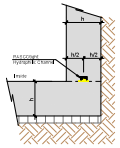
WALL / SUSPENDED SLAB JUNCTION WITH HYDROPHILIC CHANNEL ⑦



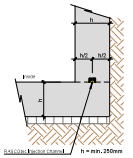
WALL / SUSPENDED SLAB JUNCTION ⑥

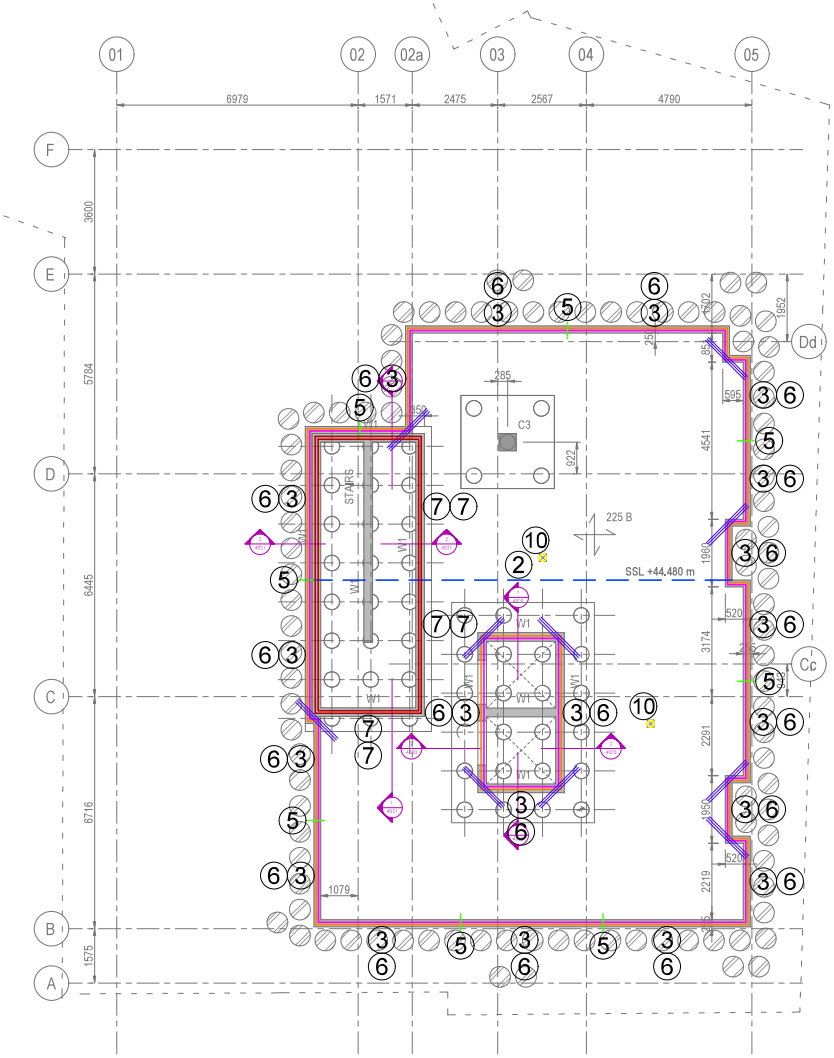


GROUND SLAB / WALL JUNCTION WITH HYDROPHILIC CHANNEL ⑦



GROUND SLAB / WALL JUNCTION ③





1, Concrete

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Compressive strength Exposure Maximum aggregate size D_{max} Chloride content Consistence	C 32/40 DC2 20 Cl 0,1 S5		C 32/40 DC2 20 Cl 0,1 S5	

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Concrete placement, compaction and finishing shall comply with the Engineers Specification BS EN13670, BS EN 206 and other relevant National Standards. RASCOR's specific requirements and established best practice. Particular attention shall be given to the necessary precautions for concreting in cold or very warm weather.

1,3 Concreting curing

Measures	Outdoor temperatures °C					
	below +1°	+2° to +5°	+5° to +10°	+10° to +25°	over +25°	
Curing (protect: membrane or continuous dampening - Moisten timber formwork; protect steel formwork against sunlight				●	●	
Curing (protect: membrane)			●	●		
Curing (protect: membrane and thermal insulation - Use of thermally insulating formwork		●	●			
Curing (protect and thermal insulation - keep concrete temperature at +10° for at least 3 days (and use heat concrete element)	●	●				

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2,3 Pipes/inserts

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- Electrical conduits and the like shall be fixed to the internal reinforcement layers (non-water side). Concentrations (bundles) of service runs shall be avoided.

2,4 Extraction of sheet piling

RASCOR shall be invited to carry out an inspection of the works prior to the extraction of sheet piling or similar works causing heavy vibration.

2,5 Backfilling behind walls

RASCOR shall be invited to carry out an inspection of the works prior to the backfilling behind walls or similar works.

Tariff Street, Manchester

Date	Revision Description
2024.06.10	First Issue

Construction Drawing
RASCOtank System

Block Clements Basement Plan and Rascor Details

rascor
Pioneers in waterproofing
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Telephone: +353 149 160 90
Email: engineering@rascor.com
Internet: www.rascor.com

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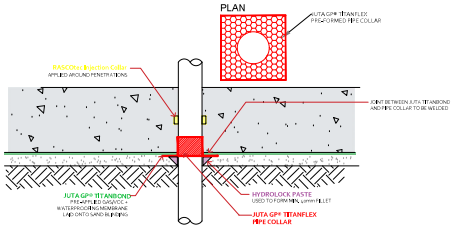
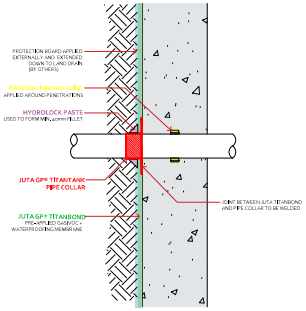
Scale: 1 : 50		Rev.:			Rev.:		
Sheet Size: 90/121cm		Rev.:			Rev.:		
Plan-No.: UK 230118 - 03		Rev.:			Rev.:		

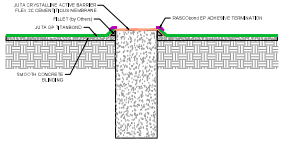
FOR APPROVAL



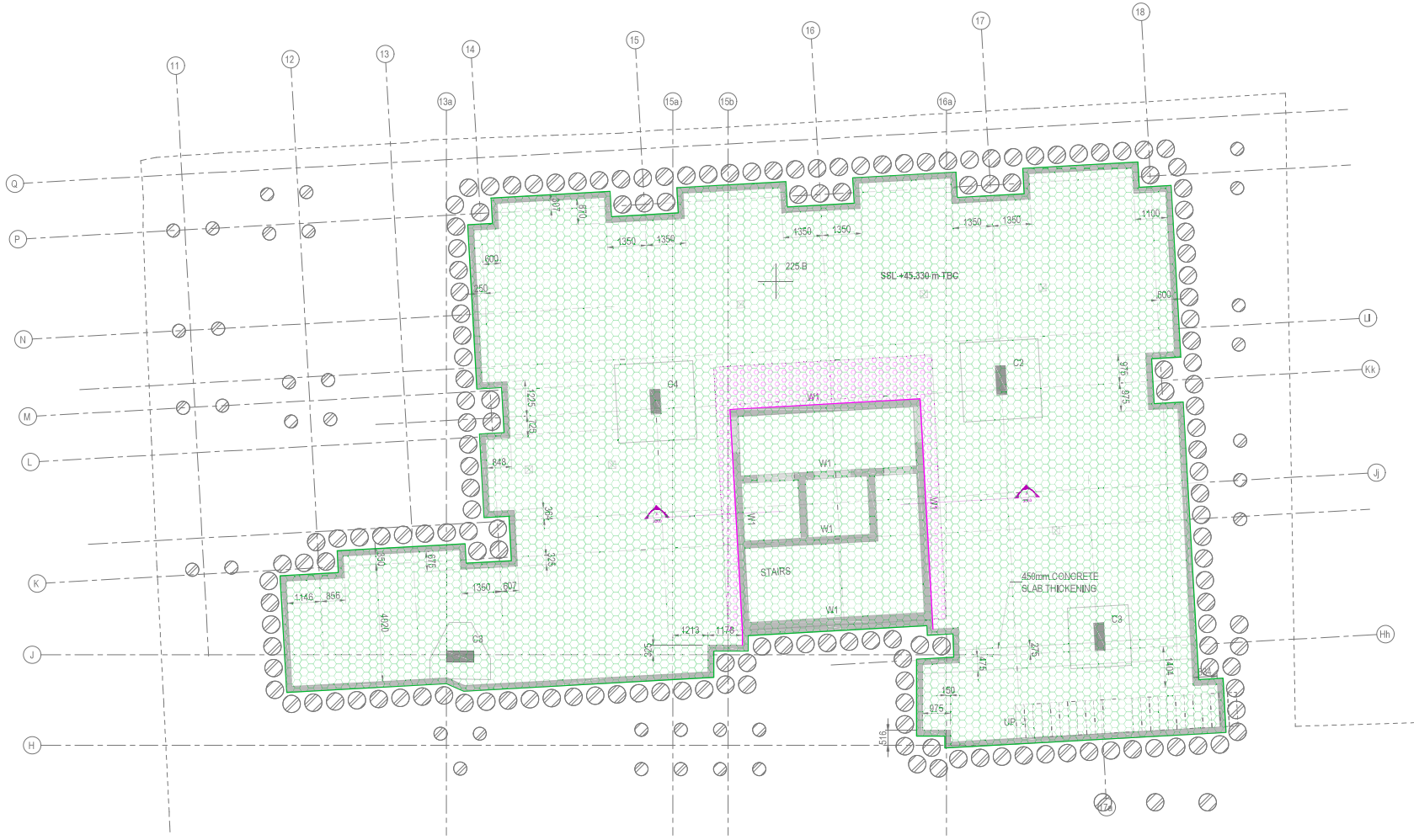
Pipe Penetration through Slab
Not to Scale



Pipe Penetration through Wall
Not to Scale



Typical Pile Head Detail
Not to Scale



LEGEND

	MEM	JUTA TITANBOND Pre-applied Fully Bonded Membrane
	MEM	JUTA TITANBOND Pre-applied Fully Bonded Membrane
	MEM	JUTA GP1 SAM Post Applied Self Adhesive Membrane
	MEM	JUTA GP1 SAM Post Applied Self Adhesive Membrane
	MEM	JUTA TITANFLEX Loose Laid Membrane
	MEM	JUTA TITANFLEX Loose Laid Membrane
	MEM	JUTA Crystaline Active Barrier Flex 2C Cementitious Membrane
	MEM	JUTA Crystaline Active Barrier Flex 2C Cementitious Membrane
	MEM	JUTA TITANTANK Post Applied Self Adhesive Membrane
	MEM	JUTA TITANTANK Post Applied Self Adhesive Membrane

Note: For RASCOtank system refer to drawing UK230118-01

Note: Membrane laps to be minimum 100mm as per manufacturer specifications.

Note: Protection board against exposed membrane to be installed by others before backfilling.

General Notes & Guidance:

- The need for continuity in the waterproofing protection should be considered when selecting a type of protection. In most circumstances, the protection should be continuous.
- This drawing is to be read in conjunction with all relevant product data sheets.
- Dimensions are not to be scaled from this drawing. All written measurements are to be checked on site by the contractor.
- Tool box talks to be provided for "other trades" to ensure waterproofing systems are not compromised. All design decisions made by others that might have impact on the gas and/or waterproof design should be brought to the attention of the design team and Rascor Ltd.

Tariff Street, Manchester

Date	Revision Description
2024.06.06	First Issue

Construction Drawing
Membrane System

Block 1NQ Basement Plan and JUTA Details

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Internet: www.rascor.com

Based on the technical specifications of Rascor Engineering AG (Switzerland).

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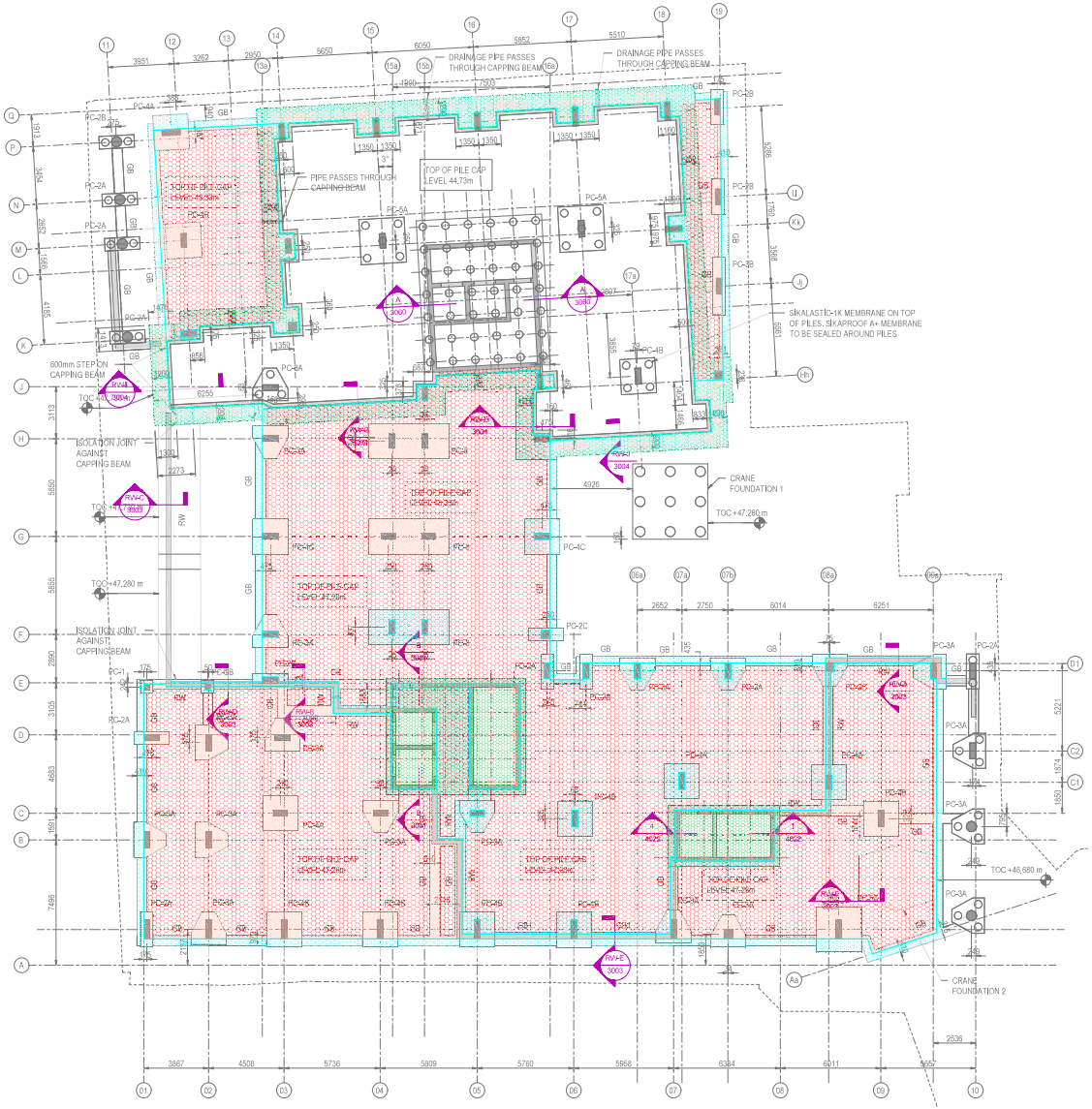
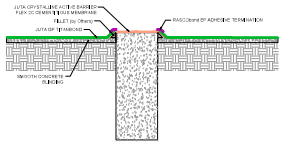
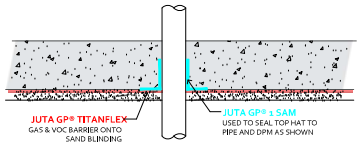
Scale: 1 : 50		Rev.:			
Sheet Size: 90/121cm		Rev.:		Rev.:	
Plan-No.: UK 230118 - 50		Rev.:		Rev.:	

FOR APPROVAL

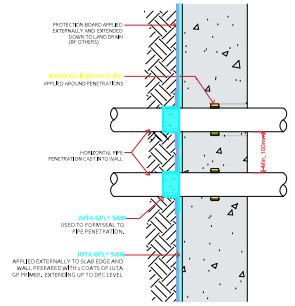




Typical Pile Head Detail
Not to Scale



Pipe Penetration through Slab
Not to Scale



Pipe Penetration through Wall
Not to Scale

LEGEND

MEM	JUTA TITANBOND Pre-applied Fully Bonded Membrane
MEM	JUTA TITANBOND Pre-applied Fully Bonded Membrane
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MEM	JUTA Crystaline Active Barrier Flex 2C Cementitious Membrane
MEM	JUTA TITANTANK Post Applied Self Adhesive Membrane
MEM	JUTA TITANTANK Post Applied Self Adhesive Membrane

Note: For RASCOtank system refer to drawing UK230118-02

Note: Membrane laps to be minimum 100mm as per manufacturer specifications.

Note: Protection board against exposed membrane to be installed by others before backfilling.

General Notes & Guidance:

- The need for continuity in the waterproofing protection should be considered when selecting a type of protection. In most circumstances, the protection should be continuous.
- This drawing is to be read in conjunction with all relevant product data sheets.
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Tariff Street, Manchester

Date	Revision Description
2024.06.06	First Issue

Construction Drawing
Membrane System

Block 1NQ Ground Floor Plan and JUTA Details

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Based on the technical specifications of Rascor Engineering AG (Switzerland).

