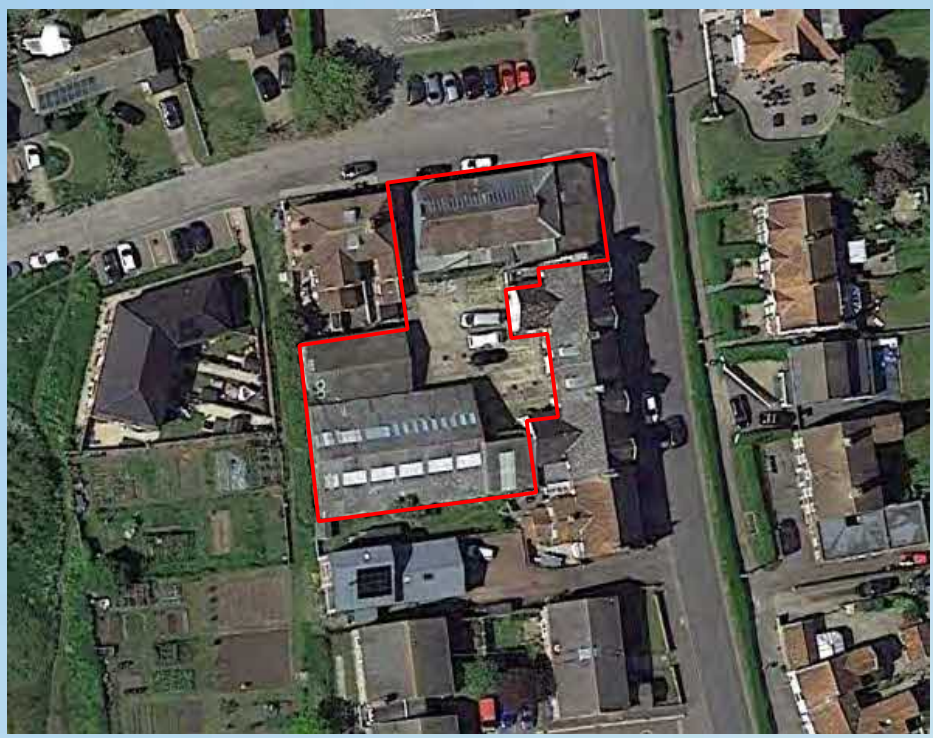
AN ADDEDNUM REMEDIATION VERIFICATION REPORT TO SUPPORT THE DEVELOPMENT OF:

OLD STATION YARD, BLYTH ROAD, SOUTHWOLD



CLIENT:	Southwold Town Council
AGENT:	Richard Utting Associates LLP
CONTRACTOR:	Mixbrow Construction Limited
REFERENCE:	RCER/21.259/VR/ADD
DATE:	29 February 2024

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CONTENTS

APPENDICES

1. INTRODUCTION

A programme of environmental monitoring and remediation has been carried out at Old Station Yard, Blyth Road, Southwold (Drawing 21.259/01). This was required to mitigate the potential contamination risks identified during a series of previous ground investigation carried out to support the development of the site (EPS, 2018; JPC, 2020a; JPC, 2020b; AFHA, 2021a).

At the instruction of Southwold Town Council (the "Client") an addendum verification report was prepared to document the final aspects of the approved remediation strategy developed for the site (AFHA, 2021b), and the results of the environmental monitoring undertaken during the construction phase of the development. This report follows on from a separate verification report (AFHA, 2022b) which was prepared to record the remediation that occurred during demolition and site clearance (e.g. the removal of underground fuel tanks).

The report has been prepared in general accordance with accepted best practice and methodologies (BSI, 2017; EA, 2023). It was prepared for use by the Client and its advisors, any other parties using the contained information do so at their own risk and any duty of care to those parties is specifically excluded subject to copyright as detailed below.

2. REMEDIATION STRATEGY

Based on the findings of previous phases of ground investigation (EPS, 2018; JPC, 2020a; JPC, 2020b; AFHA, 2021a), a programme of remediation was required to mitigate against chronic human health risks arising from the presence of ten underground fuel tanks and an area of hydrocarbon impacted made ground in the base of a former vehicle inspection pit. Additionally, in order to further reduce any residual risk to end-users, the proposed planters also required upgrading to include a geotextile membrane and the use of 'suitable for use' imported topsoil.

Detailed information regarding the remediation strategy for the site can be found in the approved Remediation Method Statement (AFHA, 2021b). However, the strategy can be summarised into a series of distinct elements which are included below for reference.

1. The implementation of a discovery strategy to identify the cause of GPR anomalies, and record any unexpected contamination during the removal of the concrete hardstanding and former vehicle inspection pits (validation carried out previously).
2. The removal of underground fuel tanks referenced Tanks 1, 3, 4, 6, 7 and 8 (validation carried out previously).
3. The removal of all underground pipework (e.g. vent pipes and fuel lines) (validation carried out previously).
4. Removal of the hydrocarbon impacted made ground below the former vehicle inspection pit in Unit 5 (validation carried out previously).
5. Reinstatement of all voids with recycled site won concrete and masonry (validation carried out previously).
6. A programme of remediation phase investigation around all tanks which were to remain in situ (reported in the residual contamination and vapour risk assessments).
7. The construction of raised planters with suitable for use topsoil and a geotextile membrane (outstanding).
8. The upgrade of all water supply pipes to barrier pipe (outstanding).

Points 1 to 6 were completed during the demolition phase of the development. The validation of this work has been recorded in a previous verification report (AFHA, 2022b), and residual contamination assessment (AFHA, 2022a) was prepared to assess the potential for any residual risks to end-users or other identified receptors.

During demolition and the initial phase of remediation, it became clear that it was not feasible to remove a number of the underground fuel tanks that were located in close proximity to foundations for party walls. Therefore, it was agreed by the Project Team that these needed to remain in situ. This position was also agreed with the Environmental Protection Officer at East Suffolk District Council (ESDC).

In addition, in order to fulfil the requirements of point 6 referenced above, a specific vapour risk assessment was carried out, focussing on the south east of the site where the tanks were to remain (AFHA, 2022c). This assessment included a programme of vapour monitoring and gas sampling to identify the potential for a risk to end-users of the development and the users of the adjacent buildings. Overall, the vapour risk assessment did not identify an unacceptable risk, and on this basis the removal of the tanks and any surrounding contaminated soil was not specifically required. However, out of an abundance of caution, it was required by and agreed with the Environmental Protection officer at ESDC that a programme of vapour monitoring would be undertaken during the construction phase of the development to ensure that the construction activity did not result in the liberation or accumulation of vapours within the soil or adjacent premises. This was particularly the case where the tanks were to be 'capped' with impermeable hardstanding, which was considered to have the theoretical potential to act as a confining layer - preventing the emission of vapours to the atmosphere and consequently leading to the lateral migration of vapours to affect adjacent off-site receptors.

This verification report specifically addresses the outstanding verification elements, points 7 and 8 described above. In addition, the details of the construction phase vapour monitoring, and an assessment of the results, are both included in Section 3 below.

3. CONSTRUCTION PHASE VAPOUR MONITORING

3.1 VAPOUR MONITORING METHODOLOGY

In general, the monitoring visits were timed to provide both a regular supply of data through the construction period and an increased resolution during periods of groundworks - especially after the 'capping' of the tanks with hardstanding. The approximate programme for the monitoring visits, as agreed with ESDC, was as follows:

Monthly visits during piling and groundworks,

Bi-monthly visits during above ground construction,

Monthly visits during external works,

Four weekly visits following the capping with hardstanding.

Vapour monitoring was carried out between January and December 2023, on a total of twelve occasions. Seven external and six internal positions were monitored for vapours – the same locations that were used for the pre-construction vapour monitoring and assessment, as shown on Drawing 21.259/VR/ADD/02. However, it should be noted that positions WS208 and WS209, utilised within the previous assessment, were "lost" during construction. As these monitoring locations were on the periphery of the area of concern, it was agreed with ESDC that they did not have to be re-installed.

The monitoring was carried out using a MiniRae 3000 portable photo-ionisation detector (PID), in general accordance with the guidelines presented in CIRIA C682 (Baker et al, 2009) and BS 8576:2013 and involved recording the vapour concentration at 30 second intervals over a 10 minute period.

3.2 VAPOUR MONITORING RESULTS

The results of the vapour monitoring are summarised in Tables 1a and 1b below. A full set of monitoring results is provided in Appendix G.

Monitoring Point ID	WS201	WS202	WS203	WS204	WS205	WS206	WS207
Maximum VOC Concentration (ppm)	0.0	0.0	0.1	0.0	0.2	0.1	0.1

Table 1a. Summary of vapour monitoring results from external monitoring standpipes

Monitoring Point ID	VMP201	VMP202	VMP203	VMP204	VMP205	VMP206
Maximum VOC Concentration (ppm)	0.1	0.1	0.0	0.1	0.0	0.2

Table 1b. Summary of vapour monitoring results from internal sub-floor monitoring points

The data summarised above indicates that very low concentrations of VOCs were recorded across the site. In all external and internal vapour monitoring points, concentrations of VOC were 0.2 ppm or lower. This would be regarded as a "trace concentration" which would be unlikely to pose a risk to human health via the inhalation of hydrocarbon vapours. There are no trends in the data, such as a transient increase in concentration during groundworks, or after the 'capping' of the area with hardstanding.

During the previous phase of vapour monitoring a maximum VOC concentration of 57.5 ppm was recorded within a standpipe located within the main source area (WS205). In addition, a maximum VOC concentration of 0.9 ppm was recorded in VMP201, one of the sub-floor monitoring points. The risk assessment indicated that the main compounds of concern were volatile aliphatic hydrocarbons, mostly in the C_5-C_{12} range. Workplace Exposure Limits (WEL) have been prescribed for n-pentane (600 ppm), n-hexane (20 ppm) and n-heptane (500 ppm) and these were used in the assessment. Therefore, to provide a basic screening level for the assessment of the construction phase monitoring, and in order to be sufficiently conservative, the lower bound value of 20 ppm for n-hexane is to be used as a screening value for potential vapour risk.

During the programme of construction phase monitoring, WS205 recorded a maximum VOC concentration of 0.2 ppm. Indeed, on most of the monitoring occasions readings were 0.0 ppm. This demonstrates that the residual concentrations of VOCs around the tanks are lower than those recorded during the vapour risk assessment carried out during pre-construction. This is likely to be a as a consequence of the degradation and volatilisation of the VOC compounds following the permanent decommissioning of all of the tanks and the surrounding soil being open to the atmosphere for a period of approximately 20 months (February 2022 to October 2023).

On the basis that trace concentrations of VOC have been recorded during construction phase monitoring, and all were below the 20 ppm WEL for n-hexane, it is considered that

a basic screening assessment is acceptable and there is no requirement to perform any further or detailed risk assessments. The risk to both end-users of the development and adjacent premises is considered to be low.

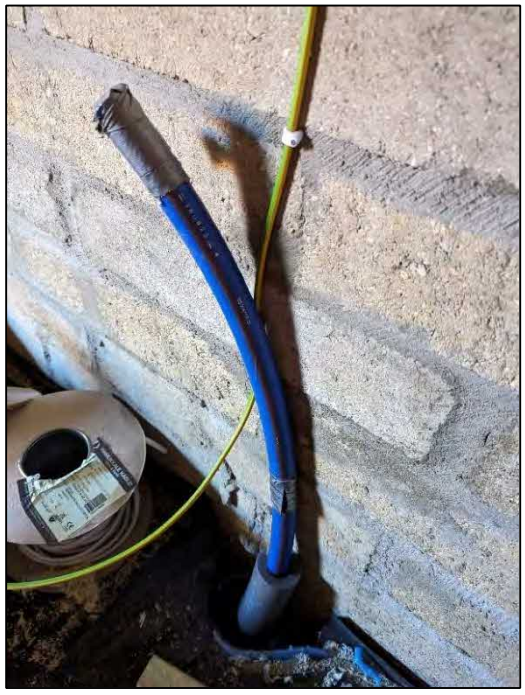
4. VALIDATION OF WATER SUPPLY PIPES

Photographs were provided by the Contractor during installation of the water pipes to demonstrate that this work has been completed as required by the remediation strategy. Photograph 1 is an example of the pipes laid within a trench in the ground, and Photograph 2 shows the entry point inside one of the buildings.

The pipework was blue, signifying polyethylene construction, but with a brown stripe. This is the standard water industry visual indicator for barrier pipework. In addition, the brown compression fittings also indicate that these are compatible with the barrier pipe system.

The delivery notes and product datasheets are provided in Appendix D.

Photograph 1 – Water pipes laid within a trench in the ground. The brown stripe on the pipework is visible, indicating barrier pipework.



Photograph 2 – Entry point of water supply pipes into one of the buildings. The brown stripe on the pipework is visible, indicating barrier pipework.

On the basis of the information provided by the Contractor, it is apparent that barrier pipework has been installed as required by the remediation strategy and the residual risk to the potable water supply to the development is considered to be low. Consequently, no further risk assessment or remediation is considered to be necessary to protect end-users of the development.

5. VALIDATION OF PLANTERS

In order to reduce any residual risk from the made ground to end-users of the development, it was recommended that all planters include a geotextile membrane to prevent soil mixing, and are constructed using 'suitable for use' soil.

AFHA attended site on 9 February 2024 to verify the presence of a geotextile membrane and record the thickness of the soil within the planters. This was carried out through the excavation of three hand excavated trial pits, referenced VP01 to VP03. During excavation, the imported soil was logged in accordance with BS5930:2015+A1:2020. The trial pit records are provided in Appendix F and their locations are shown on Drawing 21.259/VR/ADD/03 in Appendix B.

The thickness of cover soil was found to be between 250 mm and 420 mm in the trial pits, and in all cases the cover soil was separated from the made ground by a geotextile membrane. The validation trial pits are shown in Photographs 3 to 6 below.

Photograph 3 - VP01, soil depth of 0.28 m. Geotextile visible at the base.

Photograph 4 - VP02, soil depth of 0.25 m. Geotextile visible at the base.

Photograph 5 - VP03, soil depth of 0.42 m. Geotextile visible at the base.

Photograph 6 – View across all three positions showing surplus geotextile membrane at the surface after being lapped through the base of the planters.

