



**Hyde Road Belle Vue
Validation Report**

**For
Chartrange Limited**

**Report Ref: 3345-21-R03-v2
Report Date: December 2022**



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1. Introduction

Scope of Services / Intended Purpose

Geoenvironmental Consulting Ltd (GECL) were instructed by Chartrange Limited to provide a Validation Report for remediation activities undertaken by Chartrange at Hyde Road Belle Vue.

The objective of this validation report is to set out what has been done to remediate the site to an acceptable standard such that it is suitable for its intended use as a new school.

This report has been produced using information provided by Chartrange Ltd and information gained during visiting supervision undertaken between June and July 2022.

The Appointment

The scope of work is defined by and limited to “the Services” set out in the Appointment. A copy of the appointment including the agreed services and terms is included in Appendix A.

The Proposed Development

The proposed development is shown in Figure 1 and comprises: a part three, part two storey detached school building with associated sports facilities, access, car parking arrangements, landscaping and boundary treatment following the demolition of an existing cinema building.

The proposed development drawing is included in Appendix B.

Figure 1 – The Proposed Development



Scale
1: 2000

Layout ref
SPACE Architects Drawing Ref:
009433 01-XX-DR-L-910001

Red line
Site Boundary

Site Area
5.3 Ha

Grid system:
British National Grid (m)

Base plan: Aerial Photo

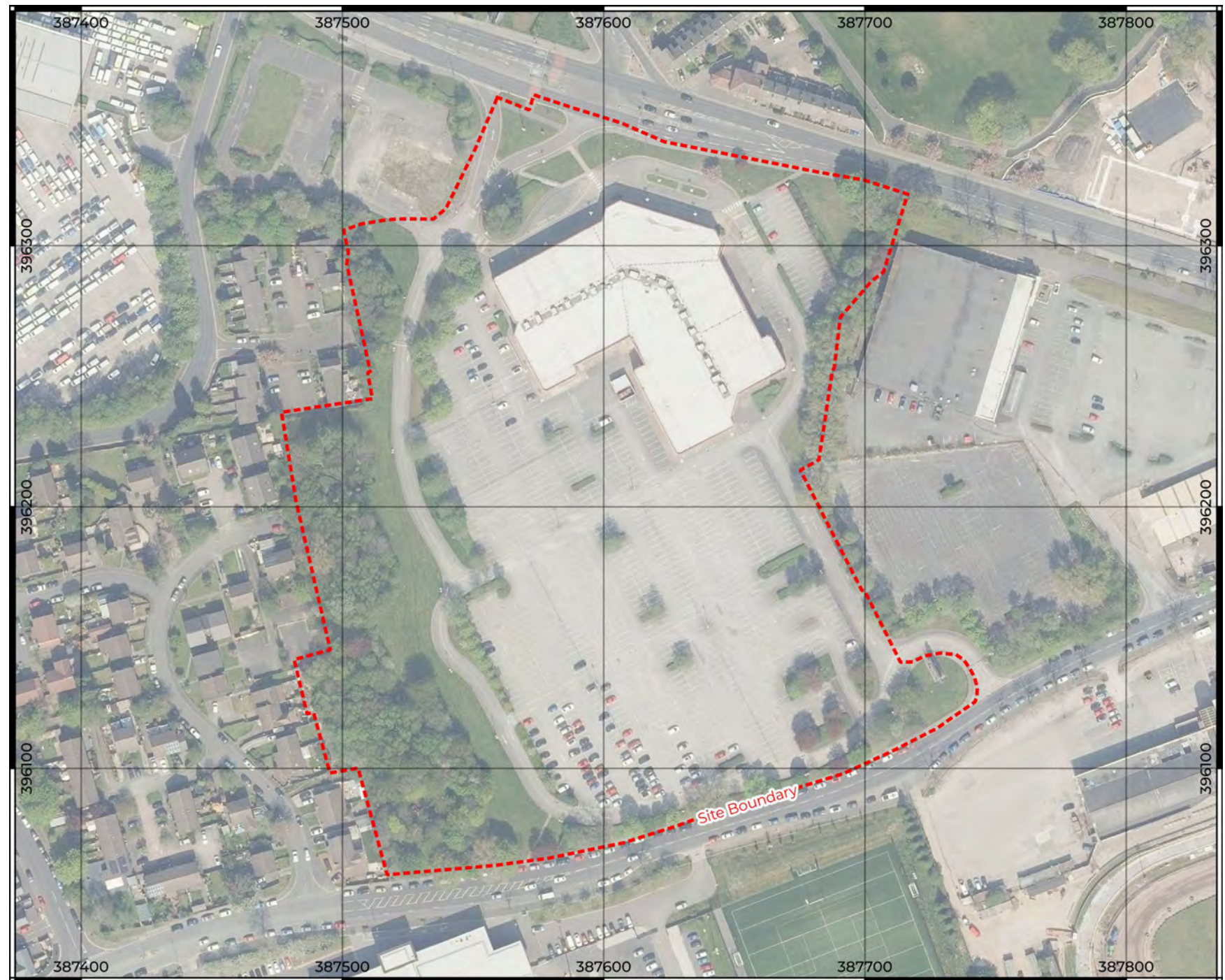
2. The Site

Site Description

Prior to demolition and remediation works, the site comprised a Showcase Cinema complex with associated car parking which is understood to have been constructed in 1991 on land that was formerly part of Belle Vue Gardens. As such, the site has no significant history of contaminative use. Areas of soft landscaping, comprising grass and trees surrounds the car park.

The pre-development site is illustrated in Figure 2.

Figure 2 – The Site



Scale
1: 2000

Red line
Site Boundary

Site Area
5.3 Ha

Grid system:
British National Grid (m)

Base plan: Aerial Photo

3. Existing Information

The following reports and search information were made available by the client team.

Item	Description
1	Arcadis Report - PHASE I GEO-ENVIRONMENTAL DESK STUDY LAND OFF HYDE ROAD Manchester City Council Report: 10041634-ARC-XX-XX-RP-ZZ-0002-01-PIDS JUNE 2020
2	Arcadis Report - PHASE 2 INTRUSIVE GROUND INVESTIGATION & ASSESSMENT LAND OFF HYDE ROAD Manchester City Council Ref: 10041634-ARC-XX-XX-RP-ZZ-0005-01-P2GIA AUGUST 2020
3	Hydrock Report - Belle Vue Co-op Academy, Hyde Road, Manchester Ground Investigation Sir Robert McAlpine Ltd Date: 30 April 2021 Doc ref: 18170-HYD-XX-XX-RP-GE-0001
4	Hydrock Report - Belle Vue Co-op Academy, Hyde Road, Manchester Remediation Strategy & Verification Plan for Sir Robert McAlpine Date: 11 June 2021 Doc ref: 18170-HYD-XX-XX-RP-GE-0002.
5	GECL Report - MMP for Belle Vue Co-op Academy, Hyde Road, Manchester M12 5AL

An exploratory hole location sketch plan extracted from previous reports is provided in Figure 3. The existing information has been used to inform this verification report. Existing reports and information provided by others has been referred to in good faith as being accurate. GECL do not accept any liability for inaccuracies or deficiencies in third party information.

Findings of Contaminated Land Assessment

The contaminated land risks identified in the remediation strategy were:

1. Elevated Lead and PAH compounds in the Made Ground.
2. Low level asbestos detected in a number of Made Ground samples.
3. Nickel and zinc above assessment criteria such that an imported growing medium for any areas to be planted will be required.
4. Low to moderate risk from ground gases such that CS2 conditions apply.
5. The provision of barrier pipe for water supply, subject to confirmation with the water company
6. Japanese Knotweed was suspected as being present close to the northern and western site boundaries.

Figure 3 – Exploratory Hole Location Sketch Plan



Scale
1: 2000

Red line
Site Boundary

Site Area
5.3 Ha

Grid system:
British National Grid (m)

Base plan: Aerial Photo

4. Validation

Watching Brief

The contractor supervised the works full time and invited a suitably qualified and experienced geo-environmental / remediation engineer to attend on a visiting basis.

Demolition, breaking out of hardstanding and below ground obstructions

All broken up materials were segregated and stockpiled within the working area of the site. Material was stockpiled at locations agreed with the Client.

During the breaking out and excavation of slabs the contractor undertook visual investigation for suitability.

MMP - Materials Movement.

In line with the Materials Management Plan referenced in Section 3, approximately 1000m³ of site won made ground sourced from beneath the former cinema was temporarily stockpiled and reused beneath sports pitches to raise levels in the south of the site.

The material movement is indicated in Figure 4. Material arising from beneath the former cinema, comprising made ground of brown sandy clay, and gravel of brick and concrete was temporarily stored to the west of the proposed pitches. The material was tested to confirm suitability and used as fill to raise levels as required by the drainage design.

The fill material was placed at a depth of around 0.5m to 1.0m below final pitch level to allow for the build up of the sports pitch.

Earthworks drawings confirming the area where the materials were deposited are included in Appendix C.

Figure 4 Material Movement



Scale
1: 2000

Red line
Site Boundary

Site Area
5.3 Ha

Grid system:
British National Grid (m)

Base plan: Aerial Photo &
SPACE Architects Drawing Ref:
009433 01-XX-DR-L-910001



MMP – Materials Suitability

Following a visual check for suitability, site won made ground intended for reuse as fill beneath the sports pitches was sampled in stockpile and analysed for the suite of determinands set out in the remediation strategy.

The lab certificates are included in Appendix C. The lab data were screened against the criteria stated in the remediation strategy and are presented in the summary table opposite. The remedial target value for each determinand is listed in bold text. Soils data below the assessment criteria are highlighted green.

All samples of made ground arising from beneath the former cinema passed the remedial criteria and the materials were designated suitable for their proposed use before being used in the fill area indicated in Figure 4.

MMP Material Movement Suitability Summary Table

Contaminant	Remedial Target Value (RTV)	Unit	Limit of Detection (LOD)	Lab Sample Ref 2421881	Lab Sample Ref 2421882	Lab Sample Ref 2421883	Lab Sample Ref 2421884
Arsenic	40	mg/kg	1	7.1	7.3	7.1	5.5
Beryllium	73	mg/kg	0.06	0.86	0.84	0.61	0.65
Boron	3	mg/kg	0.2	0.8	0.4	0.5	0.4
Cadmium	87	mg/kg	0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (III)	890	mg/kg	1	20	20	15	16
Chromium (VI)	6.1	mg/kg	1.8	< 1.8	< 1.8	< 1.8	< 1.8
Copper	135	mg/kg	1	23	24	19	22
Lead	310	mg/kg	1	32	30	29	30
Nickel	75	mg/kg	1	24	25	18	19
Selenium	600	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium	1200	mg/kg	1	23	22	16	17
Zinc	300	mg/kg	1	55	56	44	47
Asbestos	NIL	N/A	N/A	Not detected	Not detected	Not detected	Not detected
Acenaphthene	10	mg/kg	0.05	< 0.05	< 0.05	0.33	< 0.05
Acenaphthylene	10	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	10	mg/kg	0.05	< 0.05	< 0.05	0.45	< 0.05
Benzo(a)anthracene	5.5	mg/kg	0.05	0.76	0.54	1.1	0.65
Benzo(a)pyrene	1.5	mg/kg	0.05	0.53	0.39	0.75	0.53
Benzo(b)fluoranthene	10	mg/kg	0.05	0.7	0.52	0.86	0.62
Benzo(ghi)perylene	10	mg/kg	0.05	0.32	0.26	0.4	0.34
Benzo(k)fluoranthene	10	mg/kg	0.05	0.2	0.2	0.35	0.26
Chrysene	10	mg/kg	0.05	0.47	0.38	0.8	0.45
Dibenz(a,h)anthracene	1.3	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	10	mg/kg	0.05	0.98	0.71	1.7	0.87
Fluorene	10	mg/kg	0.05	< 0.05	< 0.05	0.33	< 0.05
Indeno(1,2,3,cd)pyrene	6.3	mg/kg	0.05	0.3	0.2	0.35	0.29
Naphthalene	2.3	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	10	mg/kg	0.05	0.98	0.68	1.6	0.83
Aliphatics EC5-EC6	42	mg/kg	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Aliphatics >EC6-EC8	100	mg/kg	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Aliphatics >EC8-EC10	27	mg/kg	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Aliphatics >EC10-EC12	48	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatics >EC12-EC16	24	mg/kg	2	5.2	< 2.0	< 2.0	< 2.0
Aliphatics >EC16-EC35	100	mg/kg	8	15	< 8.0	< 8.0	< 8.0
Aliphatics >EC35-EC44	100	mg/kg	8	57	< 8.0	< 8.0	< 8.0
Aromatics >EC5-EC7	100	mg/kg	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Aromatics >EC7-EC8	100	mg/kg	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Aromatics >EC8-EC10	47	mg/kg	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Aromatics >EC10-EC12	100	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
Aromatics >EC12-EC16	100	mg/kg	2	< 2.0	< 2.0	< 2.0	< 2.0
Aromatics >EC16-EC21	100	mg/kg	10	13	13	< 10	11
Aromatics >EC21-EC35	100	mg/kg	10	22	21	18	19
Aromatics >EC35-EC44	100	mg/kg	10	22	21	18	19
MTBE	100	mg/kg	0.001	<0.001	<0.001	<0.001	<0.001
Benzene	0.38	mg/kg	0.001	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	5	mg/kg	0.001	<0.001	<0.001	<0.001	<0.001
Toluene	5	mg/kg	0.001	<0.001	<0.001	<0.001	<0.001
Xylene	5	mg/kg	0.001	<0.001	<0.001	<0.001	<0.001

Asbestos in Soils Removal

Asbestos impacted made ground was encountered in several locations, as indicated in Figure 5:

- Drainage trench S7.4 – S7.3
- Cut material from bank to access road
- Excavations to remove old foundations

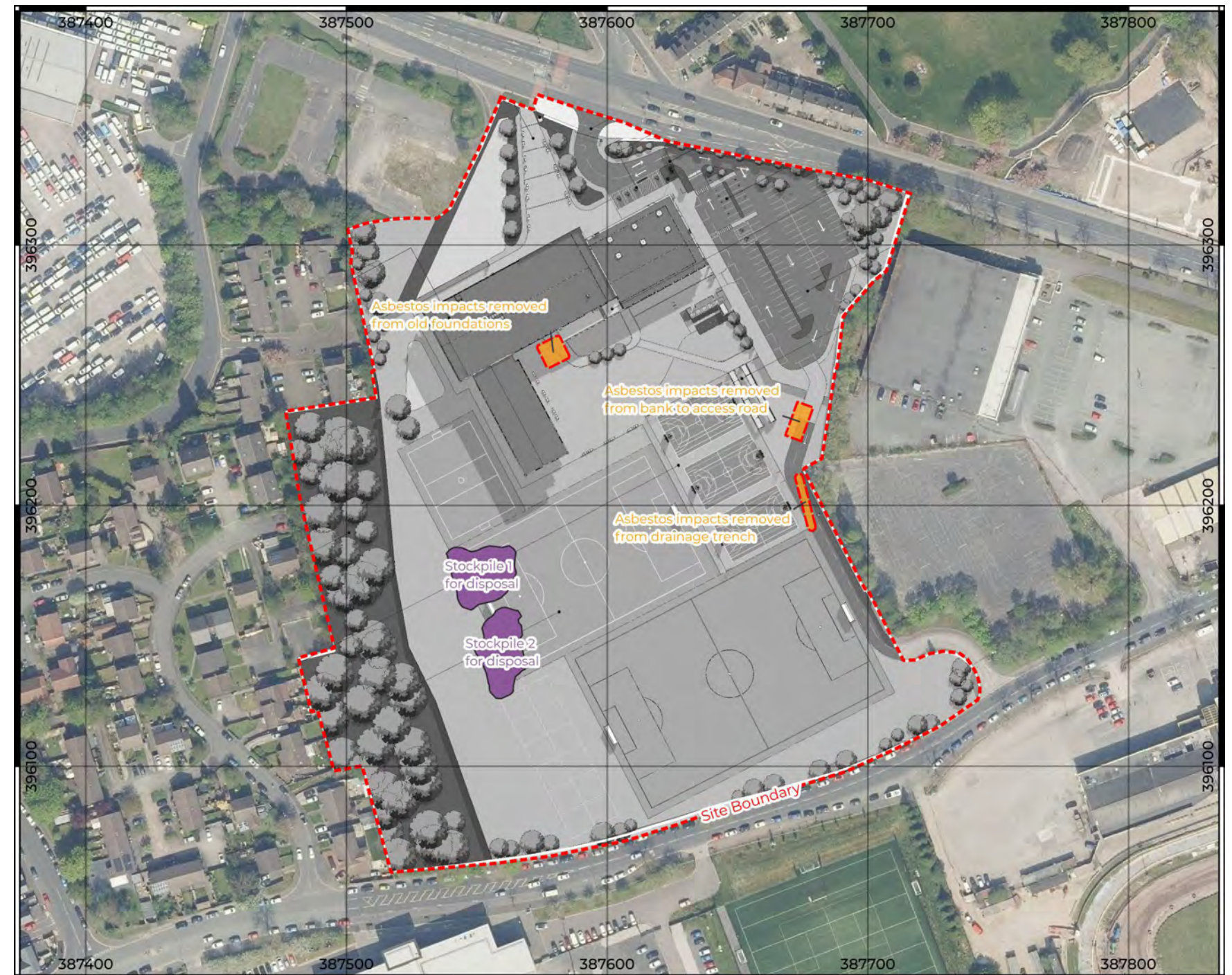
On encountering asbestos in the excavations, work stopped and the areas were cordoned off to prevent access.

Asbestos containing materials (ACM) were segregated into a stockpile indicated in Figure 5, hand-picked and disposed off-site to a suitably licenced facility by suitably qualified personnel and waste carrier.

The waste was taken by a registered waste carrier in accordance with Waste Management Regulations.

Approximately 1800m³ of impacted made ground was removed from site and disposed. The waste transfer note for the removal, survey of the impacted material and asbestos analysis carried out on samples of the material is included in Appendix D.

Figure 5 Asbestos Impacts and Removal



Scale
1: 2000

Red line
Site Boundary

Site Area
5.3 Ha

Grid system:
British National Grid (m)

Base plan: Aerial Photo &
SPACE Architects Drawing Ref:
009433 01-XX-DR-L-910001



Verification of Imported Subsoil – Landscaped Areas

Where made ground remained in situ beneath landscaped areas, the cover system comprises 450mm of Subsoil and/or Topsoil (minimum 150mm Topsoil).

Imported subsoils were used to make up the simple cover system. Testing at source was carried out for the general suite of contaminants contained in the remediation strategy referenced in Section 3 and the results compared to the acceptability criteria: As, B (water soluble), Be, Cd, Cr (total), Cr(VI), Cu, Hg, Ni, Pb, Se, V, Zn, cyanide (total), asbestos screen, speciated polycyclic aromatic hydrocarbons (PAH, by GC-FID), total phenols and total TPH.

The lab data from imported subsoils were screened against the above criteria and are presented in the table opposite. Assessment criteria for each determinand are listed in bold text. Any soils data below the assessment criteria are highlighted green and any exceeding the assessment criteria are highlighted red.

Of the 4 samples of imported subsoil, all of the determinands returned concentrations below the remedial target value with the exception of 3 exceedances for benzo-a-pyrene. However these concentrations are below the Suitable 4 Use Levels (S4ULs) for residential without plant uptake published in 2015 which adopt a minimal or tolerable risk as described in SR2 (EA 2009c). As the subsoil is for use in landscaped areas, the source of subsoil is considered suitable for its intended end use.

Copies of the laboratory certificates for the imported subsoils are included in Appendix E.

Imported Subsoil Suitability Summary Table

Contaminant	Remedial Target Value (RTV)	Unit	Limit of Detection (LOD)	Landscaping Subsoil 2319004 113279 SRM1	Landscaping Subsoil 2319005 113280 SRM 2	Landscaping subsoil 2319006 113281 SRM 3	Landscaping subsoil 2319007 113282 SRM 4
Arsenic	40	mg/kg	1	7.4	7.2	8.8	8.3
Beryllium	73	mg/kg	0.06	0.62	0.54	0.64	0.66
Boron	3	mg/kg	0.2	0.3	0.5	0.5	0.2
Cadmium	87	mg/kg	0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (III)	890	mg/kg	1	12	11	13	13
Copper	135	mg/kg	1	23	20	26	22
Lead	310	mg/kg	1	28	28	29	30
Nickel	75	mg/kg	1	13	12	14	14
Selenium	600	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium	1,200	mg/kg	1	16	15	18	17
Zinc	300	mg/kg	1	45	44	48	47
Asbestos	NIL	-	N/A	Not Detected	Not Detected	Not Detected	Not Detected
Acenaphthene	10	mg/kg	0.05	0.38	0.49	0.28	0.53
Acenaphthylene	10	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Anthracene	10	mg/kg	0.05	0.82	1	0.54	0.85
Benzo(a)anthracene	5.5	mg/kg	0.05	2	3.4	1.7	2
Benzo(a)pyrene	1.5	mg/kg	0.05	1.7	2.9	1.4	1.7
Benzo(b)fluoranthene	10	mg/kg	0.05	2.5	4.3	2	2.2
Benzo(ghi)perylene	10	mg/kg	0.05	0.92	1.5	0.76	0.87
Benzo(k)fluoranthene	10	mg/kg	0.05	0.46	1.6	0.44	0.68
Chrysene	10	mg/kg	0.05	1.9	2.4	1.5	1.9
Dibenz(a,h)anthracene	1.3	mg/kg	0.05	0.27	0.42	0.21	0.25
Fluoranthene	10	mg/kg	0.05	4.1	6.4	3.1	4.2
Fluorene	10	mg/kg	0.05	0.37	0.43	0.24	0.4
Indeno(1,2,3,cd)pyrene	6.3	mg/kg	0.05	0.79	1.3	0.71	0.77
Naphthalene	2.3	mg/kg	0.05	< 0.05	0.41	< 0.05	< 0.05
Pyrene	10	mg/kg	0.05	3.8	5.9	3.1	3.8
Aliphatics EC5-EC6	42	mg/kg	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Aliphatics >EC6-EC8	100	mg/kg	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Aliphatics >EC8-EC10	27	mg/kg	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Aliphatics >EC10-EC12	48	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatics >EC12-EC16	24	mg/kg	2	< 2.0	< 2.0	< 2.0	< 2.0
Aliphatics >EC16-EC35	100	mg/kg	8	< 8.0	< 8.0	< 8.0	< 8.0
Aromatics >EC5-EC7	100	mg/kg	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Aromatics >EC7-EC8	100	mg/kg	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Aromatics >EC8-EC10	47	mg/kg	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Aromatics >EC10-EC12	100	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0
Aromatics >EC12-EC16	100	mg/kg	2	< 2.0	< 2.0	< 2.0	< 2.0
Aromatics >EC16-EC21	100	mg/kg	10	28	13	35	16
Aromatics >EC21-EC35	100	mg/kg	10	45	24	50	28
MTBE	100	mg/kg	0.001	<0.001	<0.001	<0.001	<0.001
Benzene	0.38	mg/kg	0.001	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	5	mg/kg	0.001	<0.001	<0.001	<0.001	<0.001
Toluene	5	mg/kg	0.001	<0.001	<0.001	<0.001	<0.001
Xylene	5	mg/kg	0.001	<0.001	<0.001	<0.001	<0.001



Verification of Imported Topsoil – Landscaped Areas

Imported topsoil was used in the upper 150mm of the simple cover system.

Testing at source was carried out for the general suite of contaminants contained in the remediation strategy referenced in Section 3 and the results compared to the acceptability criteria: As, B (water soluble), Be, Cd, Cr (total), Cr(VI), Cu, Hg, Ni, Pb, Se, V, Zn, cyanide (total), asbestos screen, speciated polycyclic aromatic hydrocarbons (PAH, by GC-FID), total phenols and total TPH.

The lab data from imported topsoils were screened against the above criteria and are presented in the table opposite. Assessment criteria for each determinand are listed in bold text. Any soils data below the assessment criteria are highlighted green and any exceeding the assessment criteria are highlighted red.

All samples of imported topsoil passed the remedial target value stated in the remediation strategy and were considered suitable for the proposed use as topsoil within the simple cover system.

Copies of the laboratory certificates for the imported topsoils are included in Appendix E.

Verification of Gas Membrane Installation

The installation of Characteristic Situation 2 classification (BS8485:2015+A1:2019).gas protection measures in the school buildings was independently inspected and verified by Roberts Environmental. A copy of their validation letter is included in Appendix F.

Verification of Japanese Knotweed Removal

The removal of Japanese Knotweed was undertaken by Japanese Knotweed Control Ltd. A copy of their report is included at Appendix G.

Verification of Barrier Pipe Installation

The installation of 110mm Protectaline Barrier Pipework was independently installed and verified by Integral UK Ltd. A copy of their validation report and information is included in Appendix H.

Imported Topsoil Suitability Summary Table

Contaminant	Remedial Target Value (RTV)	Unit	Topsoil Sample 108478-SP1 22/4/22	Topsoil Sample 22/07982/2	Topsoil Sample 109347-1 SP1 -16/05/2022
Arsenic	40	mg/kg	19	2	1.9
Cadmium	87	mg/kg	0.9	0.6	<0.2
Chromium (III)	890	mg/kg	144	11	30
Copper	135	mg/kg	89	12	6.1
Lead	310	mg/kg	244	5	9.4
Mercury, inorganic	240	mg/kg	<0.5	0.28	<0.5
Nickel	75	mg/kg	28	10	2.9
Selenium	600	mg/kg	1.9	<1	<0.3
Vanadium	1,200	mg/kg	43		4.3
Zinc	300	mg/kg	228	22	13
Cyanide (free)	20	mg/kg	<1		<1
Phenol (total)	20	mg/kg	<0.5		<0.5
Asbestos	NIL	-	Not Detected	Not Detected	Not Detected
Acenaphthene	10	mg/kg	<0.02	<0.01	0.05
Acenaphthylene	10	mg/kg	<0.02	<0.01	<0.02
Anthracene	10	mg/kg	0.06	<0.02	0.13
Benzo(a)anthracene	5.5	mg/kg	0.16	<0.04	0.4
Benzo(a)pyrene	1.5	mg/kg	0.16	<0.04	0.38
Benzo(b)fluoranthene	10	mg/kg	0.24	<0.05	0.49
Benzo(ghi)perylene	10	mg/kg	0.13	<0.05	0.26
Benzo(k)fluoranthene	10	mg/kg	0.08	<0.07	0.15
Chrysene	10	mg/kg	0.19	<0.06	0.39
Dibenz(a,h)anthracene	1.3	mg/kg	<0.02	<0.04	0.05
Fluoranthene	10	mg/kg	0.4	<0.08	0.83
Fluorene	10	mg/kg	<0.02	<0.01	0.03
Indeno(1,2,3,cd)pyrene	6.3	mg/kg	0.14	<0.03	0.34
Naphthalene	2.3	mg/kg	<0.02	<0.03	<0.02
Pyrene	10	mg/kg	0.41	<0.07	0.73
Total PAH	50	mg/kg		<0.08	
Aliphatics EC5-EC6	42	mg/kg	<0.1	<23	<0.1
Aliphatics >EC6-EC8	100	mg/kg	<0.1	<23	<0.1
Aliphatics >EC8-EC10	27	mg/kg	<0.1	<23	<0.1
Aliphatics >EC10-EC12	48	mg/kg	<6	<23	<6
Aliphatics >EC12-EC16	24	mg/kg	<6	<23	<6
Aliphatics >EC16-EC35	100	mg/kg	<15	<23	<15
Aliphatics >EC35-EC44	100	mg/kg	<10	<23	<10
Aromatics >EC5-EC7	100	mg/kg	<0.01	<23	<0.01
Aromatics >EC7-EC8	100	mg/kg	<0.01	<23	<0.01
Aromatics >EC8-EC10	47	mg/kg	<0.01	<23	<0.01
Aromatics >EC10-EC12	100	mg/kg	<1	<23	<1
Aromatics >EC12-EC16	100	mg/kg	<1	<23	<1
Aromatics >EC16-EC21	100	mg/kg	<1	<23	<1
Aromatics >EC21-EC35	100	mg/kg	16	<23	<1
Aromatics >EC35-EC44	100	mg/kg	5	<23	<1
MTBE	100	mg/kg	<0.02		
Benzene	0.38	mg/kg	<0.01		
Ethylbenzene	5	mg/kg	<0.01		
Toluene	5	mg/kg	<0.01		
Xylene	5	mg/kg	<0.01		

5. Soil Cover Validations

Following completion of the cover system by the Contractor, verification pits were excavated at the locations indicated SCV01 – 10 in Figure 6.