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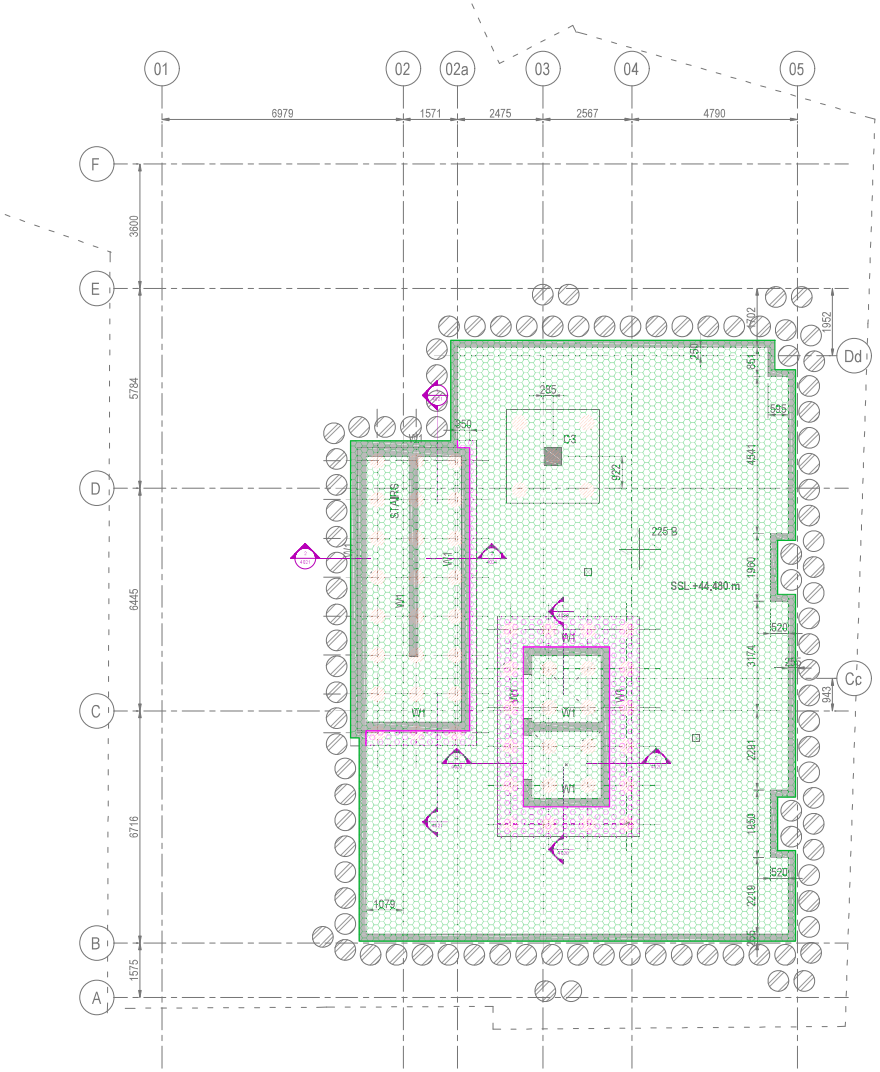
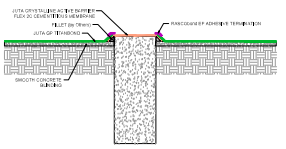
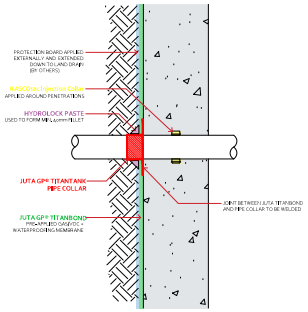
Scale: 1 : 100		Rev.:				
Sheet Size: 90/121cm		Rev.:		Rev.:		
Plan-No. UK 230118 - 51		Rev.:		Rev.:		

FOR APPROVAL

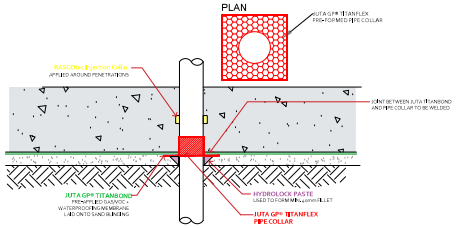




Typical Pile Head Detail
Not to Scale



Pipe Penetration through Wall
Not to Scale



Pipe Penetration through Slab
Not to Scale

LEGEND

	MEM	JUTA TITANBOND Pre-applied Fully Bonded Membrane
	MEM	JUTA TITANBOND Pre-applied Fully Bonded Membrane
	MEM	JUTA GP1 SAM Post Applied Self Adhesive Membrane
	MEM	JUTA GP1 SAM Post Applied Self Adhesive Membrane
	MEM	JUTA TITANFLEX Loose Laid Membrane
	MEM	JUTA TITANFLEX Loose Laid Membrane
	MEM	JUTA Crystaline Active Barrier Flex 2C Cementitious Membrane
	MEM	JUTA Crystaline Active Barrier Flex 2C Cementitious Membrane
	MEM	JUTA TITANTANK Post Applied Self Adhesive Membrane
	MEM	JUTA TITANTANK Post Applied Self Adhesive Membrane

Note: For RASCOtank system refer to drawing UK230118-05

Note: Membrane laps to be minimum 100mm as per manufacturer specifications.

Note: Protection board against exposed membrane to be installed by others before backfilling.

General Notes & Guidance:

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Tariff Street, Manchester

Date	Revision Description
2024.06.10	First Issue

Construction Drawing
Membrane System

Block Clements Basement Plan and JUTA Details

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Unit 2
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rascor
Pioneers in waterproofing

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Based on the technical specifications of Rascor Engineering AG (Switzerland)

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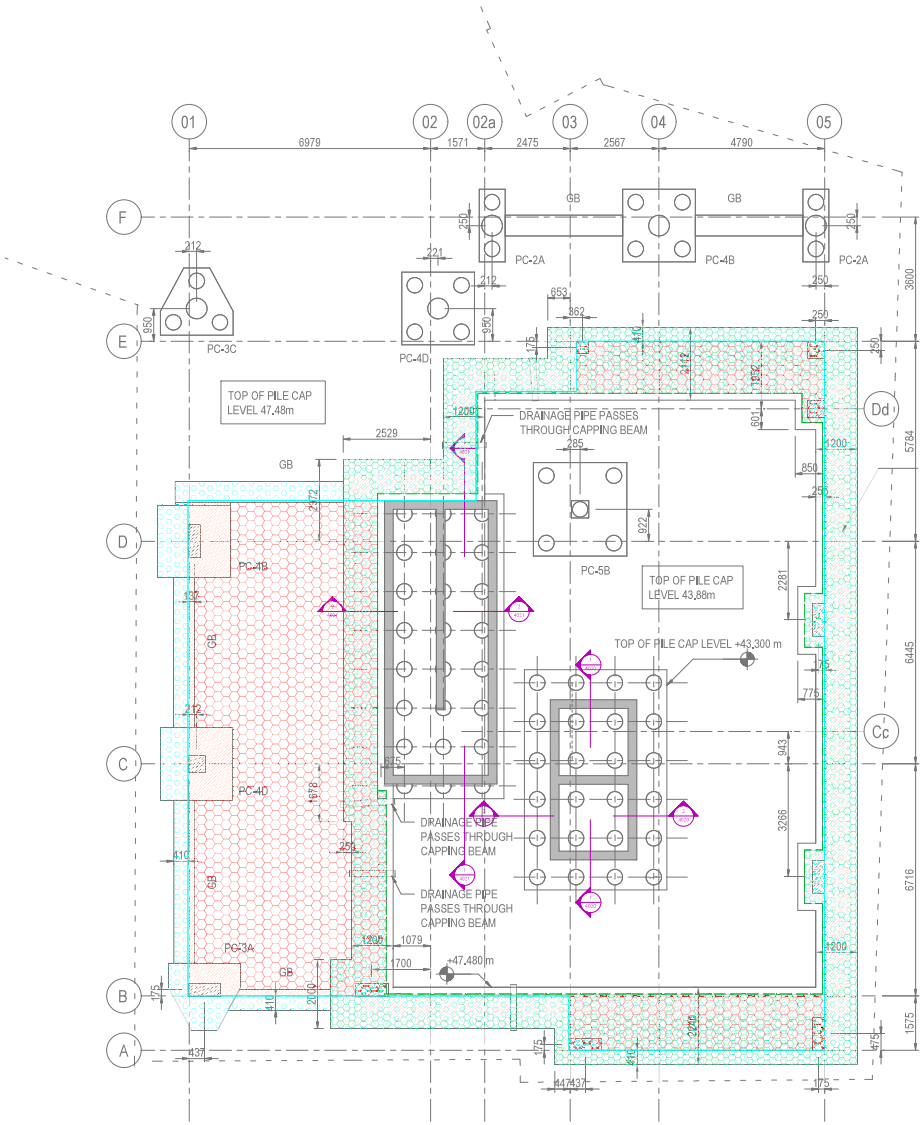
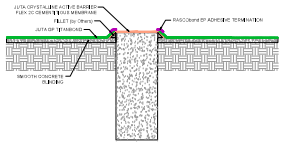
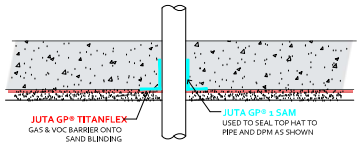
Scale: 1 : 50		Rev.:		Rev.:		
Sheet Size: 90/121cm		Rev.:		Rev.:		
Plan-No.: UK 230118 - 52		Rev.:		Rev.:		

FOR APPROVAL

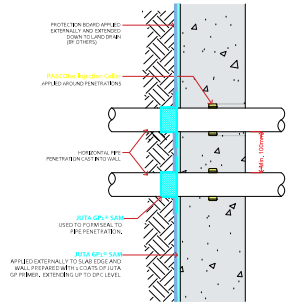




Typical Pile Head Detail
Not to Scale



Pipe Penetration through Slab
Not to Scale



Pipe Penetration through Wall
Not to Scale

LEGEND

MEM	JUTA TITANBOND Pre-applied Fully Bonded Membrane
MEM	JUTA TITANBOND Pre-applied Fully Bonded Membrane
MEM	JUTA GP1 SAM Post Applied Self Adhesive Membrane
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Note: Protection board against exposed membrane to be installed by others before backfilling.

General Notes & Guidance:

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Tariff Street, Manchester

Date	Revision Description
2024.06.10	First Issue

Construction Drawing
Membrane System

Block Clements Ground Floor Plan and JUTA Details

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		Rev.: 2024.06.10	P01	Rev.:		
Scale: 1 : 50		Rev.:				
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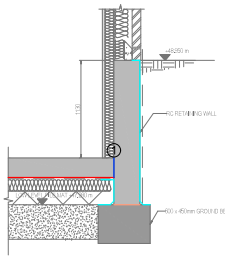
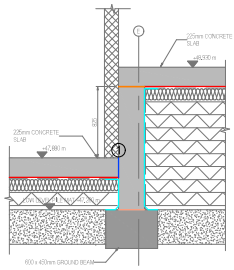
Plan-No. UK 230118 - 53		Rev.:		Rev.:		

FOR APPROVAL



Section RW-A
Scale 1:20



Section RW-B
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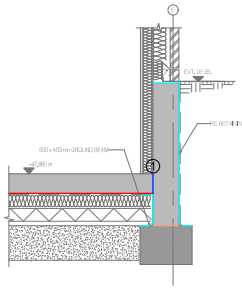

Section RW-D
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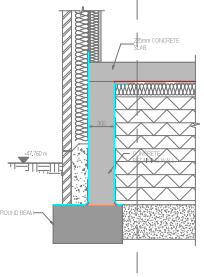

Section RW-E
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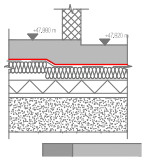
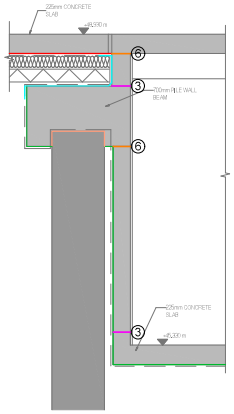
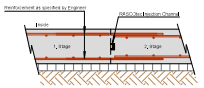


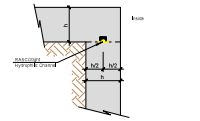
Section RW-F
Scale 1:20



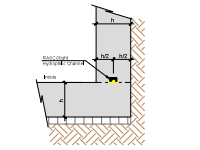
Section RW-G
Scale 1:20



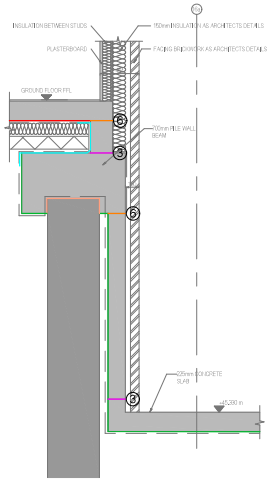
CONSTRUCTION JOINT IN GROUND SLAB (1)



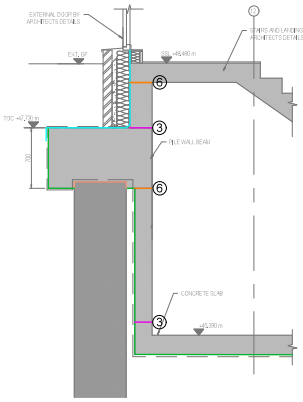
WALL / SUSPENDED SLAB JUNCTION WITH HYDROPHILIC CHANNEL (7)



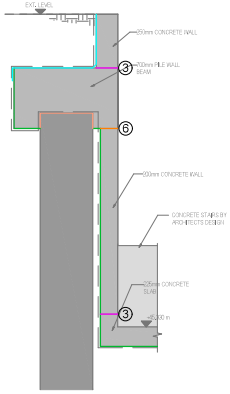
GROUND SLAB / WALL JUNCTION WITH HYDROPHILIC CHANNEL (7)



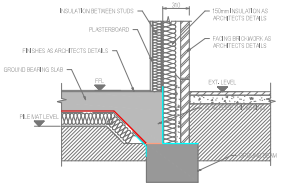
Section RW-H
Scale 1:20



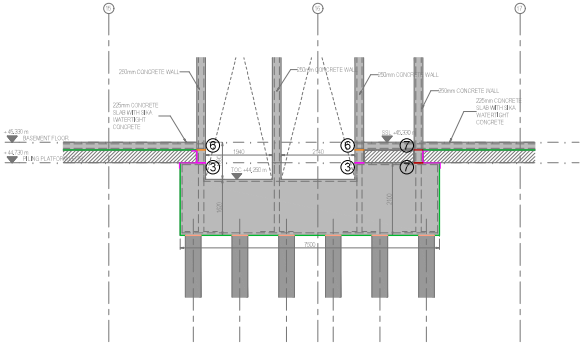
Section RW-I
Scale 1:20



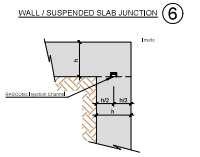
Section RW-J
Scale 1:20



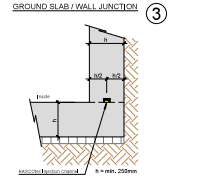
Typical Slab Edge Detail
Scale 1:20



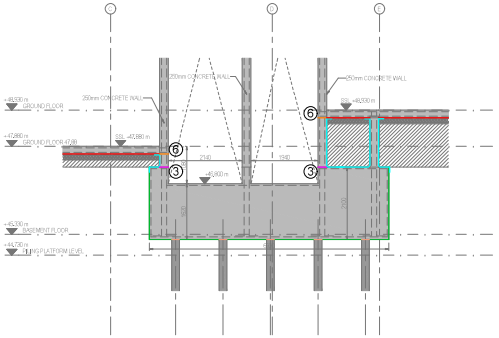
Core 2 Section A
Scale 1:50



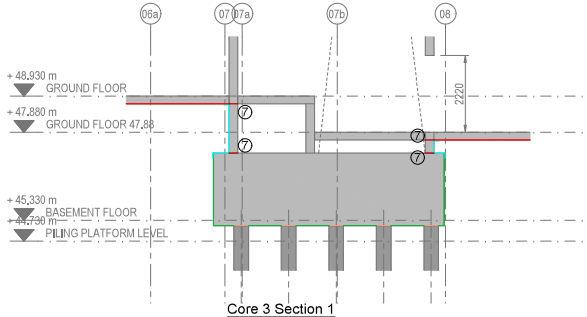
WALL / SUSPENDED SLAB JUNCTION (6)



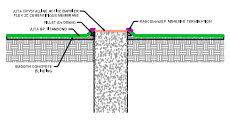
GROUND SLAB / WALL JUNCTION (3)



Core 1 Section B
Scale 1:50



Core 3 Section 1
Scale 1:50



Typical Pile Head Detail
Not to Scale

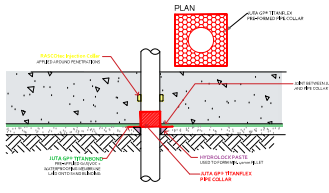
RASCOtank LEGEND

① FF$_{IC}$ Floor-Floor RASCOtec Injection Channel Vertical installation

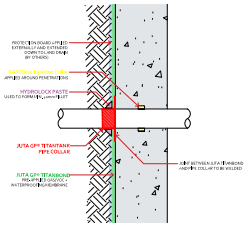
③ FW$_{IC}$ Floor-Wall RASCOtec Injection Channel Horizontal Installation

⑥ WW$_{IC}$ Wall-Deck RASCOtec Injection Channel Horizontal installation

⑦ HC RASCOtight Hydrophilic Channel Horizontal installation



Pipe Penetration through Slab
Not to Scale



Pipe Penetration through Wall
Not to Scale

LEGEND

MEM	JUTA TITANBOND Pre-applied Fully Bonded Membrane
MEM	JUTA TITANBOND Pre-applied Fully Bonded Membrane
MEM	JUTA GP1 SAM Post Applied Self Adhesive Membrane
MEM	JUTA GP1 SAM Post Applied Self Adhesive Membrane
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Tariff Street, Manchester

Date	Revision Description
2024.06.06	First Issue

Construction Drawing
RASCOtank and Membrane System

Block 1NQ Sections and Details

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Pioneers in waterproofing

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Email: engineering@rascor.com
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Based on the technical specifications of Rascor Engineering AG (Switzerland).