6. IMPORTED SOIL

6.1 SUPPLIER DETAILS

As described in Table 2 below, the delivery of the cover soil to the Contractor was facilitated by CPA Horticulture Limited, who arranged for the supply of this material directly from the British Sugar Co-Products Limited facility in Wissington. Due to the small quantity required this was supplied in 6 bulk bags (~1 m^3 each) on pallets. It was delivered to site by Bacton Transport Limited, a member of The Pallet Network (TPN). The despatch and delivery documentation is included in Appendix C for reference.

Material Imported	Date Imported	Supplier	Source Site	Haulier	Number of Loads
Topsoil	8 January 2024	CPA Horticulture Limited	British Sugar Co-products Limited - Wissington Factory	The Pallet Network (TPN)/ Bacton Transport Services Limited	6 no. bulk bags

Table 2. Details of the imported materials used in the remediation

6.2 LABORATORY ANALYSIS RESULTS

Chemical laboratory analysis of the imported topsoil was carried out and provided by the supplier. This is presented in Appendix E. This information is considered to be pertinent to the batch supplied to site, but it only provides details of the analysis of the total soil

component and there is no testing of soil leachate generated from this material. The latter is required in order to be compliant with the requirements of the RMS.

Therefore, in order to provide further confidence that the material was suitable for use and provide analysis of the leachable component of the soil, additional samples of the material were obtained by AFHA on the 9 January 2024. Three composite samples, referenced VS101 to VS103, were collected after it had been delivered to the site. The samples of soil were placed in suitable laboratory grade containers, stored in cool boxes, and delivered to a UKAS accredited facility for analysis of the suite of generic contaminants. The results of the laboratory testing are provided in the analytical report referenced 24-00207 presented in Appendix E.

The laboratory analysis results have been compared to the assessment criteria for the protection of human health and controlled waters provided in Appendix B of the RMS.

An appraisal of the laboratory analysis results indicates that all metals/metalloids and polyaromatic hydrocarbons were recorded at low concentrations and below pertinent generic assessment criteria for the protection of both human health and controlled waters. Indeed, petroleum hydrocarbons and BTEX compounds were all recorded at concentrations below method detection limits, along with cyanides and monohydric phenols. Also, asbestos fibres were not recorded in any of the sample analysed.

As a result, it is considered that both the laboratory analysis results and the chain of custody information for the imported material support the topsoil being suitable for use in a public open space scenario.

7. UNEXPECTED CONTAMINATION

No previously unidentified or unexpected contamination has been identified on site during this phase of remediation, and as such no further investigation and/or risk assessment was required.

8. SUMMARY AND CONCLUSION

A programme of environmental monitoring and remediation has been carried out during the construction phase of the development of Old Station Yard, Blyth Road, Southwold, IP18 6AX.

The remediation was required following the findings of multiple phases of ground investigation. In order to break potential exposure pathways, the remediation required the use of a geotextile membrane and 'suitable for use' imported soil within the planters, and the use of barrier pipework for the potable water supply.

In addition, AFHA attended site during the construction phase to monitor for hydrocarbon vapours at both internal and external monitoring positions.

The vapour monitoring was carried out between January and December 2023 and recorded very low concentrations of VOC - a maximum concentration of 0.2 ppm. This is considerably lower than the concentrations recorded during the programme of pre-construction monitoring that informed the vapour risk assessment. Therefore, a qualitative assessment suggests that this is unlikely to pose a residual risk to either end-users of the development or adjacent premises.

In addition, AFHA attended site following the construction of the planters in order to confirm the presence of a geotextile membrane and record the thickness of imported topsoil.

In general, the validation trial pits excavated by AFHA demonstrate that the construction of the planters meet the specifications set out in the Remediation Method Statement, and there is no residual risk to end-users from soil contamination.

The Contractor has provided a set of site photographs which show that barrier pipe has been installed to service the development. As a result, it is considered that there is no residual risk to water supply pipes.

Additional lines of evidence have been collected throughout the work to validate the completion of the remediation scheme. This includes site photographs, laboratory analysis for the imported topsoil, soil despatch and delivery tickets. These are appended for reference.

No unexpected contamination was identified during the course of the work that could result in a residual risk to future occupiers of the site.

- On the basis of the information collected during the remediation, it is considered that the remediation has been completed in accordance with the approved Remediation Method Statement, and there are no residual risks to end-users of the development that require further assessment or mitigation.

A F HOWLAND ASSOCIATES LIMITED
29 February 2024

APPENDIX A: REFERENCES

A F HOWLAND ASSOCIATES LIMITED. 2021a. Technical Briefing Note for Interpretation of Potential Contamination Risks at: Old Station Yard, Blyth Road, Southwold, IP18 6AX. Referenced: TJS/21.259; Dated: October 2021

A F HOWLAND ASSOCIATES LIMITED. 2021b. A Remediation Strategy and Validation Plan to Support the Redevelopment of: Old Station Yard, Blyth Road, Southwold, IP18 6AX. Referenced: TJS/21.259/RMS/Rev01; Dated: December 2021

A F HOWLAND ASSOCIATES LIMITED. 2022a. A Residual Contamination Assessment to Support the Redevelopment of: Old Station Yard, Blyth Road, Southwold, IP18 6AX. Referenced: TJS/21.259/CA; Dated: March 2022

A F HOWLAND ASSOCIATES LIMITED. 2022b. A Remediation Verification Report To Support the Redevelopment of: Old Station Yard, Blyth Road, Southwold, IP18 6AX. Referenced: TJS/21.259/VR; Dated: June 2022

A F HOWLAND ASSOCIATES LIMITED. 2022c. A Vapour Risk Assessment to Support the Redevelopment of: Old Station Yard, Blyth Road, Southwold, IP18 6AX. Referenced: TJS/21.259/VRA; Dated: June 2022

BRITISH STANDARDS INSTITUTION (BSI). 2013. BS 8576:2013. Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOCs). British Standards Institution. London

BRITISH STANDARDS INSTITUTION (BSI). 2017. BS 10175:2011+A2:2017. Code of practice for investigation of potentially contaminated sites. British Standards Institution. London

CIRIA. 2009. C682 - The VOCs Handbook – Investigating, assessing, managing risks from inhalation of VOCs at land affected by contamination.

ENVIRONMENT AGENCY. 2023. Land Contamination Risk Management (LCRM). Accessed at: https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm. Environment Agency, Bristol.

ENVIRONMENTAL PROTECTION STRATEGIES Limited (EPS). 2018. Phase I and II Geo-Environmental Assessment; Station Road/Blyth Road, Southwold, IP18 6AX. Report reference; UK18.3076, dated 10 May 2018.

J P CHICK & PARTNERS LIMITED. 2020a. Inspection of Below Ground Tanks. Report reference IE20/016/CSJ/rmc, dated 27 March 2020.

J P CHICK & PARTNERS LIMITED. 2020b. Phase 2 Contaminated Land Intrusive Investigation. Report reference IE20/016/CP2, dated 23 October 2020.

APPENDIX B: DRAWINGS

Drawing 21.259/01	Site Location Plan
Drawing 21.259/VR/ADD/02	Vapour Monitoring Location Plan
Drawing 21.259/VR/ADD/03	Validation Trial Pit Location Plan

North

Circle indicates approximate location of site

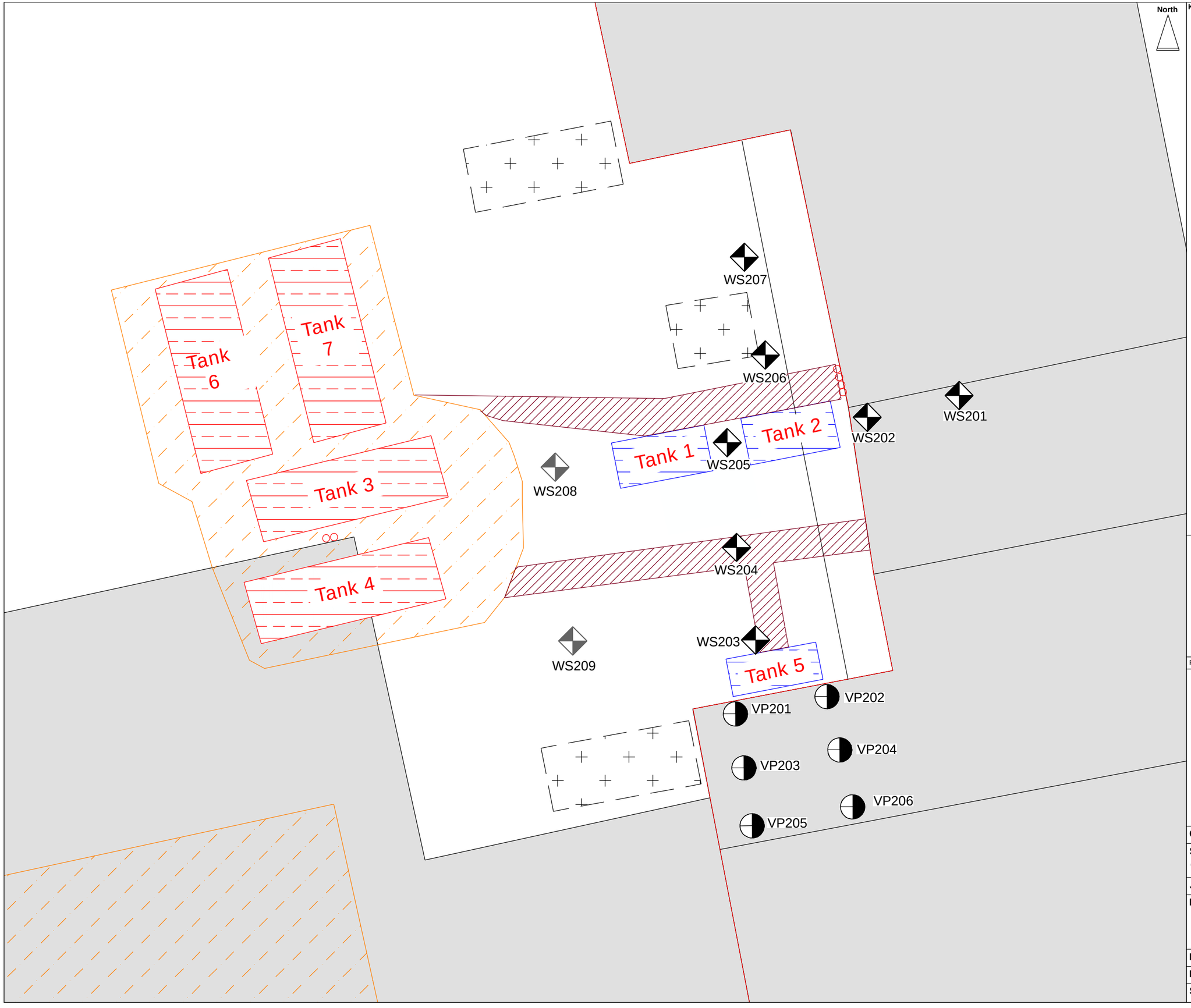
A F Howland Associates
Geotechnical Engineers

Site: Old Station Yard, Blyth Road, Southwold, IP18 6AX

SITE LOCATION PLAN

Client : Southwold Town Council

Date : February 2024 **Dwg :** 21.259/01



Key:

- Approximate site boundary
- Approximate location of underground fuel tanks which have been removed
- Approximate location of underground fuel tanks which are to remain *in situ*
- Approximate location of fuel lines and vent pipes which have been removed
- Approximate location of excavations to remove underground fuel tanks and associated contaminated soil
- Approximate location of grey water 'catch pits'
- Approximate location of internal vapour monitoring points
- Approximate location external windowless dynamic sample holes to install vapour monitoring points
- Approximate location external windowless dynamic sample holes to install vapour monitoring points (lost positions)

Rev	Date	Revision Description	Drwn	Chkd

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Geotechnical Engineers

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mail: admin@howland.co.uk

Client: Southwold Town Council

Site:
Old Station Yard, Blyth Road, Southwold, IP18 6AX

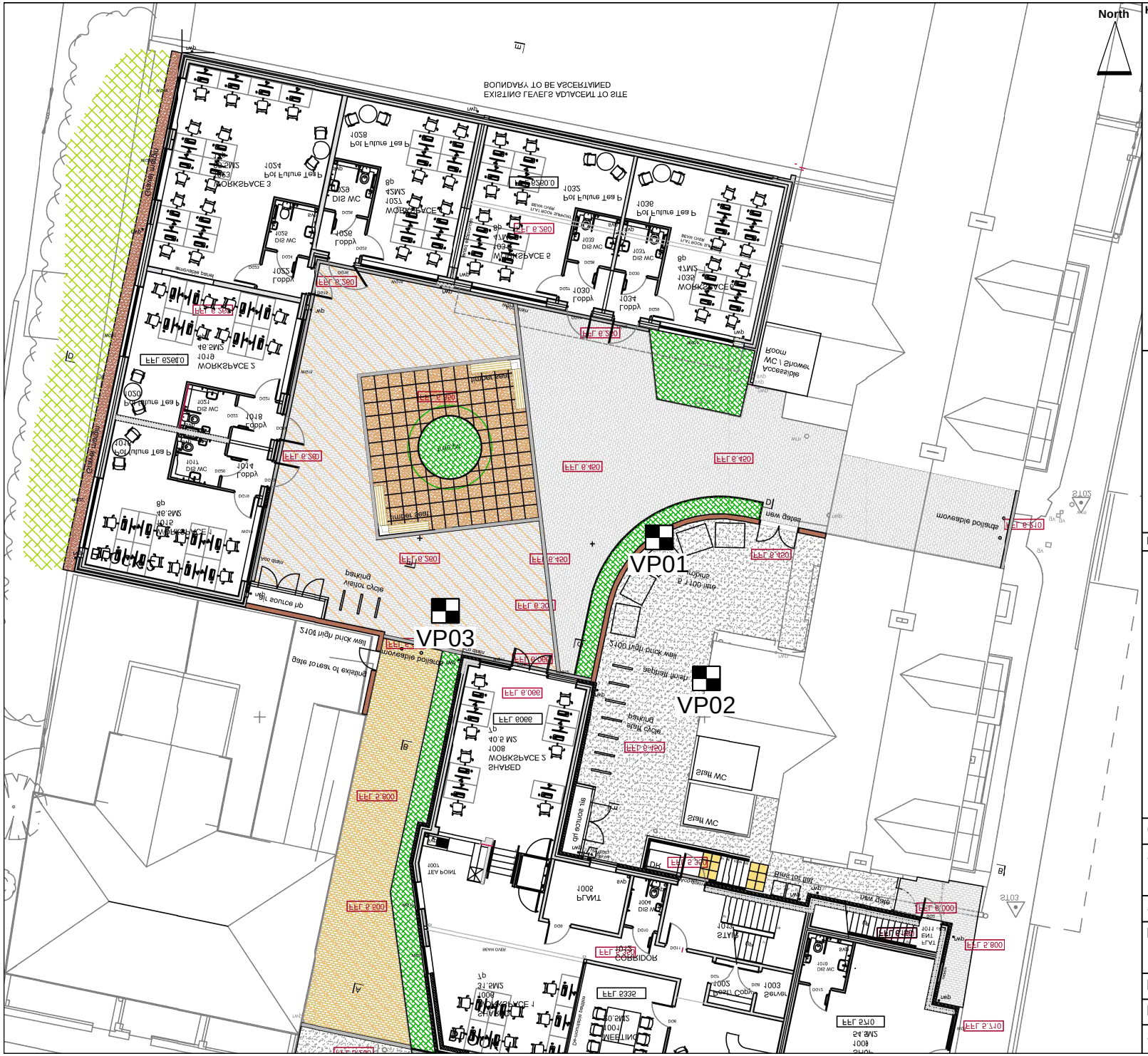
Job No.: 21.259

Drawing Title:
VAPOUR MONITORING POINT LOCATION PLAN

Date: February 2024

Drawing No: 21.259/VR/ADD/02

Scale: Not to Scale



Key:

Validation pit location and reference

Rev	Date	Revision Description	Drwn	Chkd

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mail: admin@howland.co.uk

Client: Southwold Town Council

Site:
Old Station Yard, Blyth Road, Southwold, IP18 6AX

Job No.: 21.259

Drawing Title:
VALIDATION PIT LOCATION PLAN

Date: February 2024

Drawing No: 21.259/VR/ADD/03

Scale: Not to Scale

APPENDIX C: IMPORTED SOIL DELIVERY NOTES

British Sugar Co-Products Limited Despatch Note

The Pallet Network/Bacon Transport Limited Delivery Notice

TOPSOIL

BRITISH SUGAR TOPSOIL - BAGGED PRODUCT DISPATCH FORM

Customer Order No:	139569	
Customer Name:	CPA Horticulture	
Contact Name:	James Aldridge	
Contact Tel:	01994 231121	
Address:	Unit 5 Dragon 24, North Dock, Llanelli, SA15 2LF	
Br. Sugar Order No:	6099330	Schedule of Products row reference and column
Date Order Rec'd:	18/12/2023	Date Order Col/Del: 03/01/2024

[redacted]

LINE NO	PRODUCT PICK LIST DESCRIPTION	NO OF BAGS ORDERED	NO OF BAGS LOADED	SCH. OF PRODUC
1	HORT LOAM			
2	LAWN DRESSING			
3	LANDSCAPE20	6 on pallet	6	35
4	LIMESTONE			
5	WASHED STONE			
6	BARK 1			
7	BARK 2			
8	SPORTS 10 +C +B Bulk 28218			
9	SPORTS 10 +C +B Bags 28228			
10	PEAT Bulk 28219			
11	ROOF GARDEN SUBSTRATE Bulk 28216			
12	ROOF GARDEN SUBSTRATE Bags (if just brick) 28227			

WE CERTIFY THAT THE ABOVE LOAD HAS BEEN LOADED SAFELY AND SECURELY AND THAT THE TOTAL NUMBER OF BAGS HAS BEEN CHECKED AGAINST THE APPROPRIATE BRITISH SUGAR ORDER NUMBER.

TO ENSURE MY VEHICLE IS ROAD LEGAL I WILL TAKE THE LOADED VEHICLE OVER THE FACTORY WEIGHBRIDGE

COLLECTION DETAILS

Collection/Loading Date: 3-1-2024

[redacted]

DELIVERY DETAILS

Customer Name: _____ Signed: _____

Date: _____ Time: IN ..... OUT .....

British Sugar Topsoil Non Bagged Product Form Jan 2019.word.doc

THE Pallet Network

Delivery Note

BACTON TRANSPORT SERVICES LTD

Docket Number:	83414088		Total Pallets: 5
Order Number:	139569	Request Depot: 065	
Despatched:	03/01/2024	Collect Depot: 065	Total Weight: 5000
Service:	DDTL		

Collected From:	Delivery To:	Delivery Depot:
	Michael manning Mixrow Construction 1 Station Road Southwold 07701337250 **IP18 6AX**	**064**

Remarks:

Please deliver on a Rigid vehicle T L offload Please call an hour ahead of delivery

THE WORDS UNEXAMINED OR UNCHECKED WILL NOT BE ACCEPTED AS A CONDITIONAL SIGNATURE RECIEVED IN GOOD ORDER AND CONDITION

SIGNATURE

The signature for this delivery was captured digitally and NOT signed on the original paperwork. The receiver did not sign this document, however this was the signature captured relating to this delivery.

Customer Signature

[redacted]

Received in Good Condition - karl

[redacted]

ARRIVAL TIME	
12:06	
DATE	**TIME**
08/01/2024	12:12
COP	**COP SIGNED**
N	N

PRINT NAME

karl

CLAUSE NOTES

OVERNIGHT AND ECONOMY DISTRIBUTION OF PALLETISED GOODS THROUGH THE U.K. AND EUROPE. ALL GOODS CARRIED SUBJECT TO R.H.A CONDITIONS, COPIES AVAILABLE UPON REQUEST

APPENDIX D: WATER SUPPLY PIPE DOCUMENTS

OnSite Group Delivery Note

Plasson UK Ltd Delivery Note

Pipe Specification Sheets

ONESITE GROUP
Structural Steel | Building Products | Plant & Tool Hire

Unit 9, Cooke Road
South Lowestoft Ind Est
Lowestoft, NR33 7NA
Tel: 01502 533999
Email: sales@onesitegroup.com

SALES ADVICE NOTE

Note No: M474840

Customer: Mixbrow Ltd

Address: Unit 1, Plot 8, Maitland Road
Lion Barn Industrial Estate
Needham Market
Ipswich
Suffolk
IP6 8NZ

Order No: 35972/40140

Delivery Date: 22/11/2023 12:56

Delivery: Deliver to Carl Woodard, 07593 443051.

Order Date: 21-Nov-23

Delivery Address: Blyth Road
1 Station Road
Southwold
Suffolk
IP18 6AX

Acct No: MIXB001

2

Description	Stock No	Qty Ordered	per	Actual Qty
Barrier Pipe Water 32mmx50m	14BP32050	1	each	[ ]
Barrier Pipe Water 25mmx50m	14BP25050	1	each	[ ]
Barrier Pipe Water 32mm Coupler	14BP32C	1	each	[ ]
Tape Measure 8m OneSite	16TM8OS	1	each	[ ]
Premium Screw Pozi Csk ZYP 5.0x100 (10x4) Pk100	17PS50100	5	each	[ ]
Premium Screw Pozi Csk ZYP 5.0x50 (10x2) Pk200	17PS50050	2	each	[ ]
110mm Drainage Bend Single Socket 45°	14D110BS45	10	each	[ ]
110mm Drainage Bend Double Socket 15°	14D110BD11	10	each	[ ]
110mm Drainage Bend Double Socket 30°	14D110BD22	10	each	[ ]
110mm Drainage Bend Double Socket 90°	14D110BD90	12	each	[ ]
110mm Drainage T Branch Triple Socket	14D110TT	5	each	[ ]
THANK YOU FOR YOUR ORDER WITH ONESITE GROUP!		1	each	[ ]

Any item marked with * is a non-stock product and therefore non-refundable.

Signature:

Date: 21-Nov-23

Print Name:

Staff: Jack Francis

****** ORDER BY 4:30pm FOR NEXT DAY DELIVERY OF ALL STOCK PRODUCTS ******
OneSite customer service team must be notified of any queries on this delivery within 48 hours.

Plasson UK Ltd
Plasson UK
27, Albert Drive, Burgess Hill,
West Sussex, RH15 9TN
United Kingdom
https://www.plasson.co.uk/
VAT ID : 135563806

PLASSON®

Bill To:
egeplast UK (General)
806438136

Ship To:
MIXBROW LTD
1 STATION ROAD
SOUTHWOLD Suffolk IP18 6AS
United Kingdom
Contact: CARL
Phone: 07593 443051

More Information:
Date: 24-Nov-2023
Sales Order: SO-UK80445
Customer PO#: 41430

Delivery Note

IF82378

#	Item	Description	Customer Part Number	Qty This Delivery	Qty On Order	Qty Prev Ship	Qty To Follow
1	PB270500032	90° Elbow 32 x 32mm Barrier		1	1	0	0
2	PB273400032025	Reducing Tee 32 x 25 x 32mm Barrier		5	5	0	0
3	PB271100032025	Reducing Coupler 32 x 25mm Barrier		1	1	0	0

Created By	3000014 Andy Burgess

All discrepancies must be notified WITHIN 3 working days.
Contact sales@plasson.co.uk and accounts@plasson.co.uk
Plasson's Terms and conditions apply to the exclusion of any other terms

egeplast (UK)

egeplast UK

SLA® Barrier Pipe

Pipeline system solutions to protect drinking water

Future-proofed Pipe Systems

Introduction

Innovative pipe solutions for today & tomorrow

egeplast UK manufactures and supplies PE pipe systems, fittings and related fabrications for the UK water, construction and utility sectors. Operating from modern, dedicated manufacturing facilities in Yorkshire, we have a 20-year track record in the manufacture of innovative pipe solutions and a reputation for providing exceptional standards of customer service.

Part of egeplast International GmbH, the company benefits from the financial and technical backing which comes from being part of a leading European manufacturing business. egeplast International was founded in 1908, has a turnover of €200-million per year and operates state of the art manufacturing facilities in the UK, Sweden and Germany. Its operations are accredited to ISO EN 9001 (Quality), ISO EN 14001 (Environment) and ISO EN 50001 (Energy) standards and its products are specified in 30 countries across the world.

Innovation is at the core of our business. With a long-standing commitment to investment in R&D and the development of industry firsts such as egeplast SLA barrier pipe, we are committed to providing future-proofed pipe systems which improve environmental performance, help deliver net zero and ultimately help meet the challenges being faced by society to support a better life for future generations.

The Product

egeplast SLA® Barrier Pipes combine the advantages of materials and open up new possibilities

A significant increase in the use of brown field sites is required to ensure sufficient land is available to meet the needs of housebuilders in the UK. The risk associated with ensuring clean water in these instances cannot be understated and proper specification of appropriate barrier pipe systems is required. Construction sites located on contaminated or brown field sites present a unique set of challenges for water companies and contractors. Both organisations need to ensure the pipe network is effectively sealed and the clean water it carries is protected from potential contamination.

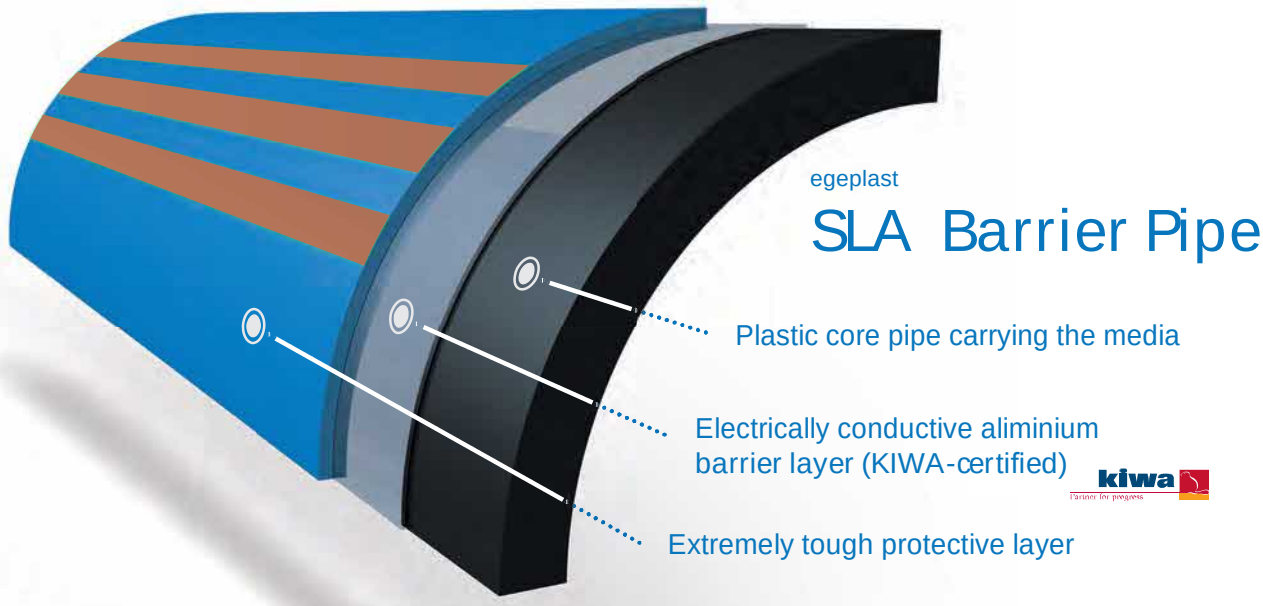
Developed more than 30 years ago the egeplast SLA Barrier Pipe system has been the premier choice of product amongst specifiers across the UK and Europe. Meeting the requirements of DWI and WRAS the pipe and fittings system enables completely secure connections and will reliably eliminate the migration of pollutants into the drinking water supply and is guaranteed for long term performance.

The intelligent combination of flexible thermoplastic materials with the permeation resistance of metal materials enables permanent protection. From the transportation of ultrapure water through to chemically contaminated wastewater and process water, the best possible solution can be found for your application.

The SLA® Barrier Pipe System developed by egeplast reliably rules out any migration of pollutants.

The permeation resistance is achieved using a barrier layer, whereby the core pipe conveying the medium is surrounded by an aluminium barrier layer certified by KIWA and an extremely tough protective layer.

Due to its electrical properties, the embedded metal layer also offers the possibilities both of localising the path of the composite pipes in the ground and of verifying the integrity of the new pipeline using a resistance test after completion of the constructional measure. This increases safety, especially in the case of sensitive media.