Field records for each verification pit are included in Appendix I. The sources of topsoil and subsoil encountered in the validation pits were consistent with the sources tested and reported above, the sources being:

- Landscaping subsoil sourced from Dukinfield samples SRM1 – 4
- Topsoil sourced from Bredbury sample 108748 SP1
- Topsoil sourced from Bryn Hall sample 22/07982/2
- Topsoil sourced from Carrington training centre sample 1093417-1 SP1

The total thickness of the capping system exceeded the required 450mm in all validation pits.

The material descriptions and test results confirm the physical suitability and pass the RTVs contained in the remediation strategy.

Figure 6 – Soil Cover Validation Pit Layout



Scale
1: 2000

Red line
Site Boundary

Site Area
5.3 Ha

Grid system:
British National Grid (m)

Base plan: Aerial Photo &
SPACE Architects Drawing Ref:
009433 01-XX-DR-L-910001



6. Conclusions

The remediation activities carried out by Chartrange Ltd at Hyde Road Belle Vue have been carried out in general accordance with Hydrock's remediation strategy.

All pollutant linkages associated with those activities have been broken or effectively controlled.



Appendix A – The Appointment

Mr D Smith
Chartrange Ltd
Company Number: 01935855
Wharf Street
Dukinfield
Cheshire
SK16 4NJ



GeoEnvironmental Consulting Ltd
Tel: 07762 751411
email: richard.meredith@geo-env.co.uk

Dear David

Hyde Road Belle Vue

Further to your recent request, please find outlined below our proposals for providing consultancy services in connection with the above site.

Services

The “**Services**” will comprise: -

- Reviewing existing reports and information
- Provision of a Materials Management Plan & QP Sign-off based on the approved remediation strategy
- Site Supervision
- Provision of a Validation Report

The work will be overseen by an NQMS Suitably Qualified Person. The National Quality Mark Scheme (NQMS) for Land Contamination Management has been developed by the Land Forum to provide visible identification of documents that have been checked for quality by a Suitably Qualified and experienced Person (SQP). All reports intended for planning submission will carry the NQMS logo. More information on the NQMS Scheme can be found [here](#).

Please note, the scope may include commenting on asbestos in soils as a contaminant where appropriate but excludes commenting on asbestos in buildings, structures, ducts or similar.

Data and Information

Please supply any necessary / relevant data and information in good time to avoid delay to the programme.

Fees and Expenses:

Our fees, expenses and travel costs for the Services shall be as set out in the attached quotation.

Please note the scope of our services does not include any third party work such as fieldwork, surveys, lab testing or in-situ testing.

Programme:

We will start work shortly after you confirm our appointment. Report will be provided approximately 2 weeks following receipt of required information.

Health and Safety / CDM 2015

We have assumed that our duties under CDM 2015 will be limited to those of a Designer and only to the extent the Services described above require design input. We are not appointed as Principal Designer or Principal Contractor under CDM 2015.

We have assumed that we will be provided with safe access to working areas for survey and inspection purposes. Please confirm access and security arrangements for the site including liaison with security personnel, site caretakers etc. Any security requirements shall be made known to us prior to commencing on site and at a reasonable time to ensure site staff can comply with the requirements.

Terms of Appointment

Chartrange Ltd is our client for this project. This letter and the attached terms of appointment are our offer to provide the services and form the **Appointment**. Please countersign below and return a copy of this letter to confirm your acceptance of the Appointment. If you instruct us to proceed without countersigning, then you acknowledge that you have accepted the terms of the Appointment.

We hope the above meets your requirements - if you have any queries regarding the content of our proposal, please do not hesitate to contact the undersigned.

Yours sincerely



Richard Meredith
Director
GeoEnvironmental Consulting Ltd

We confirm our acceptance of the
Appointment

Signature.....

Date.....

For and on behalf of Chartrange Ltd

Chartrange Ltd appoints GeoEnvironmental Consulting Ltd to provide the Services and GeoEnvironmental Consulting Ltd accepts the appointment in accordance with these terms.

1 GeoEnvironmental Consulting Ltd's Obligations

(i) GeoEnvironmental Consulting Ltd shall provide the Services and exercise reasonable skill and care in the performance of the Services.

(ii) GeoEnvironmental Consulting Ltd shall use reasonable endeavours to perform the Services in accordance with any programme set out in the Proposal Letter.

(iii) GeoEnvironmental Consulting Ltd shall inform Chartrange Ltd if he considers any change or instruction from Chartrange Ltd is outside the scope of the Services and will cause a change to the programme and/or change to the level of fees or expenses.

2 Client's Obligations

(i) Chartrange Ltd shall pay GeoEnvironmental Consulting Ltd for the performance of the Services the fees and expenses set out in the Proposal Letter.

(ii) Chartrange Ltd shall supply GeoEnvironmental Consulting Ltd with all relevant data and information necessary for GeoEnvironmental Consulting Ltd to perform the Services, and all instructions, decisions, consents or approvals in good time to avoid delay to the performance of the Services. Chartrange Ltd acknowledge that any error, failure or delay in providing the same may result in additional cost being incurred by GeoEnvironmental Consulting Ltd.

(iii) Chartrange Ltd shall make an additional payment to GeoEnvironmental Consulting Ltd if GeoEnvironmental Consulting Ltd has to carry out additional work and/or suffers delay or disruption in the performance of the Services for reasons beyond GeoEnvironmental Consulting Ltd's control, including instructions or decisions by or on behalf of Chartrange Ltd. The additional payment will be calculated on the basis of GeoEnvironmental Consulting Ltd's hourly rate (£75 per hour plus VAT) together with all reasonable fees, expenses and/or disbursements. GeoEnvironmental Consulting Ltd shall if requested by Chartrange Ltd and where practicable give an initial estimate of the additional payment likely to be charged and how it is to be calculated, but no failure by GeoEnvironmental Consulting Ltd to provide an initial estimate shall prevent GeoEnvironmental Consulting Ltd being entitled to the additional payment.

3 Payment

Chartrange Ltd shall pay GeoEnvironmental Consulting Ltd in the following manner:

(i) GeoEnvironmental Consulting Ltd shall send an invoice to Chartrange Ltd for each instalment of the fees and other sums payable under this Appointment (the "**Payment Application**"). Each Payment Application shall specify the sum that GeoEnvironmental Consulting Ltd considers will become due on the payment due date under Clause 3(ii) and the basis on which that sum is calculated.

(ii) Payment shall be due on the date GeoEnvironmental Consulting Ltd submits the Payment Application. The final date for payment shall be 28 days from the due date or such shorter period as specified in the Proposal Letter.

(iii) GeoEnvironmental Consulting Ltd's Payment Application under Clause 3(i) shall be the payee's payment notice for the purposes of Section 110A of the Housing Grants, Construction and Regeneration Act 1996 (as amended).

(iv) Not later than 5 days after the due date Chartrange Ltd shall issue a payment notice specifying the sum that he considers to be or have been due at the due date, and the basis on which that sum is calculated (the "**Payment Notice**").

(v) On or before the final date for payment Chartrange Ltd shall pay to GeoEnvironmental Consulting Ltd either the sum stated as due in the Payment Notice ("the Notified Sum"). In the absence of a Payment Notice, the Notified Sum shall be the amount stated in the Payment Application. If Chartrange Ltd has served a Pay Less Notice, then on or before the final date for payment Chartrange Ltd shall pay the sum stated as due in the Pay Less Notice.

(vi) Not later than seven days before the final date for payment Chartrange Ltd may give GeoEnvironmental Consulting Ltd a Notice that it intends to pay less than the Notified Sum (a "Pay Less Notice"). Any Pay Less Notice shall specify the sum that Chartrange Ltd considers to be due on the date the Notice is served and the basis on which that sum is calculated.

(vii) All sums due under this Appointment are exclusive of VAT which shall be paid in addition.

4 Liability and Insurance

(i) Notwithstanding anything to the contrary contained in this Appointment but without prejudice to any of its provisions by which liability is excluded or limited to a lesser amount the total liability of GeoEnvironmental Consulting Ltd under or in connection with this Appointment whether in contract, tort, negligence, breach of statutory duty or otherwise (other than in respect of fraud, personal injury or death) shall not exceed in the aggregate:

- fifty times the fees; or
- £250,000 (two hundred and fifty thousand pounds);

whichever is the lower amount save for claims arising from, or in any way connected, to asbestos, pollution or contamination where the limit shall be £100,000.00 (one hundred thousand pounds).

(ii) Save in respect of fraud, personal injury or death GeoEnvironmental Consulting Ltd's liability in respect of terrorism, and ionising radiations or contamination by radioactivity from any nuclear fuel or from any nuclear waste from the combustion of nuclear fuel, radioactive, toxic, explosive or other hazardous properties of any explosive nuclear assembly or nuclear component thereof (the "Excluded Matters") whether in contract, tort, negligence, breach of statutory duty or otherwise is excluded.

If GeoEnvironmental Consulting Ltd's liability in respect of any of the Excluded Matters is excluded, the relevant Excluded Matters are outside the scope of this Appointment

and GeoEnvironmental Consulting Ltd shall have no responsibility for advising or providing any Services in connection with the relevant Excluded Matters and shall not have any duty to consider the relevant Excluded Matters.

(iii) Without prejudice to clause 4(i) or 4(ii), GeoEnvironmental Consulting Ltd's liability under or in connection with this Appointment shall not exceed, the amount, if any, recoverable by GeoEnvironmental Consulting Ltd's against the claim or claims in question under the professional indemnity insurance maintained by it. The limitation on GeoEnvironmental Consulting Ltd's liability set out in this clause shall not apply in respect of fraud, death or personal injury.

(iv) No action or proceedings under or in respect of this Appointment shall be commenced against GeoEnvironmental Consulting Ltd after the expiry of six years from the date of this letter or the date that GeoEnvironmental Consulting Ltd first commenced its services (whichever is the earlier) which date shall not replace or override any earlier statutory limitation period.

(v) GeoEnvironmental Consulting Ltd shall maintain public liability insurance in the amount of £5,000,000.00 (five million pounds) and professional indemnity insurance in the amount of £2,000,000.00 (two million pounds) in the aggregate including defence costs (save for claims arising from pollution, contamination and asbestos which shall have an aggregate limit of £100,000 in the annual aggregate) and for the length of time sufficient to cover GeoEnvironmental Consulting Ltd's liabilities under this Appointment provided that in either case such insurance is available on reasonable terms and at reasonable commercial rates. If such insurance is not available on reasonable terms and/or at reasonable commercial rates, then GeoEnvironmental Consulting Ltd shall take out such lower amount of insurance as is available on reasonable terms and/or at reasonable commercial rates.

(vi) In relation to any claim brought by Chartrange Ltd in connection with this Appointment, GeoEnvironmental Consulting Ltd shall not be liable for any loss of profit, loss of use, loss of production or any indirect loss or consequential loss.

(vii) Nothing in this Appointment shall constitute a fitness for purpose obligation on GeoEnvironmental Consulting Ltd, and no statement made or report produced by GeoEnvironmental Consulting Ltd shall in any way be construed as GeoEnvironmental Consulting Ltd confirming or warranting the fitness for purpose of any particular site, land, development, or project. All statements, opinions, advice and other communications made and/or given by GeoEnvironmental Consulting Ltd are subject to the exercise by GeoEnvironmental Consulting Ltd of no higher obligation than the obligation to exercise reasonable skill and care.

5 Copyright, Licences and Confidentiality

(i) The copyright in all drawings and other documents (including material in electronic form) provided by GeoEnvironmental Consulting Ltd to Chartrange Ltd remains vested in GeoEnvironmental Consulting Ltd. Subject to all sums payable under this Appointment being paid in full, Chartrange Ltd shall have a licence to copy and use such material for the purposes for which they were provided and GeoEnvironmental Consulting Ltd shall not be

liable for their use by any person for any purpose other than for which they were provided. If Chartrange Ltd is in default of payment of any amount under this Appointment GeoEnvironmental Consulting Ltd may revoke any licence granted by giving seven days' notice.

(ii) Neither party shall disclose to any other person any private or confidential information concerning the business of the other party unless authorised by that party or if disclosed to either party's professional advisors or insurers or as required or permitted by law.

6 Termination

(i) Chartrange Ltd may terminate the appointment of GeoEnvironmental Consulting Ltd in the event of a breach of this Appointment or if GeoEnvironmental Consulting Ltd becomes insolvent by giving two weeks' notice and GeoEnvironmental Consulting Ltd may terminate this Appointment and in the same manner if the same circumstances arise in relation to Chartrange Ltd. In the event of any such termination Chartrange Ltd shall pay GeoEnvironmental Consulting Ltd a fair and reasonable amount on account of fees due under this Appointment commensurate with the services performed to the date of termination and any outstanding expenses.

(ii) If circumstances arise for which GeoEnvironmental Consulting Ltd is not responsible (including non payment of fees and expenses due under this Appointment) and which GeoEnvironmental Consulting Ltd considers make it irresponsible to continue to perform all or any of the Services GeoEnvironmental Consulting Ltd may terminate the appointment by giving two weeks' notice. In such event Chartrange Ltd shall pay GeoEnvironmental Consulting Ltd a fair and reasonable amount on account of the fees due (under the Proposal Letter) and in respect of any Services to which GeoEnvironmental Consulting Ltd is irrevocably committed together with any outstanding expenses.

(iii) Termination of GeoEnvironmental Consulting Ltd's appointment under this Appointment shall not prejudice the accrued rights or claims of either party.

7 Disputes and Differences

(i) Without prejudice to the parties' other rights and remedies, the parties shall attempt in good faith to settle any dispute by mediation.

(ii) Where this Appointment is a construction contract within the meaning of the Housing Grants Construction and Regeneration Act 1996 (as amended) any dispute arising shall be referred to adjudication in accordance with the procedure stated in the Proposal Letter or if none is so stated the CIC Model Adjudication Procedure current at the time of the referral. If either party so requests the adjudicator shall be nominated by the ACE.

8 General

(i) Neither party may assign or transfer any benefit or obligation under this Appointment without the prior written consent of the other party.

(ii) Nothing in this Appointment confers or purports to confer on any third party any benefit or any right pursuant to the Contracts (Rights of Third Parties) Act 1999 or any other applicable law or statute to enforce any term of the Appointment.

(iii) This Appointment shall be governed by and construed in all respects in accordance with the laws of England and Wales.

(iv) In this Appointment a reference to a statute or statutory provision is a reference to it as amended, extended or re-enacted from time to time as at the date the Appointment.

9 Notices

Any notice under this Appointment shall be in writing, shall be sent to the address shown in the Proposal Letter and shall take effect when it has been received by Chartrange Ltd or GeoEnvironmental Consulting Ltd as the case may be. It may be in any form, including electronic, provided that a permanent record exists. Any such notice shall be assumed to have been received within two days of issue.

10 Building Information Modelling

Chartrange Ltd and GeoEnvironmental Consulting Ltd shall comply with their respective obligations set out in any BIM protocol referred to in the Proposal Letter. The parties shall have the benefit of any rights granted to them in the protocol and of any limitation or exclusion of liability contained within it.

11 Entire Agreement

This Appointment represents the entire agreement between Chartrange Ltd and GeoEnvironmental Consulting Ltd and supersedes any previous agreement or discussions relating to the Services the subject of this Appointment.



Appendix B – Proposed Development Drawing

Revision	Description	Author	Checker	Date
P01	Issued for Planning	LB	PB	06/01/21
P02	Redline Update & Annotation Clarification	PB	AW	16/03/21

Memorial Plaque

Pedestrian Plaza

Roof Plan

Exsiting Easement

MUGA

Playing Fields

WOODLAND STREET

Norman Street

BRACEWELL CLOSE

ELEN WILKINSON CRESCENT

ANE

KIRKMANSHULME LANE

Bellmouth to Hyde Road

Disabled Parking

Sliding Access Gate

Visitor Parking

External Terrace 2 levels

Secure Staff Parking

Secure Cycle Store

Exsiting Access off Kirkmanshulme Lane

SOFT LANDSCAPING

Refer to drawing [01-XX-DR-L-910012](#)

HARD LANDSCAPING

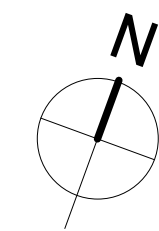
Refer to drawing [01-XX-DR-L-910013](#)

FENCING

Refer to drawing [01-XX-DR-L-910004](#)

GATES

Refer to drawing [01-XX-DR-L-910016](#)



SPACE

Sir Robert McALPINE

Spaceworks, Benton Park Road, Newcastle upon Tyne,
NE7 7LX
T: +44 (0)844 800 6660
www.spacearchitects.co.uk



Project Belle Vue Co-op Academy, Manchester				
Drawing Title Proposed Site Plan				
Project No. 009433	Drawing No. 01-XX-DR-L-910001	Status P02	Revision P02	Scale at A2 As indicated
File Reference: 009433-SPACE-01-XX-DR-L-910001				
This drawing is Copyright - Check all dimensions on site - Inform originator of any discrepancies - Work to figured dimensions only - Do not scale				

Proposed Site Plan

1 : 1000

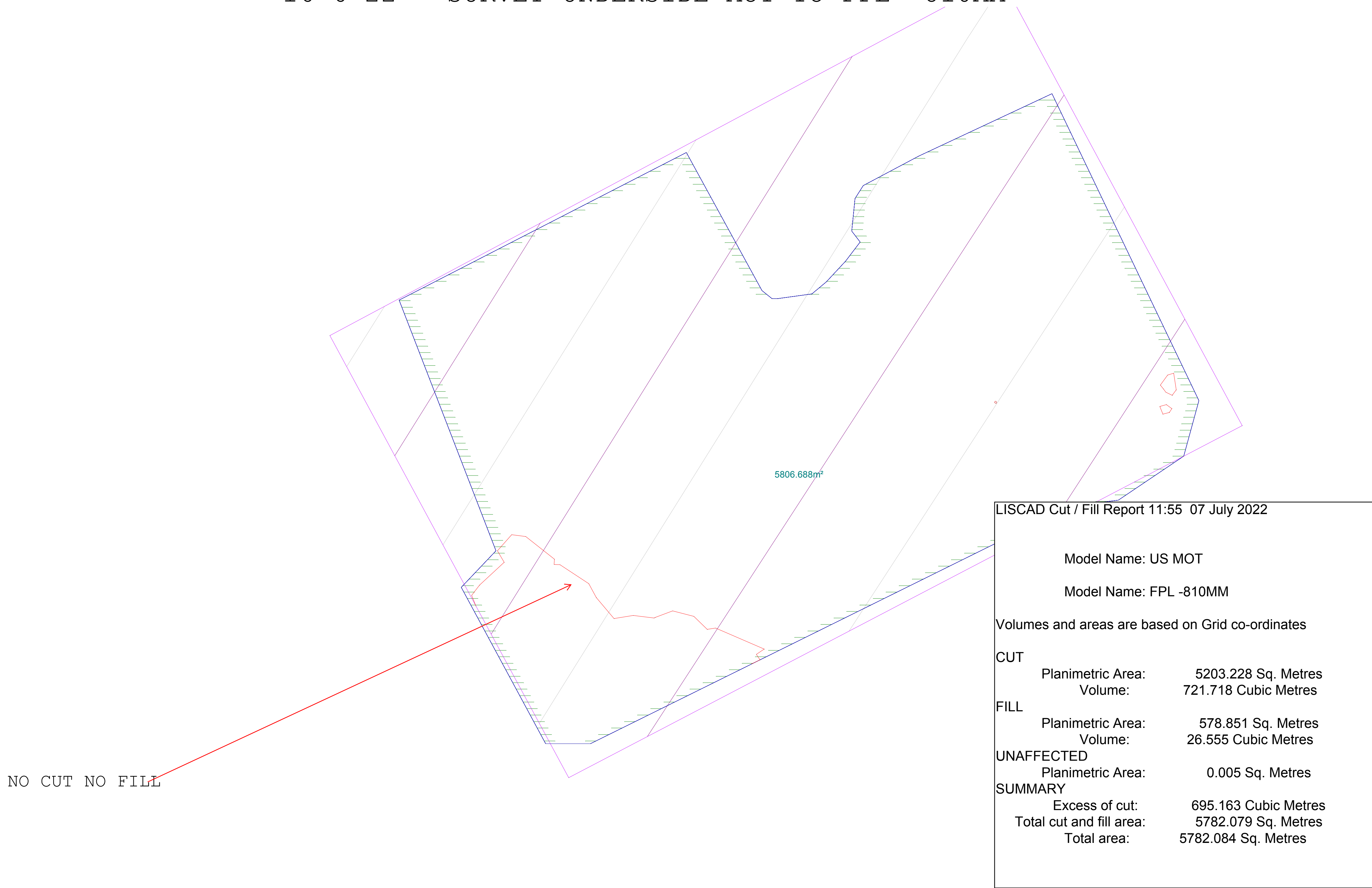
BIM 360://Hyde Road School/009433-SPA-01-22-M3-A-0001-2020-S0-CENTRAL.rvt





Appendix C – Materials Movement Earthworks Drawing & Chemical Analysis.

BELLE VUE ACCADAMY ADDITIONAL CUT TO SPORTS PITCH TO
16 6 22 - SURVEY UNDERSIDE MOT TO FPL -810MM



Analytical Report Number: 22-83603

Project / Site name: SRM Belle Vue CO OP Academy

Your Order No: 22 304

Lab Sample Number				2421881	2421882	2421883	2421884
Sample Reference				116516	116517	116518	116519
Sample Number				under bingo hall - 01	under bingo hall - 02	under bingo hall - 03	under bingo hall - 04
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				16/06/2022	16/06/2022	16/06/2022	16/06/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	13	12	12	8.3
Total mass of sample received	kg	0.001	NONE	0.8	0.8	0.8	0.8

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KSZ	KSZ	KSZ	KSZ

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.9	8.7	10	9.3
Organic Matter (automated)	%	0.1	MCERTS	1.1	1.3	0.8	0.9

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.33	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.33	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.57	0.41	1.9	0.45
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.45	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.98	0.71	1.7	0.87
Pyrene	mg/kg	0.05	MCERTS	0.98	0.68	1.6	0.83
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.76	0.54	1.1	0.65
Chrysene	mg/kg	0.05	MCERTS	0.47	0.38	0.8	0.45
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.7	0.52	0.86	0.62
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.2	0.2	0.35	0.26
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.53	0.39	0.75	0.53
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.3	0.2	0.35	0.29
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.32	0.26	0.4	0.34

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	5.81	4.29	10.9	5.29
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.1	7.3	7.1	5.5
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.86	0.84	0.61	0.65
Boron (water soluble)	mg/kg	0.2	MCERTS	0.8	0.4	0.5	0.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	20	20	15	16
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21	20	15	17
Copper (aqua regia extractable)	mg/kg	1	MCERTS	23	24	19	22
Lead (aqua regia extractable)	mg/kg	1	MCERTS	32	30	29	30
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	24	25	18	19
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	23	22	16	17
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	55	56	44	47

Analytical Report Number: 22-83603
 Project / Site name: SRM Belle Vue CO OP Academy
 Your Order No: 22 304

Lab Sample Number	2421881	2421882	2421883	2421884
Sample Reference	116516	116517	116518	116519
Sample Number	under bingo hall - 01	under bingo hall - 02	under bingo hall - 03	under bingo hall - 04
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	16/06/2022	16/06/2022	16/06/2022	16/06/2022
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 HS_ID_AL	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 HS_ID_AL	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 HS_ID_AL	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 EH_CU_ID_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 EH_CU_ID_AL	mg/kg	2	MCERTS	5.2	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 EH_CU_ID_AL	mg/kg	8	MCERTS	15	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 EH_CU_ID_AL	mg/kg	8	MCERTS	57	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35) EH_CU+HS_ID_AL	mg/kg	10	MCERTS	77	< 10	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	13	13	< 10	11
TPH-CWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	22	21	18	19
TPH-CWG - Aromatic (EC5 - EC35) EH_CU+HS_ID_AR	mg/kg	10	MCERTS	35	34	27	29

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-83603

Project / Site name: SRM Belle Vue CO OP Academy

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2421881	116516	der bingo hall -	None Supplied	Brown clay with gravel and vegetation.
2421882	116517	der bingo hall -	None Supplied	Brown clay with gravel and vegetation.
2421883	116518	der bingo hall -	None Supplied	Brown clay with gravel and vegetation.
2421884	116519	der bingo hall -	None Supplied	Brown clay with gravel and vegetation.