Drawn: dag	Reviewed: mg	Rev.:	Date: 2024.06.06	Revision No.: P01	Rev.:	Date:	Revision No.:
Scale: as stated		Rev.:			Rev.:		
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Plan-No.: UK 230118 - 60		Rev.:			Rev.:		

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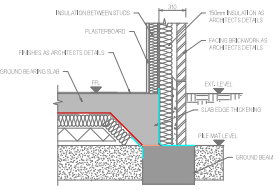
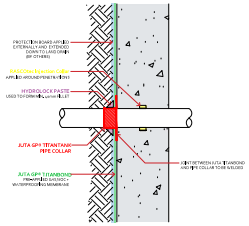
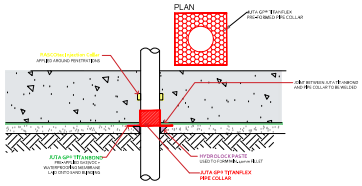


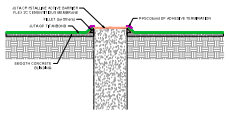
Typical Ground Bearing Slab Edge
Scale 1:20



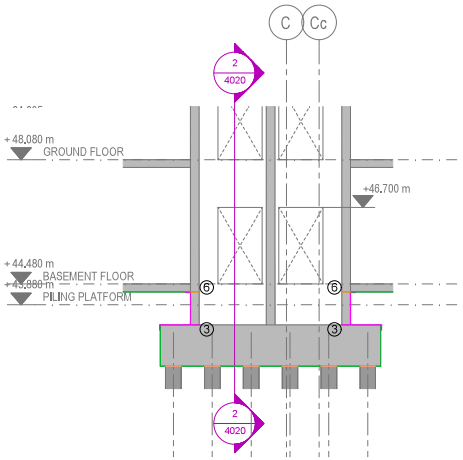
Pipe Penetration through Wall
Not to Scale



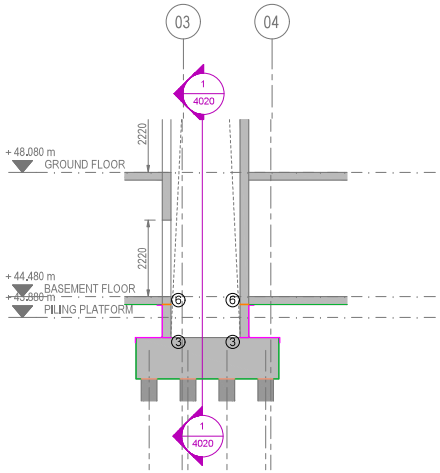
Pipe Penetration through Slab
Not to Scale



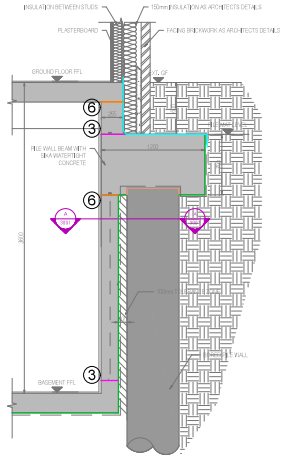
Typical Pile Head Detail
Not to Scale



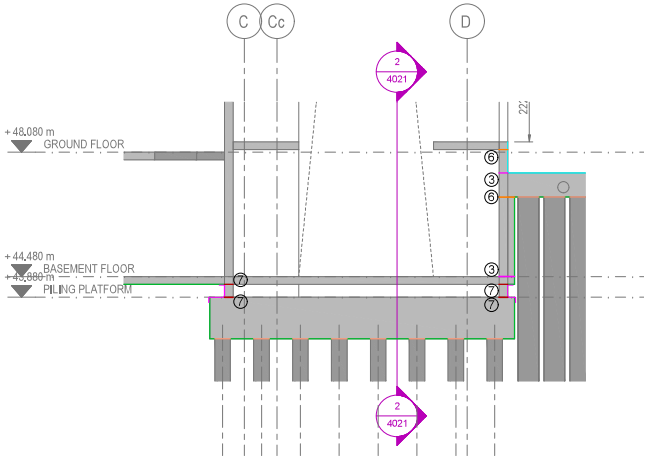
Core Section 01
Scale 1:50



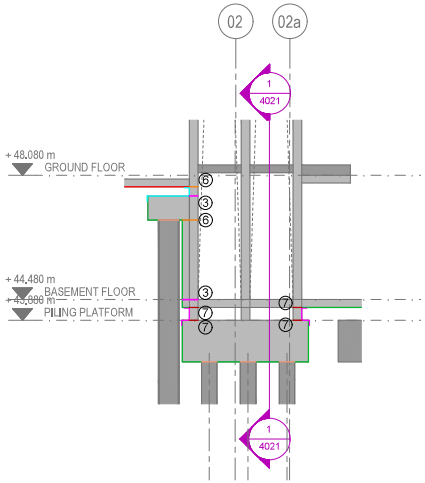
Core Section 02
Scale 1:50



Typical Pile Wall Section
Scale 1:20



Stair Core Section 01
Scale 1:50



Stair Core Section 02
Scale 1:50

RASCOtank LEGEND

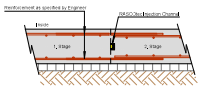
① FF$_{IC}$ Floor-Floor RASCOtec Injection Channel Vertical installation

③ FW$_{IC}$ Floor-Wall RASCOtec Injection Channel Horizontal Installation

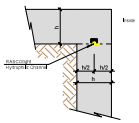
⑥ WW$_{IC}$ Wall-Deck RASCOtec Injection Channel Horizontal installation

⑦ HC RASCOtight Hydrophilic Channel Horizontal installation

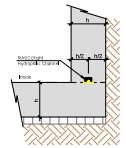
CONSTRUCTION JOINT IN GROUND SLAB ①



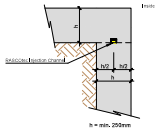
WALL / SUSPENDED SLAB JUNCTION WITH HYDROPHILIC CHANNEL ⑦



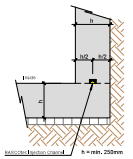
GROUND SLAB / WALL JUNCTION WITH HYDROPHILIC CHANNEL ⑦



WALL / SUSPENDED SLAB JUNCTION ⑥



GROUND SLAB / WALL JUNCTION ③



LEGEND

	MEM	JUTA TITANBOND Pre-applied Fully Bonded Membrane
	MEM	JUTA TITANBOND Pre-applied Fully Bonded Membrane
	MEM	JUTA GP1 SAM Post Applied Self Adhesive Membrane
	MEM	JUTA GP1 SAM Post Applied Self Adhesive Membrane
	MEM	JUTA TITANFLEX Loose Laid Membrane
	MEM	JUTA TITANFLEX Loose Laid Membrane
	MEM	JUTA Crystaline Active Barrier Flex 2C Cementitious Membrane
	MEM	JUTA Crystaline Active Barrier Flex 2C Cementitious Membrane
	MEM	JUTA TITANTANK Post Applied Self Adhesive Membrane
	MEM	JUTA TITANTANK Post Applied Self Adhesive Membrane

Note: Membrane laps to be minimum 100mm as per manufacturer specifications.

Note: Protection board against exposed membrane to be installed by others before backfilling.

General Notes & Guidance:

- The need for continuity in the waterproofing protection should be considered when selecting a type of protection. In most circumstances, the protection should be continuous.
- This drawing is to be read in conjunction with all relevant product data sheets.
- Dimensions are not to be scaled from this drawing. All written measurements are to be checked on site by the contractor.
- Tool box talks to be provided for "other trades" to ensure waterproofing systems are not compromised. All design decisions made by others that might have impact on the gas and/or waterproof design should be brought to the attention of the design team and Rascor Ltd.

Tariff Street, Manchester

Date	Revision Description
2024.06.10	First Issue

Construction Drawing
RASCOtank and Membrane System

Block Clements Sections and Details

rascor
Pioneers in waterproofing
Rascor Uk Ltd
Unit 2
3A Selhurst Road
London, UK, SE25 5QF
Telephone: +353 149 160 90
Email: engineering@rascor.com
Internet: www.rascor.com

copyright by Rascor Engineering AG

Based on the technical specifications of Rascor Engineering AG (Switzerland)

Drawn: dag	Reviewed: mg	Date	Revision No.	Date	Revision No.	
		Rev.: 2024.06.10	P01	Rev.:		
Scale: as stated		Rev.:				
Sheet Size: 90/121cm		Rev.:		Rev.:		
Plan-No. UK 230118 - 61		Rev.:		Rev.:		

FOR APPROVAL

GeoShield Verification Report 01

PROJECT REFERENCE:	GEO104657 R01
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION:	Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer's instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

GeoShield Verification Report

NAME OF SURVEYOR: Niall Hogan

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07423 116951

EMAIL ADDRESS: nhogan@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Block 1 - Pile Caps (50%)

SITE CONDITIONS:

WEATHER:

Dry

TEMPERATURE:

16ºc

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 10:00 - 11:30

DATE: 14.06.2024

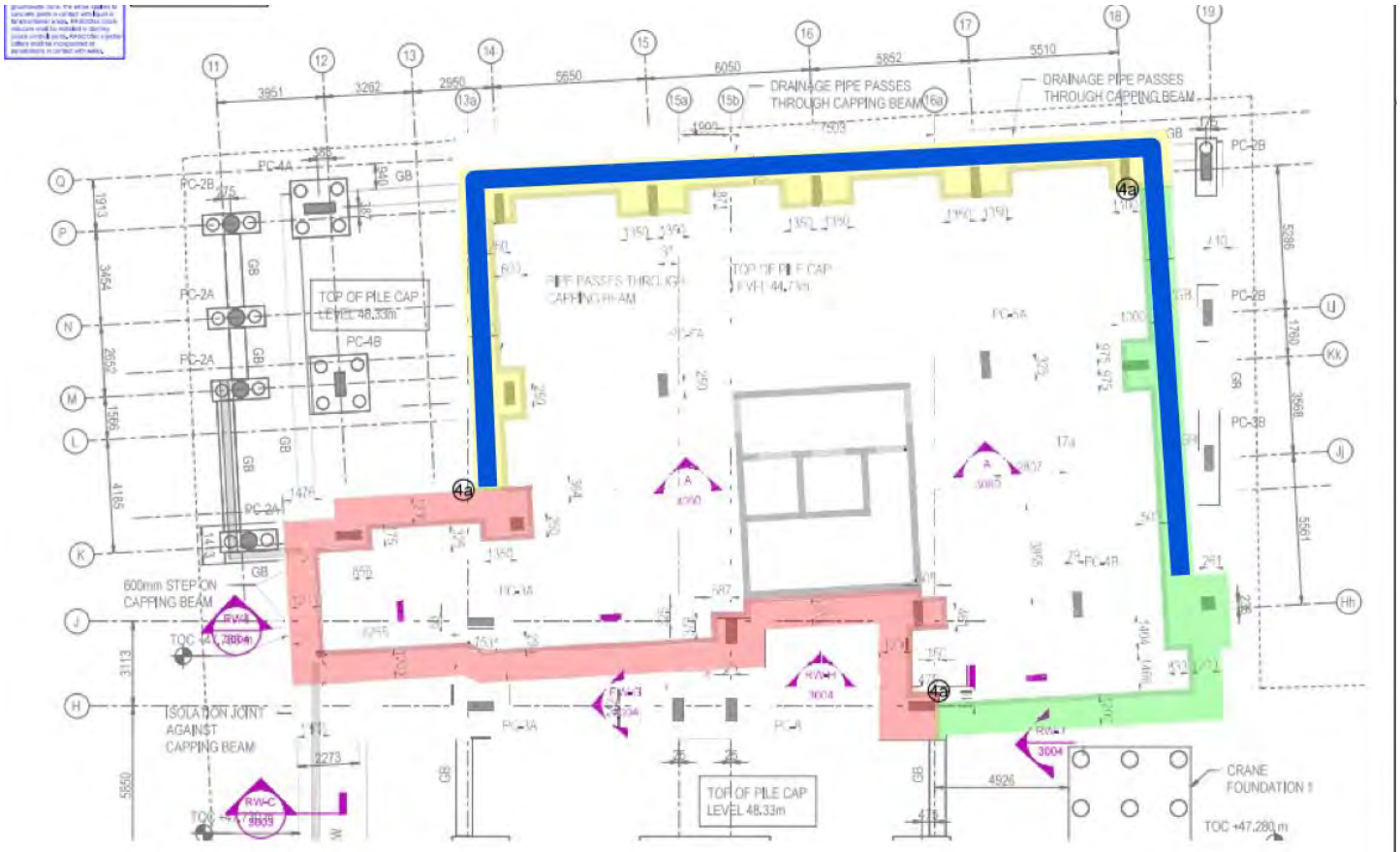
REPORT NUMBER: 001

ACCOMPANIED BY:

Bruno - RASCOR UK Ltd

GeoShield Verification Report

Verification Layout



The photograph above shows a plan layout of the site. The area highlighted in blue shows where the verification inspection took place on site today.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the area where today's verification inspection took place on site.

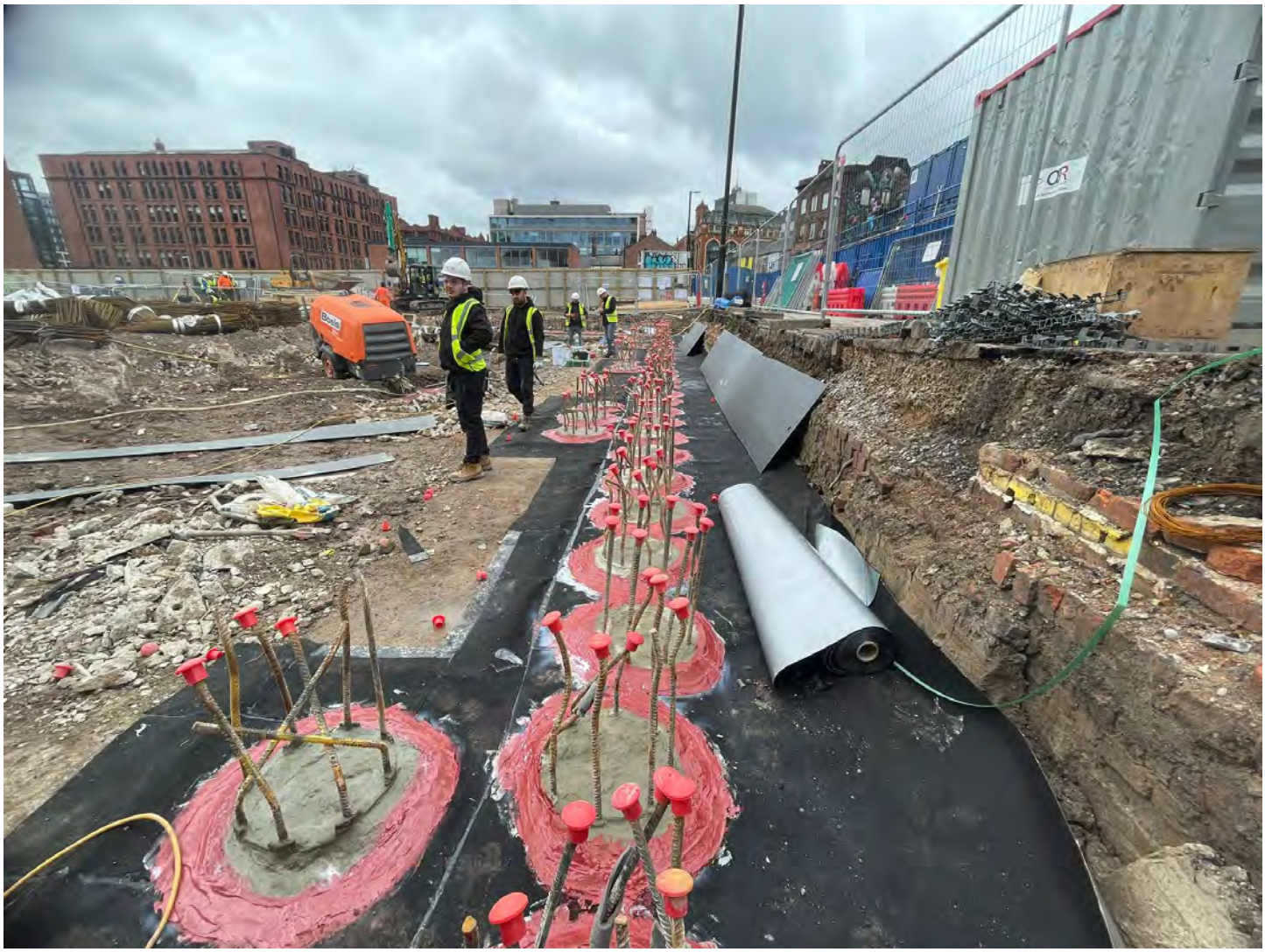
GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the area where today's verification inspection took place on site.

GeoShield Verification Report

OVERVIEW



An alternate overview photograph of where the verification inspection took place on site today.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Block 1 - Pile Caps (50%)

Installation of Juta Titanbond Gas Barrier

NOTES:

Juta Titanbond Gas Barrier has been installed across 50% of Block 1, upon a smooth concrete blinding substrate. All lap joints between the adjacent sheets of Juta Titanbond Gas Barrier have been overlapped a minimum of 100mm and heat welded using a hot air leister and silicone roller with adequate pressure applied

NOTES:

to ensure a continuous seal is acheived throughout the referenced area, conforming to manufacturer's specifications and design details.

GeoShield Verification Report

VERIFICATION ITEM ONE

All lap joints of the Juta Titanbond Gas Barrier were subjected to thorough visual inspections, supported by mechanical point stress testing, also known as pick and probe testing where a probe was run along all overlaps to identify any miswelds. A total of three miswelded lap joints were identified, all of which were successfully remediated on site in the presence of GeoShield by applying additional heat to reinstate the bond.

GeoShield Verification Report

VERIFICATION ITEM TWO

LOCATION/GRID LINE: Block 1 - Pile Caps (50%)

Pile Cap Sealing

NOTES:

Throughout the area referenced a large number of pile heads required sealing. These have been successfully sealed in accordance with Rascors design details. The Juta Titanbond Gas Barrier has been cut tightly around each individual pile head to eliminate voided areas and creasing. All pile caps have received a liberal

NOTES:

coverage of Juta CAB Flex 2C, which is a cementitious membrane, painted in two separate coats to the tops of the pile heads and left a sufficient amount of time to cure. Once cured, a continuous fillet of Rascobond EP Adhesive is applied to terminate the pile head with a further application of Juta Liquid Membrane

GeoShield Verification Report

VERIFICATION ITEM TWO

applied around the circumference of the pile head. Thorough visual inspections were conducted across all pile heads where a couple of areas required a further application of Juta Liquid Membrane. This was carried out in the presence of GeoShield during the visit. No further faults or evidence of cracking were identified.

GeoShield Verification Report

VERIFICATION ITEM THREE

LOCATION/GRID LINE: Block 1 - Pile Caps (50%)

Faults Identified & Remediated

NOTES:

As mentioned within this report, during the visual inspections and mechanical point stress testing conducted across the area within Block 1, a total of three miswelded lap joints, two puncture holes and a couple of areas around the pile caps where additional liquid membrane was required, were identified. All faults and defects were

NOTES:

brought to the attention of the installers in order that preparation could be made to conduct remedial action in the presence of GeoShield. The dedicated installers opted to apply additional heat to reweld the Juta Titanbond Gas Barrier and apply patches of Juta Titan Tank over the puncture holes identified to reinstate the continuous seal

GeoShield Verification Report

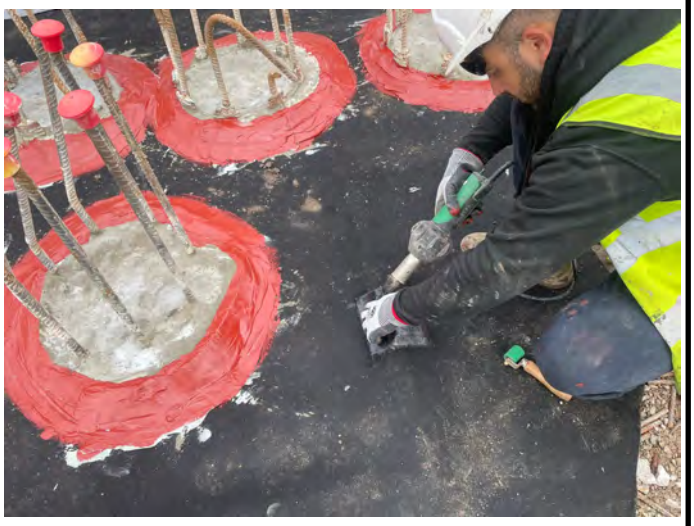
VERIFICATION ITEM THREE

throughout the area. The installers also painted a further application of Juta Liquid membrane over the pile caps where required. Thorough visual inspections, supported by further mechanical point stress testing were conducted upon the remediated areas, where no further faults were found.
Tested and verified in accordance with CIRIA 735.