Pipe Range

A wide range of available diameters to suit housebuilders and large utility projects.

The egeplast SLA® Barrier Pipe consists of a core pipe in accordance with BSEN 12201, upon which a protective coating is additionally extruded in order to increase its scratch and abrasion resistance. A multiple layer aluminium foil is applied as a barrier layer between the core pipe and the coating layer. The three brown stripes serve to identify it as a multiple layer pipe.

SDR11 Coils

Diameter	25m	50m	100m	150m
25mm		●	●	●
32mm		●	●	
63mm		●	●	
90mm		●	●	
110mm		●	●	
125mm		●	●	
160mm		●	●	
180mm		●	●	

SDR17 Coils

Diameter	25m	50m	100m	150m
90mm		●	●	
110mm		●	●	
125mm		●	●	
160mm		●	●	
180mm		●	●	

SDR11 Lengths

Diameter	6m	12m
63mm	●	●
90mm	●	●
110mm	●	●
125mm	●	●
160mm	●	●
180mm	●	●
225mm	●	●
250mm	●	●
315mm	●	●
355mm	●	●
400mm	●	●
450mm	●	●
500mm	●	●
630mm	●	●

SDR17 Lengths

Diameter	6m	12m
90mm	●	●
110mm	●	●
125mm	●	●
160mm	●	●
180mm	●	●
225mm	●	●
250mm	●	●
315mm	●	●
355mm	●	●
400mm	●	●
450mm	●	●
500mm	●	●
630mm	●	●

Pipe Sizes, Ratings & Approvals

Required information to ensure product compliance and enable engineering specification to meet UK approval

Actual outside dimensions of egeplast SLA® Barrier Pipe

Pipe Reference Size	Actual Outside Diameter
25mm	26.2 - 27.4mm
32mm	33.3 - 34.5mm
40mm	41.3 - 42.5mm
50mm	51.3 - 52.6mm
63mm	65.6 - 65.9mm
75mm	78.8 - 79.0mm
90mm	93.8 - 94.1mm
110mm	113.7 - 114.0mm
125mm	129.6 - 129.9mm
140mm	145.4 - 145.7mm
160mm	165.7 - 166.1mm
180mm	186.6 - 187.3mm

Material requirements for reinstating protective layer over electrofusion couplers with Aluminium Foil & Denso E10 Tape

OD	Metres / Weld Seam Aluminium Foil	Metres / Weld Seam Tape E10
25mm	3.0	1.0
32mm	3.0	1.0
40mm	4.5	1.5
50mm	4.5	1.5
63mm	6.0	2.0
75mm	6.0	2.0
90mm	8.5	2.5
110mm	9.0	3.0
125mm	12.0	4.0
140mm	12.0	4.0
160mm	13.5	4.5
180mm	15.0	5.0
200mm	18.0	6.0
225mm	18.0	6.0
250mm	22.5	7.5
280mm	22.5	7.5
315mm	30.0	10.0
355mm	30.0	10.0
400mm	45.0	15.0
450mm	45.0	15.0
500mm	45.0	15.0
560mm	45.0	15.0
630mm	90.0	30.0

System Approvals

- BS 8588:2017 — Polyethylene pressure pipe with an aluminium barrier layer and associated fittings for potable water supply in contaminated land. Size 20 mm to 630 mm
- WRAS — Water Regulations Advisory Scheme
- BSEN12201 — Inner Core Pipe constructed in accordance with this standard
- DWI Regulation 31 — Materials in contact with potable water
- KIWA — Chemical and mechanical testing

Pipe Construction

- Inner Core Pipe — Black PE100 to BSEN12201
- Metal Layer — Double Bonded Aluminium
- External Layer — Blue PE100 c/w Brown Stripes

Jointing Systems

- 25, 32 & 63mm — E/F Fittings and Compression Fittings
- 63 - 180mm — Self Tapping Ferrule Straps
- 63 - 180mm — E/F Fittings, Butt Fusion Welding
- 90 - 630mm — Butt Fusion Welding

All E/F Fittings and Butt Fusion Joints must be externally protected from ground contamination to ensure the integrity of the complete system. Use of Aluminium tape and protective E10 tape is required and can be supplied by egeplast UK.

“Water is critical for sustainable development, including environmental integrity and the alleviation of poverty and hunger, and is indispensable for human health and well-being.”

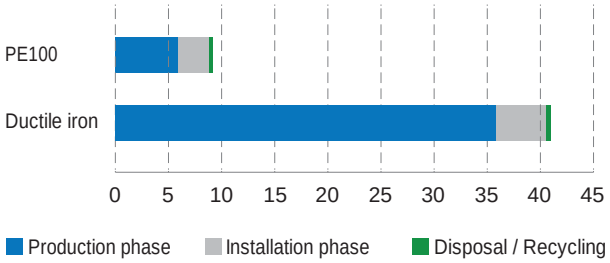
- United Nations

Environmentally Friendly Installation

The development of skinned pipe technology has enabled a reduced carbon impact of installation

The influences on the environment can be reduced by low weight and the possibility of trenchless installation using the most modern methods due to the high flexibility of the plastic. The ploughing and milling procedure for example reduce interventions in the environment and increase installation performance. Despite greater burden during installation, the pipe with protective layer guarantees the reliable installation and operation of the pipeline.

Impact on the greenhouse effect (in kg CO_2 Equivalent)



As a planner you face the challenge of selecting a safe pipe system for a specific use. The decisive installation criteria for safety pipe systems are usually as follows:

- Protection of humans (the responsibility lies with the system operator)
- High environmental awareness on the part of the operator/ client
- Protection from liability risks (liability for negligence from risk of environmental contamination)
- The prevention of operating disruptions (protection of sensitive and expensive production plants)
- The avoidance of bad publicity (prevention of damage)
- Compliance with statutory requirements specific regional and application-related guidelines and regulations for water-polluting substances)
- The safe transportation of water and environmentally hazardous media in buildings, the soil and on pipe bridges
- Moral reservations regarding the occurrence of leaks during the transportation of hazardous chemicals
- Reduction of insurance risks (lower risks lead to reduced premiums)

Jointing Techniques

Butt fusion

Jointing methodology for butt fusion welding ensuring the reinstatement and protection of the aluminium barrier layer

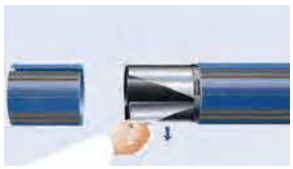
Butt Fusion Welding

Step 1

Prepare your pipe ends for Butt Fusion Welding by removing the outside PE skin and aluminium foil utilising the M10 Peeling Tool.

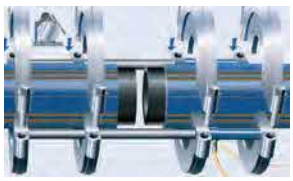
Step 2

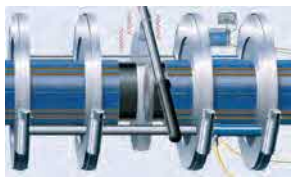
Once the outside PE skin and aluminium is removed over a length of 30mm from the pipe end you must scrape the internal pipe, removing any adhesive residue and leaving you a clean swarf free surface for welding.



Step 3

After the above pre welding preparation has taken place you can now Butt Weld. Welding should be carried out in compliance with WIS 4-32-16. Standard welding machines will need to use adapted inserts adjusted to the specific external diameter. (Please check compatibility of inserts and if in doubt seek advice.)





Step 4

For the installation of the egeplast SLA® Barrier Pipe, it is mandatory to provide separate protection for both the area of the weld and the aluminium layer. The weld bead is to be removed with an external bead remover, and the aluminium layer must be restored so that it is continuous again. To do this, aluminium foil from egeplast UK, is to be applied in three layers in a left to right motion starting up to 100mm beyond the peeled outer skin, making sure that you cover the weld with a 50% overlap.

Step 5

It is mandatory to provide separate protection to the area by applying 25% overlap of protective E10 Tape over your already applied aluminium foil, (protective E10 Tape available from egeplast UK).

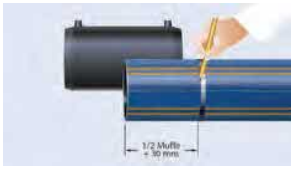
Jointing Techniques

Electrofusion

Jointing technique for using electrofusion couplings to ensure complete integrity of joint to maintain barrier against ground contaminants

Steps 1 & 2

Prepare your pipe ends ready for electrofusion by measuring the insertion depth for your fitting and then allowing an additional 30mm. Using this measurement from the pipe end and mark the pipe. Using the M10 Peeling Tool remove both the outside PE skin and aluminium layer to your mark as required.



Steps 3 & 4

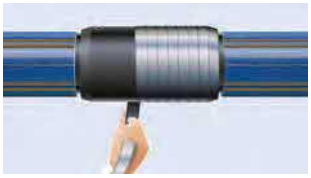
Once the outside skin and aluminium is removed you must scrape the internal pipe removing any adhesive residue giving you a clean swarf free surface.

Step 5

Once you have prepared both pipes you can now introduce your electrofusion fitting. You must clamp your fitting in place using restraining clamps then set your electrofusion box to the correct setting and then commence welding

Step 6

Once the electrofusion fitting has successfully welded and cooled down it is mandatory that you reintroduce the egeplast SLA® Barrier Pipe aluminium foil and apply three layers in a left to right motion starting up to 100mm away from the fitting, making sure that you cover the fitting with a 50% overlap.



Step 7

It is mandatory to provide separate protection to the area by applying 25% overlap of protective E10 Tape over your already applied aluminium foil, (protective E10 Tape available from egeplast UK).

*Also note Electrofusion Tapping Saddles can be applied following the previous steps

Installation Support Products

Heat Shrink Sleeves

Efficient installation solution to maintain the integrity of the barrier pipe system butt fusion joints

egeplast heat shrink sleeves are available for pipes from OD 180 up to 630 mm, in standard lengths of 600mm. Please contact us for bigger diameters or other lengths.

Towing Heads

Provides easy handling particularly for directional drilling, slip lining and direct burial

egeplast towing heads are available for pipes up to 630mm and have been developed to provide a strong fully sealed reusable Towing Head for the larger sizes of PE pipe.

This fully field tested product consists of a PE nose section, manufactured from a solid billet of PE, into which is fitted an eyebolt manufactured from high tensile steel. This eyebolt is in turn housed within a sealed sleeve which is free to rotate within the PE nose. A 500mm length of PE pipe is factory fused onto the PE nose cone thereby allowing the Towing Head to be easily butt fused onto a pipe section or string.

After use it can simply be cut from this pipe string and butt fused onto the next one.

Fabricated Fittings

Meeting the complex installation needs of customers and ensuring the SLA® Barrier pipe system provides a durable high performance barrier against ground contaminants.

egeplast UK manufacture a wide range of fabricated fittings. This includes standard fabrication such as mitred bends, tees and reduced stubs. In addition egeplast are capable of providing engineered solutions for specific projects manufactured to meet the most complex of installations.

Stub Flange

Equal Tee

Mitred Bend

Installation ready SLA Barrier pipe fabricated fittings. Come complete with factory prepared joints that ensure barrier integrity remains intact. Our fabricated SLA fittings ensure that installation is quick, easy and provides a high performance barrier against ground contaminants.

Post Welding Pipe Joint Preparation

It is important that after butt welding that the pipe joints are prepared to ensure that the barrier is repaired to maintain its integrity against ground contaminants using the following simple steps:

Remove welding bead and clean area to allow joint integrity repair.

Wrap whole joint with aluminium tape to provide barrier integrity. Foil should be in overlapping strips and care should be taken to cover an area 100mm beyond the edge of the welded joint.

Cover with protective E10 tape ensuring all foil is covered.

SLA® Barrier Pipe Compression Fittings

A complete range of small bore pipe fittings designed to ensure complete system integrity. Guaranteed for long term performance.

Coupler Barrier

Code	Size (mm)
75020105PL	25 x 25
75030105PL	32 x 32
75060105PL	63 x 63

Coupler Barrier x Copper

Code	Size (mm)
782522C05PL	25 x 22
783228C05PL	32 x 28
786354C05PL	63 x 54

Reducing Coupler Barrier

Code	Size (mm)
78322505PL	32 x 25
78632505PL	63 x 25
78633205PL	63 x 32

Male Adaptor Barrier

PUK Code	Size (mm)
72023105PL	25 x 3/ 4"
72033105PL	32 x 3/ 4"
72031105PL	32 x 1"
72061105PL	63 x 1½"
72062105PL	63 x 2"

End Plug Barrier

Code	Size (mm)
07020105PL	25
07030105PL	32
07060105PL	63

90° Elbow Barrier

Code	Size (mm)
77029105PL	25 x 25
77039105PL	32 x 32
77069105PL	63 x 63

Female Adaptor Barrier

Code	Size (mm)
73023105PL	25 x 3/ 4"
73021105PL	25 x 1"
73033105PL	32 x 3/ 4"
73031105PL	32 x 1"
73061105PL	63 x 1½"
73062105PL	63 x 2"

90° Tee Barrier

Code	Size (mm)
76029105PL	25 x 25 x 25
76039105PL	32 x 32 x 32
76069105PL	63 x 63 x 63

45° Elbow Barrier

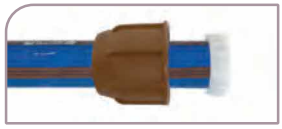
Code	Size (mm)
77064105PL	63 x 63

Reducing Tee Barrier

Code	Size (mm)
76032359105PL	32 x 25 x 32
76063329105PL	63 x 32 x 63

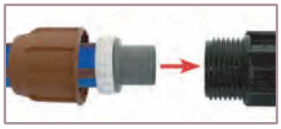
kiwa approved
UK WATER REGULATION 4

Fitting Instructions



Step 1: Remove nut and grip ring from fitting and mount brown nut onto the pipe and assemble grip ring flush with the pipe end.

Step 2: Push the barbed end of the adaptor into the pipe until it meets the stop (a mallet may be required).



Step 3: Push the plain end of the adaptor into the fitting until it meets the stop.

Step 4: Screw nut tightly towards the body of the fitting using a PLASSON wrench.

Self Tapping Saddles & Ferrules

Secure connections to main pipe enabling fast and effective installations.