Analytical Report Number : 22-83603

Project / Site name: SRM Belle Vue CO OP Academy

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

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

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

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

Information in Support of Analytical Results

Analytical Report Number : 22-83603

Project / Site name: SRM Belle Vue CO OP Academy

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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List of HWOL Acronyms and Operators

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

Sample Deviation Report



Analytical Report Number : 22-83603

Project / Site name: SRM Belle Vue CO OP Academy

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

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
116516	under bingo hall - 01	S	2421881	c	Hexavalent chromium in soil	L080-PL	c
116516	under bingo hall - 01	S	2421881	c	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	c
116516	under bingo hall - 01	S	2421881	c	Cr (III) in soil	L080-PL	c
116516	under bingo hall - 01	S	2421881	c	Organic matter (Automated) in soil	L009-PL	c
116516	under bingo hall - 01	S	2421881	c	Speciated EPA-16 PAHs in soil	L064-PL	c
116516	under bingo hall - 01	S	2421881	c	TPHCWG (Soil)	L088/76-PL	c
116516	under bingo hall - 01	S	2421881	c	pH in soil (automated)	L099-PL	c
116517	under bingo hall - 02	S	2421882	c	Hexavalent chromium in soil	L080-PL	c
116517	under bingo hall - 02	S	2421882	c	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	c
116517	under bingo hall - 02	S	2421882	c	Cr (III) in soil	L080-PL	c
116517	under bingo hall - 02	S	2421882	c	Organic matter (Automated) in soil	L009-PL	c
116517	under bingo hall - 02	S	2421882	c	Speciated EPA-16 PAHs in soil	L064-PL	c
116517	under bingo hall - 02	S	2421882	c	TPHCWG (Soil)	L088/76-PL	c
116517	under bingo hall - 02	S	2421882	c	pH in soil (automated)	L099-PL	c
116518	under bingo hall - 03	S	2421883	c	Hexavalent chromium in soil	L080-PL	c
116518	under bingo hall - 03	S	2421883	c	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	c
116518	under bingo hall - 03	S	2421883	c	Cr (III) in soil	L080-PL	c
116518	under bingo hall - 03	S	2421883	c	Organic matter (Automated) in soil	L009-PL	c
116518	under bingo hall - 03	S	2421883	c	Speciated EPA-16 PAHs in soil	L064-PL	c
116518	under bingo hall - 03	S	2421883	c	TPHCWG (Soil)	L088/76-PL	c
116518	under bingo hall - 03	S	2421883	c	pH in soil (automated)	L099-PL	c
116519	under bingo hall - 04	S	2421884	c	Hexavalent chromium in soil	L080-PL	c
116519	under bingo hall - 04	S	2421884	c	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	c
116519	under bingo hall - 04	S	2421884	c	Cr (III) in soil	L080-PL	c
116519	under bingo hall - 04	S	2421884	c	Organic matter (Automated) in soil	L009-PL	c
116519	under bingo hall - 04	S	2421884	c	Speciated EPA-16 PAHs in soil	L064-PL	c
116519	under bingo hall - 04	S	2421884	c	TPHCWG (Soil)	L088/76-PL	c
116519	under bingo hall - 04	S	2421884	c	pH in soil (automated)	L099-PL	c



Appendix D – Waste Materials Removal Supporting Information



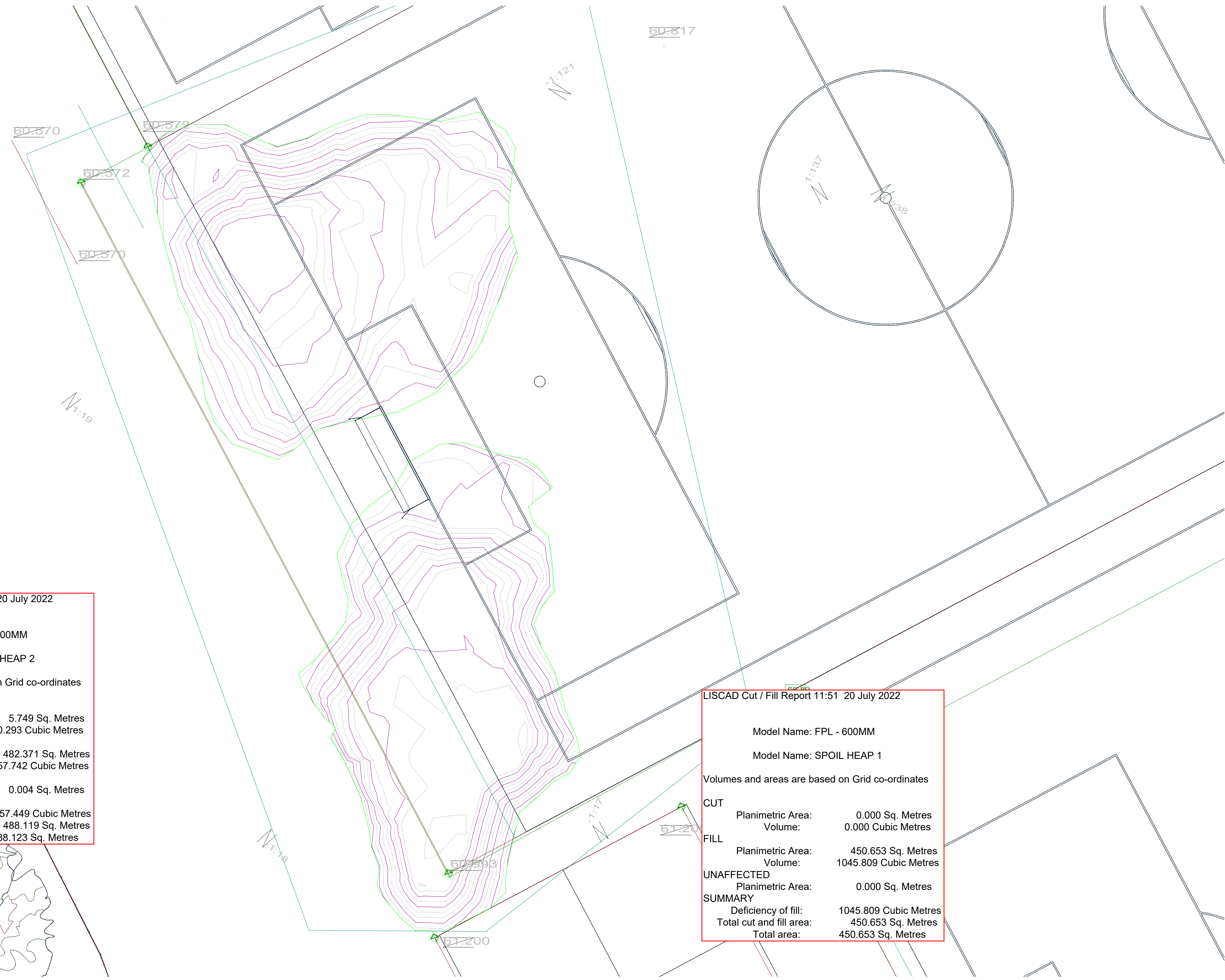
LISCAD Cut / Fill Report 11:51 20 July 2022

Model Name: FPL - 600MM

Model Name: SPOIL HEAP 2

Volumes and areas are based on Grid co-ordinates

CUT	Planimetric Area:	5.749 Sq. Metres
	Volume:	0.293 Cubic Metres
FILL	Planimetric Area:	482.371 Sq. Metres
	Volume:	757.742 Cubic Metres
UNAFFECTED	Planimetric Area:	0.004 Sq. Metres
SUMMARY	Deficiency of fill:	757.449 Cubic Metres
	Total cut and fill area:	488.119 Sq. Metres
	Total area:	488.123 Sq. Metres



LISCAD Cut / Fill Report 11:51 20 July 2022

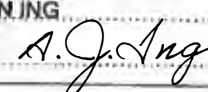
Model Name: FPL - 600MM

Model Name: SPOIL HEAP 1

Volumes and areas are based on Grid co-ordinates

CUT	Planimetric Area:	0.000 Sq. Metres
	Volume:	0.000 Cubic Metres
FILL	Planimetric Area:	450.653 Sq. Metres
	Volume:	1045.809 Cubic Metres
UNAFFECTED	Planimetric Area:	0.000 Sq. Metres
SUMMARY	Deficiency of fill:	1045.809 Cubic Metres
	Total cut and fill area:	450.653 Sq. Metres
	Total area:	450.653 Sq. Metres

DUTY OF CARE: CONTROLLED WASTE TRANSFER NOTE

A Description of the waste	1 Description of the waste being transferred: GREY BROWN CLAYS List of Waste Regulations code(s): 1 7 0 5 0 4 2 How is the waste contained? ☒ Loose ☐ Sacks ☐ Skip ☐ Drum ☐ Other (specify) 8 WHEEL TIPPER 3 How much waste? For example, number of sacks, weight 6,000 tonnes 4 Analysis attached / not attached / sent separately (delete as appropriate)	
B Producer / holder of the waste	Current holder of the waste – Transferor: By signing in Section D or F below I confirm that I have fulfilled my duty to apply the waste hierarchy as required by Regulation 12 of the Waste (England and Wales) Regulations 2011 Yes ☒ 1 Full name (print): SIR ROBERT MCALPINE LIMITED 2 Company name, address and postcode: SIR ROBERT MCALPINE LIMITED, Eaton Court, Maylands Avenue, Hemel Hempstead, Herts, HP2 7TR 3 SIC code (2007): 4 1 3 2 0 4 Which of the following are you? (please tick one or more boxes) A ☒ Waste producer ☐ Waste importer ☐ Collection/Disposal authority ☐ Broker B ☐ Env Permit holder (ref number): ☐ Registered waste carrier (ref number): C ☐ Waste exemption holder (exemption registration number): ☐ Exempt from carrier registration (give reason):	
C Carrier of the waste	1 Full name (print): CHARTRANGE ENVIRO LIMITED 2 Company name, address and postcode: CHARTRANGE ENVIRO LIMITED, Wharf Street, Dukinfield, SK16 4NJ 3 SIC code (2007): 4 3 9 9 9 4 Which of the following are you? (tick one box) A ☐ Waste collection authority B ☒ Registered waste carrier (ref number): CBDU177542 C ☐ Exempt from carrier registration (give reason):	
D First transfer (holder to carrier)	1 Place of transfer: Showcase Cinema, Hyde Road 2 Date of transfer: 07/04/2022-07/10/2022 3 Time(s) of transfer: M12 5AL Contract No: (for multiple transfers give date range) 4 Name and address of broker arranging transfer (if applicable): 5 Holder's representatives Carrier's representatives Name (print): MARK DURBAND Name (print): STEVE GALLAGHER Signed:  Signed: 	
E Disposer / recoverer of the waste	1 Full name (print): P CASEY ENVIRO (Arden) LTD 2 Company name, address and postcode: P CASEY ENVIRO LTD, RYDINGS ROAD, ROCHDALE, OL12 9PS 3 Which of the following are you? (tick one box) ☒ Holder of an Environmental Permit (ref number): BW14161Q ☐ Holder of a valid waste exemption (ref number):	
F Second transfer (carrier to disposer / recoverer)	1 Place of transfer: ARDEN QUARRY, OVENHILL RD 2 Date of transfer: 07/04/2022-07/10/2022 3 Time(s) of transfer: NEW MILLS, SK22 1BY Contract No: (for multiple transfers give date range) 4 Name and address of broker arranging transfer (if applicable): N/A 5 Holder's representatives Disposer's / Recoverer's representatives Name (print): STEVE GALLAGHER Name (print): ADRIAN ING Signed:  Signed: 	

This note must be retained by you and held for at least two years (or longer period specified in your Environmental Permit) from the date of the last transfer to which this note applies.

Duty of Care Waste Transfer Note Additional Description

This declaration is an addendum to the duty-of-care waste transfer note within the meaning of Article 7 of the Landfill Tax (Qualifying Material) Order 2011 to provide further detailed description of the waste to comply with the requirements of the same Article.

Please tick all the relevant groups and all wastes that apply within each group to describe your waste with any additional comments in the box below and sign the declaration at the bottom of the page:

☒ Naturally occurring rocks and soils	☒ rock; ☒ clay; ☒ sand; ☒ gravel; ☐ sandstone; ☐ limestone; ☒ crushed stone; ☐ china clay; ☒ construction stone; ☐ slate; ☒ sub-soil; ☐ silt; ☐ dredgings; ☒ stone from the demolition of buildings or structures.
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☐ Ceramic or concrete materials*	☐ glass including fritted enamel*; ☐ ceramics; ☒ bricks; ☐ bricks and mortar; ☒ tiles; ☐ clay ware; ☐ pottery; ☐ china; ☐ refractories; ☒ concrete*; ☐ reinforced concrete; ☐ concrete blocks; ☐ breeze blocks; ☐ aircrete blocks.
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*This group does not include glass fibre, glass-reinforced plastic or concrete plant washings

☐ Minerals Processed or prepared*	☐ moulding sand including used foundry sand*; ☐ clays including moulding clays and clay absorbents (inc Fuller's earth and bentonite); ☐ mineral absorbents; ☐ man-made mineral fibres including glass-fibres*; ☐ silica; ☐ mica; ☐ mineral abrasives.
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*This group does not include moulding sands containing organic binders or man-made fibres from glass-reinforced plastic and asbestos.

☐ Furnace slags	☐ vitrified wastes and residues from thermal processing of minerals where, in either case, the residue is both fused and insoluble; ☐ slag from waste incineration.
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☐ Ash*	☐ bottom ash and fly ash from wood or waste combustion; ☐ bottom ash and fly ash from coal or petroleum coke combustion (including when burnt together with biomass).
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*This group does not include fly ash from sewage sludge, municipal, clinical and hazardous waste incinerators.

☐ Low activity inorganic compounds	☐ calcium based reaction wastes from titanium dioxide production; ☐ calcium carbonate; ☐ magnesium carbonate; ☐ magnesium oxide; ☐ magnesium hydroxide; ☐ iron oxide; ☐ ferric hydroxide; ☐ aluminium oxide; ☐ aluminium hydroxide; ☐ zirconium dioxide.
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☐ Calcium Sulphate*	☐ calcium sulphate; ☐ gypsum; ☐ calcium sulphate based plasters
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*This group does not include plasterboard

Does your waste include non-qualifying materials?

☐ yes / ☒ no – if yes, please justify their inclusion and why this is considered incidental to the load:

Is your waste non-hazardous, with low potential for greenhouse gas emissions and low polluting potential in the landfill environment? ☒ yes / ☐ no – if no, your waste is not acceptable as qualifying material.

Has the waste been subject to a physical treatment process such as screening, crushing or trommelling? ☐ yes / ☒ no – if yes, your waste treatment process must be inspected prior to acceptance of the waste as qualifying material.

Please provide any further details or comments required to fully describe your waste:

I declare that the transferred waste described above meets the criteria of the Landfill Tax (Qualifying Material) Order 2011 and that I will incur and accept all liabilities if the waste shall not conform to the order.

Signed:  On behalf of: SIR ROBERT MCALPINE LIMITED Date: 07/04/2022

WASTE CHARACTERISATION FORM

All sections must be completed prior to disposal
Further supporting information such as site investigation/analysis must be included



Customer and Contact CHARTRANGE ENVIRO LIMITED - Steve Gallagher		Receiving Site Use Only: Reference Number A0480	
Waste Producer SIR ROBERT MCALPINE LIMITED		Do the materials match the description?	☐ Yes ☐ No
Site Address Showcase Cinema, Hyde Road, M12 5AL		Is it a permitted waste type?	☐ Yes ☐ No
Full Waste Description (consistency, physical form e.g. solid/liquid, composition e.g. clay, sand, gravel) GREY, BROWN CLAYS some minor inclusion of brick/concrete		A: Has testing been approved by the Head Office?	☐ Yes ☐ No IGNORE PART B
		B: Is it acceptable without testing?	☐ Yes ☐ No
Appearance (colour, odour) No physical or olfactory evidence of contamination. GREY, BROWN		Checked/Approved by: Signed: Date:	
Does the waste contain any biodegradable matter? YES/NO (tick as appropriate)		EWG Codes (list all that apply) ☐ 17 01 01 Concrete ☐ 17 01 02 Brick ☐ 17 01 03 Tiles and Ceramics ☐ 17 01 07 Mixture concrete, brick, tiles ceramic ☒ 17 05 04 soil and stones ☐ 19 12 12 Other waste (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11 ☐	
Is the waste hazardous?	☒ NO ☐ YES		
Category of landfill suitable for its disposal	☐ INERT ☒ NON-HAZARDOUS ☐ HAZARDOUS		
Is the waste homogeneous or heterogeneous?	☒ Homogeneous (e.g. excavation arisings with low physical/chemical variability)	☐ Heterogeneous (e.g. mixed wastes or waste with high physical/chemical variability)	
Is the waste from a potentially contaminated site?	NO/YES (list previous uses) All made ground has been kept separate for alternative disposal.	Can the waste be recycled?	YES/NO (tick as appropriate)
Waste Production Process (e.g. demolition, excavation arisings)	Excavated arisings	Quantity & frequency of delivery?	c. 6,000 tonnes
Describe the Method of Pre-treatment the waste has been subject to	If untreated, confirm how waste meets pre-treatment requirements:	It is inert waste for which treatment is not technically feasible ☐	It is waste other than inert waste and treatment would not reduce its quantity or the hazard ☒
Site Investigation/ Analysis Has a site investigation or analysis been provided to justify the waste classification? - If not the waste producer is required to provide a justification as to why testing is unnecessary (e.g. compliance with the requirements of 2.1.1 of the Council Decision 2003/33/EC) FORWARDED VIA E-MAIL TO CASEY TECHNICAL (REF. 10041634-ARC-XX-XX-RP-ZZ-0005-01-P2GJA) Any tarmac or waste materials has been kept separate for alternative disposal. All made ground segregated for alternative treatment/disposal.			
I confirm on behalf of the waste producer that the above and attached information is correct and accurate and should the waste characteristics alter, I will notify the landfill operator prior to deposit. I confirm that the waste has been characterised and sampled in line with a representative sampling plan written in accordance with any applicable guidance or legislation available at the time of deposit. All waste sent to landfill has been pre-treated pursuant to the Landfill Directive and latest relevant guidance.			
Signed		Company SIR ROBERT MCALPINE LIMITED	
Name Mark Durband		Position CONSTRUCTION MGR Date 07/04/2022	



Steve Hutchings
Murray Rix (Northern Ltd).
Andrew House
Hadfield Street
Dukinfield
SK16 4QX

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

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

e: MURRAYRIX Group

Analytical Report Number : 22-81596

Project / Site name:	Hyde Road, Belle Vue	Samples received on:	31/08/2022
Your job number:		Samples instructed on/ Analysis started on:	01/09/2022
Your order number:	22-285	Analysis completed by:	09/09/2022
Report Issue Number:	1	Report issued on:	09/09/2022
Samples Analysed:	1 soil sample		


Signed:

Anna Goc
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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



Analytical Report Number: 22-81596
 Project / Site name: Hyde Road, Belle Vue
 Your Order No: 22-285

Lab Sample Number				2410325
Sample Reference				116152
Sample Number				Asbestos ID
Depth (m)				None Supplied
Date Sampled				30/08/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile- Loose Fibres, Hard/Cement Type Material
Asbestos in Soil	Type	N/A	ISO 17025	Detected
Asbestos Analyst ID	N/A	N/A	N/A	MJN

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number : 22-81596

Project / Site name: Hyde Road, Belle Vue

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

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

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

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



Steve Hutchings
Murray Rix (Northern Ltd).
Andrew House
Hadfield Street
Dukinfield
SK16 4QX

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

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

e: MURRAYRIX Group

Analytical Report Number : 22-71130 - 3B

Replaces Analytical Report Number: 22-71130, issue no. 2
Report format change.

Project / Site name:	Hyde Road, Gorton	Samples received on:	13/07/2022
Your job number:		Samples instructed on/ Analysis started on:	13/07/2022
Your order number:	22 220	Analysis completed by:	20/07/2022
Report Issue Number:	3b	Report issued on:	20/07/2022
Samples Analysed:	1 soil samples		

Signed:

Izabela Wójcik
Izabela Wójcik
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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Analytical Report Number: 22-71130
Project / Site name: Hyde Road, Gorton

Your Order No: 22 220

Lab Sample Number				2348743
Sample Reference				114389
Sample Number				Pipe
Depth (m)				None Supplied
Date Sampled				08/07/2022
Time Taken				None Supplied
Analytical Parameter (Bulk Analysis)				
	Units	Limit of detection	Accreditation Status	

Asbestos Identification	Type	N/A	ISO 17025	Chrysotile-Hard/Cement Type Material
Asbestos Analyst ID	N/A	N/A	N/A	MJN

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number : 22-71130

Project / Site name: Hyde Road, Gorton

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Bults	Asbestos Identification in bulk material with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

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

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

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



Steve Hutchings
Murray Rix (Northern Ltd).
Andrew House
Hadfield Street
Dukinfield
SK16 4QX

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

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

e: MURRAYRIX Group

Analytical Report Number : 22-71130

Replaces Analytical Report Number: 22-71130, issue no. 1
Client references/information amended.

Project / Site name:	Hyde Road, Gorton	Samples received on:	13/07/2022
Your job number:		Samples instructed on/ Analysis started on:	13/07/2022
Your order number:	22 220	Analysis completed by:	20/07/2022
Report Issue Number:	2	Report issued on:	20/07/2022
Samples Analysed:	1 soil samples - 2 bulk samples		

Signed:

Izabela Wójcik
Izabela Wójcik
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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Analytical Report Number: 22-71130
 Project / Site name: Hyde Road, Gorton
 Your Order No: 22 220

Lab Sample Number				2348742
Sample Reference				114388
Sample Number				Soils
Depth (m)				None Supplied
Date Sampled				08/07/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MJN

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number: 22-71130
Project / Site name: Hyde Road, Gorton

Your Order No: 22 220

Lab Sample Number				2348743	2348744
Sample Reference				114389	114390
Sample Number				Pipe	Lagging
Depth (m)				None Supplied	None Supplied
Date Sampled				08/07/2022	08/07/2022
Time Taken				None Supplied	None Supplied
Analytical Parameter (Bulk Analysis)				Units	Limit of detection
				Accreditation Status	

Asbestos Identification	Type	N/A	ISO 17025	Chrysotile-Hard/Cement Type Material	No Asbestos Detected
Asbestos Analyst ID	N/A	N/A	N/A	MJN	MJN

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-71130
Project / Site name: Hyde Road, Gorton

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Bults	Asbestos Identification in bulk material with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	W	ISO 17025
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

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

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

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



Appendix E – Chemical Analysis on Sources of Subsoil and Topsoil used in Cover System



Steve Hutchings
Murray Rix (Northern Ltd).
Andrew House
Hadfield Street
Dukinfield
SK16 4QX

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

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

e: MURRAYRIX Group

Analytical Report Number : 22-65837

Project / Site name:	Dukinfield	Samples received on:	17/06/2022
Your job number:		Samples instructed on/ Analysis started on:	17/06/2022
Your order number:	22-194	Analysis completed by:	27/06/2022
Report Issue Number:	1	Report issued on:	27/06/2022
Samples Analysed:	4 soil samples		

Signed:

Izabela Wójcik
Izabela Wójcik
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

Analytical Report Number: 22-65837
Project / Site name: Dukinfield
Your Order No: 22-194

Lab Sample Number				2319004	2319005	2319006	2319007
Sample Reference				113279	113280	113281	113282
Sample Number				SRM 1	SRM 2	SRM 3	SRM 4
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				16/06/2022	16/06/2022	16/06/2022	16/06/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	2.6	4.1	4.5	5.1
Total mass of sample received	kg	0.001	NONE	1.2	1.2	1.2	1.2

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SSZ	SSZ	SSZ	SSZ

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.4	9.2	9.9	9.6
Organic Matter (automated)	%	0.1	MCERTS	1.8	1.7	1.7	1.6

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.41	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.38	0.49	0.28	0.53
Fluorene	mg/kg	0.05	MCERTS	0.37	0.43	0.24	0.4
Phenanthrene	mg/kg	0.05	MCERTS	3	3.8	2.2	3.3
Anthracene	mg/kg	0.05	MCERTS	0.82	1	0.54	0.85
Fluoranthene	mg/kg	0.05	MCERTS	4.1	6.4	3.1	4.2
Pyrene	mg/kg	0.05	MCERTS	3.8	5.9	3.1	3.8
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2	3.4	1.7	2
Chrysene	mg/kg	0.05	MCERTS	1.9	2.4	1.5	1.9
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	2.5	4.3	2	2.2
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.46	1.6	0.44	0.68
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.7	2.9	1.4	1.7
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.79	1.3	0.71	0.77
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.27	0.42	0.21	0.25
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.92	1.5	0.76	0.87

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	23	36.3	18.2	23.4
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.4	7.2	8.8	8.3
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.62	0.54	0.64	0.66
Boron (water soluble)	mg/kg	0.2	MCERTS	0.3	0.5	0.5	0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	12	11	13	13
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	12	11	13	13
Copper (aqua regia extractable)	mg/kg	1	MCERTS	23	20	26	22
Lead (aqua regia extractable)	mg/kg	1	MCERTS	28	28	29	30
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	13	12	14	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	16	15	18	17
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	45	44	48	47

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0

Analytical Report Number: 22-65837
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Lab Sample Number	2319004	2319005	2319006	2319007
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Sample Number	SRM 1	SRM 2	SRM 3	SRM 4
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	16/06/2022	16/06/2022	16/06/2022	16/06/2022
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 _{HS,1D,AL}	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8 _{HS,1D,AL}	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10 _{HS,1D,AL}	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12 _{EH,CU,1D,AL}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 _{EH,CU,1D,AL}	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 _{EH,CU,1D,AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 _{EH,CU,1D,AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35) _{EH,CU+HS,1D,AL}	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7 _{HS,1D,AR}	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8 _{HS,1D,AR}	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10 _{HS,1D,AR}	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12 _{EH,CU,1D,AR}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 _{EH,CU,1D,AR}	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 _{EH,CU,1D,AR}	mg/kg	10	MCERTS	28	13	35	16
TPH-CWG - Aromatic >EC21 - EC35 _{EH,CU,1D,AR}	mg/kg	10	MCERTS	45	24	50	28
TPH-CWG - Aromatic (EC5 - EC35) _{EH,CU+HS,1D,AR}	mg/kg	10	MCERTS	74	37	85	44

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-65837

Project / Site name: Dukinfield

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2319004	113279	SRM 1	None Supplied	Brown loam with gravel.
2319005	113280	SRM 2	None Supplied	Brown loam with gravel.
2319006	113281	SRM 3	None Supplied	Brown loam with gravel and vegetation.
2319007	113282	SRM 4	None Supplied	Brown loam with gravel.