ADDITIONAL PHOTOGRAPHS

The installer applying a further coat of liquid membrane.

A sufficient 100mm overlap achieved.



The installer applying a patch of Juta Titan Tank to repair a puncture identified.

A couple of areas where the membrane will need to be sealed around the beam once it is present.

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔

GeoShield Verification Report

VERIFICATION SUMMARY

This was the first visit to the site where verification was required for the installation of the Juta Titanbond Gas Barrier and sealing of the pile caps to approximately 50% of Block 1.

All overlaps between the adjacent sheets of Juta Titanbond Gas Barrier have been successfully heat welded using a hot air tool and silicone roller to ensure continuous welds are achieved throughout.

All pile heads have been successfully sealed using Juta CAB Flex 2C, Rascobond EP Adhesive and Juta Liquid Membrane.

Thorough mechanical point stress testing was conducted throughout all areas during the inspection today. A total of three miswelded lap joints, two punctures and a couple of areas requiring additional liquid membrane were identified during this visit, all of which were successfully remediated on site in the presence of GeoShield.

The installation has been conducted to a good NVQ Level 2 standard, in accordance with manufacturer's specifications and design guidelines.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 14-Jun-2024

GeoShield Verification Report 02

PROJECT REFERENCE:	GEO104657 R02
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer's instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

GeoShield Verification Report

NAME OF SURVEYOR: Niall Hogan

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07423 116951

EMAIL ADDRESS: nhogan@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Block 2 - Pile Caps (75%)

SITE CONDITIONS:

WEATHER:

Dry

TEMPERATURE:

18c

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 14:30-15:30

DATE: 18.06.2024

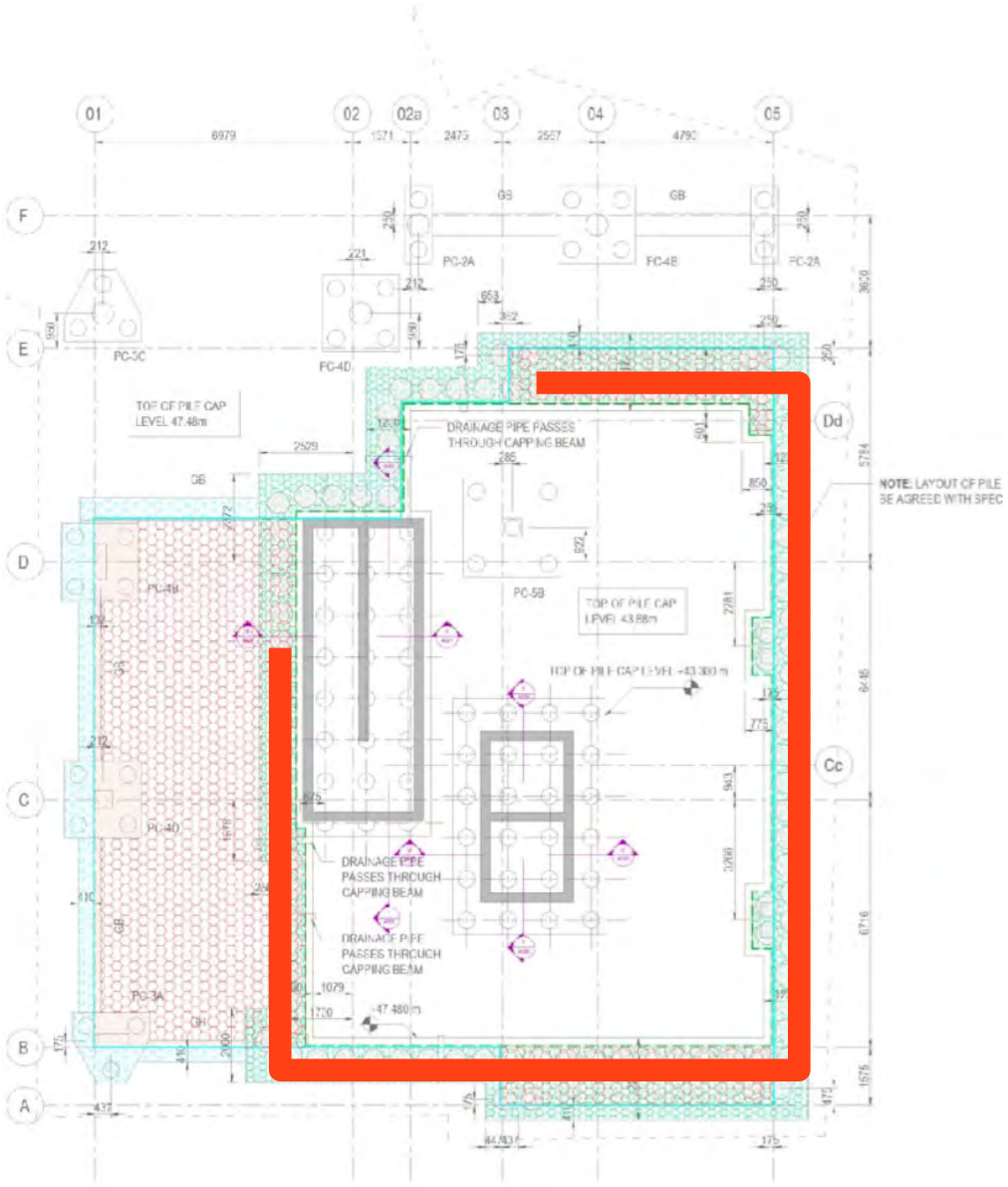
REPORT NUMBER: 002

ACCOMPANIED BY:

Bruno - RASCOR UK Ltd

GeoShield Verification Report

Verification Layout



The photograph above shows a plan layout of the site. The area highlighted in red shows where the verification inspection took place on site today.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the area where today's verification inspection took place on site.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the area where today's verification inspection took place on site.

GeoShield Verification Report

OVERVIEW

An alternate overview photograph of where the verification inspection took place on site today.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Block 2 - Pile Caps (75%)

Installation of Juta Titanbond Gas Barrier

NOTES:

Juta Titanbond Gas Barrier has been installed across 75% of Block 2, upon a smooth concrete blinding substrate. All lap joints between the adjacent sheets of Juta Titanbond Gas Barrier have been overlapped a minimum of 100mm and heat welded using a hot air leister and silicone roller with adequate pressure applied

NOTES:

to ensure a continuous seal is acheived throughout the referenced area, conforming to manufacturer's specifications and design details.

GeoShield Verification Report

VERIFICATION ITEM ONE

All lap joints of the Juta Titanbond Gas Barrier were subjected to thorough visual inspections, supported by mechanical point stress testing, also known as pick and probe testing where a probe was run along all overlaps to identify any miswelds. A total of 4 miswelded lap joints were identified, all of which were successfully remediated on site in the presence of GeoShield by applying additional heat to reinstate the bond.

GeoShield Verification Report

VERIFICATION ITEM TWO

LOCATION/GRID LINE: Block 2 - Pile Caps (75%)

Pile Cap Sealing

NOTES:

Throughout the area referenced a large number of pile heads required sealing. These have been successfully sealed in accordance with Rascors design details. The Juta Titanbond Gas Barrier has been cut tightly around each individual pile head to eliminate voided areas and creasing. All pile caps have received a liberal

NOTES:

coverage of Juta CAB Flex 2C, which is a cementitious membrane, painted in two separate coats to the tops of the pile heads and left a sufficient amount of time to cure. Once cured, a continuous fillet of Rascobond EP Adhesive is applied to terminate the pile head with a further application of Juta Liquid Membrane

GeoShield Verification Report

VERIFICATION ITEM TWO

applied around the circumference of the pile head. Thorough visual inspections were conducted across all pile heads where a couple of areas required a further application of Juta Liquid Membrane. This was carried out in the presence of GeoShield during the visit. No further faults or evidence of cracking were identified.

GeoShield Verification Report

VERIFICATION ITEM THREE

LOCATION/GRID LINE: Block 2 - Pile Caps (75%)

Faults Identified & Remediated

NOTES:

As mentioned within this report, during the visual inspections and mechanical point stress testing conducted across the area within Block 2, a total of 4 miswelded lap joints, 1 puncture hole and a couple of areas around the pile caps where additional liquid membrane was required, were identified. All faults and defects were

NOTES:

brought to the attention of the installers in order that preparation could be made to conduct remedial action in the presence of GeoShield. The dedicated installers opted to apply additional heat to reweld the Juta Titanbond Gas Barrier and apply patches of Juta Titan Tank over the puncture holes identified to reinstate the continuous seal

GeoShield Verification Report

VERIFICATION ITEM THREE

throughout the area. The installers also painted a further application of Juta Liquid membrane over the pile caps where required. Thorough visual inspections, supported by further mechanical point stress testing were conducted upon the remediated areas, where no further faults were found.
Tested and verified in accordance with CIRIA 735.

ADDITIONAL PHOTOGRAPHS

GP Liquid Barrier Used

Evidence of RASCObond EP

Various pile caps to be sealed next visit

Installer remediating a miswelded lap joint

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔

GeoShield Verification Report

VERIFICATION SUMMARY

This was the second visit to the site where verification was required for the installation of the Juta Titanbond Gas Barrier and sealing of the pile caps to approximately 75% of Block 2.

All overlaps between the adjacent sheets of Juta Titanbond Gas Barrier have been successfully heat welded using a hot air tool and silicone roller to ensure continuous welds are achieved throughout.

All pile heads have been successfully sealed using Juta CAB Flex 2C, Rascobond EP Adhesive and Juta Liquid Membrane.

Thorough mechanical point stress testing was conducted throughout all areas during the inspection today. A total of 4 miswelded lap joints, 1 punctures and a couple of areas requiring additional liquid membrane were identified during this visit, all of which were successfully remediated on site in the presence of GeoShield.

The installation has been conducted to a good NVQ Level 2 standard, in accordance with manufacturer's specifications and design guidelines.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 18-Jun-2024

GeoShield Verification Report 03

PROJECT REFERENCE:	GEO104657 R03
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer's instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

GeoShield Verification Report

NAME OF SURVEYOR: Niall Hogan

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07423 116951

EMAIL ADDRESS: nhogan@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Block 2 - Pile Caps (Completed to 100%)

SITE CONDITIONS:

WEATHER:

Sunny

TEMPERATURE:

24c

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 15:00-16:00

DATE: 20.06.2024

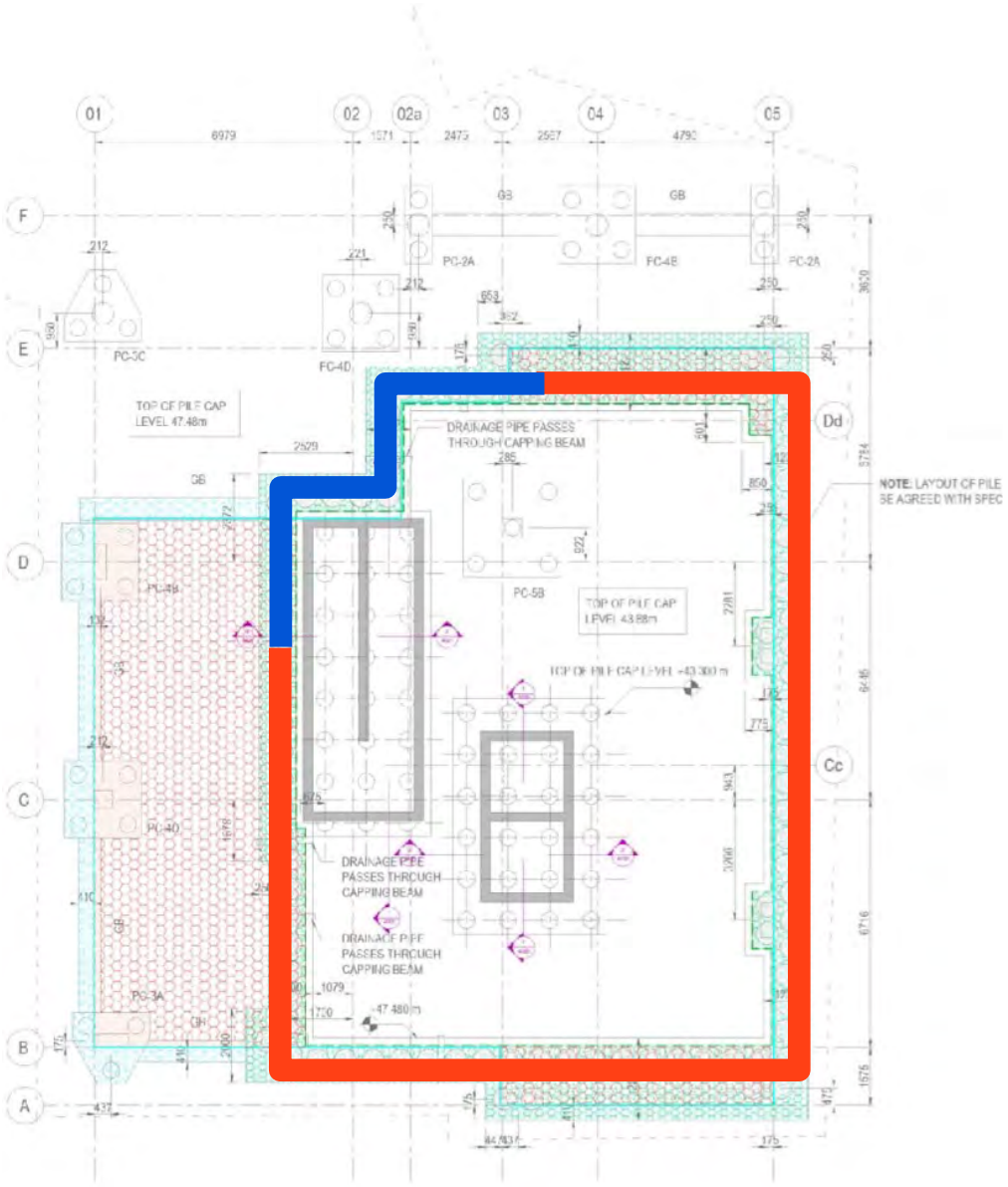
REPORT NUMBER: 003

ACCOMPANIED BY:

Bruno - RASCOR UK Ltd

GeoShield Verification Report

Verification Layout



The photograph above shows a plan layout of the site. The area highlighted in blue shows where the verification inspection took place on site today.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the area where today's verification inspection took place on site.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Block 2 - Pile Caps (Completed to 100%)

Installation of Juta Titanbond Gas Barrier

NOTES:

Juta Titanbond Gas Barrier has been installed across the remaining 25% of Block 2, upon a smooth concrete blinding substrate.
All lap joints between the adjacent sheets of Juta Titanbond Gas Barrier have been overlapped a minimum of 100mm and heat welded using a

NOTES:

hot air leister and silicone roller with adequate pressure applied to ensure a continuous seal is acheived throughout the referenced area, conforming to manufacturer's specifications and design details.

GeoShield Verification Report

VERIFICATION ITEM ONE

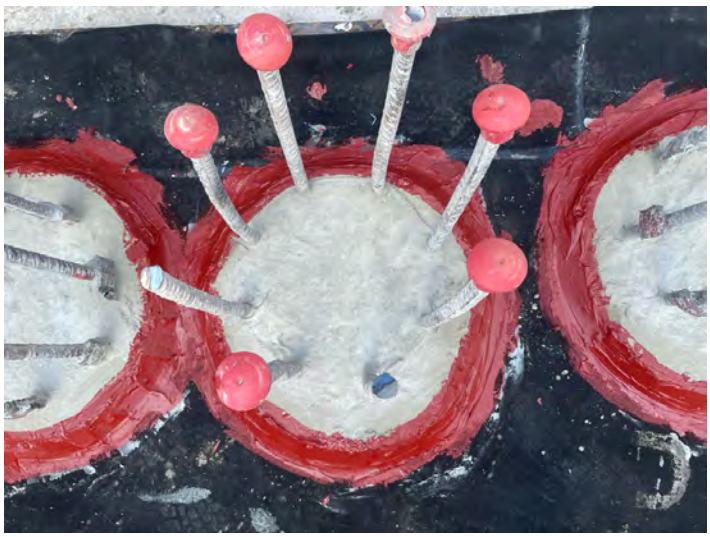
All lap joints of the Juta Titanbond Gas Barrier were subjected to thorough visual inspections, supported by mechanical point stress testing, also known as pick and probe testing where a probe was run along all overlaps to identify any miswelds. A total of 3 miswelded lap joints were identified, all of which were successfully remediated on site in the presence of GeoShield by applying additional heat to reinstate the bond.

GeoShield Verification Report

VERIFICATION ITEM TWO

LOCATION/GRID LINE: Block 2 - Pile Caps (Completed to 100%)

Pile Cap Sealing



NOTES:

Throughout the area referenced a large number of pile heads required sealing. These have been successfully sealed in accordance with Rascors design details. The Juta Titanbond Gas Barrier has been cut tightly around each individual pile head to eliminate voided areas and creasing. All pile caps have received a liberal

NOTES:

coverage of Juta CAB Flex 2C, which is a cementitious membrane, painted in two separate coats to the tops of the pile heads and left a sufficient amount of time to cure. Once cured, a continuous fillet of Rascobond EP Adhesive is applied to terminate the pile head with a further application of Juta Liquid Membrane

GeoShield Verification Report

VERIFICATION ITEM TWO

applied around the circumference of the pile head. Thorough visual inspections were conducted across all pile heads where all the pile caps had been successfully sealed with multiple coats of membrane and there were no unpainted areas or gaps.

GeoShield Verification Report

VERIFICATION ITEM THREE

LOCATION/GRID LINE: Block 2 - Pile Caps (Completed to 100%)

Faults Identified & Remediated

NOTES:

As mentioned within this report, during the visual inspections and mechanical point stress testing conducted across the area within Block 2, a total of 3 miswelded lap joints were found through testing procedures. All faults and defects were brought to the attention of installers

NOTES:

in order that preparation could be made to conduct remedial action in the presence of GeoShield. The dedicated installers opted to apply additional heat to reweld the Juta Titanbond Gas Barrier and apply patches of Juta Titan Tank over the puncture holes identified to reinstate the continuous seal

GeoShield Verification Report

VERIFICATION ITEM THREE

throughout the area. Thorough visual inspections, supported by further mechanical point stress testing were conducted upon the remediated areas, where no further faults were found.
Tested and verified in accordance with CIRIA 735.

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔

GeoShield Verification Report

VERIFICATION SUMMARY

This was the third visit to the site where verification was required for the installation of the Juta Titanbond Gas Barrier and sealing of the pile caps of the remaining 25% of Block 2.

All overlaps between the adjacent sheets of Juta Titanbond Gas Barrier have been successfully heat welded using a hot air tool and silicone roller to ensure continuous welds are achieved throughout.

All pile heads have been successfully sealed using Juta CAB Flex 2C, Rascobond EP Adhesive and Juta Liquid Membrane.