The range of Self Tapping Ferrule Straps, Swivel Ferrules and can be used to connect PE, copper and threaded pipes to almost any type and size of mains pipe material from 32mm in diameter. Straps are available up to 315mm in diameter as standard with larger sizes available on request. Ferrules can be inserted directly into suitable mains pipe of any size as long as both wall section and wall strength allow.

General application

Straps are simply clamped onto the pipe needing no specialised equipment to fit so can be installed easily in wet and congested trench conditions, offering many benefits over welded systems.

Range

- Gunmetal Self Tapping Ferrule Straps
- Bronze Self Tapping Ferrule Straps
- Swivel Ferrules
- Flat Boss Straps

Product	Code	Size
	91062505	63mm BPA x 25mm
	91092505	90mm BPA x 25mm
	91112505	110mm BPA x 25mm
	91122505	125mm BPA x 25mm
	91162505	160mm BPA x 25mm
	91182505	180mm BPA x 25mm
	91063205	63mm BPA x 32mm
	91093205	90mm BPA x 32mm
	91113205	110mm BPA x 32mm
	91123205	125mm BPA x 32mm
	91163205	160mm BPA x 32mm
	91183205	180mm BPA x 32mm

Product	Code	Size
	90063105	63mm BPA x 3/4”
	90093105	90mm BPA x 3/4”
	90113105	110mm BPA x 3/4”
	90123105	125mm BPA x 3/4”
	90163105	160mm BPA x 3/4”
	90183105	180mm BPA x 3/4”
	90061105	63mm BPA x 1”
	90091105	90mm BPA x 1”
	90111105	110mm BPA x 1”
	90121105	125mm BPA x 1”
	90161105	160mm BPA x 1”
	90181105	180mm BPA x 1”

Accessories

Code	Description
90030005	25mm / 3/4” Cutting Key
90010005	32mm / 1” Cutting Key

Self Tapping Saddles & Ferrules

Installation

Step 1
Firstly make sure that the area to be tapped into is clean.

Step 2
Place the top of the Ferrule Strap on to the egeplast SLA® Barrier Pipe making sure the O-ring is seated in place and press the top section down firmly (do not hammer).

Step 3
Attach the lower steel strap by placing the strap under the pipe and bolt the top section and lower section together using the bolts provided. Tighten the bolt assembly equally and keep tightening until you can no longer see the O-ring.

Step 4
Use an egeplast SLA® Barrier Pipe adaptor either 25mm x ¾" or 32mm x 1" to connect your service pipe onto the ferrule and you can do this by applying PTFE tape to the thread of the adaptor before screwing into position. (Unless using a Tapping saddle banjo that is complete with a BPA socket).

Step 5
Remove the blue or red top cap to expose the top of the cutter (not the full gunmetal cap) and use the T key to turn the cutter until you can no longer turn the valve, then turn the cutter in the opposite direction to withdraw the cutter thus allowing water to escape through the valve into your already connected service pipe.

Step 6
Keep turning the cutter until you are back to where you started. Replace the blue or red cap and your connection is now complete.

Technical data
Pressures: Working: 16 bar Test: 24 bar
The pressures stated above apply with water temperatures up to 20°C

egeplast (UK)

Contact us

01427 875770 or sales@egeplast.uk
www.egeplast.uk

egeplast UK October 2023

Product Guide

egeplast (UK)

SLA Barrier Pipe System & Compression Fittings

PLASSON®

About egeplast UK

egeplast UK manufactures and supplies PE pipe systems, fittings and related fabrications for the UK utility and construction sectors. Innovation is at the core of our business, and we're committed to providing future-proofed pipe systems which improve environmental performance, help deliver net zero and ultimately support a better life for future generations.

Operating from state-of-the-art manufacturing facilities in Yorkshire, we have a 20-year track record in the manufacture of specialist product solutions and benefit from the financial and technical backing which comes from being part of egeplast International GmbH, a leading European manufacturing business that has been setting benchmarks for decades.

egeplast International was founded in 1908, and operates in the UK, Germany and Sweden. Its operations are accredited to ISO EN 9001 (Quality), ISO EN 1400 (Environment) and ISO EN 45001 (Health & Safety) and its products are specified in 30 countries across the world.

THE EGEPLAST SLA® BARRIER PIPE

Developed by egeplast, the egeplast SLA® Barrier Pipe reliably eliminates the migration of pollutants into the drinking water. Through the use of a clever combination of the thermoplastic material properties of polyethylene, paired with the proof against diffusion of metallic materials, a pipe has been created which has made accessible a totally new area of application compared to conventional polyethylene pipes.

INTRODUCING THE NEW SLA BARRIER PIPE COMPRESSION FITTINGS

Working with one of the leading manufacturers of compression fittings, PLASSON. The new SLA compression fittings have been developed to offer a product range, that increases the flexibility of the SLA Barrier Pipe System in sizes –25mm, 32mm & 63mm, in a lightweight and easy to use plastic product range. Approved to BS8588, the new SLA compression fittings offer a competitive and completely secure method to connect the SLA Barrier Pipe System, supported by PLASSON's years of expert knowledge & experience.

Size Range:	25mm, 32mm & 63mm
Fitting type:	Compression
Product range:	Adaptors, Elbows, Tees, Couplers and many more.
Approvals:	UK Water Reg4, BS6920, BS8588
Clear Identification:	The SLA Barrier pipe is identified by three brown stripes
Installation:	Lightweight, quick and easy and no post wrapping required

kiwa approved
UK WATER REGULATION 4

egeplast SLA® Barrier Pipe

Product Code	Product Description
150215005	25mm (50m coils)
150315005	25mm (100m coils)
150615005	25mm (150m coils)
150215005	32mm (50m coils)
150315005	32mm (100m coils)
150615005	32mm (150m coils)
150215005	63mm (25m coils)
150315005	63mm (50m coils)
150615005	63mm (100m coils)

SLA® Compression Fittings

Coupler Barrier

Code	size (mm)
75020105PL	25 x 25
75030105PL	32 x 32
75060105PL	63 x 63

Coupler Barrier x Copper

Code	size (mm)
782522C05PL	25 x 22
783228C05PL	32 x 28
786354C05PL	63 x 54

Reducing Coupler Barrier

Code	size (mm)
78322505PL	32 x 25
78632505PL	63 x 25
78633205PL	63 x 32

Male Adaptor Barrier

PUK Code	size (mm)
72023105PL	25 x 3/4"
72033105PL	32 x 3/4"
72031105PL	32 x 1"
72061105PL	63 x 11/2"
72062105PL	63 x 2"

End Plug Barrier

Code	size (mm)
07020105PL	25
07030105PL	32
07060105PL	63

90° Elbow Barrier

Code	size (mm)
77029105PL	25 x 25
77039105PL	32 x 32
77069105PL	63 x 63

Female Adaptor Barrier

Code	size (mm)
73023105PL	25 x 3/4"
73021105PL	25 x 1"
73033105PL	32 x 3/4"
73031105PL	32 x 1"
73061105PL	63 x 11/2"
73062105PL	63 x 2"

90° Tee Barrier

Code	size (mm)
76029105PL	25 x 25 x 25
76039105PL	32 x 32 x 32
76069105PL	63 x 63 x 63

45 Elbow Barrier

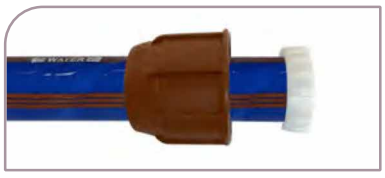
Code	size (mm)
77064105PL	63 x 63

Reducing Tee Barrier

Code	size (mm)
76032359105PL	32 x 25 x 32
76063329105PL	63 x 32 x 63

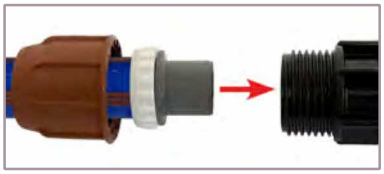
kiwa approved
UK WATER REGULATION 4

Fitting Instructions



Step 1
Remove nut and grip ring from fitting and mount brown nut onto the pipe and assemble grip ring flush with the pipe end.

Step 2
Push the barbed end of the adaptor into the pipe until it meets the stop (a mallet may be required).



Step 3
Push the plain end of the adaptor into the fitting until it meets the stop.

Step 4
Screw nut tightly towards the body of the fitting using a PLASSON wrench.

egeplast (UK)

PLASSON®

egeplast (UK)

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+44 (0)1427 875770

Future-proofed Pipe Systems

APPENDIX E: LABORATORY ANALYSIS RESULTS

Tim O'Hare Associates Report TOHA/23/1166/1/SS

Derwentside Environmental Testing Services Ltd – Laboratory Analysis – 24-00207

Declaration of Compliance BS3882:2015

Soil source: British Sugar TOPSOIL

This declaration confirms that the topsoil represented by the attached Topsoil Analysis Report conforms to the requirements of the British Standard for Topsoil (BS3882:2015).

The sample was sampled and tested in accordance with the requirements of BS3882:2015

- Samples are taken for analysis every 8000 tonnes (5000 m3) of product
- Samples are taken from all TOPSOIL products ready for despatch
- All products are sampled after screening
- Analysis certificates are retained for a period of 5 years

- Laboratory analysis is undertaken at a **UKAS** and **MCERTS** accredited laboratory
- All laboratory methods are in accordance with BS3882:2015
- All British Sugar TOPSOIL products are produced to a **Quality Management System** approved by Lloyd's Register Quality Assurance to **ISO 9001:2008** standard

Signed

[redacted]

Natalie Gudgin
British Sugar TOPSOIL, National TOPSOIL Manager
1 Samson Place, London Road, Peterborough, PE7 8QJ
Telephone 0870 2402314

TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Natalie Gudgin
British Sugar plc Co-Products
Oundle Road
Peterborough
PE2 9QU

5th December 2023
Our Ref: TOHA/23/1166/1/SS
Your Ref: PO 60242584

Dear Sirs

Topsoil Analysis Report: Landscape 20 Wissington

We have completed the analysis of the LANDSCAPE 20 TOPSOIL sample recently submitted, referenced *Wi-L20-Nov 23* and have pleasure reporting our findings.

The purpose of the analysis was to determine the suitability of the LANDSCAPE 20 TOPSOIL sample for general landscape purposes. In addition, this sample has been assessed to determine its compliance with the requirements of the British Standard for Topsoil *(BS3882:2015 - Specification for topsoil* – Table 1, *Multipurpose Topsoil)*.

This report presents the results of analysis for the sample submitted to our office, and it should be considered 'indicative' of the topsoil source. The report and results should therefore not be used by third parties as a means of verification or validation testing or waste designation purposes, especially after the topsoil has left the British Sugar factory.

SAMPLE EXAMINATION

The sample was described as a very dark greyish brown (Munsell Colour 10YR 3/2), slightly moist, friable, slightly calcareous SANDY LOAM with a weakly developed, very fine to fine granular structure*. The sample was stone-free and contained a moderate proportion of organic fines. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

*This appraisal of soil structure was made from examination of a disturbed sample. Structure is a key soil characteristic that may only be accurately assessed by examination in an in-situ state.

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ANALYTICAL SCHEDULE

The sample was submitted to a UKAS and MCERTS accredited laboratory for a range of physical and chemical tests to confirm the composition and fertility of the soil, and the concentration of selected potential contaminants. The following parameters were determined:

particle size analysis (sand, silt, clay);
stone content (2-20mm, 20-50mm, >50mm);
pH and electrical conductivity values;
exchangeable sodium percentage;
major plant nutrients (N, P, K, Mg);
organic matter content;
C:N ratio;
heavy metals (As, B, Ba, Be, Cd, Cr, Cu, Pb, Hg, Ni, Se, V, Zn);
total cyanide and total (mono) phenols;
speciated PAHs (US EPA16 suite);
aromatic and aliphatic TPH (C5-C35 banding);
benzene, toluene, ethylbenzene, xylene (BTEX);
asbestos screen.

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below. The interpretation considers the use of the LANDSCAPE 20 TOPSOIL for general landscape purposes and its compliance/non-compliance with our general landscape specification.

RESULTS OF ANALYSIS

Particle Size Analysis and Stone Content

The sample fell into the *sandy loam* texture class, which is usually considered suitable for general landscape applications provided the soil's physical condition is satisfactory.

The sample was stone-free and, as such, stones should not restrict the use of the soil for general landscape purposes.

pH and Electrical Conductivity Values

The sample was slightly alkaline in reaction (pH 7.3), with a pH value that would be suitable for general landscape purposes provided species with a wide pH tolerance or those known to prefer alkaline soils are selected.

The electrical conductivity (salinity) value (water extract) was moderate, which indicates that soluble salts should not be present at levels that would be harmful to plants.

The electrical conductivity value by $CaSO_4$ extract (*BS3882* requirement) fell below the maximum specified value (3300 µS/cm) given in *BS3882:2015 – Table 1*.

Organic Matter and Fertility Status

The sample was adequately supplied with organic matter and all major plant nutrients.

The C:N ratio of the sample was acceptable for general landscape purposes.

Potential Contaminants

With reference to *BS3882:2015* – Table 1: Notes 3 and 4, there is a requirement to confirm levels of potential contaminants in relation to the topsoil's proposed end use. This includes human health, environmental protection and metals considered toxic to plants. In the absence of site-specific criteria, the concentrations that affect human health have been compared with the *residential with homegrown produce* land use in the Suitable For Use Levels (S4Uls) presented in the *LQM/CIEH S4Uls for Human Health Risk Assessment* (2015) and the DEFRA SP1010: *Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document* (2014). The concentration of barium has been compared with the *residential* land use given in the document *EIC/AGS/CL:AIRE Soil Generic Assessment Criteria for Human Health Risk Assessment* (2010).

Of the potential contaminants determined, none was found at levels that exceeded their guideline values.

Phytotoxic Contaminants

Of the phytotoxic (toxic to plants) contaminants determined (copper, nickel, zinc), none was found at levels that exceeded the maximum permissible levels specified in *BS3882:2015 – Table 1*.

CONCLUSION

The purpose of the analysis was to determine the suitability of the LANDSCAPE 20 TOPSOIL sample for general landscape purposes. In addition, this sample has been assessed to determine its compliance with the requirements of the British Standard for Topsoil *(BS3882:2015 – Specification for topsoil* – Table 1, *Multipurpose Topsoil)*.