Analytical Report Number : 22-65837

Project / Site name: Dukinfield

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

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

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

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

Analytical Report Number : 22-65837

Project / Site name: Dukinfield

Water matrix abbreviations:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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Information in Support of Analytical Results

List of HWOL Acronyms and Operators

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

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 22/07982
Issue Number: 1-S2

Date: 26 August, 2022

Client: S.E.D. Services Ltd
Landgate Farm
Landgate Lane
Bryn
Wigan
UK
WN4 0EJ

Project Manager: James Wright
Project Name: Bryn Hall Sheds
Project Ref: Not specified
Order No: N/A
Date Samples Received: 04/08/22
Date Instructions Received: 16/08/22
Date Analysis Completed: 25/08/22

Approved by:



Holly Neary-King
Client Services Supervisor

Envirolab Job Number: 22/07982

Client Project Name: Bryn Hall Sheds

Client Project Ref: Not specified

Lab Sample ID	22/07982/2							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BGB									
Depth to Top										
Depth To Bottom										
Date Sampled										
Sample Type	Soil									
Sample Matrix Code	4A									
% Stones >10mm _A	<0.1							% w/w	0.1	A-T-044
Arsenic _D ^{M#}	2							mg/kg	1	A-T-024s
Cadmium _D ^{M#}	0.6							mg/kg	0.5	A-T-024s
Copper _D ^{M#}	12							mg/kg	1	A-T-024s
Chromium _D ^{M#}	11							mg/kg	1	A-T-024s
Lead _D ^{M#}	5							mg/kg	1	A-T-024s
Mercury _D	0.28							mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	10							mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1							mg/kg	1	A-T-024s
Zinc _D ^{M#}	22							mg/kg	5	A-T-024s
TPH total (>C6-C40) _A ^{M#}	23							mg/kg	10	A-T-007s

Envirolab Job Number: 22/07982

Client Project Name: Bryn Hall Sheds

Client Project Ref: Not specified

Lab Sample ID	22/07982/2							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BGB									
Depth to Top										
Depth To Bottom										
Date Sampled										
Sample Type	Soil									
Sample Matrix Code	4A									
Asbestos in Soil (inc. matrix) ^										
Asbestos in soil [#]	NAD									A-T-045
Asbestos Matrix (visual) _D	-									A-T-045
Asbestos Matrix (microscope) _D	-									A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A									A-T-045

Envirolab Job Number: 22/07982

Client Project Name: Bryn Hall Sheds

Client Project Ref: Not specified

Lab Sample ID	22/07982/2							Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	BGB									
Depth to Top										
Depth To Bottom										
Date Sampled										
Sample Type	Soil									
Sample Matrix Code	4A									
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01							mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01							mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02							mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04							mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04							mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05							mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05							mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07							mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06							mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04							mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	<0.08							mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01							mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03							mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03							mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	<0.03							mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	<0.07							mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	<0.08							mg/kg	0.01	A-T-019s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.

The results reported herein relate only to the material supplied to the laboratory.

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

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

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Subscript "A" indicates analysis has dependant options against results. Testing dependant on results appear in the comments area of your sample receipt.

EPH CWG results have humics mathematically subtracted through instrument calculation

TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: S.E.D. Services Ltd, Landgate Farm, Landgate Lane, Bryn, Wigan, UK, WN4 0EJ

Project: Bryn Hall Sheds

Clients Project No:

Project No: 22/07982

Date Received: 16/08/2022 (am)

Cool Box Temperatures (°C): 21.5 & 21.6

Lab Sample ID	22/07982/2
Client Sample No	
Client Sample ID/Depth	BGB
Date Sampled	
Deviation Code	
E (no date)	✓

Key

E (no date)

No sampling date provided (all results affected if not provided)

Note: If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3 (for water samples $5 \pm 3^{\circ}\text{C}$), ISO 18400-105:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	22/07982/1	22/07982/2	22/07982/3	22/07982/4	22/07982/5	22/07982/6
Client Sample No						
Client Sample ID/Depth	Sand	BGB	Sand	Grit Sand Washed	10mm Washed	20mm Washed
Date Sampled						
A-T-007s	23/08/2022	23/08/2022	23/08/2022	23/08/2022	23/08/2022	23/08/2022
A-T-019s	23/08/2022	23/08/2022	23/08/2022	23/08/2022	23/08/2022	23/08/2022
A-T-024s	25/08/2022	25/08/2022	25/08/2022	25/08/2022	25/08/2022	25/08/2022
A-T-044	23/08/2022	23/08/2022	23/08/2022	23/08/2022	23/08/2022	23/08/2022
A-T-045	18/08/2022	18/08/2022	18/08/2022	18/08/2022	18/08/2022	18/08/2022
A-T-054			19/08/2022	19/08/2022		

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

End of Report



ANALYTICAL TEST REPORT

Contract no: 108478

Contract name: Bredbury Topsoil

Client reference: Stockpile 1

Clients name: DHI Excavations

Clients address: 11-13 Church Street
Farnworth
Bolton
BL4 8AG

Samples received: 25 April 2022

Analysis started: 25 April 2022

Analysis completed: 04 May 2022

Report issued: 04 May 2022

Key

U	UKAS accredited test
M	MCERTS & UKAS accredited test
\$	Test carried out by an approved subcontractor
I/S	Insufficient sample to carry out test
N/S	Sample not suitable for testing
NAD	No Asbestos Detected

Approved by:

Rachael Burton

Reporting Team Lead

Chemtech Environmental Limited

SAMPLE INFORMATION

MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Lab ref	Sample id	Depth (m)	Sample description	Material removed	% Removed	% Moisture
108478-1	SP1 Sample 1	-	Sandy Loam	-	-	20.3

Chemtech Environmental Limited

SOILS

Lab number			108478-1
Sample id			SP1 Sample 1
Depth (m)			-
Date sampled			22/04/2022
Test	Method	Units	
Arsenic (total)	CE127 ^M	mg/kg As	19
Barium (total)	CE127 ^M	mg/kg Ba	157
Cadmium (total)	CE127 ^M	mg/kg Cd	0.9
Chromium (total)	CE127 ^M	mg/kg Cr	144
Copper (total)	CE127 ^M	mg/kg Cu	89
Lead (total)	CE127 ^M	mg/kg Pb	244
Mercury (total)	CE127 ^M	mg/kg Hg	<0.5
Nickel (total)	CE127 ^M	mg/kg Ni	28
Selenium (total)	CE127 ^M	mg/kg Se	1.9
Vanadium (total)	CE127 ^M	mg/kg V	43
Zinc (total)	CE127 ^M	mg/kg Zn	228
pH	CE004 ^M	units	7.1
Sulphate (total)	CE062 ^M	mg/kg SO ₄	575
Cyanide (free)	CE077	mg/kg CN	<1
Cyanide (total)	CE077	mg/kg CN	<1
Phenols (total)	CE078	mg/kg PhOH	<0.5
PAH			
Naphthalene	CE087 ^M	mg/kg	<0.02
Acenaphthylene	CE087 ^M	mg/kg	<0.02
Acenaphthene	CE087 ^M	mg/kg	<0.02
Fluorene	CE087 ^U	mg/kg	<0.02
Phenanthrene	CE087 ^M	mg/kg	0.22
Anthracene	CE087 ^U	mg/kg	0.06
Fluoranthene	CE087 ^M	mg/kg	0.40
Pyrene	CE087 ^M	mg/kg	0.41
Benzo(a)anthracene	CE087 ^U	mg/kg	0.16
Chrysene	CE087 ^M	mg/kg	0.19
Benzo(b)fluoranthene	CE087 ^M	mg/kg	0.24
Benzo(k)fluoranthene	CE087 ^M	mg/kg	0.08
Benzo(a)pyrene	CE087 ^U	mg/kg	0.16
Indeno(123cd)pyrene	CE087 ^M	mg/kg	0.14
Dibenz(ah)anthracene	CE087 ^M	mg/kg	<0.02
Benzo(ghi)perylene	CE087 ^M	mg/kg	0.13
PAH (total of USEPA 16)	CE087	mg/kg	2.21
BTEX & TPH			
MTBE	CE192 ^U	mg/kg	<0.02
Benzene	CE192 ^U	mg/kg	<0.01
Toluene	CE192 ^U	mg/kg	<0.01
Ethylbenzene	CE192 ^U	mg/kg	<0.01
m & p-Xylene	CE192 ^U	mg/kg	<0.02

Chemtech Environmental Limited

SOILS

Lab number			108478-1
Sample id			SP1 Sample 1
Depth (m)			-
Date sampled			22/04/2022
Test	Method	Units	
o-Xylene	CE192 ^U	mg/kg	<0.01
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	<0.01
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	<0.01
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	<0.01
EPH Aromatic (>EC10-EC12)	CE250	mg/kg	<1
EPH Aromatic (>EC12-EC16)	CE250	mg/kg	<1
EPH Aromatic (>EC16-EC21)	CE250	mg/kg	<1
EPH Aromatic (>EC21-EC35)	CE250	mg/kg	16
EPH Aromatic (>EC35-EC44)	CE250	mg/kg	5
VPH Aliphatic (>C5-C6)	CE067	mg/kg	<0.1
VPH Aliphatic (>C6-C8)	CE067	mg/kg	<0.1
VPH Aliphatic (>C8-C10)	CE067	mg/kg	<0.1
EPH Aliphatic (>C10-C12)	CE250	mg/kg	<6
EPH Aliphatic (>C12-C16)	CE250	mg/kg	<6
EPH Aliphatic (>C16-C35)	CE250	mg/kg	<15
EPH Aliphatic (>C35-C44)	CE250	mg/kg	<10
Total Aromatic (>C5-C44)	CE225	mg/kg	21
Total Aliphatic (>C5-C44)	CE225	mg/kg	<19
Total Aromatic/Aliphatic (>C5-C44)	CE225	mg/kg	21
Volatiles			
Vinyl chloride	CE174	mg/kg	<0.01
Trans-1,2-Dichloroethene	CE174	mg/kg	<0.01
1,1-Dichloroethane	CE174	mg/kg	<0.01
Cis-1,2-Dichloroethene	CE174	mg/kg	<0.01
1,1,1-Trichloroethane	CE174	mg/kg	<0.01
Carbon tetrachloride	CE174	mg/kg	<0.01
1,2-Dichloroethane	CE174	mg/kg	<0.01
Trichloroethene	CE174	mg/kg	<0.01
1,1,2-Trichloroethane	CE174	mg/kg	<0.01
Tetrachloroethene	CE174	mg/kg	<0.01
1,1,1,2-Tetrachloroethane	CE174	mg/kg	<0.01
1,1,2,2-Tetrachloroethane	CE174	mg/kg	<0.01
Subcontracted analysis			
Asbestos (qualitative)	\$	-	NAD

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE127	Arsenic (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg As
CE127	Barium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Ba
CE127	Cadmium (total)	Aqua regia digest, ICP-MS	Dry	M	0.2	mg/kg Cd
CE127	Chromium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cr
CE127	Copper (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cu
CE127	Lead (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Pb
CE127	Mercury (total)	Aqua regia digest, ICP-MS	Dry	M	0.5	mg/kg Hg
CE127	Nickel (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Ni
CE127	Selenium (total)	Aqua regia digest, ICP-MS	Dry	M	0.3	mg/kg Se
CE127	Vanadium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg V
CE127	Zinc (total)	Aqua regia digest, ICP-MS	Dry	M	5	mg/kg Zn
CE004	pH	Based on BS 1377, pH Meter	As received	M	-	units
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	M	100	mg/kg SO ₄
CE077	Cyanide (free)	Extraction, Continuous Flow Colorimetry	As received		1	mg/kg CN
CE077	Cyanide (total)	Extraction, Continuous Flow Colorimetry	As received		1	mg/kg CN
CE078	Phenols (total)	Extraction, Continuous Flow Colorimetry	As received		0.5	mg/kg PhOH
CE087	Naphthalene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Acenaphthylene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Acenaphthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Fluorene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Phenanthrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Anthracene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Fluoranthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Pyrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(a)anthracene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Chrysene	Solvent extraction, GC-MS	As received	M	0.03	mg/kg
CE087	Benzo(b)fluoranthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(k)fluoranthene	Solvent extraction, GC-MS	As received	M	0.03	mg/kg
CE087	Benzo(a)pyrene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Indeno(123cd)pyrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Dibenz(ah)anthracene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(ghi)perylene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	PAH (total of USEPA 16)	Solvent extraction, GC-MS	As received		0.34	mg/kg
CE192	MTBE	Headspace GC-FID	As received	U	0.02	mg/kg
CE192	Benzene	Headspace GC-FID	As received	U	0.01	mg/kg
CE192	Toluene	Headspace GC-FID	As received	U	0.01	mg/kg
CE192	Ethylbenzene	Headspace GC-FID	As received	U	0.01	mg/kg
CE192	m & p-Xylene	Headspace GC-FID	As received	U	0.02	mg/kg
CE192	o-Xylene	Headspace GC-FID	As received	U	0.01	mg/kg
CE067	VPH Aromatic (>EC5-EC7)	Headspace GC-FID	As received		0.01	mg/kg
CE067	VPH Aromatic (>EC7-EC8)	Headspace GC-FID	As received		0.01	mg/kg
CE067	VPH Aromatic (>EC8-EC10)	Headspace GC-FID	As received		0.01	mg/kg
CE250	EPH Aromatic (>EC10-EC12)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE250	EPH Aromatic (>EC12-EC16)	Solvent extraction, GCxGC-FID	As received		1	mg/kg

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METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE250	EPH Aromatic (>EC16-EC21)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE250	EPH Aromatic (>EC21-EC35)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE250	EPH Aromatic (>EC35-EC44)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE067	VPH Aliphatic (>C5-C6)	Headspace GC-FID	As received		0.1	mg/kg
CE067	VPH Aliphatic (>C6-C8)	Headspace GC-FID	As received		0.1	mg/kg
CE067	VPH Aliphatic (>C8-C10)	Headspace GC-FID	As received		0.1	mg/kg
CE250	EPH Aliphatic (>C10-C12)	Solvent extraction, GCxGC-FID	As received		6	mg/kg
CE250	EPH Aliphatic (>C12-C16)	Solvent extraction, GCxGC-FID	As received		6	mg/kg
CE250	EPH Aliphatic (>C16-C35)	Solvent extraction, GCxGC-FID	As received		15	mg/kg
CE250	EPH Aliphatic (>C35-C44)	Solvent extraction, GCxGC-FID	As received		10	mg/kg
CE225	Total Aliphatic(>C5-C44)	Sum of Aliphatic VPH (>C5-C10) & EPH (>C10-C44)	As received		10	mg/kg
CE225	Total Aromatic (>C5-C44)	Sum of Aromatic VPH (>C5-C10) & EPH (>C10-C44)	As received		19	mg/kg
CE225	Total Aliphatic/Aromatic (>C5-C44)	Sum of Aliphatic & Aromatic VPH (>C5-C10) & EPH (>C10-C44)	As received		19	mg/kg
CE174	Vinyl chloride	Headspace GC-MS	As received		0.01	mg/kg
CE174	Trans-1,2-Dichloroethene	Headspace GC-MS	As received		0.01	mg/kg
CE174	1,1-Dichloroethane	Headspace GC-MS	As received		0.01	mg/kg
CE174	Cis-1,2-Dichloroethene	Headspace GC-MS	As received		0.01	mg/kg
CE174	1,1,1-Trichloroethane	Headspace GC-MS	As received		0.01	mg/kg
CE174	Carbon tetrachloride	Headspace GC-MS	As received		0.01	mg/kg
CE174	1,2-Dichloroethane	Headspace GC-MS	As received		0.01	mg/kg
CE174	Trichloroethene	Headspace GC-MS	As received		0.01	mg/kg
CE174	1,1,2-Trichloroethane	Headspace GC-MS	As received		0.01	mg/kg
CE174	Tetrachloroethene	Headspace GC-MS	As received		0.01	mg/kg
CE174	1,1,1,2-Tetrachloroethane	Headspace GC-MS	As received		0.01	mg/kg
CE174	1,1,1,2,2-Tetrachloroethane	Headspace GC-MS	As received		0.01	mg/kg
\$	Asbestos (qualitative)	HSG 248, Microscopy	Dry	U	-	-

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
108478-1	SP1 Sample 1	-	N	

Chemtech Environmental Limited

ADDITIONAL INFORMATION

Notes

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

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

This report shall not be reproduced except in full, without prior written approval.

Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

BTEX compounds are identified by retention time only and may include interference from co-eluting compounds.

For soils and solids, all results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

For soils and solids, analytical results are inclusive of stones, where applicable.



ANALYTICAL TEST REPORT

Contract no: 109347

Contract name: Carrington Training Centre

Client reference: Carrington Soils Stockpile 1

Clients name: DHI Excavations

Clients address: 11-13 Church Street
Farnworth
Bolton
BL4 8AG

Samples received: 17 May 2022

Analysis started: 17 May 2022

Analysis completed: 24 May 2022

Report issued: 24 May 2022

Key

U	UKAS accredited test
M	MCERTS & UKAS accredited test
\$	Test carried out by an approved subcontractor
I/S	Insufficient sample to carry out test
N/S	Sample not suitable for testing
NAD	No Asbestos Detected

Approved by:

Megan Harris
Senior Reporting Administrator

Chemtech Environmental Limited

SAMPLE INFORMATION

MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

Lab ref	Sample id	Depth (m)	Sample description	Material removed	% Removed	% Moisture
109347-1	SP1 Sample 1	-	Loamy Clayey Sand	-	-	7.2

Chemtech Environmental Limited

SOILS

Lab number			109347-1
Sample id			SP1 Sample 1
Depth (m)			-
Date sampled			16/05/2022
Test	Method	Units	
Arsenic (total)	CE127 ^M	mg/kg As	1.9
Barium (total)	CE127 ^M	mg/kg Ba	26
Cadmium (total)	CE127 ^M	mg/kg Cd	<0.2
Chromium (total)	CE127 ^M	mg/kg Cr	30
Copper (total)	CE127 ^M	mg/kg Cu	6.1
Lead (total)	CE127 ^M	mg/kg Pb	9.4
Mercury (total)	CE127 ^M	mg/kg Hg	<0.5
Nickel (total)	CE127 ^M	mg/kg Ni	2.9
Selenium (total)	CE127 ^M	mg/kg Se	<0.3
Vanadium (total)	CE127 ^M	mg/kg V	4.3
Zinc (total)	CE127 ^M	mg/kg Zn	13
pH	CE004 ^M	units	7.3
Sulphate (total)	CE062 ^M	mg/kg SO ₄	1905
Cyanide (free)	CE077	mg/kg CN	<1
Cyanide (total)	CE077	mg/kg CN	<1
Phenols (total)	CE078	mg/kg PhOH	<0.5
PAH			
Naphthalene	CE087 ^M	mg/kg	<0.02
Acenaphthylene	CE087 ^M	mg/kg	<0.02
Acenaphthene	CE087 ^M	mg/kg	0.05
Fluorene	CE087 ^U	mg/kg	0.03
Phenanthrene	CE087 ^M	mg/kg	0.50
Anthracene	CE087 ^U	mg/kg	0.13
Fluoranthene	CE087 ^M	mg/kg	0.83
Pyrene	CE087 ^M	mg/kg	0.73
Benzo(a)anthracene	CE087 ^U	mg/kg	0.40
Chrysene	CE087 ^M	mg/kg	0.39
Benzo(b)fluoranthene	CE087 ^M	mg/kg	0.49
Benzo(k)fluoranthene	CE087 ^M	mg/kg	0.15
Benzo(a)pyrene	CE087 ^U	mg/kg	0.38
Indeno(123cd)pyrene	CE087 ^M	mg/kg	0.34
Dibenz(ah)anthracene	CE087 ^M	mg/kg	0.05
Benzo(ghi)perylene	CE087 ^M	mg/kg	0.26
PAH (total of USEPA 16)	CE087	mg/kg	4.73
TPH			
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	<0.01
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	<0.01
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	<0.01
EPH Aromatic (>EC10-EC12)	CE250	mg/kg	<1
EPH Aromatic (>EC12-EC16)	CE250	mg/kg	<1

Chemtech Environmental Limited

SOILS

Lab number			109347-1
Sample id			SP1 Sample 1
Depth (m)			-
Date sampled			16/05/2022
Test	Method	Units	
EPH Aromatic (>EC16-EC21)	CE250	mg/kg	<1
EPH Aromatic (>EC21-EC35)	CE250	mg/kg	<1
EPH Aromatic (>EC35-EC44)	CE250	mg/kg	<1
VPH Aliphatic (>C5-C6)	CE067	mg/kg	<0.1
VPH Aliphatic (>C6-C8)	CE067	mg/kg	<0.1
VPH Aliphatic (>C8-C10)	CE067	mg/kg	<0.1
EPH Aliphatic (>C10-C12)	CE250	mg/kg	<6
EPH Aliphatic (>C12-C16)	CE250	mg/kg	<6
EPH Aliphatic (>C16-C35)	CE250	mg/kg	<15
EPH Aliphatic (>C35-C44)	CE250	mg/kg	<10
Total Aromatic (>C5-C44)	CE225	mg/kg	<19
Total Aliphatic (>C5-C44)	CE225	mg/kg	<19
Total Aliphatic/Aromatic (>C5-C44)	CE225	mg/kg	<19
Volatiles			
Vinyl chloride	CE174	mg/kg	<0.01
1,1-Dichloroethene	CE174	mg/kg	<0.01
Trans-1,2-Dichloroethene	CE174	mg/kg	<0.01
Cis-1,2-Dichloroethene	CE174	mg/kg	<0.01
1,1,1-Trichloroethane	CE174	mg/kg	<0.01
Carbon tetrachloride	CE174	mg/kg	<0.01
1,2-Dichloroethane	CE174	mg/kg	<0.01
Trichloroethene	CE174	mg/kg	<0.01
1,1,2-Trichloroethane	CE174	mg/kg	<0.01
Tetrachloroethene	CE174	mg/kg	<0.01
1,1,1,2-Tetrachloroethane	CE174	mg/kg	<0.01
Subcontracted analysis			
Asbestos (qualitative)	\$	-	NAD

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE127	Arsenic (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg As
CE127	Barium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Ba
CE127	Cadmium (total)	Aqua regia digest, ICP-MS	Dry	M	0.2	mg/kg Cd
CE127	Chromium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cr
CE127	Copper (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cu
CE127	Lead (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Pb
CE127	Mercury (total)	Aqua regia digest, ICP-MS	Dry	M	0.5	mg/kg Hg
CE127	Nickel (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Ni
CE127	Selenium (total)	Aqua regia digest, ICP-MS	Dry	M	0.3	mg/kg Se
CE127	Vanadium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg V
CE127	Zinc (total)	Aqua regia digest, ICP-MS	Dry	M	5	mg/kg Zn
CE004	pH	Based on BS 1377, pH Meter	As received	M	-	units
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	M	100	mg/kg SO ₄
CE077	Cyanide (free)	Extraction, Continuous Flow Colorimetry	As received		1	mg/kg CN
CE077	Cyanide (total)	Extraction, Continuous Flow Colorimetry	As received		1	mg/kg CN
CE078	Phenols (total)	Extraction, Continuous Flow Colorimetry	As received		0.5	mg/kg PhOH
CE087	Naphthalene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Acenaphthylene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Acenaphthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Fluorene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Phenanthrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Anthracene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Fluoranthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Pyrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(a)anthracene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Chrysene	Solvent extraction, GC-MS	As received	M	0.03	mg/kg
CE087	Benzo(b)fluoranthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(k)fluoranthene	Solvent extraction, GC-MS	As received	M	0.03	mg/kg
CE087	Benzo(a)pyrene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Indeno(123cd)pyrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Dibenz(ah)anthracene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(ghi)perylene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	PAH (total of USEPA 16)	Solvent extraction, GC-MS	As received		0.34	mg/kg
CE067	VPH Aromatic (>EC5-EC7)	Headspace GC-FID	As received		0.01	mg/kg
CE067	VPH Aromatic (>EC7-EC8)	Headspace GC-FID	As received		0.01	mg/kg
CE067	VPH Aromatic (>EC8-EC10)	Headspace GC-FID	As received		0.01	mg/kg
CE250	EPH Aromatic (>EC10-EC12)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE250	EPH Aromatic (>EC12-EC16)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE250	EPH Aromatic (>EC16-EC21)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE250	EPH Aromatic (>EC21-EC35)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE250	EPH Aromatic (>EC35-EC44)	Solvent extraction, GCxGC-FID	As received		1	mg/kg
CE067	VPH Aliphatic (>C5-C6)	Headspace GC-FID	As received		0.1	mg/kg
CE067	VPH Aliphatic (>C6-C8)	Headspace GC-FID	As received		0.1	mg/kg
CE067	VPH Aliphatic (>C8-C10)	Headspace GC-FID	As received		0.1	mg/kg

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE250	EPH Aliphatic (>C10-C12)	Solvent extraction, GCxGC-FID	As received		6	mg/kg
CE250	EPH Aliphatic (>C12-C16)	Solvent extraction, GCxGC-FID	As received		6	mg/kg
CE250	EPH Aliphatic (>C16-C35)	Solvent extraction, GCxGC-FID	As received		15	mg/kg
CE250	EPH Aliphatic (>C35-C44)	Solvent extraction, GCxGC-FID	As received		10	mg/kg
CE225	Total Aromatic (>C5-C44)	Sum of Aliphatic & Aromatic VPH (>C5-C10) & EPH (>C10-C44)	As received		19	mg/kg
CE225	Total Aliphatic (>C5-C44)	Sum of Aliphatic & Aromatic VPH (>C5-C10) & EPH (>C10-C44)	As received		19	mg/kg
CE225	Total Aliphatic/Aromatic (>C5-C44)	Sum of Aliphatic & Aromatic VPH (>C5-C10) & EPH (>C10-C44)	As received		19	mg/kg
CE174	Vinyl chloride	Headspace GC-MS	As received		0.01	mg/kg
CE174	1,1-Dichloroethene	Headspace GC-MS	As received		0.01	mg/kg
CE174	Trans-1,2-Dichloroethene	Headspace GC-MS	As received		0.01	mg/kg
CE174	Cis-1,2-Dichloroethene	Headspace GC-MS	As received		0.01	mg/kg
CE174	1,1,1-Trichloroethane	Headspace GC-MS	As received		0.01	mg/kg
CE174	Carbon tetrachloride	Headspace GC-MS	As received		0.01	mg/kg
CE174	1,2-Dichloroethane	Headspace GC-MS	As received		0.01	mg/kg
CE174	Trichloroethene	Headspace GC-MS	As received		0.01	mg/kg
CE174	1,1,2-Trichloroethane	Headspace GC-MS	As received		0.01	mg/kg
CE174	Tetrachloroethene	Headspace GC-MS	As received		0.01	mg/kg
CE174	1,1,1,2-Tetrachloroethane	Headspace GC-MS	As received		0.01	mg/kg
\$	Asbestos (qualitative)	HSG 248, Microscopy	Dry	U	-	-

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
109347-1	SP1 Sample 1	-	N	

Chemtech Environmental Limited

ADDITIONAL INFORMATION

Notes

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

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

This report shall not be reproduced except in full, without prior written approval.

Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

For soils and solids, all results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

For soils and solids, analytical results are inclusive of stones, where applicable.



Appendix F – Gas Membrane Installation



1 Croft Stairs
Newcastle upon Tyne
NE1 2HG

Ref: 211108.L.FR
13 May 2022

Patrick Casey,
Senior Site Manager – Civils Division,
Chartrange,
Wharf Street,
Dukinfield,
Cheshire,
SK16 4NJ

Dear Patrick,

Re: Gas Membrane Validation – Final Report, Belle Vue Coop Academy

This letter has been produced in order to report and advise on the validation of the installation of gas protection measures in line with the Visqueen Design (Enclosure 1) at the following site:

- Belle Vue Coop Academy, Manchester M12 5AL

It is our understanding that gas protection measures are required within each of the school blocks at the abovementioned site in line with Characteristic Situation 2 ground gas classification (BS8485:2015+A1:2019).