Thorough mechanical point stress testing was conducted throughout all areas during the inspection today. A total of 3 miswelded lap joints were identified during this visit, all of which were successfully remediated on site in the presence of GeoShield.

The installation has been conducted to a good NVQ Level 2 standard, in accordance with manufacturer's specifications and design guidelines.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 20-Jun-2024

GeoShield Verification Report 04

PROJECT REFERENCE:	GEO104657 R04
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer's instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

GeoShield Verification Report

NAME OF SURVEYOR: Niall Hogan

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07423 116951

EMAIL ADDRESS: nhogan@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Block 1 - Pile Caps (Completed to 100%)

SITE CONDITIONS:

WEATHER:

Overcast

TEMPERATURE:

18c

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 08:30-10:00

DATE: 01.07.2024

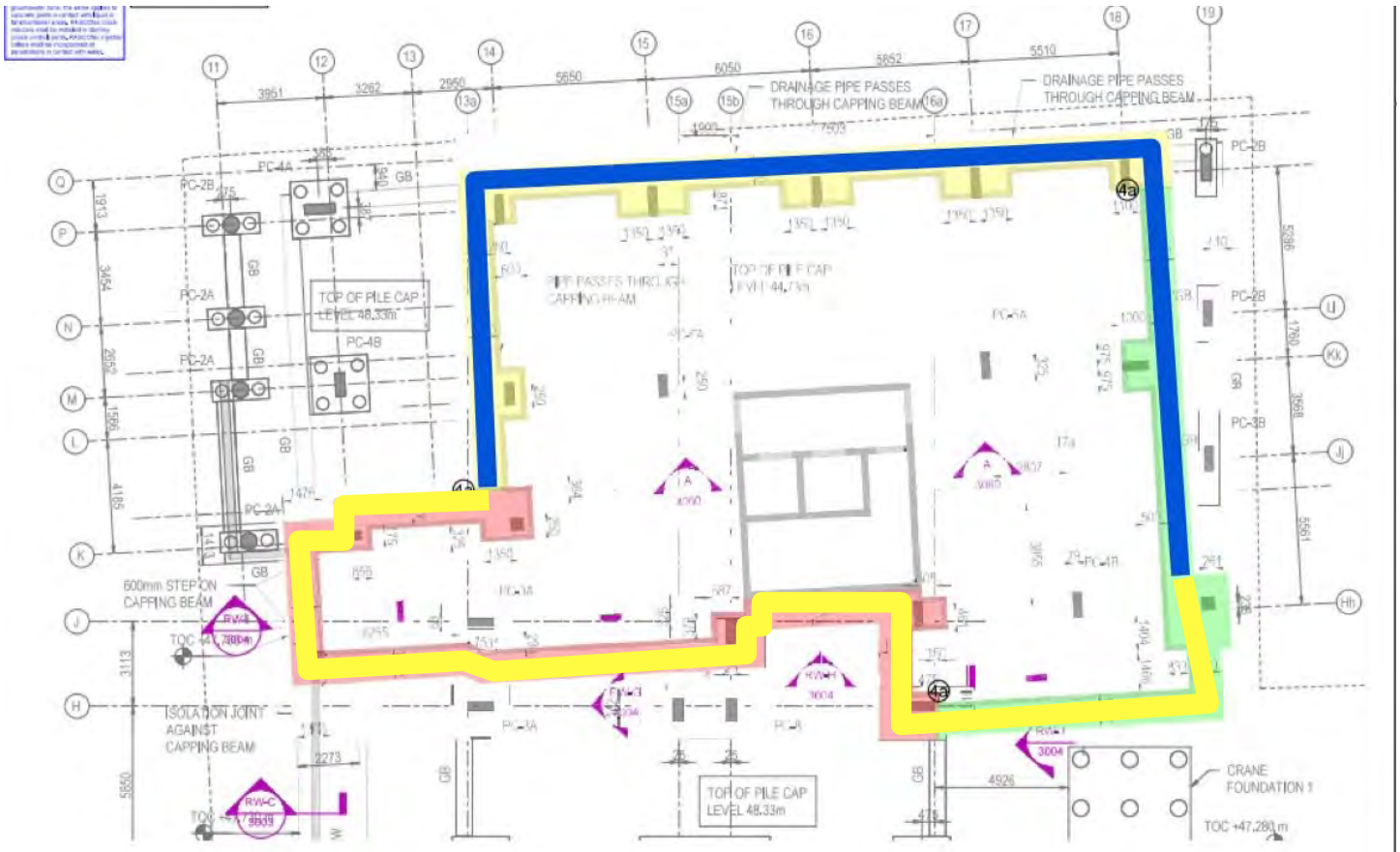
REPORT NUMBER: 004

ACCOMPANIED BY:

Bruno - RASCOR UK Ltd

GeoShield Verification Report

Verification Layout



The photograph above shows a plan layout of the site. The area highlighted in yellow shows where the verification inspection took place on site today.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the area where today's verification inspection took place on site.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the area where today's verification inspection took place on site.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the area where today's verification inspection took place on site.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Block 1 - Pile Caps (Completed to 100%)

Installation of Juta Titanbond Gas Barrier

NOTES:

Juta Titanbond Gas Barrier has been installed across the remaining 50% of Block 1, upon a smooth concrete blinding substrate.
All lap joints between the adjacent sheets of Juta Titanbond Gas Barrier have been overlapped a minimum of 100mm and heat welded using a

NOTES:

hot air leister and silicone roller with adequate pressure applied to ensure a continuous seal is acheived throughout the referenced area, conforming to manufacturer's specifications and design details.

GeoShield Verification Report

VERIFICATION ITEM ONE

All lap joints of the Juta Titanbond Gas Barrier were subjected to thorough visual inspections, supported by mechanical point stress testing, also known as pick and probe testing where a probe was run along all overlaps to identify any miswelds. A total of 5 miswelded lap joints were identified, all of which were successfully remediated on site in the presence of GeoShield by applying additional heat to reinstate the bond.

GeoShield Verification Report

VERIFICATION ITEM TWO

LOCATION/GRID LINE: Block 1 - Pile Caps (Completed to 100%)

Pile Cap Sealing

NOTES:

Throughout the area referenced a large number of pile heads required sealing. These have been successfully sealed in accordance with Rascors design details. The Juta Titanbond Gas Barrier has been cut tightly around each individual pile head to eliminate voided areas and creasing. All pile caps have received a liberal

NOTES:

coverage of Juta CAB Flex 2C, which is a cementitious membrane, painted in two separate coats to the tops of the pile heads and left a sufficient amount of time to cure. Once cured, a continuous fillet of Rascobond EP Adhesive is applied to terminate the pile head with a further application of Juta Liquid Membrane

GeoShield Verification Report

VERIFICATION ITEM TWO

applied around the circumference of the pile head. Thorough visual inspections were conducted across all pile heads where all the pile caps had been successfully sealed with multiple coats of membrane, there were 2 areas, which required additional Liquid membrane, this was applied and sealed

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔

GeoShield Verification Report

VERIFICATION SUMMARY

This was the fourth visit to the site where verification was required for the installation of the Juta Titanbond Gas Barrier and sealing of the pile caps of the remaining 50% of Block 1.

All overlaps between the adjacent sheets of Juta Titanbond Gas Barrier have been successfully heat welded using a hot air tool and silicone roller to ensure continuous welds are achieved throughout.

All pile heads have been successfully sealed using Juta CAB Flex 2C, Rascobond EP Adhesive and Juta Liquid Membrane.

Thorough mechanical point stress testing was conducted throughout all areas during the inspection today. A total of 5 miswelded lap joints were identified during this visit, all of which were successfully remediated on site in the presence of GeoShield.

The installation has been conducted to a good NVQ Level 2 standard, in accordance with manufacturer's specifications and design guidelines.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 01-Jul-2024

GeoShield Verification Report 05

PROJECT REFERENCE: GEO104657 R05

PROJECT: Tariff Street, Manchester City Centre

PROJECT ADDRESS: Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer's instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

GeoShield Verification Report

NAME OF SURVEYOR: Liam England

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07551 259023

EMAIL ADDRESS: lengland@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing

SITE CONDITIONS:

WEATHER:

Light Rain

TEMPERATURE:

19c

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 09:00 - 10:10

DATE: 11.07.2024

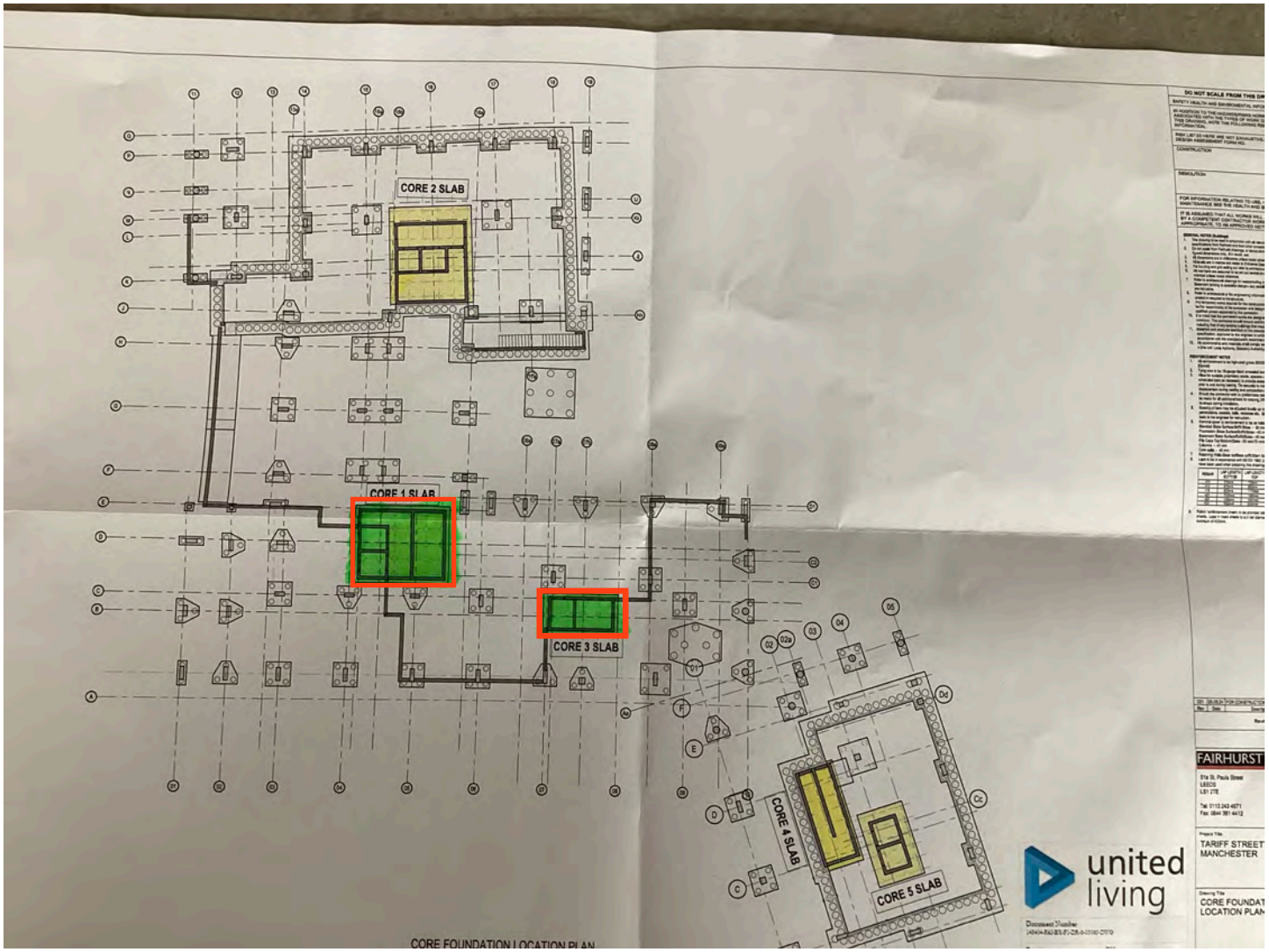
REPORT NUMBER: 005

ACCOMPANIED BY:

Bruno - RASCOR UK Ltd

GeoShield Verification Report

Verification Layout



The photograph above shows a plan layout of the site. The area highlighted in red shows where the verification inspection took place on site today.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the area where today's verification inspection took place on site.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the area where today's verification inspection took place on site.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing

Installation of Juta Titanbond Gas Barrier

NOTES:

A complete line out of the Juta TitanFlex has been installed across a smooth concrete finish foundation to Core slab 1 and 2.
The Juta TitanFlex has been tightly cut around all pile caps to ensure continuity throughout.

NOTES:

All lap joints between the adjacent sheets of Juta GP1 TitanFlex have been overlapped a minimum of 100mm and heat welded using a hot air leister and a silicone roller with adequate pressure applied to ensure a continuous weld is achieved. The Install was in accordance with manufacturer's specifications.

GeoShield Verification Report

VERIFICATION ITEM ONE

All Juta TitanFlex lap joints were subjected to thorough visual inspections, supported by mechanical point stress test throughout the installation where no faults or defects were identified.

GeoShield Verification Report

VERIFICATION ITEM TWO

LOCATION/GRID LINE: Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing

Pile Cap Sealing

NOTES:

Throughout the complete line out installation of the Juta TitanFlex to the referenced area, there were a number of pile caps that have been sealed in accordance with Rascor's specifications. All pile caps have been sealed using Juta CAB Flex 2C which is is a two-component, fast drying waterproofing

NOTES:

coating system, this system enables waterproofing against pressurised water to the pile caps. All pile caps were subject to a visual inspection, during the visual inspection it was found that all pile caps were successfully sealed and no faults or defects were identified.

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing	✔
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔
11/07/2024	005	No faults or defects were identified during today's visit.	✔

GeoShield Verification Report

VERIFICATION SUMMARY

This was the fifth visit to site for the inspection and verification of the installation of Juta Titanbond and sealing of pile caps in Core 1 Slab and Core 3 Slab, verification process is as follows:

:> All overlaps between the adjacent sheets of Juta TitanFlex have been successfully installed with a 100mm overlap and all heat welded using a hot air tool and silicone roller creating continuous seals throughout the installation.

:> Mechanical Point Stress test to all welded overlaps was conducted in which no faults were identified.

:> All pile caps were successfully sealed using Juta CAB Flex 2C.

:> A visual inspection to all sealing of pile caps conducted in which no faults were identified.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 11-Jul-2024

GeoShield Verification Report 06

PROJECT REFERENCE:	GEO104657 R06
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer's instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

GeoShield Verification Report

NAME OF SURVEYOR: Niall Hogan

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07423 116951

EMAIL ADDRESS: nhogan@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Core 4 Slab & Core 5 Slab - Base Only

SITE CONDITIONS:

WEATHER:

Overcast

TEMPERATURE:

18c

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 09:00-10:30

DATE: 22.07.2024

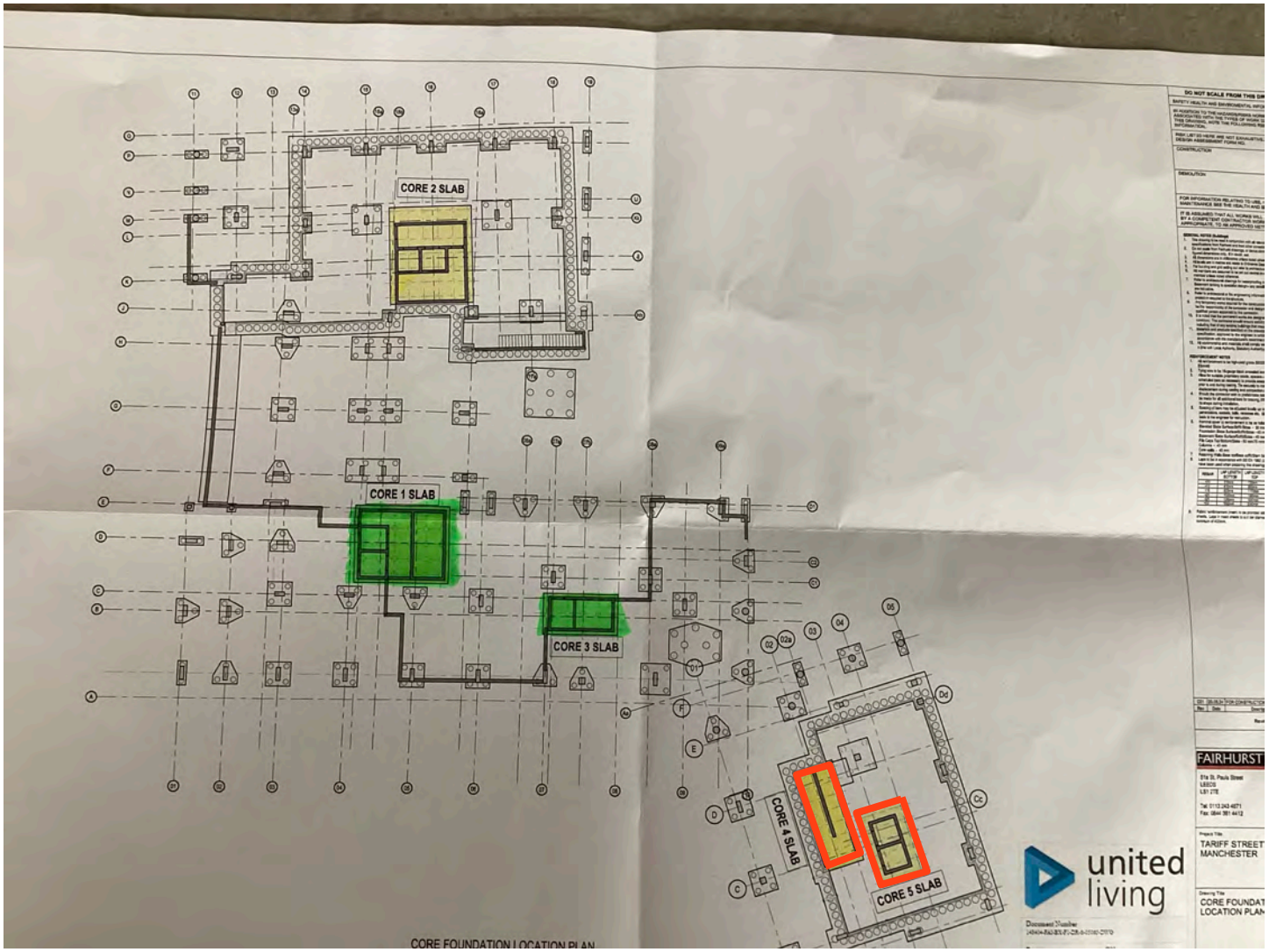
REPORT NUMBER: 006

ACCOMPANIED BY:

Bruno - RASCOR UK Ltd

GeoShield Verification Report

Verification Layout



The photograph above shows a plan layout of the site. The area highlighted in red shows where the verification inspection took place on site today.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the area where today's verification inspection took place on site.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Core 4 Slab & Core 5 Slab - Base Only

Installation of Juta Titanbond Gas Barrier

NOTES:

Juta Titanbond Gas Barrier has been installed across the base of Core 4 Slab & Core 5 Slab, upon a smooth concrete blinding substrate.
All lap joints between the adjacent sheets of Juta Titanbond Gas Barrier have been overlapped a minimum of 100mm and heat welded using a

NOTES:

hot air leister and silicone roller with adequate pressure applied to ensure a continuous seal is acheived throughout the referenced area, conforming to manufacturer's specifications and design details.