From the soil examination and laboratory analysis, the sample was described as a slightly alkaline, moderately saline, slightly calcareous *sandy loam* with a weakly developed structure. The sample was stone-free and contained sufficient reserves of organic matter and all major plant nutrients. Of the potential contaminants determined, none exceeded their respective guideline values.

To conclude, based on our findings, the topsoil represented by this sample would be considered suitable for general landscape purposes (trees, shrubs and amenity grass), provided species with a wide pH tolerance or those known to prefer alkaline soils are selected and the physical condition of the soil is satisfactory.

The sample was also fully compliant with the requirements of the British Standard for Topsoil *(BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil).*

Soil Handling Recommendations

It is important to maintain the physical condition of the soil and avoid structural damage during all phases of soil handling (e.g. stockpiling, respreading, cultivating, planting, seeding or turfing). As a consequence, soil handling operations should be carried out when soil is reasonably dry and non-plastic (friable) in consistency.

It is important to ensure that the soil is not unnecessarily compacted by trampling or trafficking by site machinery, and soil handling should be stopped during and after heavy rainfall and not continued until the soil is friable in consistency. If the soil is structurally damaged and compacted at any stage during the course of soiling or landscaping works, it should be cultivated appropriately to relieve the compaction and to restore the soil's structure prior to any planting, turfing or seeding.

Further details on soil handling are provided in Annex A of *BS3882:2015.*

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if we can be of further assistance.

Yours sincerely

[redacted]

Zoe Duffin
MBiol
Graduate Soil Scientist

Matthew Heins
BSc (Hons) MISoilSci
Senior Soil Scientist

For & on behalf of Tim O'Hare Associates LLP

Client:	**British Sugar plc Co-Products**
Client Ref:	**Wissington Landscape 20**
Job:	**Topsoil Analysis**
Date:	**05/12/2023**
Job Ref No:	**TOHA/23/1166/1/SS**

TIM O'HARE ASSOCIATES
SOIL & LANDSCAPE CONSULTANCY

Sample Reference			**Wi-L20-Nov 23**	
Clay (<0.002mm)	%	U	13	✓
Silt (0.002-0.063mm)	%	U	19	✓
Sand (0.063-2.0mm)	%	U	68	✓
Texture Class (UK Classification)	--	U	SL	--
Stones (2-20mm)	% DW	G	0	✓
Stones (20-50mm)	% DW	G	0	✓
Stones (>50mm)	% DW	G	0	✓
pH Value (1:2.5 water extract)	units	U	7.3	✓
Electrical Conductivity (1:2.5 water extract)	uS/cm	U	1104	✓
Electrical Conductivity (1:2 $CaSO_4$ extract)	uS/cm	U	2958	✓
Exchangeable Sodium Percentage	%	U	9.3	--
Moisture Content	%	U	15	--
Organic Matter (LOI)	%	U	4.0	✓
Total Nitrogen (Dumas)	%	U	0.15	✓
C : N Ratio	ratio	U	16	✓
Extractable Phosphorus	mg/l	U	60	✓
Extractable Potassium	mg/l	U	768	✓
Extractable Magnesium	mg/l	U	97	✓
Total Arsenic (As)	mg/kg	M	11	✓
Total Barium (Ba)	mg/kg	M	33	✓
Total Beryllium (Be)	mg/kg	M	0.4	✓
Total Cadmium (Cd)	mg/kg	M	< 0.2	✓
Total Chromium (Cr)	mg/kg	M	13	✓
Hexavalent Chromium (Cr VI)	mg/kg	M	< 1.8	✓
Total Copper (Cu)	mg/kg	M	11	✓
Total Lead (Pb)	mg/kg	M	15	✓
Total Mercury (Hg)	mg/kg	M	< 0.3	✓
Total Nickel (Ni)	mg/kg	M	11	✓
Total Selenium (Se)	mg/kg	M	< 1.0	✓
Total Vanadium (V)	mg/kg	M	23	✓
Total Zinc (Zn)	mg/kg	M	38	✓
Water Soluble Boron (B)	mg/kg	M	2.5	✓
Total Cyanide (CN)	mg/kg	M	< 1.0	✓
Total (mono) Phenols	mg/kg	M	< 1.0	✓
Naphthalene	mg/kg	M	0.15	✓
Acenaphthylene	mg/kg	M	< 0.05	✓
Acenaphthene	mg/kg	M	< 0.05	✓
Fluorene	mg/kg	M	< 0.05	✓
Phenanthrene	mg/kg	M	0.05	✓
Anthracene	mg/kg	M	< 0.05	✓
Fluoranthene	mg/kg	M	0.11	✓
Pyrene	mg/kg	M	0.10	✓
Benzo(a)anthracene	mg/kg	M	0.06	✓
Chrysene	mg/kg	M	0.07	✓
Benzo(b)fluoranthene	mg/kg	M	0.09	✓
Benzo(k)fluoranthene	mg/kg	M	< 0.05	✓
Benzo(a)pyrene	mg/kg	M	0.07	✓
Indeno(1,2,3-cd)pyrene	mg/kg	M	< 0.05	✓
Dibenzo(a,h)anthracene	mg/kg	M	< 0.05	✓
Benzo(g,h,i)perylene	mg/kg	M	< 0.05	✓
Total PAHs (sum USEPA16)	mg/kg	M	< 0.80	✓
Aliphatic TPH (C5-C6)	mg/kg	M	< 0.020	✓
Aliphatic TPH (C6-C8)	mg/kg	M	< 0.020	✓
Aliphatic TPH (C8-C10)	mg/kg	M	< 0.050	✓
Aliphatic TPH (C10-C12)	mg/kg	M	< 1.0	✓
Aliphatic TPH (C12-C16)	mg/kg	M	< 2.0	✓
Aliphatic TPH (C16-C21)	mg/kg	M	< 8.0	✓
Aliphatic TPH (C21-C35)	mg/kg	M	< 8.0	✓
Aliphatic TPH (C5-C35)	mg/kg	M	< 10	✓
Aromatic TPH (C5-C7)	mg/kg	M	< 0.010	✓
Aromatic TPH (C7-C8)	mg/kg	M	< 0.010	✓
Aromatic TPH (C8-C10)	mg/kg	M	< 0.050	✓
Aromatic TPH (C10-C12)	mg/kg	M	< 1.0	✓
Aromatic TPH (C12-C16)	mg/kg	M	< 2.0	✓
Aromatic TPH (C16-C21)	mg/kg	M	< 10	✓
Aromatic TPH (C21-C35)	mg/kg	M	< 10	✓
Aromatic TPH (C5-C35)	mg/kg	M	< 10	✓
Benzene	mg/kg	M	< 0.005	✓
Toluene	mg/kg	M	< 0.005	✓
Ethylbenzene	mg/kg	M	< 0.005	✓
p & m-xylene	mg/kg	M	< 0.005	✓
o-xylene	mg/kg	M	< 0.005	✓
Asbestos	ND/D	I	Not-detected	✓

Visual Examination

The sample was described as a very dark greyish brown (Munsell Colour 10YR 3/2), slightly moist, friable, slightly calcareous SANDY LOAM with a weakly developed, very fine to fine granular structure. The sample was stone-free and contained a moderate proportion of organic fines. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

✓	Meets General Landscape Specification
X	Fails General Landscape Specification
SL	SANDY LOAM Texture Class
M	MCERTS accredited method (& UKAS accredited method)
I	ISO 17025 accredited method
U	UKAS accredited method
G	GLP accredited method

This report presents the results of analysis for the sample submitted to our office, and it should be considered 'indicative' of the topsoil source. The report and results should therefore not be used by third parties as a means of verification or validation testing or waste designation purposes, especially after the topsoil has left the British Sugar factory.

[redacted]

Zoe Duffin
MBiol
Graduate Soil Scientist

Results of analysis should be read in conjunction with the report they were issued with

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Derwentside Environmental Testing Services Ltd
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Lenham Heath
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ME17 2JN
t: 01622 850410

DETS Report No: 24-00207

Site Reference:	Old Station Yard, Blyth Road, Southwold, IP18 6AX
Project / Job Ref:	21.259
Order No:	TJS/21.259/03/01
Sample Receipt Date:	10/01/2024
Sample Scheduled Date:	10/01/2024
Report Issue Number:	1
Reporting Date:	17/01/2024

Authorised by:

[redacted]

Dave Ashworth
Technical Manager

Dates of laboratory activities for each tested analyte are available upon request.

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Soil Analysis Certificate						
DETS Report No: 24-00207	Date Sampled	09/01/24	09/01/24	09/01/24	09/01/24	09/01/24
AF Howland Associates Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Old Station Yard, Blyth Road, Southwold, IP18 6AX	TP / BH No	VS101	VS101	VS102	VS102	VS103
Project / Job Ref: 21.259	Additional Refs	ES1	ES1	ES1	ES1	ES1
Order No: TJS/21.259/03/01	Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 17/01/2024	DETS Sample No	693296	693297	693298	693299	693300

Determinand	Unit	RL	Accreditation					
Asbestos Screen (S)	N/a	N/a	ISO17025	Not Detected		Not Detected		Not Detected
pH	pH Units	N/a	MCERTS	7.9		8.1		8.0
Total Cyanide	mg/kg	< 1	NONE	< 1		< 1		< 1
Complex Cyanide	mg/kg	< 1	NONE	< 1		< 1		< 1
Free Cyanide	mg/kg	< 1	NONE	< 1		< 1		< 1
Thiocyanate as SCN	mg/kg	< 3	NONE	< 3		< 3		< 3
Organic Matter (SOM)	%	< 0.1	MCERTS	3.2		3.4		3.4
Antimony (Sb)	mg/kg	< 1	NONE	< 1		< 1		< 1
Arsenic (As)	mg/kg	< 2	MCERTS	17		19		20
Beryllium (Be)	mg/kg	< 0.5	MCERTS	< 0.5		< 0.5		< 0.5
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2		0.2		0.2
Chromium (Cr)	mg/kg	< 2	MCERTS	8		12		10
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2		< 2		< 2
Copper (Cu)	mg/kg	< 4	MCERTS	8		10		10
Lead (Pb)	mg/kg	< 3	MCERTS	11		14		13
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1		< 1		< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	7		8		9
Selenium (Se)	mg/kg	< 2	MCERTS	< 2		< 2		< 2
Vanadium (V)	mg/kg	< 1	MCERTS	18		22		23
Zinc (Zn)	mg/kg	< 3	MCERTS	29		34		36
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2		< 2		< 2
TPH - Aliphatic >C35 - C40 : EH_CU_1D_AL	mg/kg	< 10	NONE	< 10		< 10		< 10
TPH - Aromatic >C35 - C40 : EH_CU_1D_AR	mg/kg	< 10	NONE	< 10		< 10		< 10
TPH - Aliphatic / Aromatic (C6 - C40) - Total : HS_1D_MS+EH_CU_1D_Total	mg/kg	< 42	NONE	< 42		< 42		< 42

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

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Tel : 01622 850410

Soil Analysis Certificate						
DETS Report No: 24-00207	Date Sampled	09/01/24				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Old Station Yard, Blyth Road, Southwold, IP18 6AX	TP / BH No	VS103				
Project / Job Ref: 21.259	Additional Refs	ES1				
Order No: TJS/21.259/03/01	Depth (m)	None Supplied				
Reporting Date: 17/01/2024	DETS Sample No	693301				

Determinand	Unit	RL	Accreditation					
Asbestos Screen (S)	N/a	N/a	ISO17025					
pH	pH Units	N/a	MCERTS					
Total Cyanide	mg/kg	< 1	NONE					
Complex Cyanide	mg/kg	< 1	NONE					
Free Cyanide	mg/kg	< 1	NONE					
Thiocyanate as SCN	mg/kg	< 3	NONE					
Organic Matter (SOM)	%	< 0.1	MCERTS					
Antimony (Sb)	mg/kg	< 1	NONE					
Arsenic (As)	mg/kg	< 2	MCERTS					
Beryllium (Be)	mg/kg	< 0.5	MCERTS					
Cadmium (Cd)	mg/kg	< 0.2	MCERTS					
Chromium (Cr)	mg/kg	< 2	MCERTS					
Chromium (hexavalent)	mg/kg	< 2	NONE					
Copper (Cu)	mg/kg	< 4	MCERTS					
Lead (Pb)	mg/kg	< 3	MCERTS					
Mercury (Hg)	mg/kg	< 1	MCERTS					
Nickel (Ni)	mg/kg	< 3	MCERTS					
Selenium (Se)	mg/kg	< 2	MCERTS					
Vanadium (V)	mg/kg	< 1	MCERTS					
Zinc (Zn)	mg/kg	< 3	MCERTS					
Total Phenols (monohydric)	mg/kg	< 2	NONE					
TPH - Aliphatic >C35 - C40 : EH_CU_1D_AL	mg/kg	< 10	NONE					
TPH - Aromatic >C35 - C40 : EH_CU_1D_AR	mg/kg	< 10	NONE					
TPH - Aliphatic / Aromatic (C6 - C40) - Total : HS_1D_MS+EH_CU_1D_Total	mg/kg	< 42	NONE					

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Method Description page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)

DETS Ltd
Unit 1, Rose Lane Industrial Estate
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Soil Analysis Certificate - Speciated PAHs							
DETS Report No: 24-00207	Date Sampled	09/01/24	09/01/24	09/01/24		
AF Howland Associates Ltd	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Old Station Yard, Blyth Road, Southwold, IP18 6AX	TP / BH No	VS101	VS102	VS103		
Project / Job Ref: 21.259	Additional Refs	ES1	ES1	ES1		
Order No: TJS/21.259/03/01	Depth (m)	None Supplied	None Supplied	None Supplied		
Reporting Date: 17/01/2024	DETS Sample No	693296	693298	693300		

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	0.17	< 0.1		
Pyrene	mg/kg	< 0.1	MCERTS	< 0.1	0.16	< 0.1		
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Chrysene	mg/kg	< 0.1	MCERTS	< 0.1	0.13	< 0.1		
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	0.12	< 0.1		
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	0.13	< 0.1		
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1		
Coronene	mg/kg	< 0.1	NONE	< 0.1	< 0.1	< 0.1		
Total Oily Waste PAHs	mg/kg	< 1	MCERTS	< 1	< 1	< 1		
Total Dutch 10 PAHs	mg/kg	< 1	MCERTS	< 1	< 1	< 1		
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	< 1.6	< 1.6	< 1.6		
Total WAC-17 PAHs	mg/kg	< 1.7	NONE	< 1.7	< 1.7	< 1.7		