Validation inspections have recently been carried out at the Drama Block, Teaching Block and Sports Block and details relating to the final block inspections are provided in the following table. Photographic records are provided within Enclosure 2.

Block / Area Validated	Date of Final Validation Report	Inspecting Engineer	Inspected				Pass/Fail
			Membrane	Joints/ Seals	Service Entry Points	Dowel Entries	
Lift Pit	16.11.2021	RJ	✓	✓	N/A	N/A	Pass
Teaching Block	11.02.2022	RJ	✓	✓	✓	✓	Pass
Drama Block	24.03.2022	RJ	✓	✓	✓	✓	Pass
Sports Block	13.05.2022	RJ	✓	✓	✓	✓	Pass

N/A – Not Applicable



Conclusion

The overall installation of the Visqueen gas protection design was satisfactory within the lift pit, Teaching Block, Drama Block and Sports Block and the gas protection measures at the inspected areas are considered to have been installed in accordance with the agreed Visqueen Design (Enclosure 1). For further information, please refer to the individual reports for the appropriate components.

We trust that these comments and attachments are to your satisfaction and if you require any further information or clarification, please do not hesitate to contact us.

Yours sincerely,

Rebecca Jordan BSc (Hons) MEnv M.I. Soil Sci
Consultant

For and on behalf of Roberts Environmental Ltd
Tel: 0191 230 4521
Mobile: 07904 533 938

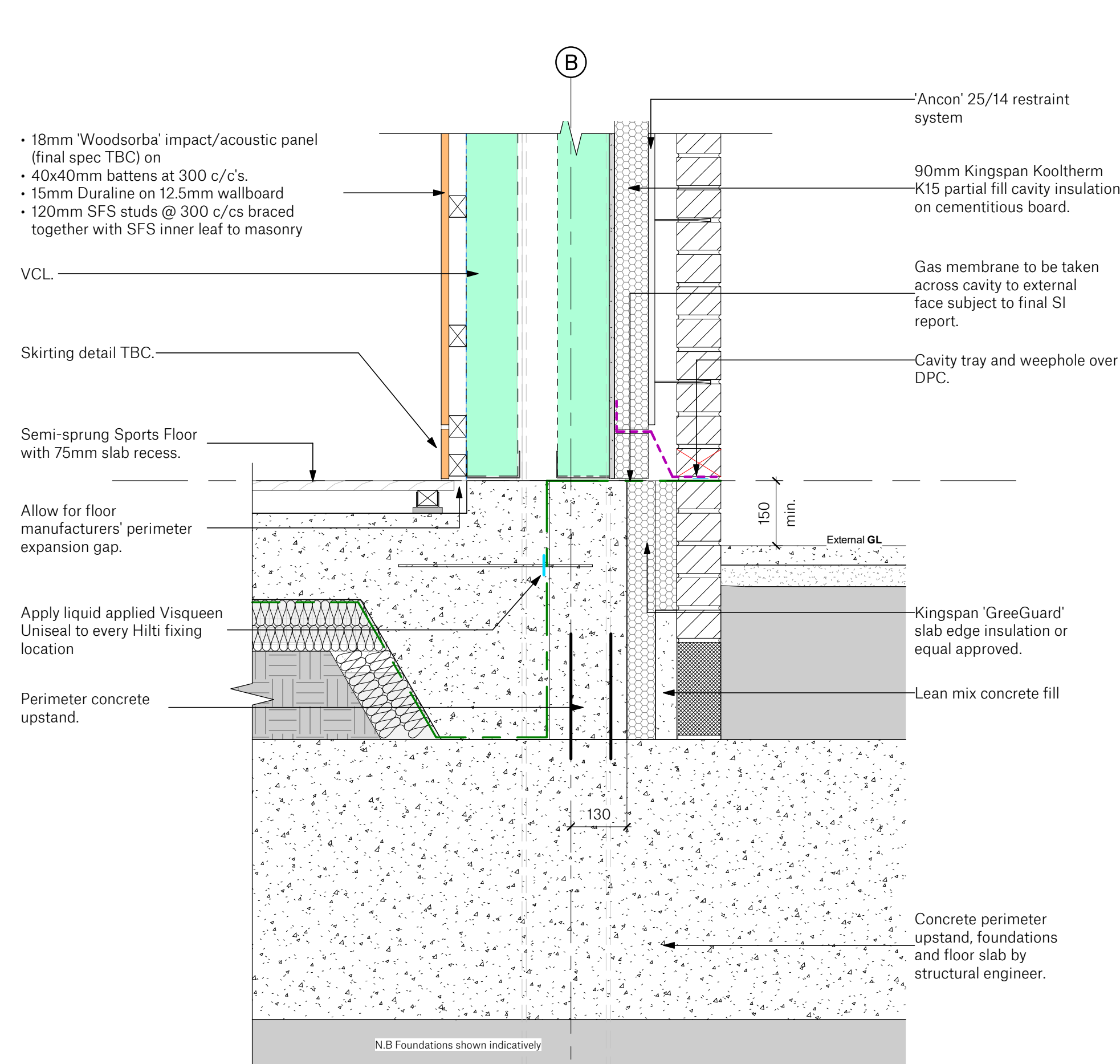
Enclosures:

- Enclosure 1 – Visqueen Drawings

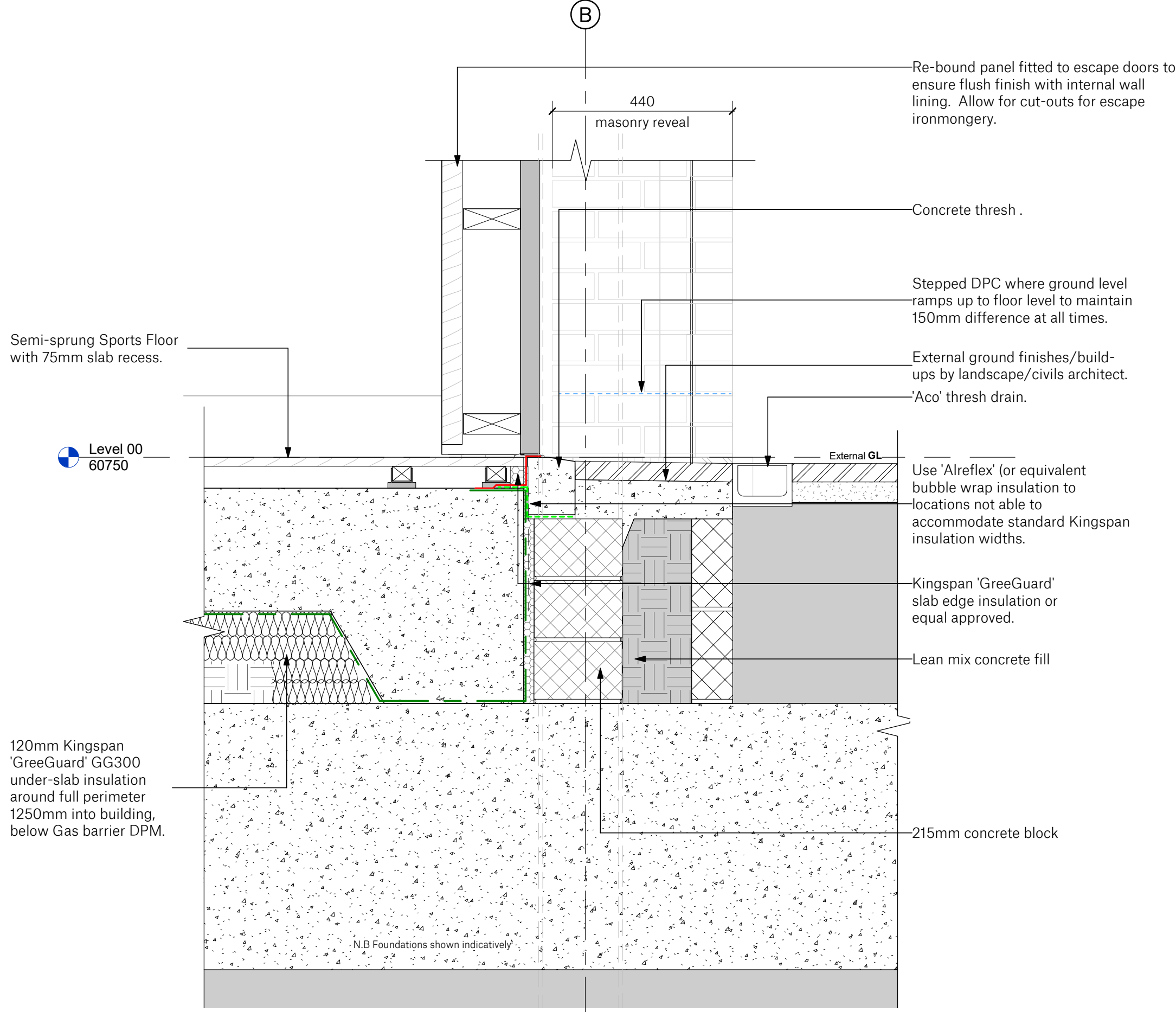


Enclosure I – Visqueen Drawings

Revision	Description	Author	Checker	Date
P01	First Issue	AWA	LB	08/06/21
P02	Details amended following changes to BDP slab & substructure design	AWA	LB	30/09/21
P03	Waterproofing to base of upstand wall to re-bar locations amended , sports hall internal lining updated, extent of sports slab recess updated	RG	AWA	02/08/21
C01	Updated following further developments between SRM & BDP. Issued as CONSTRUCTION	AWA	RG	20/09/21
C02	Details updated in line with Roberts assessor comments and markup following inspection	RG	SPE	07/02/22



Slab Edge Detail 04
1:10



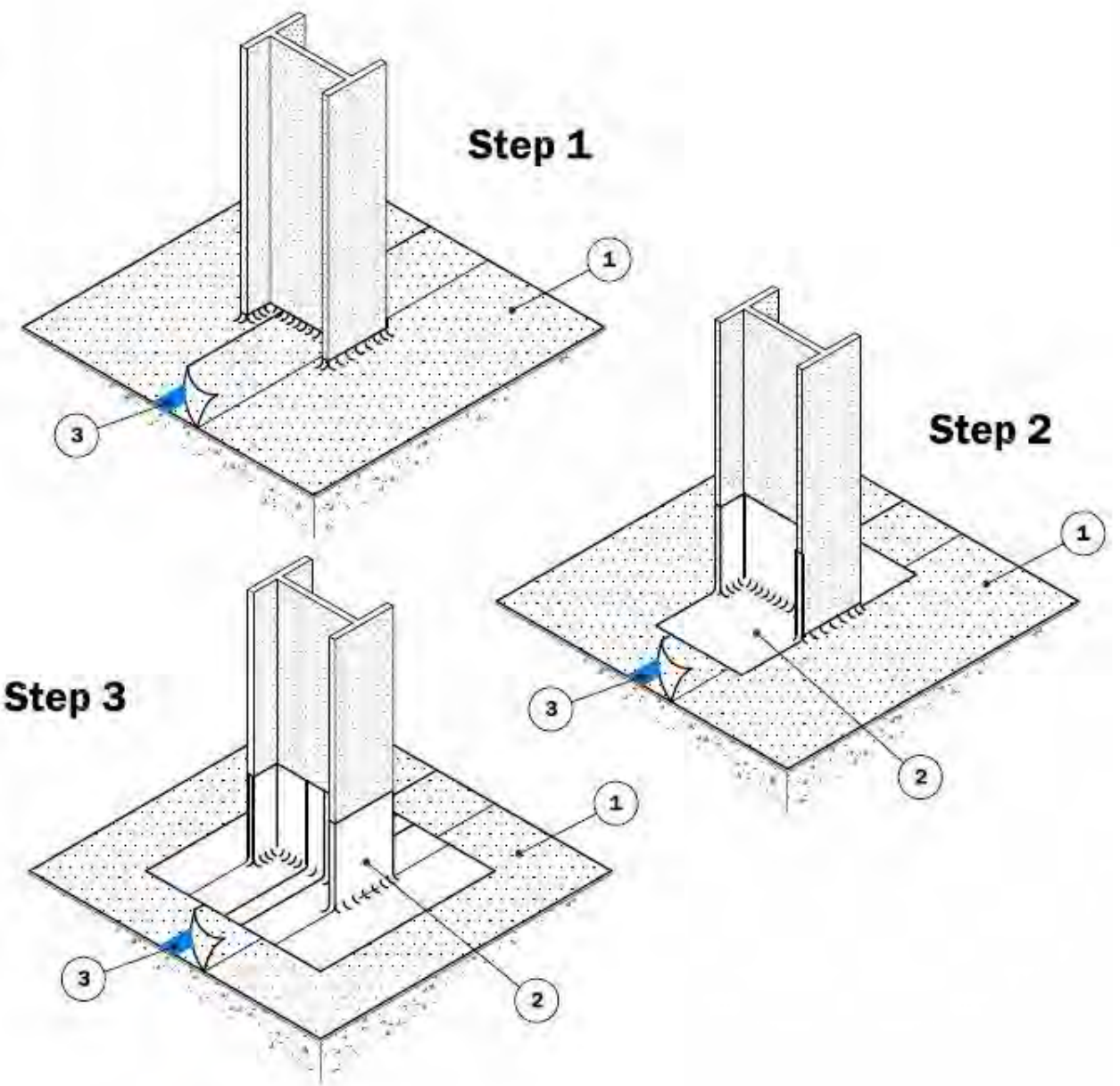
Slab Edge Detail 05
1:10

KEY TO MATERIALS :-	
1	Visqueen Gas Barrier.
2	Visqueen 300mm / 500mm Detailing Strip.
3	Visqueen Double Sided Tape (10m x 50mm).

Step 1.
Install Visqueen Gas Barrier DPM on a suitable smooth & well compacted blinding layer. All laps to be 150mm minimum & fully sealed using Visqueen Double Sided Tape & Visqueen Gas Resistant Foil Tape. Neatly cut the DPM around the profile of the steel column.

Step 2.
Ensure steelwork is clean & dry before applying Visqueen Detailing Strip (300mm or 500mm). Ensure that the Detailing Strip extends 150mm minimum horizontally onto the DPM & 150mm minimum vertically onto the steel column. Ensure all laps are fully sealed.

Step 3.
Apply more Detailing Strip to the remaining exposed steel flanges ensuring all laps are 150mm in all directions & fully sealed.



GB-52 Detail
N.T.S

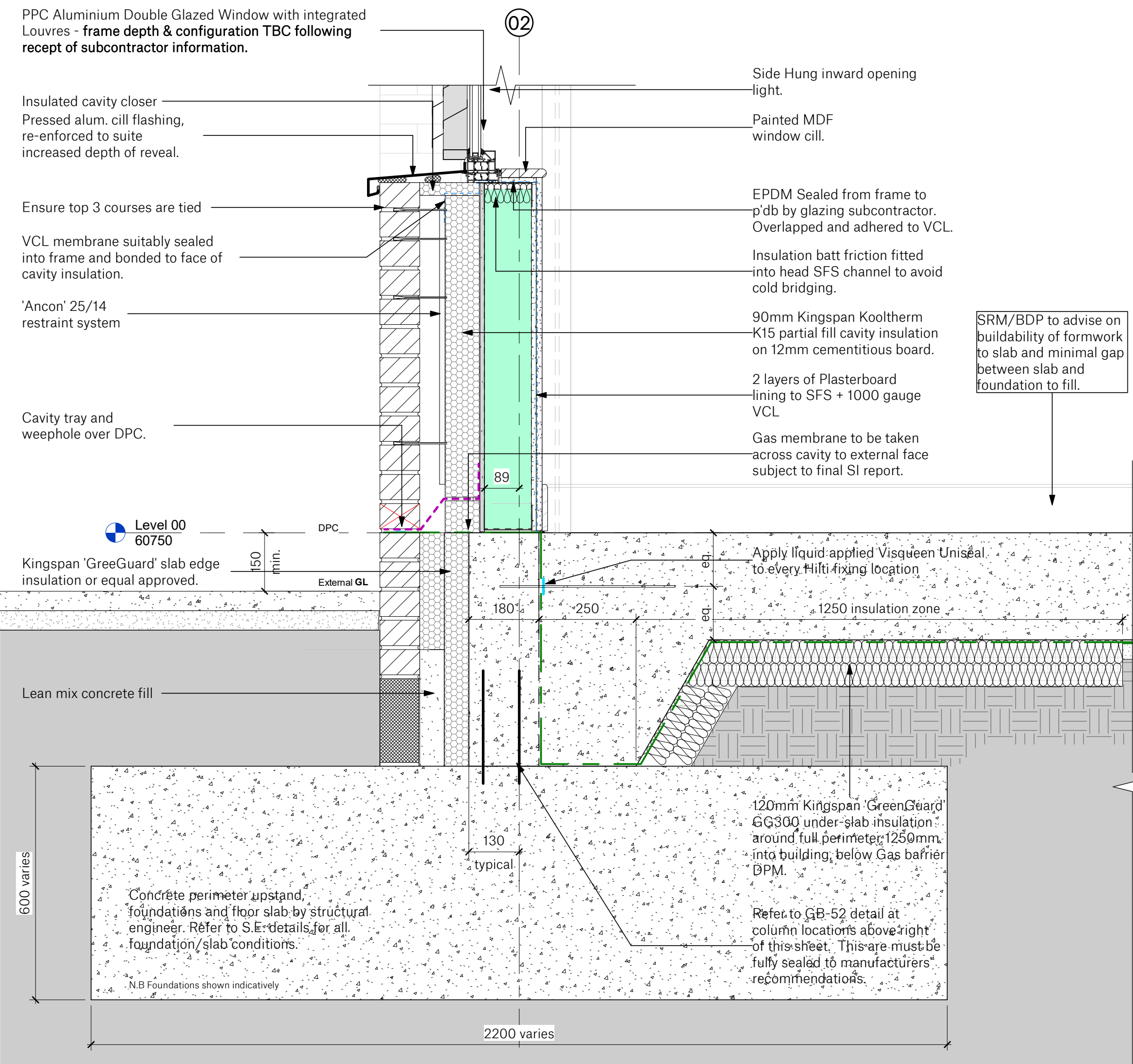
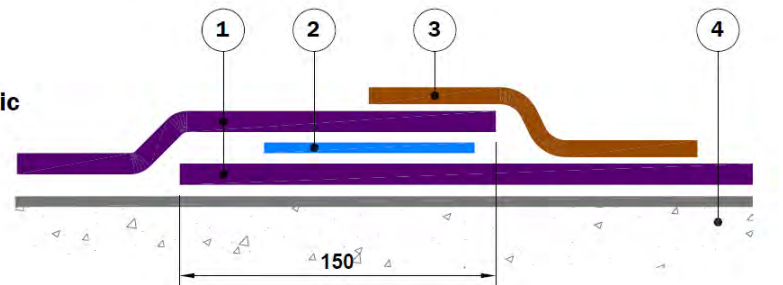
Visqueen Jointing Details

N.T.S

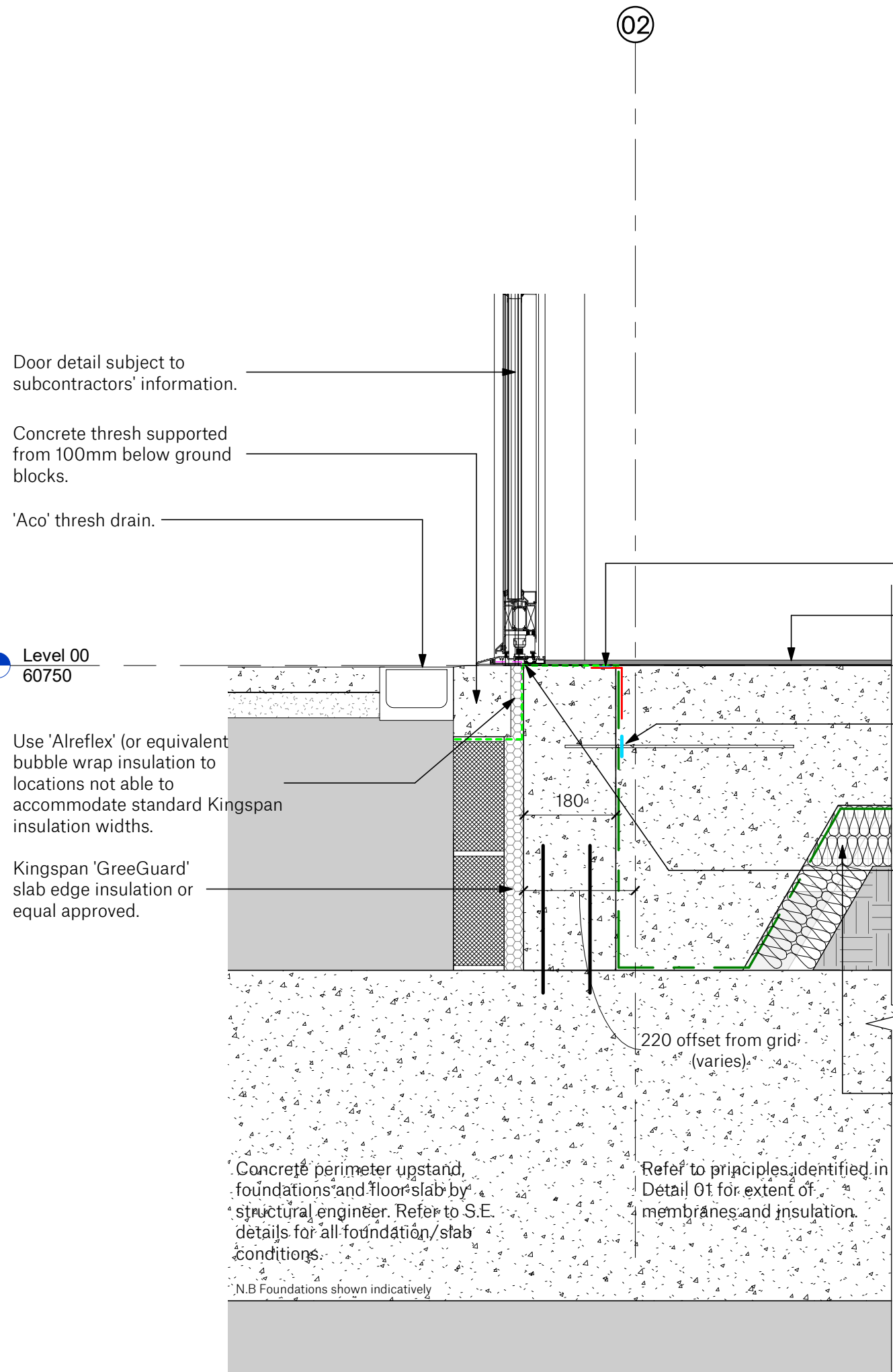
KEY TO MATERIALS :-	
1	Visqueen Ultimate GeoSeal or loose laid membrane
2	Visqueen Ultimate Double Sided Tape.
3	Visqueen Ultimate Lap Tape.
4	Smooth slab or blinding layer.

NB : Ensure careful placement of steel reinforcement to avoid damage to the DPM.

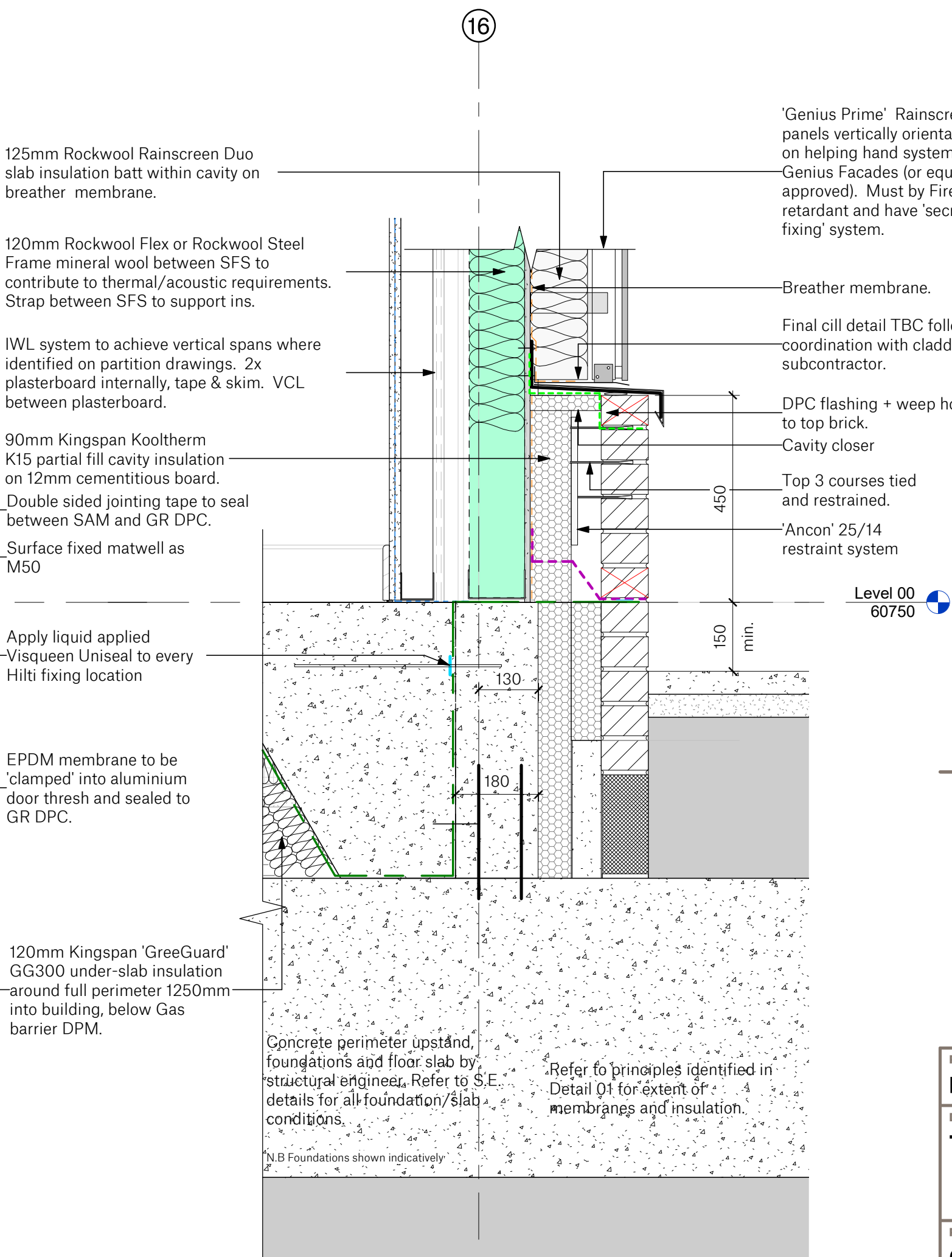
TAPED JOINT :
LOW RISK of hydrostatic water pressure



Slab Edge Detail 01



Slab Edge Detail 02



Slab Edge Detail 03

LEGEND

- Extent of SFS
- Visqueen Liquid Gas Membrane
- Visqueen ZEDEX CPT DPC (cavity tray)
- Visqueen GR DPC
- Visqueen GR SAM
- Visqueen Gas Barrier
- Visqueen GR Lap Tape
- VisqueenPro Double Sided Jointing Tape (50mm x 10m)
- Visqueen Double Sided Jointing Tape (100mm x 15m)
- Visqueen Treadguard 1500
- Visqueen Protect & Drain 12mm
- Visqueen Pro 300/500mm Detailing Strip on HP Tanking primer
- Visqueen Ultimate GeoSeal
- EPDM
- VCL
- Breather Membrane

NOTE:

Always refer to slab edge setting-out plans for location of slab edge offset from gridlines.