GeoShield Verification Report

VERIFICATION ITEM ONE

All lap joints of the Juta Titanbond Gas Barrier were subjected to thorough visual inspections, supported by mechanical point stress testing, also known as pick and probe testing where a probe was run along all overlaps to identify any miswelds. A total of 6 miswelded lap joints were identified, all of which were successfully remediated on site in the presence of GeoShield by applying additional heat to reinstate the bond.

GeoShield Verification Report

VERIFICATION ITEM TWO

LOCATION/GRID LINE: Core 4 Slab & Core 5 Slab - Base Only

Pile Cap Sealing

NOTES:

The area referenced a large number of pile heads required sealing. These have been successfully sealed in accordance with Rascors design details. The Juta Titanbond Gas Barrier has been cut tightly around each individual pile head to eliminate voided areas and creasing. All pile caps have received a liberal

NOTES:

coverage of Juta CAB Flex 2C, which is a cementitious membrane, painted in two separate coats to the tops of the pile heads and left a sufficient amount of time to cure. Once cured, a continuous fillet of Rascobond EP Adhesive is applied to terminate the pile head with a further application of Juta Liquid Membrane

GeoShield Verification Report

VERIFICATION ITEM TWO

applied around the circumference of the pile head. Thorough visual inspections were conducted across all pile heads where all the pile caps had been successfully sealed with multiple coats of membrane, there were no faults found

GeoShield Verification Report

VERIFICATION ITEM THREE

LOCATION/GRID LINE: Core 4 Slab & Core 5 Slab - Base Only

Faults Identified & Remediated

NOTES:

As mentioned within this report, during the visual inspections and mechanical point stress testing conducted across the area within Core 4 Slab & Core 5 Slab, a total of 6 miswelded lap joints were found through testing procedures. All faults and defects were brought to the attention of installers

NOTES:

in order that preparation could be made to conduct remedial action in the presence of GeoShield. The dedicated installers opted to apply additional heat to reweld the Juta Titanbond Gas Barrier and apply patches of Juta Titan Tank over the puncture holes identified to reinstate the continuous seal

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing	✔
Gridline/Plot Sign off	Core 4 Slab & Core 5 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔
11/07/2024	005	No faults or defects were identified during today's visit.	✔
22/07/2024	006	6 miswelded lap joints, remediated during visit	✔

GeoShield Verification Report

VERIFICATION SUMMARY

This was the sixth visit to the site where verification was required for the installation of the Juta Titanbond Gas Barrier and sealing of the pile caps of Core 4 Slab & Core 5 Slab - Base Only.

All overlaps between the adjacent sheets of Juta Titanbond Gas Barrier have been successfully heat welded using a hot air tool and silicone roller to ensure continuous welds are achieved throughout.

All pile heads have been successfully sealed using Juta CAB Flex 2C, Rascobond EP Adhesive and Juta Liquid Membrane.

Thorough mechanical point stress testing was conducted throughout all areas during the inspection today. A total of 6 miswelded lap joints were identified during this visit, all of which were successfully remediated on site in the presence of GeoShield.

The installation has been conducted to a good NVQ Level 2 standard, in accordance with manufacturer's specifications and design guidelines.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 22-Jul-2024

GeoShield Verification Report 07

PROJECT REFERENCE:	GEO104657 R07
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer's instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

GeoShield Verification Report

NAME OF SURVEYOR: Liam England

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07551 259023

EMAIL ADDRESS: lengland@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Clements Block 2 - Lift Area Walls (Core Slab 5)/ Trench Walls (Core Slab 4) All highlighted in the Verification Layout.

SITE CONDITIONS:

WEATHER:

Sunny

TEMPERATURE:

20c

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 09:30-10:30

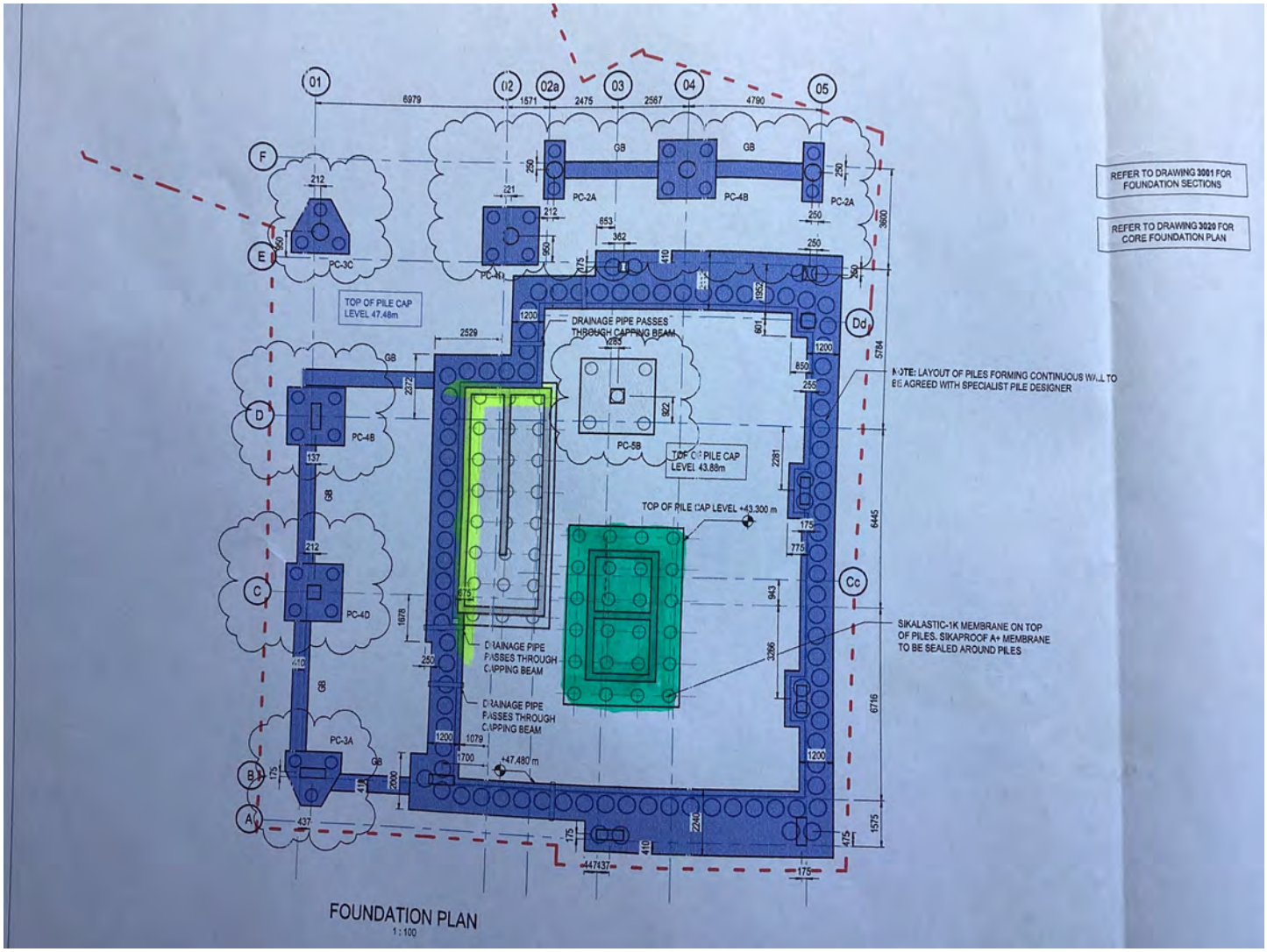
DATE: 01.08.2024

REPORT NUMBER: 007

ACCOMPANIED BY:

GeoShield Verification Report

Verification Layout



The photograph above shows a plan layout of the site. The area highlighted in yellow and green shows where the verification inspection took place on site today.

GeoShield Verification Report

LIMITATIONS

SURVEYED AREA: Clements Block 2 - Trench Walls (Core Slab 4)

RESTRICTIONS AND LIMITATIONS:

The area highlighted in yellow on the verification layout could not be inspected due to the amount of steal that was been installed within the area.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the area where today's verification inspection took place on site.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Clements Block 2 - Lift Area Walls (Core Slab 5)

Installation of Juta TitanTank

NOTES:

A complete line out of the Juta TitanTank has been installed across the solid concrete walls of the referenced area. The Juta TitanTank has been successfully overlapped onto the Titanbond and heat welded to ensure continuity throughout.

NOTES:

All lap joints between the adjacent sheets of Juta TitanTank have been overlapped a minimum of 100mm and heat welded using a hot air leister and a silicone roller with adequate pressure applied to ensure a continuous bond is achieved. The Install was in accordance with manufacturer's specifications.

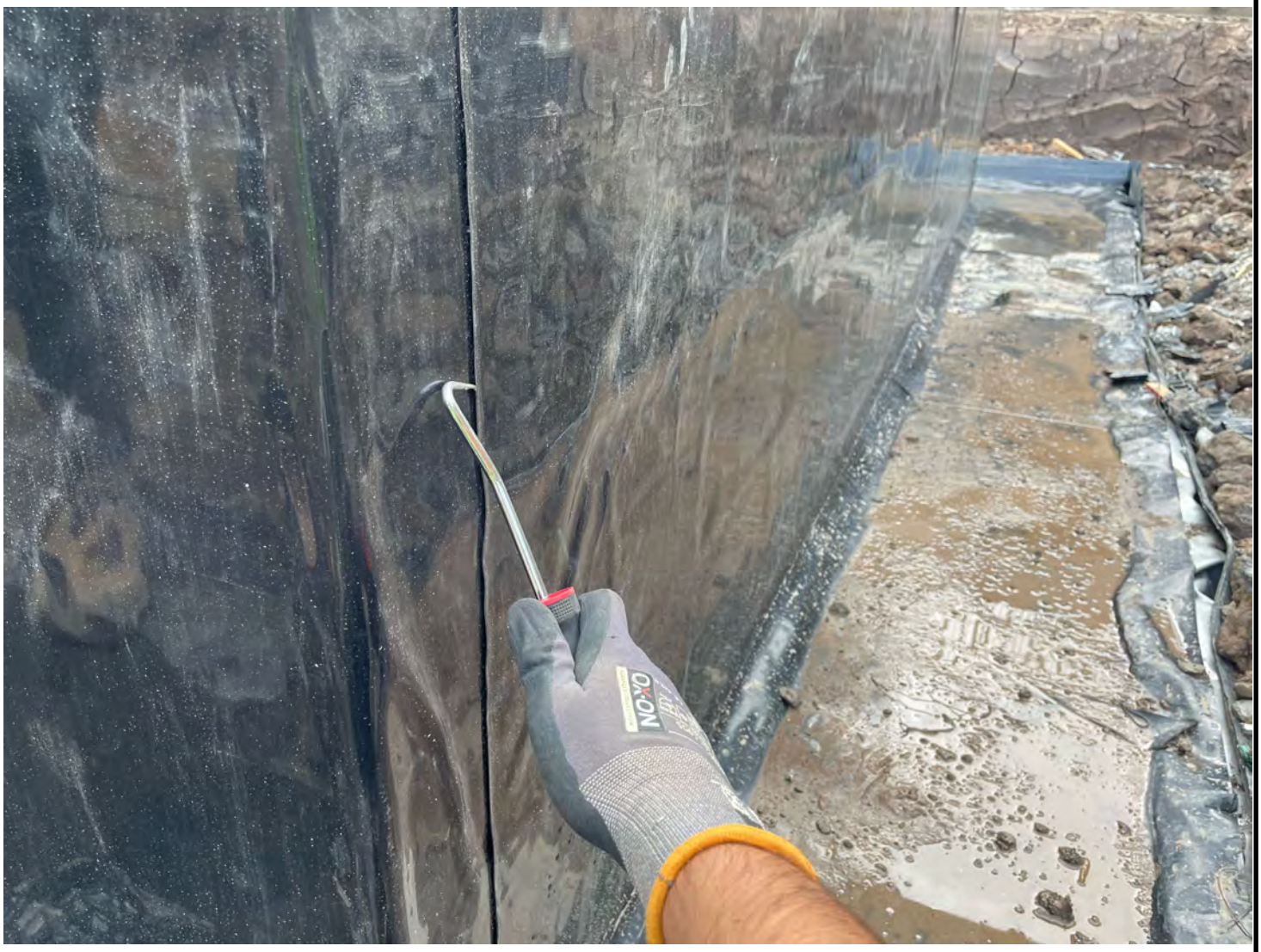
GeoShield Verification Report

VERIFICATION ITEM ONE

Throughout the install of the Juta TitanTank all corners were reinforced with additional strips of Juta TitanTank, these additional strips were applied to all corners and heated up using a hot air tool, pressure was applied using a silicone roller to ensure a continuous bond was achieved.

GeoShield Verification Report

VERIFICATION ITEM ONE



All lap joints of the Juta TitanTank were subjected to thorough visual inspections, supported by mechanical point stress test throughout the installation. During this process no faults or defects were identified.

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing	✔
Gridline/Plot Sign off	Core 4 Slab & Core 5 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Clements Block 2 - Lift Area Walls (Core Slab 5)	✔
Gridline/Plot Sign off	Clements Block 2 - Trench Walls (Core Slab 4)	
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔
11/07/2024	005	No faults or defects were identified during today's visit.	✔
22/07/2024	006	6 miswelded lap joints, remediated during visit	✔
01/08/2024	007	No faults or defects were identified during todays visit.	✔

GeoShield Verification Report

VERIFICATION SUMMARY

This was the seventh visit to the site where verification was required for the complete line out installation of Juta TitanBond to Clements Block 2 - Trench walls of Core Slab 4 and the installation of Juta TitanTank to Clements Block 2 - Lift Pit walls Core Slab 5 Area which was carried out by RASCOR UK Ltd the verification process is summarised below.

:> All overlaps between the adjacent sheets of Juta TitanTank have been successfully installed with a 100mm overlap and were applied using a hot air tool and silicone roller creating continuous seals throughout the installation.

:> All corners throughout the install were reinforced using strips of TitanTank and were heat welded to ensure a solid bond had been achieved.

:> A Mechanical Point Stress test was conducted throughout the verification today in which no faults or defects were identified.

:> A verification would not be carried out on Clements Block 2 - Trench walls of Core Slab 4 today due to the install of all steel

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 01-Aug-2024

GeoShield Verification Report 08

PROJECT REFERENCE:	GEO104657 R08
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer's instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

GeoShield Verification Report

NAME OF SURVEYOR: Niall Hogan

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07423 116951

EMAIL ADDRESS: nhogan@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME: Bruno

COMPANY: RASCOR UK Ltd

APPLICATOR TEL: 07596 321747

APPLICATOR EMAIL:

APPLICATOR NAME:

COMPANY: RASCOR UK Ltd

APPLICATOR TEL:

APPLICATOR EMAIL:

NOTES: At least one member of each team group will have a NVQ Level 2

qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane

installation.

GeoShield Verification Report

AREA SURVEYED:

Core 2 Slab - Base Only

SITE CONDITIONS:

WEATHER:

Overcast

TEMPERATURE:

18c

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 14:00-15:00

DATE: 06.08.2024

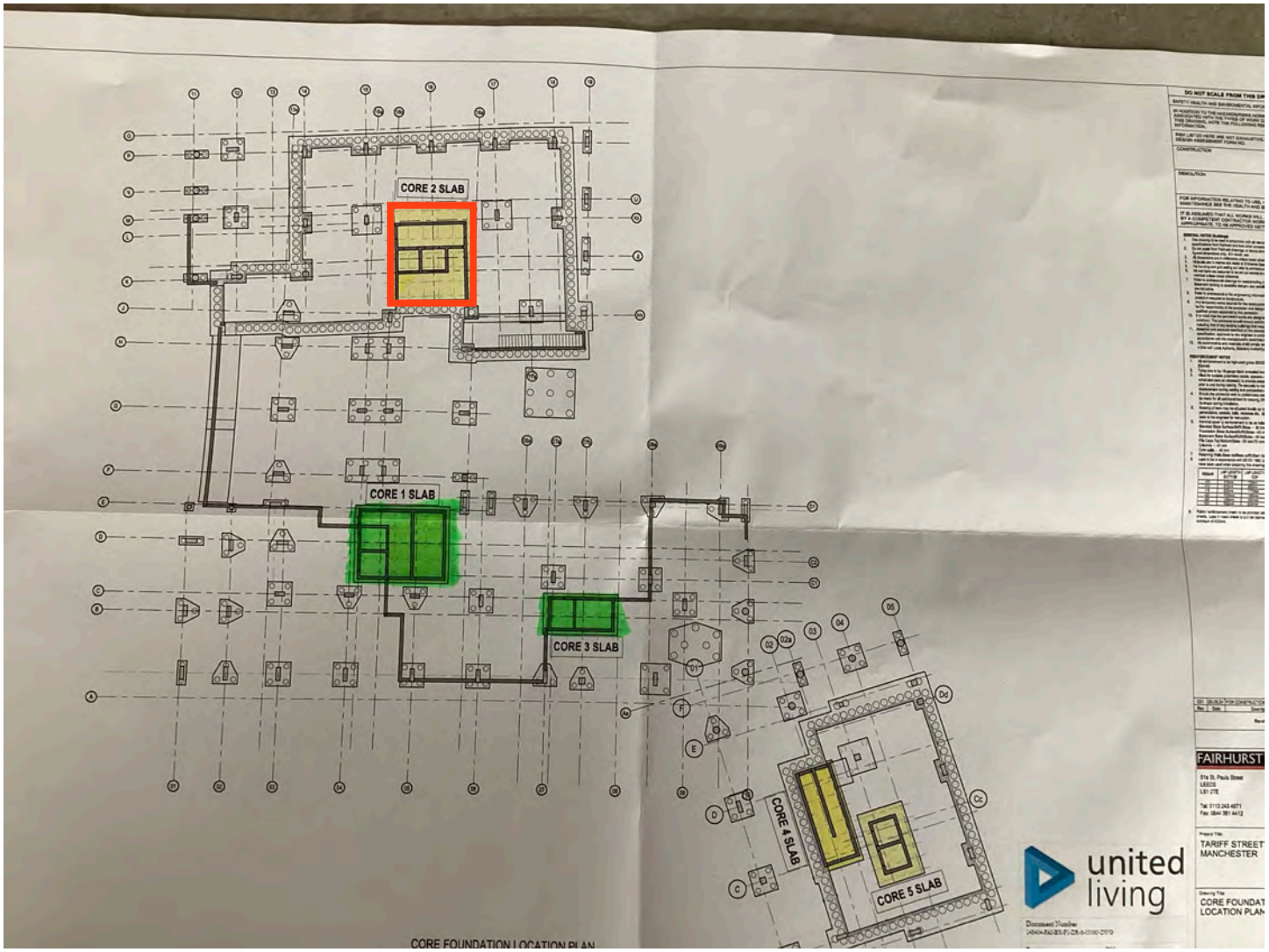
REPORT NUMBER: 008

ACCOMPANIED BY:

Bruno - RASCOR UK Ltd

GeoShield Verification Report

Verification Layout



The photograph above shows a plan layout of the site. The area highlighted in red shows where the verification inspection took place on site today.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the area where today's verification inspection took place on site.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Core 2 Slab - Base Only

Installation of Juta Titanbond Gas Barrier

NOTES:

Juta Titanbond Gas Barrier has been installed across the base of Core 2 Slab, upon a smooth concrete blinding substrate.
All lap joints between the adjacent sheets of Juta Titanbond Gas Barrier have been overlapped a minimum of 100mm and heat welded using a

NOTES:

hot air leister and silicone roller with adequate pressure applied to ensure a continuous seal is acheived throughout the referenced area, conforming to manufacturer's specifications and design details.