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Soil Analysis Certificate - TPH LQM Banded						
DETS Report No: 24-00207	Date Sampled	09/01/24	09/01/24	09/01/24		
AF Howland Associates Ltd	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Old Station Yard, Blyth Road, Southwold, IP18 6AX	TP / BH No	VS101	VS102	VS103		
Project / Job Ref: 21.259	Additional Refs	ES1	ES1	ES1		
Order No: TJS/21.259/03/01	Depth (m)	None Supplied	None Supplied	None Supplied		
Reporting Date: 17/01/2024	DETS Sample No	693296	693298	693300		

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6 : HS_1D_MS_AL	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Aliphatic >C6 - C8 : HS_1D_MS_AL	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05		
Aliphatic >C8 - C10 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Aliphatic >C10 - C12 : EH_CU_1D_AL	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Aliphatic >C12 - C16 : EH_CU_1D_AL	mg/kg	< 3	MCERTS	< 3	< 3	< 3		
Aliphatic >C16 - C35 : EH_CU_1D_AL	mg/kg	< 10	MCERTS	< 10	< 10	< 10		
Aliphatic >C35 - C44 : EH_CU_1D_AL	mg/kg	< 10	NONE	< 10	< 10	< 10		
Aliphatic (C5 - C44) : HS_1D_MS+EH_CU_1D_AL	mg/kg	< 30	NONE	< 30	< 30	< 30		
Aromatic >C5 - C7 : HS_1D_MS_AR	mg/kg	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Aromatic >C7 - C8 : HS_1D_MS_AR	mg/kg	< 0.05	NONE	< 0.05	< 0.05	< 0.05		
Aromatic >C8 - C10 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Aromatic >C10 - C12 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Aromatic >C12 - C16 : EH_CU_1D_AR	mg/kg	< 2	MCERTS	< 2	< 2	< 2		
Aromatic >C16 - C21 : EH_CU_1D_AR	mg/kg	< 3	MCERTS	< 3	< 3	< 3		
Aromatic >C21 - C35 : EH_CU_1D_AR	mg/kg	< 10	MCERTS	< 10	< 10	< 10		
Aromatic >C35 - C44 : EH_CU_1D_AR	mg/kg	< 10	NONE	< 10	< 10	< 10		
Aromatic (>C5 - C44) : HS_1D_MS+EH_CU_1D_AR	mg/kg	< 30	NONE	< 30	< 30	< 30		
Total >C5 - C44 : HS_1D_MS+EH_CU_1D_Total	mg/kg	< 60	NONE	< 60	< 60	< 60		

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Soil Analysis Certificate - BTEX / MTBE							
DETS Report No: 24-00207	Date Sampled	09/01/24	09/01/24	09/01/24		
AF Howland Associates Ltd	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Old Station Yard, Blyth Road, Southwold, IP18 6AX	TP / BH No	VS101	VS102	VS103		
Project / Job Ref: 21.259	Additional Refs	ES1	ES1	ES1		
Order No: TJS/21.259/03/01	Depth (m)	None Supplied	None Supplied	None Supplied		
Reporting Date: 17/01/2024	DETS Sample No	693296	693298	693300		

Determinand	Unit	RL	Accreditation					
Benzene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2		
Toluene : HS_1D_MS	ug/kg	< 5	MCERTS	< 5	< 5	< 5		
Ethylbenzene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2		
p & m-xylene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2		
o-xylene : HS_1D_MS	ug/kg	< 2	MCERTS	< 2	< 2	< 2		
MTBE : HS_1D_MS	ug/kg	< 5	MCERTS	< 5	< 5	< 5		

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Leachate Analysis Certificate						
DETS Report No: 24-00207	Date Sampled	09/01/24	09/01/24	09/01/24	09/01/24	09/01/24
AF Howland Associates Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Old Station Yard, Blyth Road, Southwold, IP18 6AX	TP / BH No	VS101	VS101	VS102	VS102	VS103
Project / Job Ref: 21.259	Additional Refs	ES1	ES1	ES1	ES1	ES1
Order No: TJS/21.259/03/01	Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Reporting Date: 17/01/2024	DETS Sample No	693296	693297	693298	693299	693300

Determinand	Unit	RL	Accreditation					
pH	pH Units	N/a	ISO17025		8.7		8.2	
Total Cyanide	ug/l	< 5	ISO17025		< 5		< 5	
Complex Cyanide	ug/l	< 5	ISO17025		< 5		< 5	
Free Cyanide	ug/l	< 5	NONE		< 5		< 5	
Thiocyanate as SCN	ug/l	< 10	NONE		< 10		< 10	
Antimony	ug/l	< 0.2	ISO17025		0.4		0.5	
Arsenic	ug/l	< 0.2	ISO17025		6.6		13.9	
Beryllium	ug/l	< 0.2	ISO17025		< 0.2		< 0.2	
Cadmium	ug/l	< 0.2	ISO17025		< 0.2		< 0.2	
Chromium	ug/l	< 0.2	ISO17025		0.9		1.8	
Chromium (hexavalent)	ug/l	< 20	NONE		< 20		< 20	
Copper	ug/l	< 0.2	ISO17025		4.1		7.0	
Lead	ug/l	< 0.2	ISO17025		0.7		2.1	
Mercury	ug/l	< 0.04	ISO17025		< 0.04		< 0.04	
Nickel	ug/l	< 0.2	ISO17025		10.8		8.1	
Selenium	ug/l	< 0.2	ISO17025		0.4		0.5	
Vanadium	ug/l	< 0.2	ISO17025		5.4		9.4	
Zinc	ug/l	< 1	ISO17025		8		12	
Total Phenols (monohydric)	ug/l	< 10	ISO17025		< 10		< 10	

Subcontracted analysis (S)

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Leachate Analysis Certificate						
DETS Report No: 24-00207	Date Sampled	09/01/24				
AF Howland Associates Ltd	Time Sampled	None Supplied				
Site Reference: Old Station Yard, Blyth Road, Southwold, IP18 6AX	TP / BH No	VS103				
Project / Job Ref: 21.259	Additional Refs	ES1				
Order No: TJS/21.259/03/01	Depth (m)	None Supplied				
Reporting Date: 17/01/2024	DETS Sample No	693301				

Determinand	Unit	RL	Accreditation					
pH	pH Units	N/a	ISO17025	8.4				
Total Cyanide	ug/l	< 5	ISO17025	< 5				
Complex Cyanide	ug/l	< 5	ISO17025	< 5				
Free Cyanide	ug/l	< 5	NONE	< 5				
Thiocyanate as SCN	ug/l	< 10	NONE	< 10				
Antimony	ug/l	< 0.2	ISO17025	0.5				
Arsenic	ug/l	< 0.2	ISO17025	7.6				
Beryllium	ug/l	< 0.2	ISO17025	< 0.2				
Cadmium	ug/l	< 0.2	ISO17025	< 0.2				
Chromium	ug/l	< 0.2	ISO17025	1.5				
Chromium (hexavalent)	ug/l	< 20	NONE	< 20				
Copper	ug/l	< 0.2	ISO17025	4.7				
Lead	ug/l	< 0.2	ISO17025	1.0				
Mercury	ug/l	< 0.04	ISO17025	< 0.04				
Nickel	ug/l	< 0.2	ISO17025	11.6				
Selenium	ug/l	< 0.2	ISO17025	0.4				
Vanadium	ug/l	< 0.2	ISO17025	6.4				
Zinc	ug/l	< 1	ISO17025	18				
Total Phenols (monohydric)	ug/l	< 10	ISO17025	< 10				

Subcontracted analysis (S)

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Leachate Analysis Certificate - Speciated PAH						
DETS Report No: 24-00207	Date Sampled	09/01/24	09/01/24	09/01/24		
AF Howland Associates Ltd	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Old Station Yard, Blyth Road, Southwold, IP18 6AX	TP / BH No	VS101	VS102	VS103		
Project / Job Ref: 21.259	Additional Refs	ES1	ES1	ES1		
Order No: TJS/21.259/03/01	Depth (m)	None Supplied	None Supplied	None Supplied		
Reporting Date: 17/01/2024	DETS Sample No	693297	693299	693301		

Determinand	Unit	RL	Accreditation					
Naphthalene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Acenaphthylene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Acenaphthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Fluorene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Phenanthrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Anthracene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Fluoranthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Pyrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(a)anthracene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Chrysene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(b)fluoranthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(k)fluoranthene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(a)pyrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Indeno(1,2,3-cd)pyrene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Dibenz(a,h)anthracene	ug/l	< 0.01	NONE	< 0.01	< 0.01	< 0.01		
Benzo(ghi)perylene	ug/l	< 0.008	NONE	< 0.008	< 0.008	< 0.008		
Total EPA-16 PAHs	ug/l	< 0.16	NONE	< 0.16	< 0.16	< 0.16		

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Leachate Analysis Certificate - TPH CWG Banded						
DETS Report No: 24-00207	Date Sampled	09/01/24	09/01/24	09/01/24		
AF Howland Associates Ltd	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Old Station Yard, Blyth Road, Southwold, IP18 6AX	TP / BH No	VS101	VS102	VS103		
Project / Job Ref: 21.259	Additional Refs	ES1	ES1	ES1		
Order No: TJS/21.259/03/01	Depth (m)	None Supplied	None Supplied	None Supplied		
Reporting Date: 17/01/2024	DETS Sample No	693297	693299	693301		

Determinand	Unit	RL	Accreditation					
Aliphatic >C5 - C6 : HS_1D_MS_AL	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic >C6 - C8 : HS_1D_MS_AL	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic >C8 - C10 : EH_CU_1D_AL	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic >C10 - C12 : EH_CU_1D_AL	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic >C12 - C16 : EH_CU_1D_AL	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic >C16 - C21 : EH_CU_1D_AL	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic >C21 - C34 : EH_CU_1D_AL	ug/l	< 10	NONE	< 10	< 10	< 10		
Aliphatic (C5 - C34) : HS_1D_MS+EH_CU_1D_AL	ug/l	< 70	NONE	< 70	< 70	< 70		
Aromatic >C5 - C7 : HS_1D_MS_AR	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic >C7 - C8 : HS_1D_MS_AR	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic >C8 - C10 : EH_CU_1D_AR	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic >C10 - C12 : EH_CU_1D_AR	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic >C12 - C16 : EH_CU_1D_AR	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic >C16 - C21 : EH_CU_1D_AR	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic >C21 - C35 : EH_CU_1D_AR	ug/l	< 10	NONE	< 10	< 10	< 10		
Aromatic (C5 - C35) : HS_1D_MS+EH_CU_1D_AR	ug/l	< 70	NONE	< 70	< 70	< 70		
Total >C5 - C35 : HS_1D_MS+EH_CU_1D_Total	ug/l	< 140	NONE	< 140	< 140	< 140		

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Leachate Analysis Certificate - BTEX / MTBE						
DETS Report No: 24-00207	Date Sampled	09/01/24	09/01/24	09/01/24		
AF Howland Associates Ltd	Time Sampled	None Supplied	None Supplied	None Supplied		
Site Reference: Old Station Yard, Blyth Road, Southwold, IP18 6AX	TP / BH No	VS101	VS102	VS103		
Project / Job Ref: 21.259	Additional Refs	ES1	ES1	ES1		
Order No: TJS/21.259/03/01	Depth (m)	None Supplied	None Supplied	None Supplied		
Reporting Date: 17/01/2024	DETS Sample No	693297	693299	693301		

Determinand	Unit	RL	Accreditation					
Benzene : HS_1D_MS	ug/l	< 1	ISO17025	< 1	< 1	< 1		
Toluene : HS_1D_MS	ug/l	< 5	ISO17025	< 5	< 5	< 5		
Ethylbenzene : HS_1D_MS	ug/l	< 5	ISO17025	< 5	< 5	< 5		
p & m-xylene : HS_1D_MS	ug/l	< 10	ISO17025	< 10	< 10	< 10		
o-xylene : HS_1D_MS	ug/l	< 5	ISO17025	< 5	< 5	< 5		
MTBE : HS_1D_MS	ug/l	< 10	ISO17025	< 10	< 10	< 10		

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Soil Analysis Certificate - Sample Descriptions
DETS Report No: 24-00207
AF Howland Associates Ltd
Site Reference: Old Station Yard, Blyth Road, Southwold, IP18 6AX
Project / Job Ref: 21.259
Order No: TJS/21.259/03/01
Reporting Date: 17/01/2024

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
693296	VS101	ES1	None Supplied	9.7	Brown sandy clay
693298	VS102	ES1	None Supplied	10.7	Brown sandy clay
693300	VS103	ES1	None Supplied	10.8	Brown sandy clay

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample I/S

Unsuitable Sample U/S

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Soil Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 24-00207
AF Howland Associates Ltd
Site Reference: Old Station Yard, Blyth Road, Southwold, IP18 6AX
Project / Job Ref: 21.259
Order No: TJS/21.259/03/01
Reporting Date: 17/01/2024

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 – C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	Fraction Organic Carbon (FOC)	Determination of TOC by combustion analyser.	E027
Soil	D	Organic Matter (SOM)	Determination of TOC by combustion analyser.	E027
Soil	D	TOC (Total Organic Carbon)	Determination of TOC by combustion analyser.	E027
Soil	AR	Exchangeable Ammonium	Determination of ammonium by discrete analyser.	E029
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

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Water Analysis Certificate - Methodology & Miscellaneous Information
DETS Report No: 24-00207
AF Howland Associates Ltd
Site Reference: Old Station Yard, Blyth Road, Southwold, IP18 6AX
Project / Job Ref: 21.259
Order No: TJS/21.259/03/01
Reporting Date: 17/01/2024