SPACE

Spaceworks, Benton Park Road, Newcastle upon Tyne,
NE7 7LX
T: +44 (0)844 800 6660
www.spacearchitects.co.uk

Sir Robert McALPINE

MANCHESTER CITY COUNCIL

Project Belle Vue Co-op Academy, Manchester				
Drawing Title Typical Slab Edge Details - Sheet 01				
Project No. 009433	Drawing No. 01-XX-DR-A-100001	Status C02	Revision As indicated	Scale at A1
File Reference: 009433-SPA-01-XX-DR-A-100001				
This drawing is Copyright - Check all dimensions on info - Inform originator of any discrepancies - Work to figured dimensions only - Do not scale				



Appendix G – Japanese Knotweed Removal



Attendance Report

SIR ROBERT MCALPINE LTD

**BELLE VUE CO-OP ACADEMY, HYDE ROAD, BELLE
VUE, MANCHESTER, M12 5AL**

All information contained within this document must be treated as confidential

Proposal Number: **1445**

Address of Property: Belle Vue CO-OP Academy,
Hyde Road,
Belle Vue,
Manchester,
M12 5AL

Requested by: Herbert Vardon
Quantity Surveyor

Sir Robert McAlpine Ltd

www.srm.com

Direct Dial: +443335662349

Mobile: +447976592807

Email: Herbert.vardon@srm.com

ATTENDANCE HISTORY

Tree Works 1:	Wednesday 26th to Friday 28th May 2021
Excavation Work 1:	Monday 28th June to Friday 2nd July 2021
Excavation Work 2:	Monday 5th July 2021
Excavation Work 3:	Wednesday 21st to Thursday 22nd July 2021
Tree Work 2:	Wednesday 29th to Thursday 30th September 2021
Treatment Work 1:	Wednesday 29th to Friday 31st September 2021

REPORT DETAILS

TREE WORK 1

Date Attended: **Wednesday 26th to Friday 28th May 2021 (3 Days)**

On arrival JKC met with site manager and the tree works commenced following the pre-start induction.

Along with the site manager all the trees were assessed and marked out for protection with further inspections to be conducted throughout the works to protected wildlife before actual removal.

Several trees were marked by the ecologist as having active nests. These trees were identified and left until a further inspection had been undertaken to ensure that the trees were not habited before removal.

A number of other trees were also marked as potential bat roosts which were also identified and left.

The team had minimal difficulty removing the trees without disturbing the marked trees other than one popular on the run of six. This tree had a crossing bow into the protected tree next to it. After assessment we agreed that the limb would disturb the other tree weather it was felled or dismantled, and the tree also looked to be diseased. We inspected the protected tree for nests and there was not any so we assumed this tree was down for bats although we could not see any evidence of cavities. After felling and processing the arisings we noted woodpeckers on the protected tree, so luckily, they have not been put out by the disturbance. No nests or eggs were found in any of the trees felled.

The trees were felled, and the team were able to keep out of the active building site entirely.

Further works will be required to remove the marked active trees.

EXCAVATION WORK 1

Date Attended: **Monday 28th June to Friday 2nd July 2021 (5 Days)**

The works commenced on the removal of the Cotoneaster for the southern and south-eastern areas of the site.

Both areas were assessed and Cat-scanned prior to commencement and clear entry and exit points identified to ensure no risk of cross contamination.

A designated holding area was identified to store the waste material prior to loading of the tipper waggons for removing off site.

The excavation continued throughout the week with the removal of the waste is on-going.

The site was left in good order prior to leaving.

PHOTO LOCATION JK2 (SEE MAPPING BELOW)



EXCAVATION WORK 2

Date Attended: **Monday 5th July 2021 (1 Day)**

JKC arrived on site and recommenced with the removal of the target plants. All Japanese Knotweed plants were excavated and stockpiled in the holding area prior to removal off site to a licenced landfill tip for controlled and authorised disposal.

All cotoneaster plants were processed and stockpiled prior to being loaded onto skips for removal off site.

Some plant material was stockpiled separately as it was contaminated with a large amount of plastic and cannot be removed as green waste.

PHOTO LOCATION JK5 (SEE MAPPING BELOW)



EXCAVATION WORK 3

Date Attended: **Wednesday 21st to Thursday 22nd July 2021 (2 Days)**

JKC arrived on site and commenced with the mobilisation of the excavator and screener to complete the works on site.

The works involved scraping vegetation of contaminated areas and screening the material prior to removal off site.

The stockpiled material was taken off site in its entirety and a final review of all areas was completed to ensure no loss of the target plants was incurred during this process.

A final visit will be required to remove the last section of the Japanese Knotweed with a date to be confirmed.

PHOTO LOCATION COTONEASTER (SEE MAPPING BELOW)



TREE WORK 2

Date Attended: **Wednesday 29th to Thursday 30th September 2021 (2 Days)**

On arrival to site, we had there where issues with access to the trees as the site fencing had fenced them out and had all utilities mounted on it.

We initially requested that the cables and pipes be removed from the fencing but were advised this was not possible and we were instructed to protect them and fell over them.

I requested an email be sent to JKC agreeing that sabre/JKC could not except responsibility for damage should an issue arise.

The job was straight forward, and Tom was again very proactive in working with us.

CHEMICAL TREATMENT WORK 1

Date Attended: **Wednesday 29th to Friday 31st September 2021 (3 Days)**

At 11:15, JKC arrival at the site and completed a full walkover of the woodland and western fence line to locate and treat any target plants.

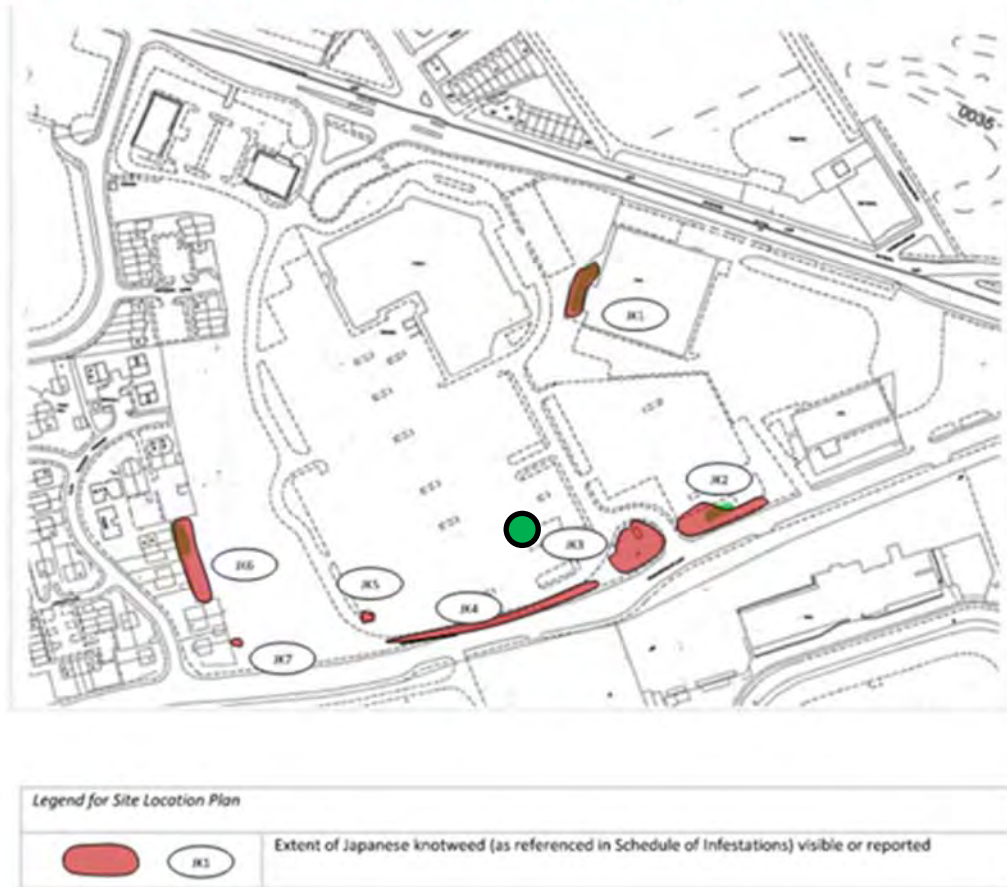
The large area of JK within the woodland area has been subjected to a folia application and the treatment was completed using a combination of stem injection and folia application to the smaller plants. The treatment was completed successfully, and this will be sufficient to kill of any remaining root system prior to the top growth naturally dying back over winter.

The treatment areas will be monitored in the early summer of 2022.

SITE LOCATION MAPPING

- Japanese Knotweed Locations
- Cotoneaster Location

Fig 1 – Showing approximate location of knotweed (not to scale)



Completed by: Rob Gibbs - JKC Project Administration Manager

Date: Thursday 9th November 2021

On behalf of: Japanese Knotweed Control Ltd

Please refer to your JKC Proposal Document for full terms and conditions



Japanese Knotweed Control Ltd
Houldsworth Business and Arts Centre
Houldsworth Mill
Houldsworth Street
Reddish
Stockport
SK5 6DA

Tel : 0845 643 1168

Email : info@japaneseknotweedcontrol.com

Website : www.japaneseknotweedcontrol.com



Follow us :



Company Registration number: 06047453

 **please consider the environment and only print this if required**



Appendix H – Barrier Pipe Installation

10/11/22

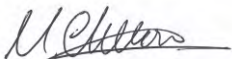
Dear Richard,

Belle Vue Co-Op Academy, External Mains Cold Water Pipework

Integral confirm 110mm Protectaline Barrier Pipework has been installed at Belle Vue Co-op Academy, Hyde Road, Manchester, M11 3BS, from the boundary water meter connection (final connection by others) to building entry point as per the Combined M&E External Services Layout and accompanying datasheet.

We trust the above meets your requirements, however, please do not hesitate to contact us should further information be required.

Kind regards,



Matthew Chilton
Project Manager





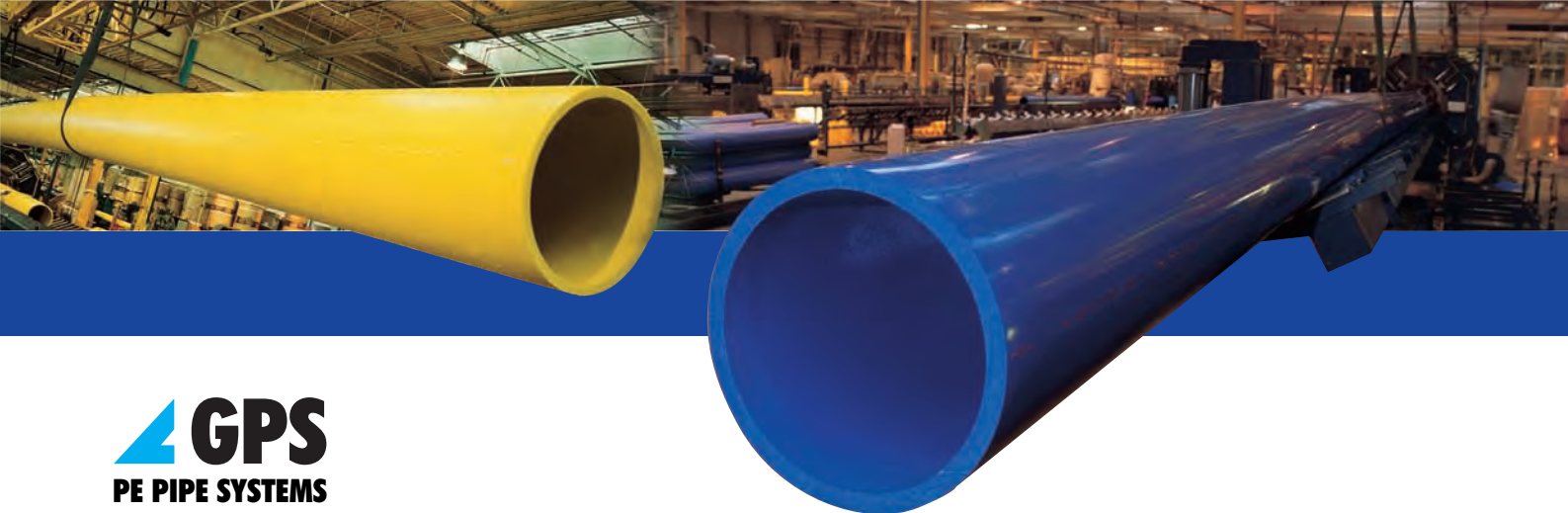
PROTECTA-LINE

BARRIER PIPE AND FITTINGS SYSTEMS

For complete peace of mind

Installation and Technical Guidelines





Our Company

GPS PE Pipe Systems is a member of the international Aliaxis Group of Companies who manufacture and sell pipe systems and related products for residential and commercial construction, industrial and public utilities.

We specialise in the research, development and manufacture of polyethylene and multi-layer pipe systems including fittings for gas and water transportation in the utilities, offshore and industrial markets.

Resulting from the amalgamation of two market leading companies, GPS PE Pipe Systems brings together over one hundred years of experience and knowledge in plastic pipe systems.

The Environment

We actively and consistently strive to reduce our impact on the environment. We have measured our performance against various environmental indicators since 1997 and operated an environmental management system accredited to ISO 14001 since 1999. We are currently working towards an independent verification of our carbon footprint under the Certified Emissions Measurement And Reduction Scheme (CEMARS).

Market Oriented

GPS PE Pipe Systems products have a broad range of applications in the industrial and utilities markets on a worldwide basis. The utilities of water and gas distribution are important sectors for high integrity products where the maintenance of water quality and the safe transport of gaseous fuels are of paramount importance. Industrial applications include: alternative energy installations in landfill gas systems; effluent transportation and mineral slurries.

Many of the brands in the GPS portfolio have a long record of innovation in meeting the needs of the water and gas utilities. One of the foremost pioneers in polyethylene pipe systems, GPS is continually improving and updating its offering to meet the ever growing needs of the distribution engineer, ensuring they stay at the forefront of world gas and water distribution/treatment systems.

Manufactured in the UK, our products are sold to more than 60 countries worldwide.

Customer Focus

The key to our success lies in the commitment we pledge to provide the highest quality service and support to our customers and industry end-users. We are a team of highly motivated and experienced individuals who are dedicated to helping our customers achieve their goals.

We place the utmost importance in meeting the needs of our customers, constantly evolving our extensive product portfolio to meet the ever changing demands of the water and gas utilities, industrial and offshore markets.

Quality

Designed, manufactured and supplied under a BS EN ISO 9001:2008 accredited Quality Management System, GPS products comply with relevant national, European and international product standards to ensure peace of mind for our customers.



Certificate No. FM 34819



Certificate No. E 51385



World leaders in the design, manufacture, marketing and sales of high performance, high integrity plastic and composite piping systems.

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Installation Instructions for Protecta-Line Ductile Iron Ferrule	8
Protecta-Line Ferrule Off-Takes	9
Installation Instructions for Protecta-Line Gunmetal Self Tapping Ferrule Straps	10
Installation Instructions for Protecta-Line Gunmetal Ferrule Off-Takes	11-12
Protecta-Line Fluid Compression Fittings	13-16
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Joining Instructions for 63mm-180mm Protecta-Line Fluid Compression Fittings (Mains Pipes)	19
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Procedure for Using the Large Diameter Protecta-Line Scraper	26-27
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Introduction

Previously used contaminated land is increasingly being reused for new developments where drinking water is needed. Such land, in particular former industrial land, must either be remediated to reduce contamination to acceptable levels, or a pipe system must be installed which can guarantee the long term safety and quality of the water supply. Without remediation, conventional metal and polyethylene (PE) piping systems are not recommended in such land as certain residual chemicals can permeate or corrode the pipe wall causing unpleasant tastes and shortening the life of the pipe. For further details refer to the WRc Polyethylene Pipe Systems Manual - version 01/02 - Ref: ED11 and UKWIR 10/MW/03/21.

The fully integrated barrier pipe and fittings system for safely transporting water through contaminated land

Protecta-Line is an award winning fully integrated barrier pipe and fittings system in sizes from 25mm to 355mm. The five-layer pipe comprises: an internal standard PE host pipe for carrying the water; an aluminium barrier layer to stop the ingress of contaminants; an outer polyethylene protection layer; and two adhesive tie-layers.

Protecta-Line prevents the tainting that can be caused by through-wall permeation by hydrocarbons and related chemicals that might be present in contaminated land. Introduced in 1996 to the UK market, Protecta-Line won the IWEX Innovation Award in 1997. Due to its structure any chemicals left in the land cannot damage the pipe wall, ensuring preservation of long-term strength, many years of usage and whole-life cost savings. The double bonded construction incorporates an impermeable metallic barrier wrapped onto a standard central core of PE80 or PE100 (Excel) pipe conforming to BS 6572 or WIS 4-32-17/BS EN 12201.

The Protecta-Line Advantages

- WRAS and Regulation 31/27 approval for total peace of mind to the highest standards of safety demanded by water companies and other installers.
- The whole Protecta-Line system is Kitemarked to WIS 4-32-19, the only industry standard for pipe systems for potable water in contaminated land.
- Protecta-Line has all the installation benefits of conventional PE pipe - a lightweight, flexible material that is fast and easy to install.
- Protecta-Line system encompasses the most complete and fully integrated range of compatible pipe and fittings, approved for safe transportation of drinking water through contaminated land.
- Protecta-Line allows for a lower cost of installation than metallic pipe and is significantly less disruptive.
- Protecta-Line pipes may be subjected to cold bending as for standard polyethylene pipes (see GPS Installation & Technical Guidelines Brochure - GP-IT005).

Approvals

- Approved by the Secretary of State
- WRAS (**complete system approved**)
- BS 6572 (25mm - 63mm pipes)
- WIS 4-32-17 (25mm - 355mm pipes)
- BS EN 12201 (90mm - 355mm pipes)
- WIS 4-32-19 (**complete system is Kitemarked**).
System permeation tests independently verified

Protecta-Line is an approved system.

Only Protecta-Line fittings shall be used with Protecta-Line pipe. The use of alternative fittings will have the following effects on your Protecta-Line system:

- Invalidity of WRAS approval and manufacturers system performance warranty.
- Compromised permeation resistance (causing non-compliance with WIS 4-32-19 and possible risks to health).
- Danger of pipe-layer delamination, compromising system performance integrity and risking pipe bursts. It would be illegal to install non-WRAS approved fittings.



0609132
0702502
0902519
0902515
0703510



07472
56151
508224



WIS 4-32-19
KM 514626

The most complete system

The Protecta-Line range consists of:

- Protecta-Line Pipe from 25mm to 110mm in SDR11 and 125mm to 355mm in SDR17. Available in 6m and 12m sticks; 25m, 50m and 100m coils, depending on diameter.
- Protecta-Line Mechanical Compression Fittings from 25mm to 63mm including Couplers, Reducing Couplers, Transition Fittings, Equal Tees, 90° Elbows, End Connectors and Reducing Sets.
- Protecta-Line Stop Cocks at 25mm & 32mm.
- Protecta-Line Self-Tapping Ferrule Off-Takes in mains sizes 63mm to 355mm with 25mm or 32mm outlets.
- Protecta-Line Ferrule Off-Takes in mains sizes 90mm to 355mm with 63mm outlets.
- Protecta-Line Ductile Iron Ferrule in 3/4" x 25mm.
- Protecta-Line Fluid Compression Fittings from 63mm to 180mm including Couplers, Reducers, 90° Elbows, 45° Elbows, Equal Tees, Flanged Branch Tees, Repair Couplers, Stub Flange Adaptors and Duck Foot Bends.
- Protecta-Line Electrofusion Fittings from 90mm to 355mm including Couplers, Reducers, 90° Elbows, 45° Elbows, Equal Tees, Flanged Branch Tees and Flange Adaptors.
- A range of fabricated fittings for butt-fusion in sizes from 90mm to 355mm, without need to wrap in the field.

Sizes 90mm to 355mm of Protecta-Line can be joined using Electrofusion or Butt-fusion. When made in accordance with GPS PE Pipe Systems' recommended procedures, butt-fusion and electrofusion joints of the Protecta-Line system have been independently shown to meet the requirements of WIS 4-32-19 without any need for subsequent wrapping. This does not exempt installers from local regulations and the local Water Company preferences must be adhered to.

Protecta-Line systems should be pressure tested after installation using the standard industry procedures employed for PE pipelines, taking extra care when working in a contaminated environment as set out by the Local Water Undertaking.

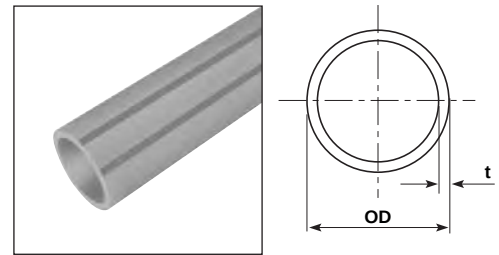
View Protecta-Line installation videos online.

Use your mobile to scan this code.



Protecta-Line Pipe

- Kitemarked to WIS 4-32-19.
- Standard blue PE100 (Excel) or PE80 (MDPE) core pipe with aluminium barrier layer and protective outer PE skin.
- In 6m and 12m sticks and 25m, 50m or 100m coils.
- For use with Protecta-Line mechanical compression fittings up to 63mm and fluid compression fittings from 63mm up to 180mm.
- Suitable for butt-fusion or electrofusion jointing where specified, in sizes 90mm and above.
- Brown stripes provide easy identification and comply with NJUG regulations.



Straight Lengths

Size* (mm)	Std Length (m)	Material	Pressure Rating (bar)	SDR	Min OD (mm)	Max OD (mm)	Mean Bore (mm)	Min Wall Thickness (mm)	Max Wall Thickness (mm)	Mean Weight (kg/m)	6M Code	12M Code
63	6	PE80 (MDPE)	12.5	11	64.3	65.6	51	6.5	7.6	1.3	44 512 311	-
90	6/12	PE100 (Excel)	16	11	92.2	93.5	73	9.3	10.7	2.6	44 512 313	44 527 313
110	6/12	PE100 (Excel)	16	11	112.2	113.5	89	11.1	12.7	3.7	44 512 314	44 527 314
125	6/12	PE100 (Excel)	16	11	127.2	128.5	101.2	12.5	14.2	4.7	44 512 315	44 652 315
	6/12	PE100 (Excel)	10	17	127.2	128.5	110	8.5	9.8	3.4	44 653 315	44 654 315
160	6/12	PE100 (Excel)	10	17	163.2	165.1	140	10.7	12.4	5.4	44 653 317	44 654 317
180	6/12	PE100 (Excel)	16	11	183.3	185.4	146.8	17.6	20	9.5	44 512 318	44 652 318
	6/12	PE100 (Excel)	10	17	183.3	185.4	158	11.9	13.7	6.8	44 653 318	44 654 318
225	6/12	PE100 (Excel)	10	17	227.3	229.8	197	14.6	16.6	10.2	44 653 320	44 654 320
250	6/12	PE100 (Excel)	10	17	252.3	254.9	220	16	18.3	12.4	44 653 321	44 654 321
280	6/12	PE100 (Excel)	10	17	282.3	285.1	246	17.8	20.1	15.3	44 653 322	44 654 322
315	6/12	PE100 (Excel)	10	17	317.3	320.2	277	19.9	22.4	19.2	44 653 323	44 654 323
355	6/12	PE100 (Excel)	10	17	357.3	360.6	312	22.3	25.1	24.2	44 653 324	44 654 324

Coils

Size* (mm)	Coil Lengths Available (m)	Material	Pressure Rating (bar)	SDR	Min OD (mm)	Max OD (mm)	Mean Bore (mm)	Min Wall Thickness (mm)	Max Wall Thickness (mm)	Approx Weight (kg/m)	Code
25	25/50	PE80 (MDPE)	12.5	11	26.3	27.5	20	3.0	3.7	0.26	44 658 308/44 659 308
32	25/50	PE80 (MDPE)	12.5	11	33.3	34.5	26	3.7	4.4	0.39	44 658 308/44 659 308
63	25/50/100	PE80 (MDPE)	12.5	11	64.3	65.6	51	6.5	7.6	1.3	44 658 311/44 659 311/44 660 311
90	50/100	PE100 (Excel)	16	11	92.2	93.5	73	9.3	10.7	2.6	44 659 313/44 660 313
110	50/100	PE100 (Excel)	16	11	112.2	113.5	89	11.1	12.7	3.7	44 659 314/44 660 314
125	50/100	PE100 (Excel)	16	11	127.2	128.5	101.2	12.5	14.2	4.7	44 659 315/44 660 315
	50/100	PE100 (Excel)	10	17	127.2	128.5	110	8.5	9.8	3.4	44 655 315/44 656 315
160	50/100	PE100 (Excel)	10	17	163.2	165.1	141	10.7	12.4	5.4	44 655 317/44 656 317
180	50/100	PE100 (Excel)	16	11	183.3	185.4	146.8	17.6	20	9.5	44 659 318/44 660 318
	50/100	PE100 (Excel)	10	17	183.3	185.4	158	11.9	13.7	6.8	44 655 318/44 656 318

* The nominal size is the nominal core pipe outside diameter.

Other lengths and SDRs may be available to order subject to a minimum order value. Please contact our Sales Office for further information.

To connect Protecta-Line to alternative barrier pipe systems, a mechanical connection should be used: either a threaded connection in the case of the service pipe sizes or a flange connection in the case of larger sizes. Contact our Technical Support for further details.

Testing and Commissioning

The sequence of events for Protecta-Line includes the same basic testing procedures as for conventional PE pipes, but taking extra care appropriate for a contaminated environment as set out by the Local Water Undertaking.

As for normal PE pipes these procedures will normally require, as a minimum, the adequate flushing of the services and the testing of all pipes and joints to the maximum head to which the system is to be subjected.

Only Protecta-Line fittings shall be used with Protecta-Line pipe. The use of alternative fittings will have the following effects on your Protecta-Line system:

- Invalidity of WRAS approval and manufacturers system performance warranty.
- Compromised permeation resistance (causing non-compliance with WIS 4-32-19 and possible risks to health).
- Danger of pipe-layer delamination, compromising system performance integrity and risking pipe bursts.
- It would be illegal to install non-WRAS approved fittings.