GeoShield Verification Report

VERIFICATION ITEM ONE

All lap joints of the Juta Titanbond Gas Barrier were subjected to thorough visual inspections, supported by mechanical point stress testing, also known as pick and probe testing where a probe was run along all overlaps to identify any miswelds. A total of 3 miswelded lap joints were identified, all of which were successfully remediated on site in the presence of GeoShield by applying additional heat to reinstate the bond.

GeoShield Verification Report

VERIFICATION ITEM TWO

LOCATION/GRID LINE: Core 2 Slab - Base Only

Pile Cap Sealing

NOTES:

Throughout the area referenced a large number of pile heads required sealing. These have been successfully sealed in accordance with Rascors design details. The Juta Titanbond Gas Barrier has been cut tightly around each individual pile head to eliminate voided areas and creasing. All pile caps have received a liberal

NOTES:

coverage of Juta CAB Flex 2C, which is a cementitious membrane, painted in two separate coats to the tops of the pile heads and left a sufficient amount of time to cure. Once cured, a continuous fillet of Rascobond EP Adhesive is applied to terminate the pile head with a further application of Juta Liquid Membrane

GeoShield Verification Report

VERIFICATION ITEM TWO

applied around the circumference of the pile head. Thorough visual inspections were conducted across all pile heads where all the pile caps had been successfully sealed with multiple coats of membrane, there were no faults found

GeoShield Verification Report

VERIFICATION ITEM THREE

LOCATION/GRID LINE: Core 4 Slab & Core 5 Slab - Base Only

Faults Identified & Remediated

NOTES:

As mentioned within this report, during the visual inspections and mechanical point stress testing conducted across the area within Core 2 Slab, a total of 3 miswelded lap joints were found through testing procedures. All faults and defects were brought to the attention of installers

NOTES:

in order that preparation could be made to conduct remedial action in the presence of GeoShield. The dedicated installers opted to apply additional heat to reweld the Juta Titanbond Gas Barrier and apply patches of Juta Titan Tank over the puncture holes identified to reinstate the continuous seal

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing	✔
Gridline/Plot Sign off	Core 4 Slab & Core 5 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Clements Block 2 - Lift Area Walls (Core Slab 5)	✔
Gridline/Plot Sign off	Clements Block 2 - Trench Walls (Core Slab 4)	
Gridline/Plot Sign off	Core 2 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔
11/07/2024	005	No faults or defects were identified during today's visit.	✔
22/07/2024	006	6 miswelded lap joints, remediated during visit	✔
01/08/2024	007	No faults or defects were identified during todays visit.	✔
06/08/2024	008	3 miswelded lap joints found, remediated during visit	✔

GeoShield Verification Report

VERIFICATION SUMMARY

This was the eighth visit to the site where verification was required for the installation of the Juta Titanbond Gas Barrier and sealing of the pile caps of Core 2 Slab - Base Only.

All overlaps between the adjacent sheets of Juta Titanbond Gas Barrier have been successfully heat welded using a hot air tool and silicone roller to ensure continuous welds are achieved throughout.

All pile heads have been successfully sealed using Juta CAB Flex 2C, Rascobond EP Adhesive and Juta Liquid Membrane.

Thorough mechanical point stress testing was conducted throughout all areas during the inspection today. A total of 3 miswelded lap joints were identified during this visit, all of which were successfully remediated on site in the presence of GeoShield.

The installation has been conducted to a good NVQ Level 2 standard, in accordance with manufacturer's specifications and design guidelines.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 06-Aug-2024

GeoShield Verification Report 9

PROJECT REFERENCE:	GEO104657
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer’s instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

GeoShield Verification Report

NAME OF SURVEYOR: Niall Hogan

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07423 116951

EMAIL ADDRESS: nhogan@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME:	Boris
COMPANY:	RASCOR UK Ltd
APPLICATOR TEL:	
APPLICATOR EMAIL:	

APPLICATOR NAME:	Ndoc
COMPANY:	RASCOR UK Ltd
APPLICATOR TEL:	
APPLICATOR EMAIL:	

NOTES: At least one member of each team group will have a NVQ Level 2 qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane installation.

GeoShield Verification Report

AREA SURVEYED:

Core 3 - Slab (JUTA GP5)
Basement Walls - Block 1 & 2 (JUTA Titanbond)

SITE CONDITIONS:

WEATHER:

Overcast

TEMPERATURE:

17ºc

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 13:30 - 14:45

DATE: 22.08.2024

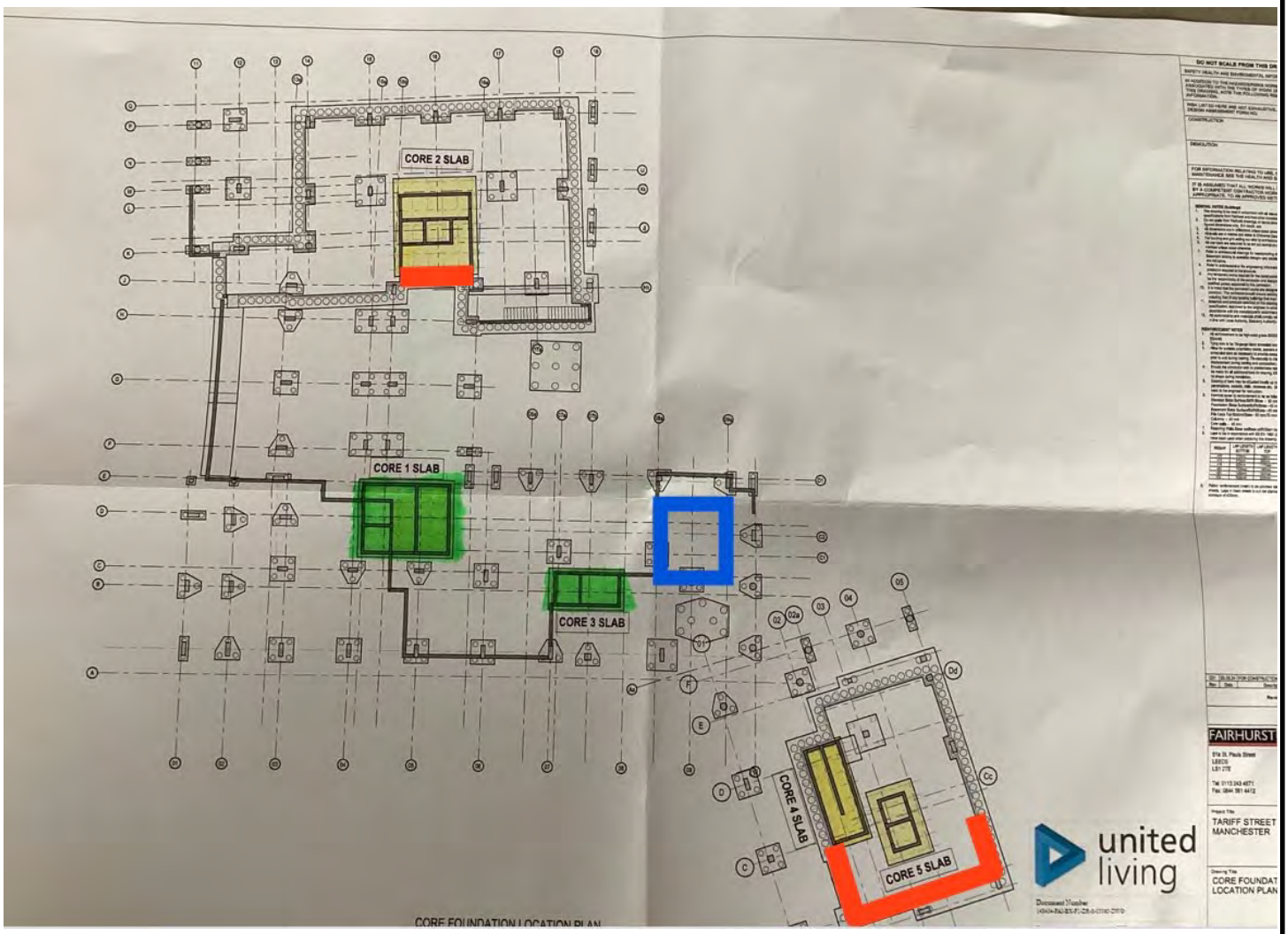
REPORT NUMBER: 009

ACCOMPANIED BY:

Boris & Ndoc - RASCOR UK Ltd

GeoShield Verification Report

Verification Layout



The photograph above shows a plan layout of the site. The area highlighted in blue shows the slab area of Core 3 and the areas highlighted in red show the basement walls of Block 1 & 2 where the inspection took place.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the slab area where today's verification inspection took place on site.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the basement walls in Block 2 where today's verification inspection took place on site.

GeoShield Verification Report

OVERVIEW

An alternate overview photograph of the basement walls in Block 2 where the verification inspection took place on site today.

GeoShield Verification Report

LIMITATIONS

SURVEYED AREA: Basement Walls - Block 1

RESTRICTIONS AND LIMITATIONS:

Steel reinforcement and shuttering had already been installed upon the Basement Walls in Block 1. This restricted access to enable an inspection to take place.

GeoShield Verification Report

VERIFICATION ITEM ONE

LOCATION/GRID LINE: Core 3 - Slab Section

Installation of JUTA GP5 Gas Barrier

NOTES:

JUTA GP5 Gas Barrier has been installed across the base of the Core 3 Slab, upon a smooth concrete blinding substrate.
All lap joints between the adjacent sheets of JUTA GP5 Gas Barrier have been overlapped a minimum of 100mm and heat welded using a

NOTES:

hot air leister and silicone roller with adequate pressure applied to ensure a continuous seal is acheived throughout the referenced area, conforming to manufacturer's specifications and design details.

GeoShield Verification Report

VERIFICATION ITEM ONE

All lap joints of the JUTA GP5 Gas Barrier were subjected to thorough visual inspections, supported by mechanical point stress testing, also known as pick and probe testing where a probe was run along all overlaps to identify any miswelds. A number of miswelded lap joints were identified, all of which were successfully remediated on site in the presence of GeoShield to a good standard.

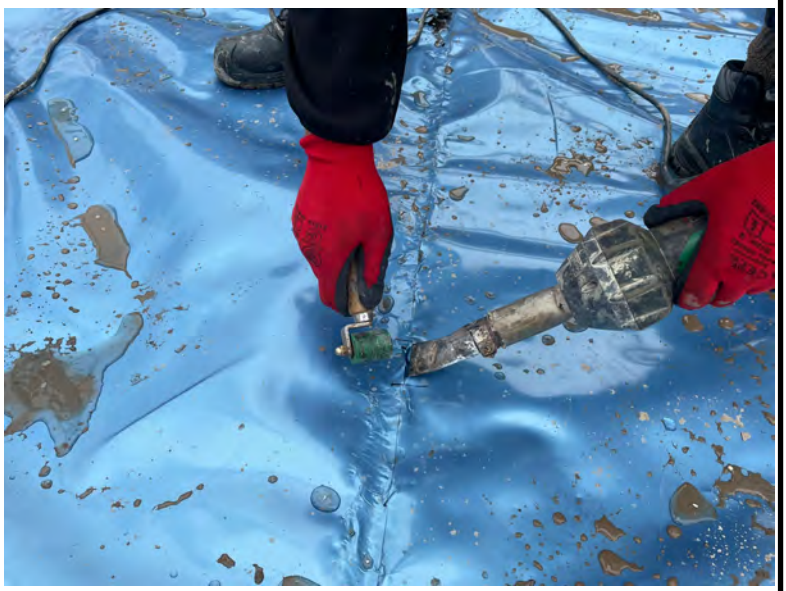
VERIFICATION ITEM ONE

REMEDIATIONS:

Miswelded Lap Joints - Remediations

NOTES:

As mentioned, a number of miswelded lap joints were identified during the testing of the overlaps of the JUTA GP5 Gas Barrier. All miswelded lap joints were brought to the attention of the installers and remediated on site in the presence of GeoShield. The



NOTES:

dedicated installers from Rascor opted to reweld the lap joints by applying further heat and rolled pressure to activate the bitumen backing of the JUTA GP5 Gas Barrier. All rewelded lap joints were retested with the probe to ensure the overlaps had fully bonded.

GeoShield Verification Report

VERIFICATION ITEM TWO

LOCATION/GRID LINE: Core 3 - Slab

Pipe Penetrations

NOTES:

Throughout the installation of the JUTA GP5 Gas Barrier to the referenced slab area in Core 3, there were a number of pipe penetrations that have been sealed in accordance with manufacturer's specifications and design guidelines. This has been achieved using JUTA Titan Tank, which is a gas resistant self adhesive

NOTES:

membrane. The installers have first cut the JUTA GP5 Gas Barrier tight around the base of each pipe penetration to minimise voided areas. Next, patches of JUTA Titan Tank are placed intricately around the pipe penetration and onto the JUTA GP5 Gas Barrier, as shown in the above photographs.

GeoShield Verification Report

VERIFICATION ITEM TWO

Heat and rolled pressure is applied to the JUTA Titan Tank to activate the bitumen backing, creating a secure bond between the pipe penetration and the JUTA GP5 Gas Barrier. All pipe penetrations throughout the referenced area were subjected to thorough visual inspections and mechanical point stress testing, where a probe was run along all edges of the JUTA Titan Tank detailing. No faults or defects were identified.

GeoShield Verification Report

VERIFICATION ITEM THREE

LOCATION/GRID LINE: Basement Walls - Block 2

Installation of JUTA Titanbond Gas Barrier

NOTES:

JUTA Titanbond Gas Barrier has been installed upon the Basement Walls in Block 2, upon a smooth substrate preventing any damages from occurring beneath the membrane.
All lap joints between the adjacent sheets of JUTA Titanbond Gas Barrier have been overlapped a minimum of

NOTES:

100mm, conforming to manufacturer's specifications.
All overlaps have been heat welded using a hot air leister and silicone roller with adequate pressure applied to ensure a continuous weld is achieved.

GeoShield Verification Report

VERIFICATION ITEM THREE

The above photograph displays a miswelded lap joint of the JUTA Titanbond Gas Barrier identified during the mechanical point stress testing. All lap joints were subjected to thorough visual inspections, supported by mechanical point stress testing throughout the installation where a number of miswelded overlaps were identified. All miswelded lap joints were successfully remediated on site in the presence of GeoShield.

GeoShield Verification Report

OUTSTANDING REMEDIATIONS

Throughout the JUTA Titanbond Gas Barrier installation to the Basement Walls in Block 2, a number of nail fixing punctures were identified. The punctures caused by nail fixings implemented through the membrane require sealing and are to be inspected at a future visit in order for sign off of the area to be achieved.

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing	✔
Gridline/Plot Sign off	Core 4 Slab & Core 5 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Clements Block 2 - Lift Area Walls (Core Slab 5)	✔
Gridline/Plot Sign off	Clements Block 2 - Trench Walls (Core Slab 4)	
Gridline/Plot Sign off	Core 2 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Core 3 Slab (GP5)	✔
Gridline/Plot Sign off	Basement Walls - Block 1 & 2 (Titanbond)	

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔
11/07/2024	005	No faults or defects were identified during today's visit.	✔
22/07/2024	006	6 miswelded lap joints, remediated during visit	✔
01/08/2024	007	No faults or defects were identified during todays visit.	✔
06/08/2024	008	3 miswelded lap joints found, remediated during visit	✔
22/08/2024	009	1. A total of 13 miswelded lap joints were identified in the JUTA	✔
		GP5 and JUTA Titanbond Gas Barriers. All were remediated.	✔
		2. Nail fixing punctures in JUTA Titanbond are to be sealed and	
		inspected at a future visit. (Basement Walls - Block 2)	

GeoShield Verification Report

VERIFICATION SUMMARY

This was the ninth visit to the site where verification was required for the installation of the JUTA Titanbond Gas Barrier to the basement walls in Block 1 & 2 and the installation of JUTA GP5 Gas Barrier to the slab area in Core 3.

A verification inspection could not be conducted upon the JUTA Titanbond Gas Barrier installation to the basement walls in Block 1 due to steel reinforcement and shuttering already being in place.

All overlaps between the adjacent sheets of JUTA Titanbond Gas Barrier and JUTA GP5 Gas Barrier have been heat welded using a hot air tool and silicone roller.

All pipe penetrations in the slab area have been sealed using strips of JUTA Titantank.

Thorough mechanical point stress testing was conducted throughout the referenced areas. A total of 13 miswelded lap joints and one puncture were identified, all of which were successfully remediated on site in the presence of GeoShield.

Various nail fixing punctures within the JUTA Titanbond Gas Barrier require sealing. These will be sealed and inspected at a future visit to enable full sign off of the basement walls in Block 2 to be achieved.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 22-Aug-2024

GeoShield Verification Report 10

PROJECT REFERENCE:	GEO104657
PROJECT:	Tariff Street, Manchester City Centre
PROJECT ADDRESS:	Between Tariff Street and Port Street,

Manchester,

M1 2FJ

SPECIFICATION: Verified in accordance with CIRIA 735.

Design in accordance with BS8485 2015 + 2019 for Methane and Carbon Dioxide.

Substrate prepared in accordance with manufacturer’s instructions

JUTA Titanbond

JUTA Titanflex

JUTA GP1 SAM

JUTA Titan Tank

JUTA (CAB) Flex 2C

GeoShield Verification Report

NAME OF SURVEYOR: Liam England

VERIFICATION COMPANY: GeoShield Limited

Icon Business Centre

4100 Park Approach

Thorpe Park

Leeds

CONTACT NUMBER: 07551 259023

EMAIL ADDRESS: lengland@geoshield.co.uk

ORDER NUMBER: To be confirmed

PER VISIT: YES: ✔ NO: ☐ PROJECT: YES: ✔ NO: ☐

GeoShield Verification Report

CLIENT DETAILS

CLIENT CONTACT:	Pat Mulligan
CONTACTS ROLE:	Director
MOBILE PHONE:	07458 141655
EMAIL ADDRESS:	pat.mulligan@RASCOR.com

CLIENT CONTACT:	
CONTACTS ROLE:	
MOBILE PHONE:	
EMAIL ADDRESS	
NOTES:	

GeoShield Verification Report

APPLICATOR'S DETAILS

APPLICATOR NAME:	Shane
COMPANY:	RASCOR UK Ltd
APPLICATOR TEL:	
APPLICATOR EMAIL:	

APPLICATOR NAME:	Ndoc
COMPANY:	RASCOR UK Ltd
APPLICATOR TEL:	
APPLICATOR EMAIL:	

NOTES: At least one member of each team group will have a NVQ Level 2 qualification in the gas membrane installation.