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Water	UF	Alkalinity	Determination of alkalinity by titration against hydrochloric acid using bromocresol green as the end point	E103
Water	F	Ammoniacal Nitrogen	Determination of ammoniacal nitrogen by discrete analyser.	E126
Water	UF	BTEX	Determination of BTEX by headspace GC-MS	E101
Water	F	Cations	Determination of cations by filtration followed by ICP-MS	E102
Water	UF	Chemical Oxygen Demand (COD)	Determination using a COD reactor followed by colorimetry	E112
Water	F	Chloride	Determination of chloride by filtration & analysed by ion chromatography	E109
Water	F	Chromium - Hexavalent	Determination of hexavalent chromium by acidification, addition of 1,5 diphenylcarbazide followed by	E116
Water	UF	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E115
Water	UF	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E115
Water	UF	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through liquid:liquid extraction with cyclohexane	E111
Water	F	Diesel Range Organics (C10 - C24)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	Dissolved Organic Content (DOC)	Determination of DOC by filtration followed by low heat with persulphate addition followed by IR dete	E110
Water	UF	Electrical Conductivity	Determination of electrical conductivity by electrometric measurement	E123
Water	F	EPH (C10 – C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID	E104
Water	F	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of liquid:liquid extraction with hexane followed by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E104
Water	F	Fluoride	Determination of Fluoride by filtration & analysed by ion chromatography	E109
Water	F	Hardness	Determination of Ca and Mg by ICP-MS followed by calculation	E102
Leachate	F	Leachate Preparation - NRA	Based on National Rivers Authority leaching test 1994	E301
Leachate	F	Leachate Preparation - WAC	Based on BS EN 12457 Pt1, 2, 3	E302
Water	F	Metals	Determination of metals by filtration followed by ICP-MS	E102
Water	F	Mineral Oil (C10 - C40)	Determination of liquid:liquid extraction with hexane followed by GI-FID	E104
Water	F	Nitrate	Determination of nitrate by filtration & analysed by ion chromatography	E109
Water	UF	Monohydric Phenol	Determination of phenols by distillation followed by colorimetry	E121
Water	F	PAH - Speciated (EPA 16)	Determination of PAH compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E105
Water	F	PCB - 7 Congeners	Determination of PCB compounds by concentration through SPE cartridge, collection in dichlorometha	E108
Water	UF	Petroleum Ether Extract (PEE)	Gravimetrically determined through liquid:liquid extraction with petroleum ether	E111
Water	UF	pH	Determination of pH by electrometric measurement	E107
Water	F	Phosphate	Determination of phosphate by filtration & analysed by ion chromatography	E109
Water	UF	Redox Potential	Determination of redox potential by electrometric measurement	E113
Water	F	Sulphate (as SO4)	Determination of sulphate by filtration & analysed by ion chromatography	E109
Water	UF	Sulphide	Determination of sulphide by distillation followed by colorimetry	E118
Water	F	SVOC	Determination of semi-volatile organic compounds by concentration through SPE cartridge, collection in dichloromethane followed by GC-MS	E106
Water	UF	Toluene Extractable Matter (TEM)	Gravimetrically determined through liquid:liquid extraction with toluene	E111
Water	UF	Total Organic Carbon (TOC)	Low heat with persulphate addition followed by IR detection	E110
Water	F	TPH CWG (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C35. C5 to C8 by headspace GC-MS	E104
Water	F	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of liquid:liquid extraction with hexane, fractionating with SPE followed by GC-FID for C8 to C44. C5 to C8 by headspace GC-MS	E104
Water	UF	VOCs	Determination of volatile organic compounds by headspace GC-MS	E101
Water	UF	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E101

Key

F Filtered
UF Unfiltered

DETS Ltd
Unit 1, Rose Lane Industrial Estate
Rose Lane
Lenham Heath
Maidstone
Kent ME17 2JN
Tel : 01622 850410

List of HWOL Acronyms and Operators
DETS Report No: 24-00207
AF Howland Associates Ltd
Site Reference: Old Station Yard, Blyth Road, Southwold, IP18 6AX
Project / Job Ref: 21.259
Order No: TJS/21.259/03/01
Reporting Date: 17/01/2024

Acronym	Description
HS	Headspace analysis
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent
CU	Clean-up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
2D	GC-GC - Double coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative eg. EH+HS_Total or EH_CU+HS_Total

Det - Acronym
Benzene - HS_1D_MS
Ethylbenzene - HS_1D_MS
MTBE - HS_1D_MS
TPH CWG - Aliphatic >C10 - C12 - EH_CU_1D_AL
TPH CWG - Aliphatic >C12 - C16 - EH_CU_1D_AL
TPH CWG - Aliphatic >C16 - C21 - EH_CU_1D_AL
TPH CWG - Aliphatic >C21 - C34 - EH_CU_1D_AL
TPH CWG - Aliphatic >C5 - C6 - HS_1D_MS_AL
TPH CWG - Aliphatic >C6 - C8 - HS_1D_MS_AL
TPH CWG - Aliphatic >C8 - C10 - EH_CU_1D_AL
TPH CWG - Aliphatic C5 - C34 - HS_1D_MS+EH_CU_1D_AL
TPH CWG - Aromatic >C10 - C12 - EH_CU_1D_AR
TPH CWG - Aromatic >C12 - C16 - EH_CU_1D_AR
TPH CWG - Aromatic >C16 - C21 - EH_CU_1D_AR
TPH CWG - Aromatic >C21 - C35 - EH_CU_1D_AR
TPH CWG - Aromatic >C5 - C7 - HS_1D_MS_AR
TPH CWG - Aromatic >C7 - C8 - HS_1D_MS_AR
TPH CWG - Aromatic >C8 - C10 - EH_CU_1D_AR
TPH CWG - Aromatic C5 - C35 - HS_1D_MS+EH_CU_1D_AR
TPH CWG - Total >C5 - C35 - HS_1D_MS+EH_CU_1D_Total
TPH LQM - Aliphatic >C10 - C12 - EH_CU_1D_AL
TPH LQM - Aliphatic >C12 - C16 - EH_CU_1D_AL
TPH LQM - Aliphatic >C16 - C35 - EH_CU_1D_AL
TPH LQM - Aliphatic >C35 - C40 - EH_CU_1D_AL
TPH LQM - Aliphatic >C35 - C44 - EH_CU_1D_AL
TPH LQM - Aliphatic >C5 - C44 - HS_1D_MS+EH_CU_1D_AL
TPH LQM - Aliphatic >C5 - C6 - HS_1D_MS_AL
TPH LQM - Aliphatic >C6 - C8 - HS_1D_MS_AL
TPH LQM - Aliphatic >C8 - C10 - EH_CU_1D_AL
TPH LQM - Aromatic >C10 - C12 - EH_CU_1D_AR
TPH LQM - Aromatic >C12 - C16 - EH_CU_1D_AR
TPH LQM - Aromatic >C21 - C35 - EH_CU_1D_AR
TPH LQM - Aromatic >C35 - C40 - EH_CU_1D_AR
TPH LQM - Aromatic >C35 - C44 - EH_CU_1D_AR
TPH LQM - Aromatic >C5 - C44 - HS_1D_MS+EH_CU_1D_AR
TPH LQM - Aromatic >C5 - C7 - HS_1D_MS_AR
TPH LQM - Aromatic >C7 - C8 - HS_1D_MS_AR
TPH LQM - Aromatic >C8 - C10 - EH_CU_1D_AR
TPH LQM - Total >C5 - C44 - HS_1D_MS+EH_CU_1D_Total
TPH LQM - Total >C6 - C40 - HS_1D_MS+EH_CU_1D_Total
Toluene - HS_1D_MS
m & p-xylene - HS_1D_MS
o-Xylene - HS_1D_MS

APPENDIX F: VALIDATION TRIAL PIT RECORDS

Sample Description Records VS101 to VS103

Validation Trial Pit Records VP01 to VP03

A F Howland Associates
Geotechnical Engineers

Site	Trial Pit Number
Old Station Yard, Blyth Road, Southwold, IP18 6AX	VP01

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	0.3 m x 0.3 m x 0.28 m		Southwold Town Council	21.259
	Location	**Dates** 09/02/2024	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend
					(0.28)	TOPSOIL (Dark brown silty slightly gravelly fine to coarse SAND. Gravel is fine to medium subangular flint)	
			09/02/2024:DRY		0.28	Geotextile Membrane	
					0.28	Complete at 0.28m	

Remarks

1. Location CAT scanned prior to excavation
2. No groundwater encountered
3. Trial pit remained open and sidewalls stable during excavation.
4. Trial pit backfilled with arisings upon completion.

Scale (approx)	Logged By	Figure No.
1:10	RCER	21.259.VP01

A F Howland Associates
Geotechnical Engineers

Site	Trial Pit Number
Old Station Yard, Blyth Road, Southwold, IP18 6AX	VP02

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	0.3 m x 0.3 m x 0.25 m		Southwold Town Council	21.259
	Location	**Dates** 09/02/2024	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend
					(0.25)	TOPSOIL (Dark brown silty slightly gravelly fine to coarse SAND. Gravel is fine to medium subangular flint)	
			09/02/2024:DRY		0.25	Geotextile Membrane	
					0.25	Complete at 0.25m	

Remarks

1. Location CAT scanned prior to excavation
2. No groundwater encountered
3. Trial pit remained open and sidewalls stable during excavation.
4. Trial pit backfilled with arisings upon completion.

Scale (approx)	Logged By	Figure No.
1:10	RCER	21.259.VP02

A F Howland Associates Geotechnical Engineers	Site Old Station Yard, Blyth Road, Southwold, IP18 6AX	Trial Pit Number **VP03**

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Trial Pit	0.3 m x 0.3 m x 0.42 m		Southwold Town Council	21.259
	Location	**Dates** 09/02/2024	**Engineer**	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend
					(0.42)	TOPSOIL (Dark brown silty slightly gravelly fine to coarse SAND. Gravel is fine to medium subangular flint)	
			09/02/2024:DRY		0.42 0.42	Geotextile Membrane Complete at 0.42m	

Remarks

1. Location CAT scanned prior to excavation
2. No groundwater encountered
3. Trial pit remained open and sidewalls stable during excavation.
4. Trial pit backfilled with arisings upon completion.

Scale (approx)	Logged By	Figure No.
1:10	RCER	21.259.VP03

A F Howland Associates
Geotechnical Engineers

Sample Description Sheet

Site : Old Station Yard, Blyth Road, Southwold, IP18 6AX

Client : Southwold Town Council

Engineer :

Contract No. 21.259

Sheet 1 / 1

SAMPLE DESCRIPTION

Borehole/ Trial Pit	Depth (m)	Sample	Ref	Laboratory Description
VS101	0.00	ES	1	IMPORTED TOPSOIL (Dark brown silty fine to medium sand, with occasional weakly cemented sand)
VS102	0.00	ES	1	IMPORTED TOPSOIL (Dark brown silty fine to medium sand, with rare subrounded medium flint grvael))
VS103	0.00	ES	1	IMPORTED TOPSOIL (Dark brown silty fine to medium sand, with occasional weakly cemented sand)

APPENDIX G: VAPOUR MONITORING RECORDS

Vapour Monitoring Datasheet January to December 2023

VOC Monitoring Records

Job No.:	21.259
Site:	Old Station Yard, Blyth Road, Southwold, IP18 6AX

Postion	Operative	Date	Time from start of monitoring (seconds)																			Max. Concentration *
			30	60	90	120	150	180	210	240	270	300	330	360	390	420	450	480	510	540	570	600	
WS201	RCER	11/01/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	07/02/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/03/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	17/05/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/07/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/09/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	13/10/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	01/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	23/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	29/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	11/12/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
WS202	RCER	11/01/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	07/02/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/03/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	17/05/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/07/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/09/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	13/10/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	01/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	23/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	29/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	11/12/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-

* All concentrations are reported as parts per million (ppm)

WS203	RCER	11/01/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	07/02/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/03/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	17/05/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/07/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/09/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	13/10/2023	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
	RCER	01/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	23/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	29/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	11/12/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
WS204	RCER	11/01/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	07/02/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/03/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	17/05/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/07/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/09/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	13/10/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	01/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	23/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	29/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	11/12/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
WS205	RCER	11/01/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	07/02/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/03/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	17/05/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/07/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/09/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	13/10/2023	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
	RCER	01/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	23/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	29/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	11/12/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-

* All concentrations are reported as parts per million (ppm)

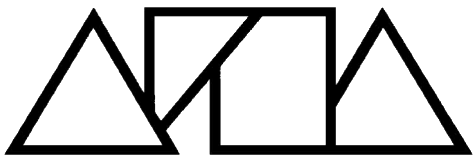
WS206	RCER	11/01/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	07/02/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/03/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	17/05/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/07/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/09/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	13/10/2023	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	RCER	01/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	23/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	29/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	11/12/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
WS207	RCER	11/01/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	07/02/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/03/2023	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	-
	RCER	17/05/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/07/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/09/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	13/10/2023	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	RCER	01/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	23/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	29/11/2023	Consistently flow failed																				-
	RCER	11/12/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
WS208	RCER	11/01/2023	Lost																				-
	RCER	07/02/2023																					-
	RCER	16/03/2023																					-
	RCER	17/05/2023																					-
	RCER	12/07/2023																					-
	RCER	12/09/2023																					-
WS209	RCER	11/01/2023	Lost																				-
	RCER	07/02/2023																					-
	RCER	16/03/2023																					-
	RCER	17/05/2023																					-
	RCER	12/07/2023																					-
	RCER	12/09/2023																					-

* All concentrations are reported as parts per million (ppm)

VMP201	RCER	11/01/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	07/02/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/03/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	17/05/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/07/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/09/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	13/10/2023	0.1	0.1	0.1	0.1	0.1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
	RCER	01/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	23/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	29/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	11/12/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
VMP202	RCER	11/01/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	07/02/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/03/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	17/05/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/07/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/09/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	13/10/2023	0	0	0	0	0	0.1	0.1	0	0.1	0.1	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	RCER	01/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	23/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	29/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	11/12/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
VMP203	RCER	11/01/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	07/02/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/03/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	17/05/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/07/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/09/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	13/10/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	01/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	23/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	29/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	11/12/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-

* All concentrations are reported as parts per million (ppm)

VMP204	RCER	11/01/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	07/02/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/03/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	17/05/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/07/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/09/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	13/10/2023	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	RCER	01/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	23/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	29/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	11/12/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
VMP205	RCER	11/01/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	07/02/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/03/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	17/05/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/07/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/09/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	13/10/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	01/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	23/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	29/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	11/12/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
VMP206	RCER	11/01/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	07/02/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/03/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	17/05/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/07/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	12/09/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	13/10/2023	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
	RCER	01/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	16/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	23/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	TJB	29/11/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
	RCER	11/12/2023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-



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