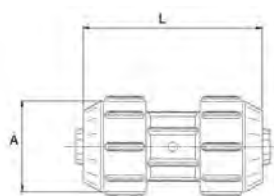
Protecta-Line Mechanical Compression Fittings

Protecta-Line Mechanical Compression Fittings are supplied for use with pipe sizes between 25mm and 63mm.

These acetal fittings are WRAS approved fittings for use with 25mm to 63mm Protecta-Line pipe as they are proven to WIS 4-32-19 to offer barrier protection against contaminants. They also carry a unique pipe insert to totally seal against the pipe bore ensuring there can be no contact between the drinking water and the pipe's aluminium layer.

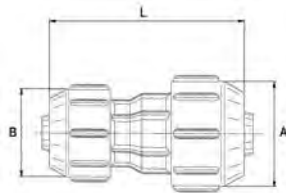
- Proven barrier protection against contamination.
- No pipe end preparation required.
- No wrapping required.
- No risk of joint corrosion.
- No contact between the pipe's protective aluminium layer and drinking water.
- Easy and rapid installation.
- No specialist equipment required.
- All weather installation.
- Employs O-ring seal, in body of fitting only.
- Suitable for connecting Protecta-Line to a standard PE pipe.

PE to PE Couplers



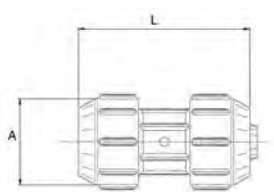
Size (mm)	A (mm)	L (mm)	Weight (kg)	Code
25 x 25	51	93	0.12	44 100 307
32 x 32	60	99	0.19	44 100 308
63 x 63	105	155	0.70	44 100 311

PE to PE Reducing Couplers



Size (mm)	A (mm)	B (mm)	L (mm)	Weight (kg)	Code
32 x 25	60	51	100	0.15	44 114 409
63 x 25	105	81	155	0.58	44 114 412
63 x 32	105	105	155	0.78	44 114 415

PE to Copper Coupler



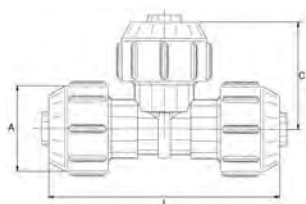
Size (mm)	A (mm)	L (mm)	Weight (kg)	Code
25 x 15	51	93	0.12	44 996 005
25 x 22	51	93	0.13	44 996 006
32 x 28	60	93	0.21	44 996 007

Fittings for Protecta-Line in Brownfield and Contaminated Land

Protecta-Line Pipe Sizes (mm)												
25	32	63	90	110	125	160	180	225	250	280	315	355
Mechanical Compression Fittings			Fluid Compression Fittings									
			25mm and 32mm Self-Tapping Ferrule Off-Takes									
			63mm Ferrule Off-Takes									
			Electrofusion or Butt-Fusion									

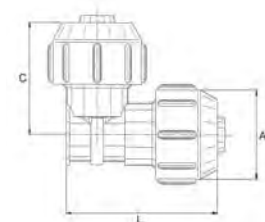
A range of fabricated fittings for butt-fusion in sizes 90mm to 355mm is available to order – please contact Sales Office for further information.

Equal Tees



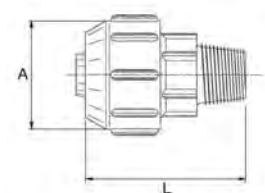
Size (mm)	A (mm)	C (mm)	L (mm)	Weight (kg)	Code
25 x 25	51	64	134	0.18	44 122 307
32 x 32	60	68	146	0.30	44 122 308
63 x 63	105	100	216	1.25	44 122 311

90° Elbows



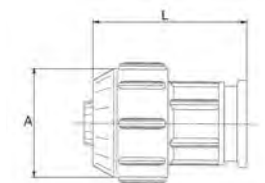
Size (mm)	A (mm)	C (mm)	L (mm)	Weight (kg)	Code
25	51	68	93	0.13	44 115 307
32	60	71	97	0.22	44 115 308
63	105	105	158	0.90	44 115 311

End Connectors - PE x Male Iron BSP Tapered



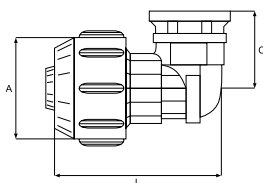
Size (mm x inch)	A (mm)	L (mm)	Weight (kg)	Code
25 x 3/4	51	64	0.07	44 151 608
32 x 3/4	60	74	0.08	44 151 611
32 x 1	60	77	0.11	44 151 612
63 x 1 1/2	105	100	0.39	44 151 628
63 x 2	105	105	0.39	44 151 629

End Connectors - PE x Female Iron BSP Tapered



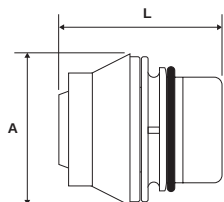
Size (mm x inch)	A (mm)	L (mm)	Weight (kg)	Code
25 x 3/4	51	67	0.08	44 101 608
32 x 1	60	75	0.12	44 101 612
63 x 2	105	100	0.43	44 101 629

90° Elbows - PE x Female Iron BSP Tapered



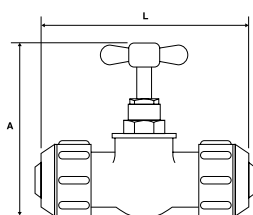
Size (mm x inch)	A (mm)	C (mm)	L (mm)	Weight (kg)	Code
25 x ¾	51	35	73	0.08	44 396 608
32 x ¾	60	39	80	0.18	44 396 612
63 x 2	105	62	145	0.57	44 396 629

Reducing Sets - to allow easy Protecta-Line diameter changes



Size (mm)	A (mm)	L (mm)	Weight (kg)	Code
32 x 25	44	42	0.03	44 105 409
63 x 32	80	51	0.15	44 105 415

Stop Cocks - BS 5433 Type

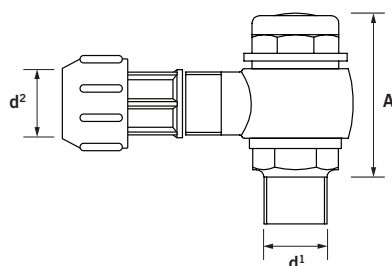


Size (mm)	A (mm)	L (mm)	Weight (kg)	Code
25*	140	135	0.9	44 142 307
32**	165	170	1.7	44 142 308

* Now includes 22mm copper Type A insert

** Now includes 28mm copper Type A insert

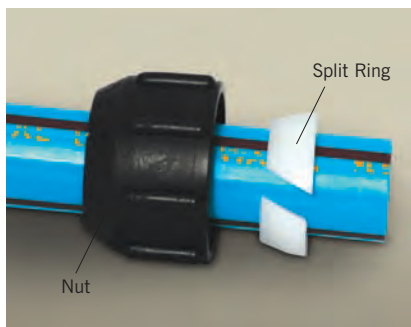
Ductile Iron Ferrule - PE x Male Iron BSP Tapered



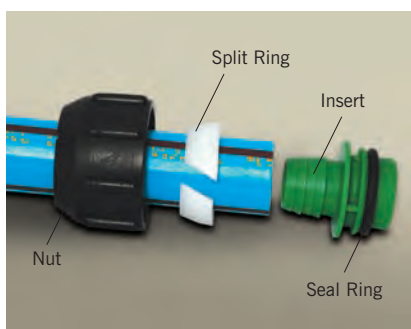
Size (inch x mm) d1 x d2	A (mm)	Weight (kg)	Code
¾ x 25	60	0.45	44 762 407

Joining Instructions for 25mm-63mm Protecta-Line Mechanical Compression Fittings (Service Pipes)

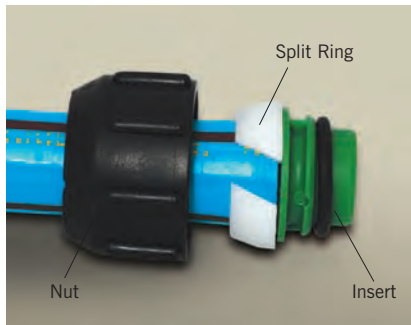
For use on GPS Protecta-Line pipe only.



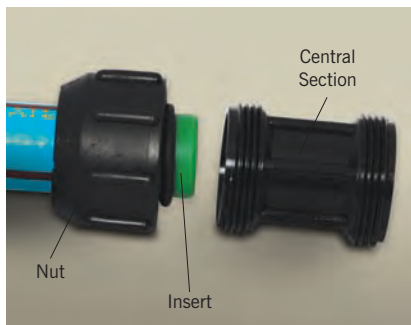
1. Cut the pipe square. Unscrew the Protecta-Line fitting and remove the nut and white split ring. Slide these on to the Protecta-Line pipe, nut first ensuring that the taper of the split ring faces towards the nut.



2. Tap the insert into the end of the Protecta-Line pipe with a flat wooden object. Ensure that the seal ring is correctly positioned on the pipe insert.

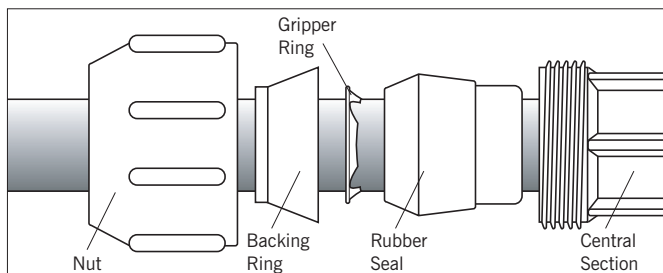


3. Slide the split ring along the Protecta-Line pipe until it is up against the insert. Snap the nut over the split ring.



4. Offer the body of the fitting to the Protecta-Line pipe end and screw the nut on to the fitting body. Continue to tighten the nut until the thread on the body is no longer visible.

Protecta-Line to copper joint (incorporates insert set for Copper Type A for above ground use on Table X tube).



1. Cut copper pipe square, preferably with cutters, and deburr.
2. Degrease pipe and roughen with wire wool or similar.
3. Unscrew nut from copper side of Protecta-Line fitting and slide this nut and plastic backing ring along copper pipe – with taper of backing ring towards nut.
4. Then slide metal gripper ring on to pipe and position it 10–15mm from end, ensuring flat face of gripper ring is facing towards backing ring/nut (i.e. slots in the gripper ring must face towards fitting body).
5. Next slide rubber seal on to copper pipe all the way up to internal stop - taper facing towards other parts already on pipe.
6. This will make certain that the metal gripper ring is pushed to correct location along pipe.
7. Slide backing ring forward to meet gripper ring/rubber seal.
8. Push assembly into body of Protecta-Line fitting and engage nut.
9. Tighten nut firmly with a wrench.
10. Ensure all pipework is securely anchored to counteract end loading.

Caution: Do not use heat near plastics and do not re-use gripper ring.

Connecting Protecta-Line mechanical compression fittings to iron fittings

When screwing Protecta-Line Mechanical Compression Fittings onto iron fittings it is important not to use excessive amounts of thread sealing tape or other material **because** this can result in unreasonable force needed to complete the joint. Thread sealing tape should be WRc approved.

Installation Instructions for Protecta-Line Ductile Iron Ferrule

1. Drill and tap the ductile iron main and insert the ferrule nipple in the usual way.



3. Fit the banjo onto the ferrule nipple and replace the securing collar. After aligning the outlet to the desired position, tighten the securing collar.



4. Remove the plug from the top of the securing collar and withdraw the nipple plug all the way up to the top of the stem to achieve a good seal and then replace the plug.



2. Fit the Protecta-Line end connector compression fitting to the outlet of the ferrule banjo, employing sufficient PTFE tape to ensure a good seal. Fit the Protecta-Line service pipe into the compression fitting on the outlet as described on page 7.



5. Reinstall any protective wrappings to the ductile iron pipe.

Note: The ductile iron ferrule may have a gunmetal rather than an acetal top cap on some fittings.

Protecta-Line Ferrule Off-Takes

- 25mm and 32mm Protecta-Line self-tapping ferrule off-take for 63mm to 355mm Protecta-Line mains.
- 63mm Protecta-Line ferrule off-take for 90mm to 355mm Protecta-Line mains.
- Each ferrule off-take incorporates a self-locking insert sleeve that grips into drilled/tapped hole in the mains pipe and securely seals the pipe crown to the underside of the fittings base.

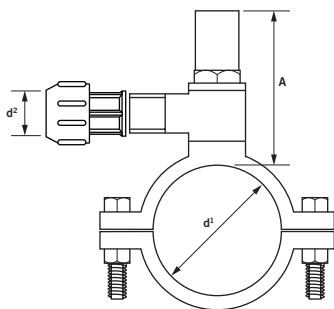
- The insert sleeve features a captive seal that positively isolates the barrier pipe aluminium layer from the drinking water.
- Ground contaminants and pipe aluminium barrier layer are isolated from water supply.
- Simple all weather installation and use.

Note: Protecta-Line gunmetal ferrule off-takes should always be used in preference to PE electrofusion saddles.

25mm and 32mm Self Tapping Ferrule Off-Takes



Fitting includes 1 x PE x Female Iron BSP Tapered End Connector.

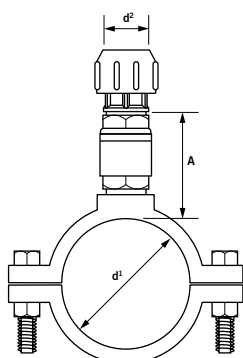


Size (mm) d ¹ x d ²	A (mm)	Weight (kg)	Code
63 x 25	95	0.92	44 762 412
90 x 25	95	1.07	44 762 393
110 x 25	95	1.10	44 762 394
125 x 25	95	1.19	44 762 395
160 x 25	95	1.28	44 762 397
180 x 25	95	1.35	44 762 398
225 x 25	95	1.90	44 762 400
250 x 25	95	2.30	44 762 401
280 x 25	95	2.50	44 762 402
315 x 25	95	3.20	44 762 403
355 x 25	95	3.30	44 762 404
63 x 32	100	1.24	44 762 415
90 x 32	100	1.31	44 762 417
110 x 32	100	1.37	44 762 418
125 x 32	100	1.42	44 762 419
160 x 32	100	1.52	44 762 421
180 x 32	100	1.60	44 762 422
225 x 32	100	2.10	44 762 424
250 x 32	100	2.50	44 762 425
280 x 32	100	2.70	44 762 426
315 x 32	100	3.40	44 762 427
355 x 32	100	3.50	44 762 428

63mm Ferrule Off-Takes

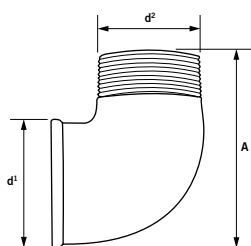


Fitting includes 1 x 63mm PE x Male Iron BSP Tapered End Connector.



Size (mm) d ¹ x d ²	A (mm)	Weight (kg)	Code
90 x 63	155	3.38	44 762 459
110 x 63	155	3.77	44 762 460
125 x 63	155	3.79	44 762 461
160 x 63	155	3.73	44 762 463
180 x 63	155	3.88	44 762 464
225 x 63	155	5.01	44 762 466
250 x 63	155	5.12	44 762 467
280 x 63	155	5.29	44 762 468
315 x 63	155	4.97	44 762 469
355 x 63	155	6.12	44 762 470

90° Gunmetal Elbow, FI/MI (for use with 63mm Ferrule Off-Takes)



Size (mm x inch) d ¹ x d ²	A (mm)	Weight (kg)	Code
63 x 2	72	0.89	44 996 050

Installation Instructions for 25mm and 32mm Protecta-Line Gunmetal Self-Tapping Ferrule Straps

For use on GPS Protecta-Line pipe only.

Gloves and safety glasses must be worn during the whole assembly process.

The ferrule strap cutter includes a sealing sleeve that prevents water contact with the aluminium barrier layer.

1. Fit the Protecta-Line end connector compression fitting to the ferrule strap male outlet, employing sufficient PTFE tape to ensure a good seal. (It is advisable to rotate the ferrule outlet having first slackened the securing collar).



2. Clean the surface of the Protecta-Line main where the self-tapping ferrule strap is to be installed, avoiding areas which appear damaged.



3. Ensuring that the sealing "O" ring is in place under the upper ferrule strap (and taking care not to damage this on the protruding sleeve), fit the self-tapping ferrule squarely around the main and tighten the two strap bolts evenly and symmetrically.



4. Fit the Protecta-Line service pipe into the compression fitting on the outlet, as described in the separate instructions. After aligning the outlet to the desired position, tighten the securing collar.



5. Remove the plug from the top of the ferrule cap, and, using an 8 or 11mm (depending on service pipe size) square section key, wind down the cutter assembly all the way until hard and solid resistance is felt. Note that before the solid resistance is felt there may be a temporary drop in resistance, followed by an increase as the sleeve around the cutter enters the main.

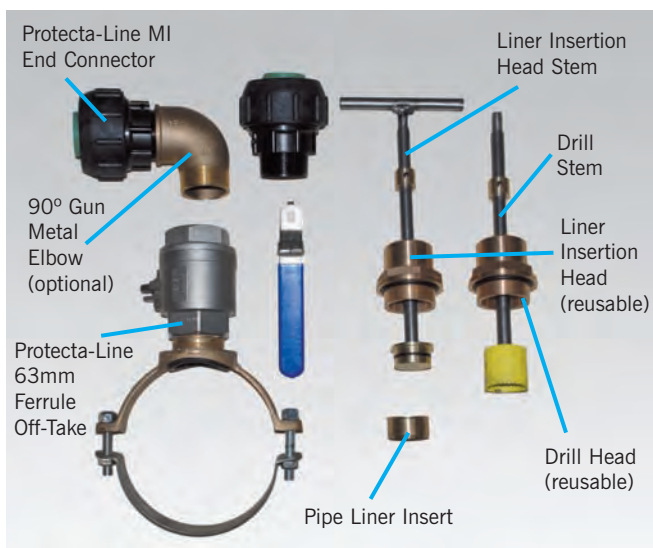


6. Withdraw the cutter all the way up to the top of the stem, employing a final counter-clockwise torque of approximately 15Nm to ensure a good seal and replace the plug. Some leakage through the plughole is normal before the cutter has been fully unscrewed.



Caution: Do not remove cutter or sleeve from this product before use.

Installation Instructions for 63mm Protecta-Line Gunmetal Ferrule Off-Takes



Accessory	Code
* Protecta-Line 2" Drill Head	44 794 003
**Protecta-Line 2" Liner Head	44 794 004
***Protecta-Line Drill/Liner Head O-Ring Kit	44 996 062

*Drill Head setting: fix stop at 230mm from base to drill tip

**Drill Liner setting: fix stop at 180mm from stop base to bottom of tip on liner head

*** Includes four O-rings for replacement in either Drill Head or Liner Head

1. Ensuring that the sealing O-ring is in place under the upper ferrule strap, fit the ferrule squarely around the main in the required position and tighten the two strap bolts evenly and symmetrically. Ensure that ball valve operates correctly before fitting.



2. After assembling the drill stem with a 48mm hole cutter, withdraw the drill stem fully into the drill head.



3. Ensure that the ball valve is in the fully open position (anti-clockwise rotation). Fit the drill head to the outlet of the ferrule.



4. Attach the chuck of an electric drill to the top of the drill stem (ensuring that the power supply is disconnected). Re-connect the power supply to the electric drill and operate the drill with downward pressure until the stop on the drill stem contacts the top of the drill head.



5. Disconnect the power supply to the electric drill and remove the drill from the drill stem. Withdraw the drill stem, until the cutter is fully returned into the drill head and fully close the ball valve (clockwise rotation) before removing the drill head from the outlet of the ferrule.



6. Position the liner insert onto the carrier of the liner insertion head.



7. Fully withdraw the carrier and pipe liner insert into the liner insert head (indicated by the lower depth mark on the stem).



8. Fit the liner insertion head to the outlet of the ferrule. Open the ball valve (anti-clockwise rotation) and fully insert the liner insert, by applying downward pressure on the tee-bar handle on the shaft of the liner insertion head until the stop on the liner insertion head stem contacts the top of the liner insertion head.



9. Withdraw the liner insertion head stem until the carrier is fully withdrawn into the liner insert head (indicated by the lower depth mark on the stem). Close the ball valve (clockwise rotation) and remove the liner insertion head.



10. The communication pipe can now be fitted to the outlet of the ferrule utilising a Protecta-Line 63mm x 2" MI mechanical end connector, either directly to the ferrule outlet (side connection) or in conjunction with 2" MI/FI 90° elbow (top connection).



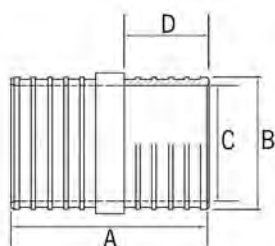
11. Open the ball valve (anti-clockwise rotation).

Protecta-Line Fluid Compression Fittings

Protecta-Line fluid compression fittings are available for pipe sizes from 63mm to 180mm, to suit the SDR and PE class employed. The fittings comprise of a shell, or one or more half-shells, made from epoxy coated steel featuring an integral inner copper membrane. A simple pipe support liner is provided, again made from Rilsan coated steel. Fluid Compression Fittings are available as Couplers, Repair Couplers, Reducers, 90° Elbows, 45° Elbows, Equal Tees, Stub Flanges, Flanged Branch Tees and Duck Foot Bends. No pipe preparation or subsequent joint wrapping is required.

- Easy all weather installation.
- 100% barrier protection without wrapping.
- WIS 4-24-01 Type 1 approved fitting (fully end load bearing).
- PE core pipe swages closely into the insert liner grooves to give a perfect seal without the need for any elastomeric seals.
- Compatible with pipe rating.
- Uses environmentally friendly Protecta-Line hydraulic fluid.
- Outer shell and sleeve are Rilsan and epoxy coated for maximum corrosion resistance.

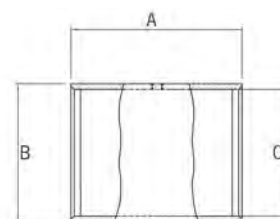
Couplers



Consists of 1 x liner and 1 x standard full sized shell. Weight shown is for complete product.

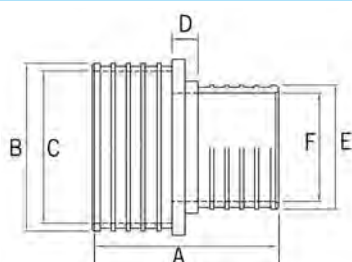
Full Shell Dimensions

Size (mm)	A (mm)	B (mm)	C (mm)
63	102	84	66
90	136	111	94
110	161	133	114
125	180	196	130
160	200	184	166
180	230	207	188



Size (mm)	SDR 11 Liner Dimensions						SDR 11 Code	SDR 17 Liner Dimensions						SDR 17 Code
	A (mm)	B (mm)	C (mm)	D (mm)	Weight (kg)			A (mm)	B (mm)	C (mm)	D (mm)	Weight (kg)		
63	82	50	43	36	1.3		44 110 311	-	-	-	-	-		-
90	116	71	62	53	2.7		44 100 313	-	-	-	-	-		-
110	141	87	74	60	4.8		44 100 314	-	-	-	-	-		-
125	-	-	-	-	-		-	160	107	95	70	6.2		44 109 315
160	-	-	-	-	-		-	180	138	122	80	11.2		44 109 317
180	-	-	-	-	-		-	210	155	137	95	15.5		44 109 318

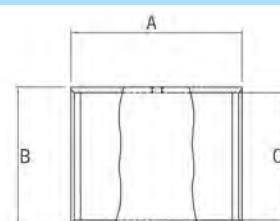
Reducers



Consists of 1 x reducing liner and 2 x half sized shells. Weight shown is for complete product.

Half Shell Dimensions

Size (mm)	A (mm)	B (mm)	C (mm)
63	102	79	66
90	111	110	94
110	125	133	114
125	125	196	130
160	150	184	166
180	172	207	188

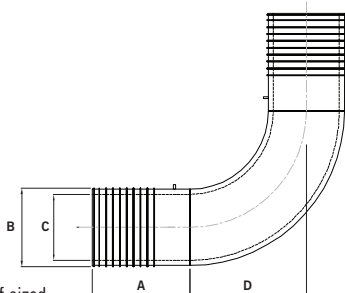


Size (mm)	SDR 11 Liner Dimensions								SDR 17 Liner Dimensions							
	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	Weight (kg)	SDR 11 Code	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	Weight (kg)	SDR 17 Code
90 x 63	260	71	62	81	50	43	4.3	44 441 459	-	-	-	-	-	-	-	-
110 x 90	290	87	75	100	71	62	7.3	44 441 483	-	-	-	-	-	-	-	-
125 x 110*	-	-	-	-	-	-	-	-	428	107	95	152	86	74	8.4	44 440 493
160 x 125	-	-	-	-	-	-	-	-	335	138	125	87	95	83	15.9	44 440 504
180 x 125	-	-	-	-	-	-	-	-	340	156	142	114	108	96	18.7	44 440 505

Please note that both ends of all reducers are for the stated SDR.

* 125mm SDR17 reducing down to 110mm SDR11.

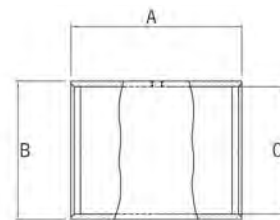
90° Elbows



Consists of 1 x elbow liner and 2 x half sized shells. Weight shown is for complete product.

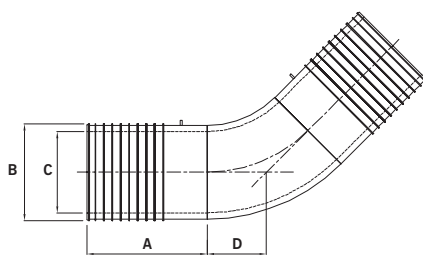
Half Shell Dimensions

Size (mm)	A (mm)	B (mm)	C (mm)
63	102	79	66
90	111	110	94
110	125	133	114
125	125	196	130
160	150	184	166
180	172	207	188



Size (mm)	SDR 11 Liner Dimensions						SDR 17 Liner Dimensions					
	A (mm)	B (mm)	C (mm)	D (mm)	Weight (kg)	SDR 11 Code	A (mm)	B (mm)	C (mm)	D (mm)	Weight (kg)	SDR 17 Code
63	115	50	43	81	3.0	44 209 311	-	-	-	-	-	-
90	124	71	61	100	5.4	44 210 313	-	-	-	-	-	-
110	138	87	74	119	9.5	44 210 314	-	-	-	-	-	-
125	-	-	-	-	-	-	138	107	95	87	11.3	44 208 315
160	-	-	-	-	-	-	167	137	122	114	22.2	44 208 317
180	-	-	-	-	-	-	192	155	137	130	27.7	44 208 318

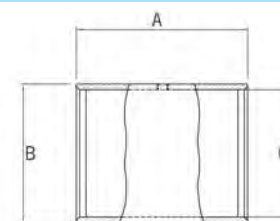
45° Elbows



Consists of 1 x elbow liner and 2 x half sized shells. Weight shown is for complete product.