All installers are competent and skilled to complete gas membrane installation.

GeoShield Verification Report

AREA SURVEYED:

Building 1 Lift Pit (See verification layout for mark up)
Building 1 Basement (See verification layout for mark up)

SITE CONDITIONS:

WEATHER:

Overcast

TEMPERATURE:

18ºc

RELATIVE HUMIDITY:

N/A

MEMBRANE TEMPERATURE:

N/A

TIME: 10:10 - 10:50

DATE: 06.09.2024

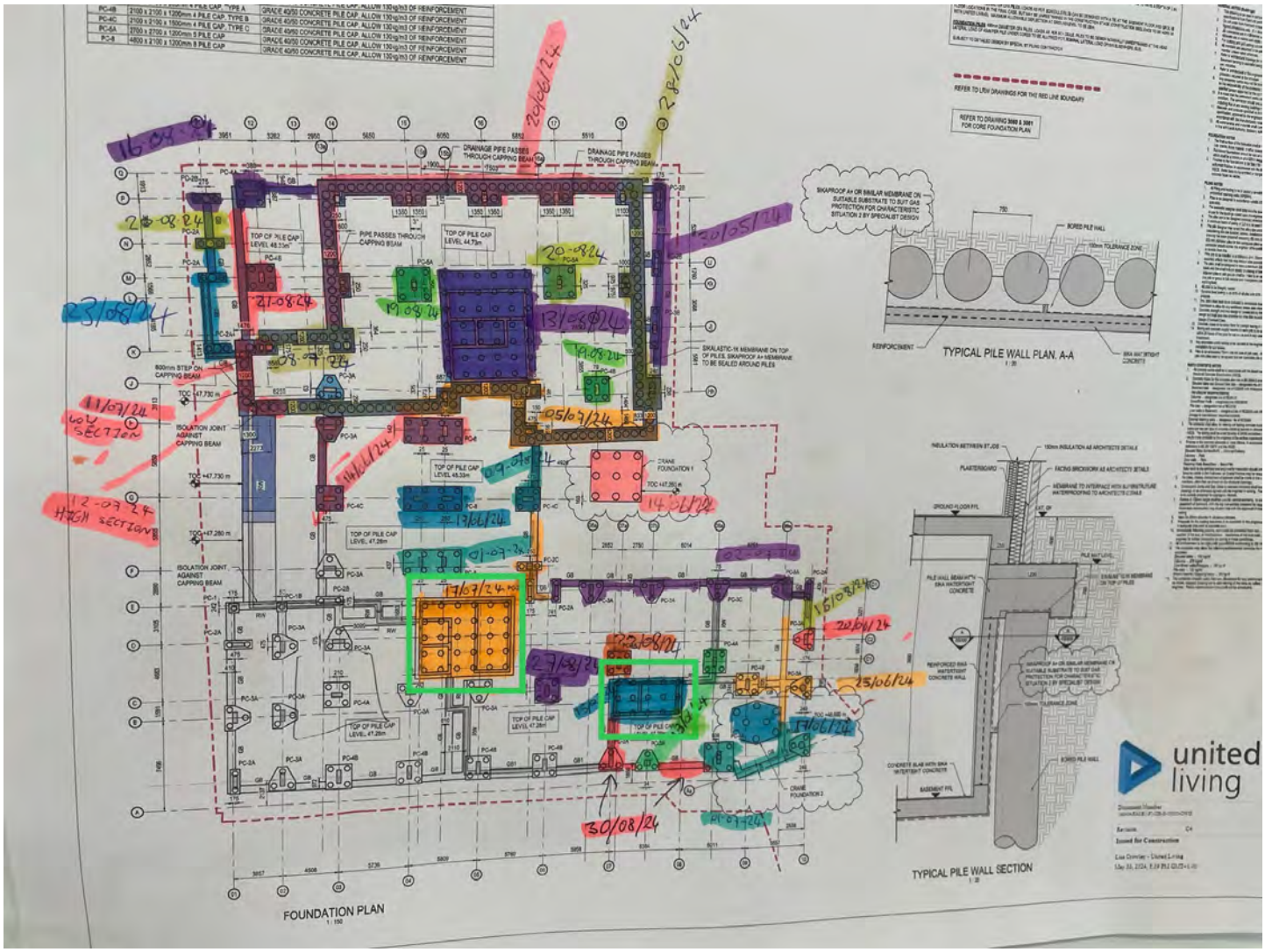
REPORT NUMBER: 010

ACCOMPANIED BY:

Shane & Ndoc - RASCOR UK Ltd

GeoShield Verification Report

Verification Layout



The photograph above shows a plan layout of the site. The area highlighted in green shows where the inspection took place.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview Building 1 Lift Pit where today's verification inspection took place on site.

GeoShield Verification Report

OVERVIEW

The photograph above displays an overview of the Building 1 Basement where today's verification inspection took place on site.

GeoShield Verification Report

LIMITATIONS

SURVEYED AREA: Building 1 Lift Pit

RESTRICTIONS AND LIMITATIONS:

A verification was unable to take place within the referenced area during to the lift pit retaining wall being insulated and back filled, this prevented access for a verification test to be carried out.

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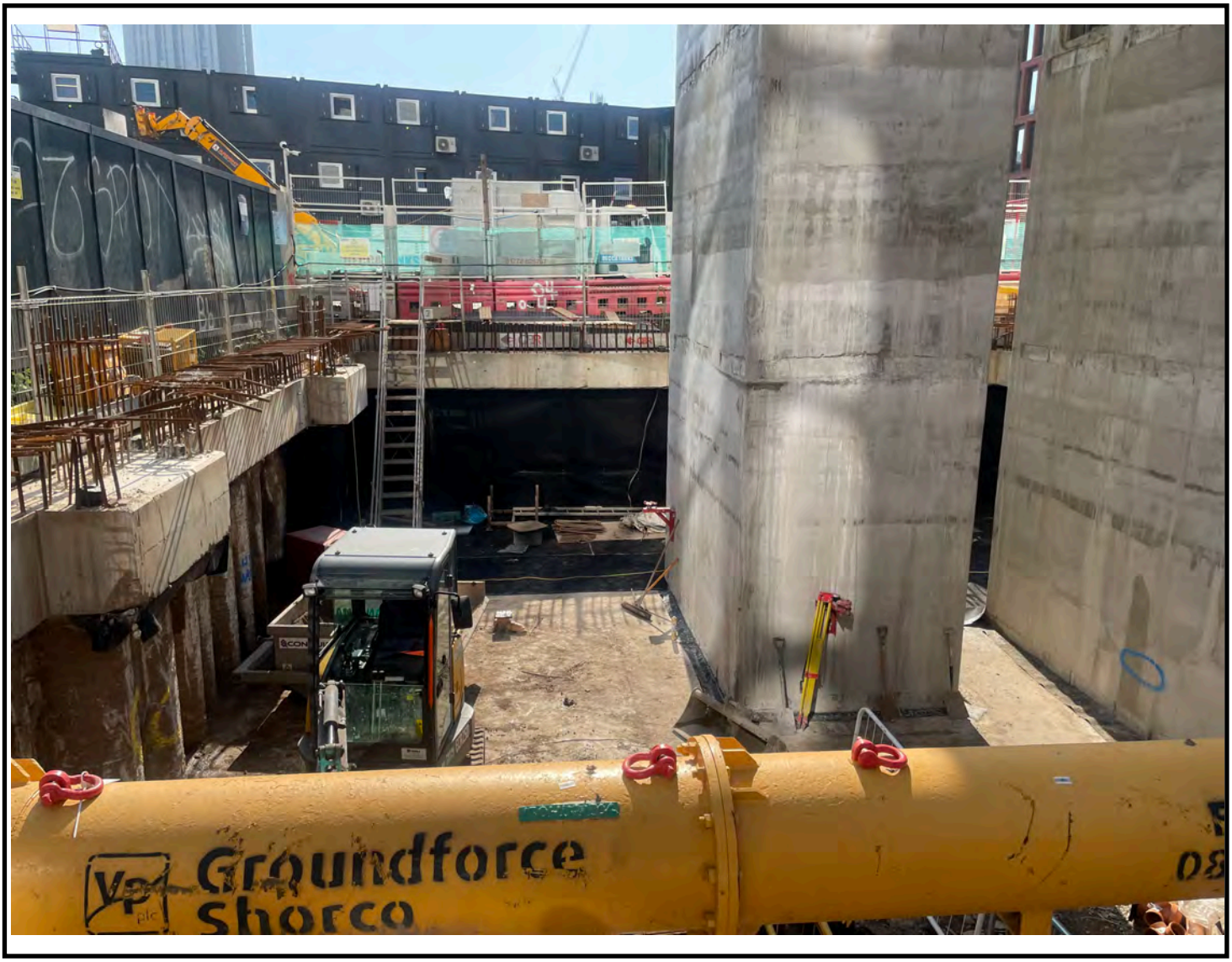
LIMITATIONS

SURVEYED AREA: Building 1 Basement

RESTRICTIONS AND LIMITATIONS:

A verification could not be carried out on the basement due to the works being no further than the previous visit, the area was also not completed due to ongoing preparation work.



ADDITIONAL PHOTOGRAPHS

Further evidence of the backfilled lift pit walls.

Further evidence of insulated backfilled lift pit walls.

Further evidence of the basement area not ready for the install of membrane.

Further evidence of the basement area not ready for the install of membrane.

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GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Block 1 - Pile Caps (50%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (75%)	✔
Gridline/Plot Sign off	Block 2 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Block 1 - Pile Caps (Completed to 100%)	✔
Gridline/Plot Sign off	Core 1 Slab, Core 3 Slab Titanbond & Pile Cap Sealing	✔
Gridline/Plot Sign off	Core 4 Slab & Core 5 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Clements Block 2 - Lift Area Walls (Core Slab 5)	✔
Gridline/Plot Sign off	Clements Block 2 - Trench Walls (Core Slab 4)	
Gridline/Plot Sign off	Core 2 Slab - Titanbond & Pile Caps	✔
Gridline/Plot Sign off	Core 3 Slab (GP5)	✔
Gridline/Plot Sign off	Basement Walls - Block 1 & 2 (Titanbond)	

GeoShield Verification Report

GAS MEMBRANE TESTING

VISUAL /PICK & PROBE:	✔	SMOKE TEST:	
AIR LANCING:		DILECTIC:	
DESTRUCTIVE:		OTHER:	
INERT GAS TEST:		SPECIFY:	

Testing checklist attached: YES ✔ NO

Gridline/Plot Sign off

Gridline/Plot Sign off	Building 1 Lift Pit (No verification carried out due to the	
Gridline/Plot Sign off	area being backfilled)	✔
Gridline/Plot Sign off	Building 1 Basement (No verification carried out due to prep	
Gridline/Plot Sign off	work still being carried out)	✔
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		
Gridline/Plot Sign off		

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
14/06/2024	001	Three miswelded lap joints, two punctures and a couple of areas	✔
		requiring additional liquid membrane were identified, all were	✔
		remediated on site.	✔
18/06/2024	002	4 miswelded lap joints, 1 puncture all remediated during visit	✔
20/06/2024	003	3 miswelded lap joints, remediated during visit	✔
01/07/2024	004	5 miswelded lap joints, 2 areas requiring more liquid membrane	✔
		all remediated effectively	✔
11/07/2024	005	No faults or defects were identified during today's visit.	✔
22/07/2024	006	6 miswelded lap joints, remediated during visit	✔
01/08/2024	007	No faults or defects were identified during todays visit.	✔
06/08/2024	008	3 miswelded lap joints found, remediated during visit	✔
22/08/2024	009	1. A total of 13 miswelded lap joints were identified in the JUTA	✔
		GP5 and JUTA Titanbond Gas Barriers. All were remediated.	✔
		2. Nail fixing punctures in JUTA Titanbond are to be sealed and	
		inspected at a future visit. (Basement Walls - Block 2)	

GEOSHIELD Verification Report

REMEDIATION LOG

Date	Nr	Remediation Description	Y/N
06/09/2024	010	No verification carried out during today's visit.	✔

GeoShield Verification Report

VERIFICATION SUMMARY

This was the tenth visit to the site where verification was required for the line out installation of Juta Titan Tank to to the lift pit of block 1 and the installation of Juta Titanbond to the basement in building 1, the verification process is summarised below.

:> The referenced area had been covered with insulation followed by protection board and this had been backfilled as a result of this a verification could not be carried out as access was limited.

:> The Juta Titanbond had not been taken any further since the previous visit on the 22/08/2024, this was due to the area not being prepared.

This was passed and verified in accordance with CIRIA 735 and installed to BS8485:2015+2019.

GEOSHIELD SIGNATURE:

DATE: 06-Sep-2024

Appendix F
Site Photos

FAIRHURST	**Job No 143404**	**Tariff Street**

FAIRHURST	Job No 143404	Tariff Street

FAIRHURST	Job No 143404	Tariff Street

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FAIRHURST	Job No 143404	Tariff Street

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FAIRHURST	Job No 143404	Tariff Street

Appendix G

Environmental Risk Assessment Principals

Principles of Environmental Risk Assessment

The Environmental Protection Act (1990), Part II A Contaminated Land (Section 57 of the Environment Act 1995), revised by Scottish Statutory Instrument No.658 (2005), and the Contaminated Land Regulations (1999) provide a basis on which to determine the risks and liabilities presented by a contaminated site. Contaminated Land is defined within Annex 3, Chapter A Part 1- Scope of Chapter and in all those Sections mentioned as:

"Any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land that:

(a) Significant harm is being caused or there is significant possibility of such harm being caused; or

(b) Significant pollution of the water environment is being caused or there is a significant possibility of such pollution being caused."

Section 57 of the Environment Act 1995 requires that any site identified as being "contaminated" by the Local Authority will be registered by them and remediation will be required to render the site fit for use.

The presence of contamination is not the sole factor for deciding whether a site is contaminated. Relevant parties should identify site-specific risks and provide objective, cost-effective methods to manage the contamination in a manner that satisfies the proposed end-use.

A risk-based approach, which considers both technical and non-technical aspects when making decisions on contamination resulting from past, present, or future human activities, is advocated. The assessment of environmental risks generally relies on the identification of three principal elements forming a 'pollutant linkage':

SOURCE: the contaminant

PATHWAY: the route through which the contaminant can migrate, and

RECEPTOR: any human, animal, plant, water environment or property that may be adversely affected (harmed) by the contaminant.

In the absence of any one of these elements, on any given site, there is no risk. Where all three elements are present, risk assessment is required to determine the significance of the harm that is being or may be caused. As outlined above, the terms of the Contaminated Land regime specify that remediation needs only be implemented where a site is causing, or there is a significant possibility that it will cause significant harm or significant pollution to the water environment.

The development of contaminated land is usually addressed through the application of planning and development legislation and guidance (i.e., Planning Advice Note 33). The suitable for use approach is seen as the most appropriate to deal with contaminated land, taking account of environmental, social, and economic objectives. The assessment is made in the context of the proposed land use (i.e., residential, retail, open space, and tourist developments).

Classification Matrix

		Consequence			
		Severe (Sv)	Medium (Md)	Mild (Mi)	Minor (Mr)
Probability	High (Hi)	Very high risk	High Risk	Moderate Risk	Moderate/low risk
	Likely (Li)	High risk	Moderate risk	Moderate/low risk	Low risk
	Low likelihood (Lw)	Moderate risk	Moderate/low risk	Low risk	Very low risk
	Unlikely (Ul)	Moderate/low risk	Low risk	Very low risk	Very low risk

After CIRIA Report C552, Contaminated Land Risk Assessment A Guide to Good Practice, 2001

Classification of Probability

Probability Classification	Definition
High likelihood	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.
Likely	There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term
Low Likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that such an event would take place even over a longer period and is less likely in the shorter term.
Unlikely	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

After CIRIA Report C552, Contaminated Land Risk Assessment A Guide to Good Practice, 2001

Classification of Consequence

Classification	Definition	Examples
Severe	Short-term (acute) risk to human health likely to result in "significant harm" as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution (note: Water Resources Act contains no scope for considering the significance of pollution) of sensitive water resources. Catastrophic damage to buildings/property. A short-term risk to a particular ecosystem or organisation forming part of the such ecosystem (note: the definitions of ecological systems within the Draft Circular on Contaminated Land, DETR, 2000).	High concentrations of cyanide on the surface of an informal recreation area. Major spillage of contaminants from the site into controlled water. Explosion, causing building collapse (can also equate to a short-term human health risk if buildings are occupied).
Medium	Chronic damage to Human Health ("significant harm" as defined in DETR, 2000). Pollution of sensitive water resources (note: Water Resources Act contains no scope for considering the significance of pollution). A significant change in a particular ecosystem or organism forming part of the such ecosystem, (note: the definitions of ecological systems within Draft Circular on Contaminated Land, DETR, 2000).	The concentration of a contaminant from the site exceeds the generic or site-specific assessment criteria. Leaching of contaminants from a site to a major or minor aquifer. Death of a species within a designated nature reserve. Lesser toxic and asphyxiate effects of carbon dioxide
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures, and services ("significant harm" as defined in the Draft Circular on Contaminated Land, DETR, 2000). Damage to sensitive buildings/structures/services or the environment.	Pollution of non-classified groundwater. Damage to the building rendering it unsafe to occupy (e.g., foundation damage resulting in instability).
Minor	Harm, although not necessarily significant harm, may result in a financial loss or expenditure to resolve. Non-permanent health effects on human health (easily prevented by means such as personal protective clothing, etc.). Easily repairable effects of damage to buildings, structures, and services.	The presence of contaminants at such concentrations that protective equipment is required during site works. The loss of plants in a landscaping scheme. Discolouration of concrete.

After CIRIA Report C552, Contaminated Land Risk Assessment A Guide to Good Practice, 2001

Classification of Risk and Likely Action Required

Very high risk (Vh)	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in substantial liability. Urgent investigation (if not undertaken already) and remediation is likely to be required.
High risk (Hi)	Harm is likely to arise to a designated receptor from an identified hazard. The realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary for the short-term and are likely over the longer term.
Moderate risk (Md)	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low risk (Lw)	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm if realised, would at worst normally be mild.
Very low risk (Vl)	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised, it is not likely to be severe.

After CIRIA Report C552, Contaminated Land Risk Assessment A Guide to Good Practice, 2001