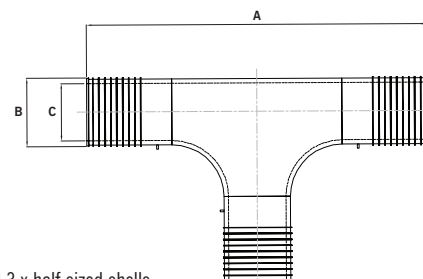
Half Shell Dimensions

Size (mm)	A (mm)	B (mm)	C (mm)
63	102	79	66
90	111	110	94
110	125	133	114
125	125	196	130
160	150	184	166
180	172	207	188



Size (mm)	SDR 11 Liner Dimensions						SDR 17 Liner Dimensions					
	A (mm)	B (mm)	C (mm)	D (mm)	Weight (kg)	SDR 11 Code	A (mm)	B (mm)	C (mm)	D (mm)	Weight (kg)	SDR 17 Code
63	115	50	43	40	2.9	44 215 311	-	-	-	-	-	-
90	124	71	61	49	5.2	44 216 313	-	-	-	-	-	-
110	138	87	74	56	9.2	44 216 314	-	-	-	-	-	-
125	-	-	-	-	-	-	138	107	95	74	10.7	44 214 315
160	-	-	-	-	-	-	167	137	122	89	21.1	44 214 317
180	-	-	-	-	-	-	192	155	137	105	25.9	44 214 318

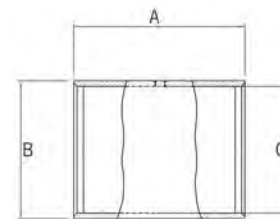
Equal Tees



Consists of 1 x equal tee liner and 3 x half sized shells. Weight shown is for complete product.

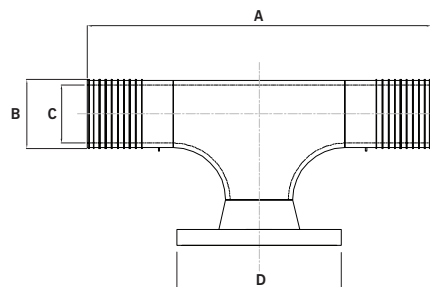
Half Shell Dimensions

Size (mm)	A (mm)	B (mm)	C (mm)
63	102	79	66
90	111	110	94
110	125	133	114
125	125	196	130
160	150	184	166
180	172	207	188



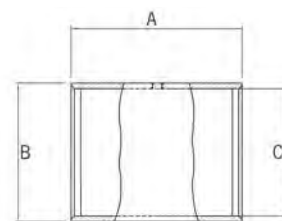
Size (mm)	SDR 11 Liner Dimensions					SDR 17 Liner Dimensions				
	A (mm)	B (mm)	C (mm)	Weight (kg)	SDR 11 Code	A (mm)	B (mm)	C (mm)	Weight (kg)	SDR 17 Code
63	362	50	43	5.3	44 221 311	-	-	-	-	-
90	404	71	61	9.5	44 222 313	-	-	-	-	-
110	452	87	74	15.9	44 222 314	-	-	-	-	-
125	-	-	-	-	-	500	107	95	19.6	44 220 315
160	-	-	-	-	-	596	137	122	36.7	44 220 317
180	-	-	-	-	-	634	155	137	47.2	44 220 318

Flanged Branch Tees



Half Shell Dimensions

Size (mm)	A (mm)	B (mm)	C (mm)
90	111	110	94
110	125	133	114
125	125	196	130
160	150	184	166
180	172	207	188

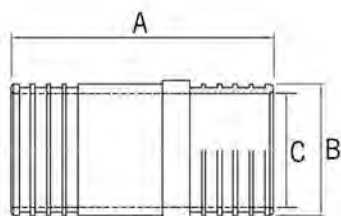


Consists of 1 x flanged branch tee liner and 2 x half sized shells. Weight shown is for complete product. (Bolt set not supplied).

Size (mm x PN)	Bolting	Torque (Nm +/- 10%)	PCD	SDR 11 Liner Dimensions						SDR 17 Liner Dimensions					
				A (mm)	B (mm)	C (mm)	D (mm)	Weight (kg)	SDR 11 Code	A (mm)	B (mm)	C (mm)	D (mm)	Weight (kg)	SDR 17 Code
90 x DN80 PN16	M16 X 8	70	160	404	71	62	200	11.0	44 351 313	-	-	-	-	-	-
110 x DN80 PN16	M16 X 8	70	160	448	86	74	200	NA	44 351 314	-	-	-	-	-	-
125 x DN80 PN16	M16 X 8	70	160	-	-	-	-	-	-	436	108	96	200	19.0	44 363 315
160 x DN80 PN16	M16 X 8	70	160	-	-	-	-	-	-	590	138	121	200	NA	44 363 317
180 x DN80 PN16	M16 X 8	70	160	-	-	-	-	-	-	634	156	142	200	42.5	44 363 318
90 x DN100 PN16	M16 X 8	80	180	404	71	62	220	11.9	44 352 313	-	-	-	-	-	-
110 x DN100 PN16	M16 X 8	80	180	448	86	74	220	NA	44 352 314	-	-	-	-	-	-
125 x DN100 PN16	M16 X 8	80	180	-	-	-	-	-	-	500	108	96	220	19.9	44 364 315
160 x DN100 PN16	M16 X 8	80	180	-	-	-	-	-	-	590	138	121	220	NA	44 364 317
180 x DN100 PN16	M16 X 8	80	180	-	-	-	-	-	-	634	156	142	220	41.5	44 364 318
160 x DN150 PN16	M20 X 8	120	240	-	-	-	-	-	-	590	138	121	285	NA	44 365 317
180 x DN150 PN16	M20 X 8	120	240	-	-	-	-	-	-	634	156	142	285	43.9	44 365 318

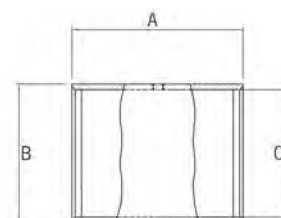
The information given for bolting torque values are for metal to metal connections. Drilled to BS EN 1092-1:2007 Table 13.

Repair Couplers



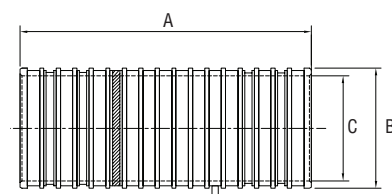
Repair Shell Dimensions

Size (mm)	A (mm)	B (mm)	C (mm)
63	145	79	66



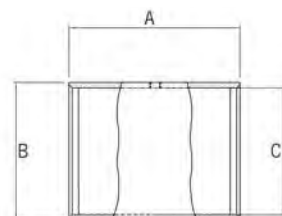
Consists of 1 x repair coupler liner and 1 x repair coupler sized shell. Weight shown is for complete product.

Size (mm)	SDR 11 Liner Dimensions					SDR 17 Liner Dimensions				
	A (mm)	B (mm)	C (mm)	Weight (kg)	SDR 11 Code	A (mm)	B (mm)	C (mm)	Weight (kg)	SDR 17 Code
63	126	50	43	1.7	44 246 311	-	-	-	-	-



Repair Half Shell Dimensions

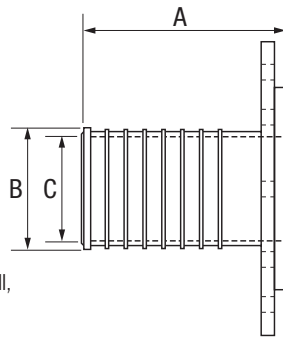
Size (mm)	A (mm)	B (mm)	C (mm)
90	111	110	66
110	125	133	114
125	125	196	130
160	150	184	166
180	172	207	188



Consists of 1 x repair coupler liner and 2 x half sized shells.

Size (mm)	SDR 11 Liner Dimensions					SDR 17 Liner Dimensions				
	A (mm)	B (mm)	C (mm)	Weight (kg)	SDR 11 Code	A (mm)	B (mm)	C (mm)	Weight (kg)	SDR 17 Code
90	177	71	61	3.5	44 246 313	-	-	-	-	-
110	203	86	74	6.0	44 246 314	-	-	-	-	-
125	-	-	-	-	-	236	107	95	7.7	44 245 315
160	-	-	-	-	-	269	122	122	12.5	44 245 317
180	-	-	-	-	-	319	155	137	20.4	44 245 318

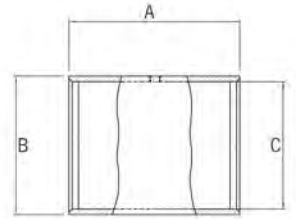
Stub Flange Adaptors



Consists of 1 x stub flange liner, 1 x half sized shell, backing ring and gasket. (Bolt set not supplied)

Half Shell Dimensions

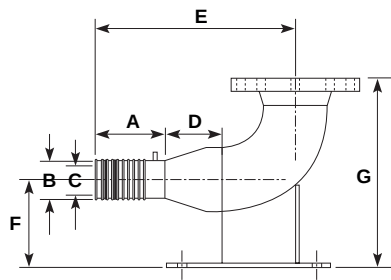
Size (mm)	A (mm)	B (mm)	C (mm)
63	102	79	66
90	111	110	94
110	125	133	114
125	125	196	130
160	150	184	166
180	172	207	188



Size (mm x PN)	Bolting	Torque (Nm +/- 10%)	PCD	SDR 11 Liner Dimensions					SDR 17 Liner Dimensions				
				A (mm)	B (mm)	C (mm)	Weight (kg)	SDR 11 Code	A (mm)	B (mm)	C (mm)	Weight (kg)	SDR 17 Code
63 x DN50 PN16	M16 X 4	60	125	115	50	43	3.1	44 227 311	-	-	-	-	-
63 x DN80 PN16	M16 X 8	70	160	115	50	43	3.4	44 228 311	-	-	-	-	-
90 x DN80 PN16	M16 X 8	70	160	124	71	62	6.0	44 228 313	-	-	-	-	-
110 x DN100 PN16	M16 X 8	80	180	138	87	75	8.9	44 228 314	-	-	-	-	-
125 x DN100 PN16	M16 X 8	80	180	-	-	-	-	-	138	108	96	10.9	44 226 315
160 x DN150 PN16	M20 X 8	120	240	-	-	-	-	-	167	138	125	17.9	44 226 317
180 x DN150 PN16	M20 X 8	120	240	-	-	-	-	-	192	156	142	21.9	44 226 318

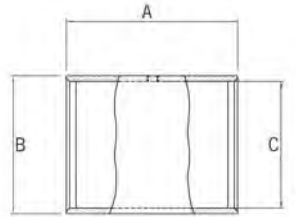
The information given for bolting torque values are for metal to metal connections.
Drilled to BS EN 1092-1:2007 Table 13.

Duck Foot Bends



Half Shell Dimensions

Size (mm)	A (mm)	B (mm)	C (mm)
63	102	79	66
90	111	110	94
110	125	133	114
125	125	196	130
160	150	184	166
180	172	207	188



Consists of 1 x flanged bend, 1 x half sized shell and gasket. (Bolt set not supplied)

Size (mm x PN)	Bolting	Torque (Nm +/- 10%)	PCD	Weight (kg)	SDR 11 Liner Dimensions								SDR 17 Liner Dimensions							
					A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	SDR 11 Code	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	SDR 17 Code
63 x DN80 PN16	M16 x 8	70	160	9.0	115	50	43	89	320	135	300	44 384 459	-	-	-	-	-	-	-	-
90 x DN80 PN16	M16 x 8	70	160	9.0	124	71	62	89	320	135	300	44 384 313	-	-	-	-	-	-	-	-
110 x DN80 PN16	M16 x 8	70	160	9.5	138	87	75	N/A	240	135	300	44 384 483	-	-	-	-	-	-	-	-
125 x DN80 PN16	M16 x 8	70	160	13.5	-	-	-	-	-	-	-	-	138	108	96	N/A	245	135	300	44 385 484
160 x DN80 PN16	M16 x 8	70	160	-	-	-	-	-	-	-	-	-	167	138	125	102	370	135	300	44 385 486
180 x DN80 PN16	M16 x 8	70	160	16.5	-	-	-	-	-	-	-	-	192	156	142	127	420	135	300	44 385 487

The information given for Bolting Torque Values are for metal to metal connections.
Drilled to BS EN 1092-1:2007 Table 13.

Accessories



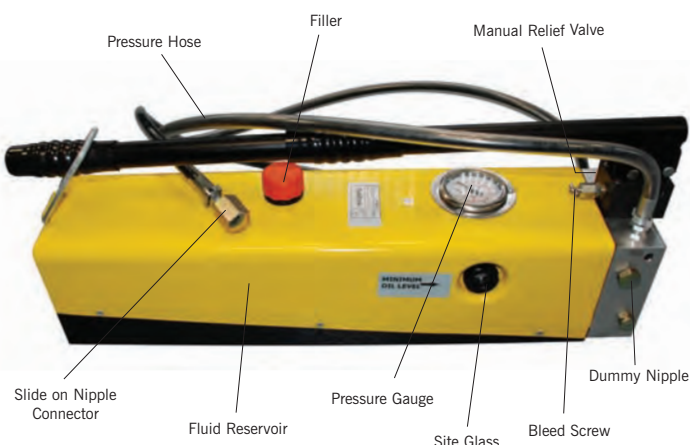
Hydraulic pump available for hire through the following outlets:
MCA Hire Services
www.mcahire.com
Plant & Site Services Ltd.
www.psshire.com

Accessory	Weight (kg)	Code
Aluminium wrapping tape (45m long x 50mm wide).	0.5	44 996 008
Hydraulic Pump	12.0	44 996 009
Protecta-Line hydraulic fluid (5 litres)	5.0	44 996 010

Only Protecta-Line hydraulic fluid should be used with the pump as any other type of fluid can damage it.

Installation Instructions for Protecta-Line Fluid Compression Fittings - Pressurising the Joint

Gloves and safety glasses must be worn during the whole assembly process. Residual pressure within the fitting may be released while removing the connector, causing a momentary spurt of fluid.



1. A calibrated hydraulic pump must be used for all pressurisation of the Protecta-Line fluid compression fitting range. The pump must be filled with Protecta-Line hydraulic fluid.
2. Slide the nipple connector over the nipple on the Protecta-Line fluid compression fitting. Please note that the nipple connector is a slide fit over the nipple, not a push fit. An alternative nipple connector, secured in position by a knurled nut may be fitted. Care should be taken not to overtighten the connector and damage the seal.
3. Gently raise and lower the pump handle, watching the pressure gauge. As the pressure gauge approaches 260 bar, the pressure breaker valve will activate. This indicates that the required pressure has been achieved. Wait 10 seconds and repeat the pumping action until the pressure breaker valve activates. Wait 10 seconds and repeat again. The pressure gauge should now show a steady reading of approximately 260 bar. The joint is now made.
4. **The pressure must be released before removing the slide-on fitting connector from the Protecta-Line Fluid Compression shell.** Depress the manual relief valve on the pump for 2 seconds then slide off the nipple connector from the Protecta-Line fluid compression fitting.

5. If for any reason the nipple needs to be removed, the pressure in the fitting **must** be released first by using the pressure release tool, i.e. depressing the centre part of the fitting nipple. (N.B. Care should be taken as a momentary spurt of fluid may occur).
6. Check that the marks on the pipe still line up with the end of the fitting.
7. The joint is now complete.

Fluid Quantities

Approximate fluid quantities to pressure the fitting shell (full shell):

Shell Size	Fluid Quantity (cc)	Number of Shells/Litre
63	40	25 Approx
90	90	11 Approx
110	150	6 Approx
125	190	5 Approx
160	320	3 Approx
180	375	2 Approx

Only Protecta-Line hydraulic fluid should be used with the pump as any other type of fluid can damage it.

Alternative Nipple Connector

1. An alternative style nipple connector is fitted to some hydraulic pumps.
2. The nipple connector slides over the nipple of the Protecta-Line Fluid Compression fitting and is secured in position by screwing the knurled nut at the top. Care should be taken not to overtighten the connector and damage the seal.
3. After the pressure is released (Stage 4) the nipple connector is removed by first unscrewing the knurled nut at the top of the connector sufficiently to slide the connector off of the nipple.



How to Bleed the Pump

Gloves and safety glasses must be worn during the whole assembly process.



Pumps fitted with a bleed screw

1. The bleed screw is positioned below the pump handle at the rear of the block.
2. Park the nipple connector onto the dummy nipple positioned on the pump block.
3. Raise handle to fullest extent.
4. Turn bleed screw anti-clockwise approximately one quarter of a turn.
5. Lower handle applying gentle pressure, oil will dribble out of the bleed valve.
6. Once the handle has reached the end of its stroke turn the bleed valve clockwise until solid.
7. Wipe any excess oil from around the bleed valve.
8. Check for pressurisation and repeat the bleed operation sequence if necessary.



Note: Residual pressure within the system may be released while removing the nipple connector, causing a momentary spurt of fluid.

9. If unit still fails to pressurise after bleeding, return to supplier.

Pumps not fitted with a bleed screw

1. Park the nipple connector onto the dummy nipple positioned on the pump block.
2. Activate the manual relief valve and hold down.
3. Raise and lower the pump handle ten times, in each case achieving maximum stroke.
4. Release the manual relief valve.
5. Check for pressurisation and repeat bleed operation sequence if necessary.
6. Operate the manual relief valve and remove the nipple connector from the dummy nipple.

Note: Residual pressure within the system may be released while removing the nipple connector, causing a momentary spurt of fluid.

7. If unit still fails to pressurise after bleeding, then return to supplier.

Joining Instructions for 63mm-180mm Protecta-Line Fluid Compression Fittings (Mains Pipes)

For use on GPS Protecta-Line pipe only.

Gloves and safety glasses must be worn during the whole assembly process.

1. Inspect the end of the pipes to be joined for any obstruction, removing any large burrs or ridges. Check the pipe ends are reasonably square.



2. Using a tape measure and a suitable marker pen mark the appropriate dimension "X" from the ends of the pipes to be joined.

63 - 47mm	110 - 71mm	160 - 91mm
90 - 64mm	125 - 81mm	180 - 106mm



3. Slide the outer shell over the pipe end (where there is evidence that the pipe has some degree of ovality then the pipe end should be re-rounded). Push the insert into the pipe end making sure that the pipe end is firmly against the shoulder of the insert.



4. Connect the pipe and insert on to the free pipe end and push home fully, ensuring that both pipe spigot ends are in contact with the central stop of the insert.



5. Slide the outer shell over the assembly until the two marks on each end of the pipe are visible at each end of the outer shell.



6. The joint is now ready to be pressurised. Follow the pressurisation procedure.



For all fittings other than the coupler and repair coupler, the marking dimensions are as follows:

63 - 102mm	110 - 125mm	160 - 150mm
90 - 111mm	125 - 125mm	180 - 172mm

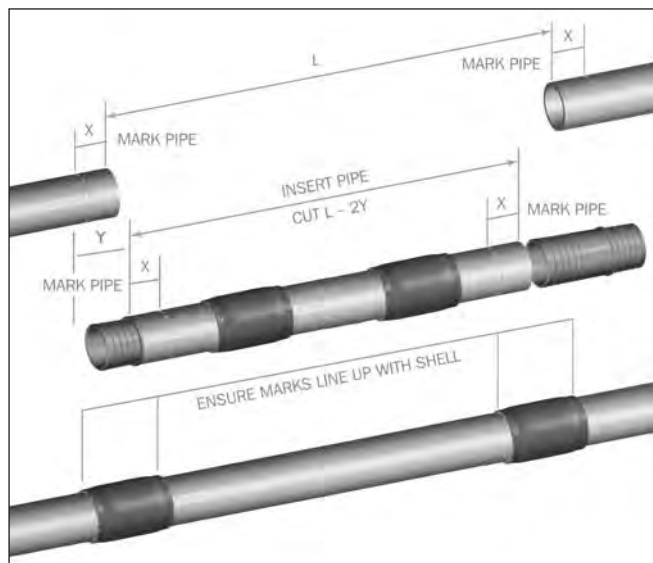
Note: The insert should be pushed into the pipe spigot until the stop is reached. The outer shell should be positioned so that one edge is aligned with the mark on the pipe and the other aligned with the end of the pipe. The spigots of stub flanges should be fully inserted into the pipe end up to the flange.



Joining Instructions for Protecta-Line Fluid Compression Repair Fittings

63mm Repair Couplers

Gloves and safety glasses must be worn during the whole assembly process



Pipe Diameter	X	2Y	Min 'L'
63	47	108	400

- Remove damaged Protecta-Line pipe section. The length removed, L, must be at least as long as stated in the table.
- Mark pipe ends left in the ground 'X' mm from ends using the repair gauge and marker pen.
- Cut length of new Protecta-Line pipe L - 2Y long and also mark 'X' mm in from each end. Note Y = insert liner spigot shorter length + shoulder.
- Slide 2 repair shells over the new pipe section and push the longer spigots of the associated insert liners into both ends of this section.
- Position the new pipe section in line with the existing pipe in the ground and move both the insert liners outwards until their shoulders are hard against the cut ends of the existing pipe.
- Slide the two repair shells outwards so that the four marks previously made line up with the ends of the shells.
- Both repair fittings are now ready to be pressurised as per above.

90–180mm Repair Couplers

Gloves and Safety Glasses must be worn during the whole assembly process



1. Cut out the damaged pipe section. The minimum length of the cut is shown in the table below.



2. The pipe should be internally deburred with a polyethylene deburring tool.



3. Where there is evidence that the pipe spigot has some degree of ovality, then the pipe spigot should be re-rounded.



4. From an undamaged pipe length cut out a repair piece. The length of the repair piece should be equal to the length of the cut out less the dimension 'Y' (see table below).



5. Clearly mark the penetration depth (dimension 'Z') on spigot ends (see table below).



6. Clearly mark dimensions on the new pipe.



7. Push the repair coupler inserts into the pipe with the short end of the repair couplers protruding. Ensure that the pipe ends are firmly against the stops on the inserts. Slide the repair coupler half shells on to the new pipe.



8. Slide the remaining half shells onto the pipe where the repair coupler inserts are to be fitted and insert the repair section with inserts into the pipeline. Slide the repair couplers and shells into position.



9. Ensure that the shells line up with the marks on the pipe. The joint is now ready to be pressurised. Please follow pressurisation procedure.

Pipe Diameter	Cut out Length (Min)	Dimension Y	Dimension Z
90	390	128	66
110	440	145	75
125	525	168	85
160	570	182	92
180	690	235	117

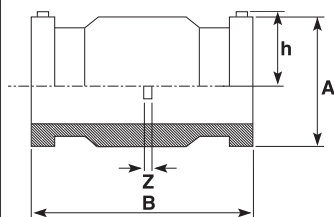
Protecta-Line Electrofusion Fittings

Protecta-Line Electrofusion Fittings are supplied for use with pipe sizes in sizes 90mm to 355mm.

Each fitting has a barcode to allow Electrofusion Control Units (ECU's) to read information such as Product Type and Size, Fusion Time and Cooling Time to ensure quick and easy installation. Fittings can be jointed either in manual mode or by scanning their integral barcode label.

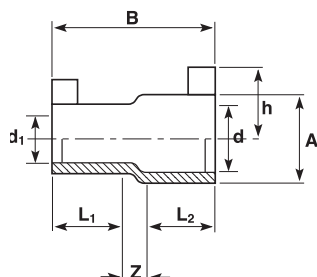
- Easy and rapid installation.
- Can be carried out in a trench, especially useful for repairs or tie-ins.
- Proven barrier protection against contamination.
- No risk of joint corrosion.
- No contact between the pipe's protective aluminium layer and drinking water.

Couplers - 39.5 Volt



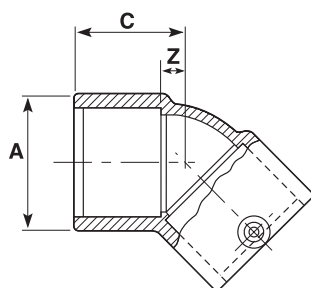
Size (mm)	A (mm)	B (mm)	h (mm)	Z (mm)	Weight (kg)	Fusion Time (Sec)	Cooling Time (mins)	Code
90	119	127	74	3	0.60	120	8	PL100313
110	141.5	135	82	3	0.80	160	10	PL100314
125	158.5	147	92	3	1.10	180	12	PL100315
160	198	164	113	3	1.60	300	14	PL100317
180	221	167	123	3	2.10	400	16	PL100318
225	278	220	145	8	3.90	500	18	PL100320
250	310	224	155	8	5.10	600	20	PL100321
280	341	256	175	8	7.10	700	28	PL100322
315	389	291	192	8	9.50	980	30	PL100323
355	405	295	218	4	9.00	980	28	PL100324

Reducer - 39.5 Volt



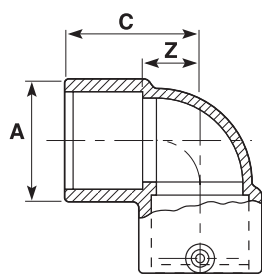
Size (mm) d x d ₁	A (mm)	B (mm)	L ₁ (mm)	L ₂ (mm)	h (mm)	Z (mm)	Weight (kg)	Fusion Time (Sec)	Cooling Time (mins)	Code
110 x 90	136	189	72	85	83	32	0.9	200	12	PL402483
125 x 90	155	210	67	90	91	53	1.2	180	14	PL402484
125 x 110	156	201	73.5	95	93	32.5	1.3	240	14	PL402493
160 x 110	195	254	72	101	114	81	2.2	300	14	PL402495
180 x 125	214	276	83	110	124	83	2.6	300	16	PL402505

45° Elbows - 39.5 Volt



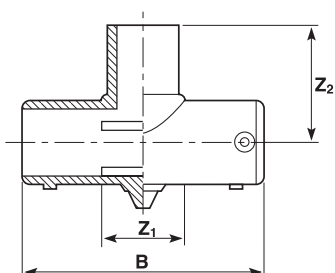
Size (mm)	A (mm)	C (mm)	Z (mm)	Weight (kg)	Fusion Time (Sec)	Cooling Time (mins)	Code
90	115	89	20	0.8	120	10	PL105313
110	136	97	27	1.0	160	10	PL105314
125	156	105	30	1.4	180	12	PL105315
160	198	120	36	2.6	300	16	PL105317
180	223	128	40	3.4	400	18	PL105318

90° Elbows - 39.5 Volt



Size (mm)	A (mm)	C (mm)	Z (mm)	Weight (kg)	Fusion Time (Sec)	Cooling Time (mins)	Code
90	114.5	118	49	0.9	120	10	PL104313
110	137	130	60	1.3	160	10	PL104314
125	155.5	143	67	1.8	180	12	PL104315
160	199	171	87	2.6	300	16	PL104317
180	222	185	98	4.4	400	18	PL104317

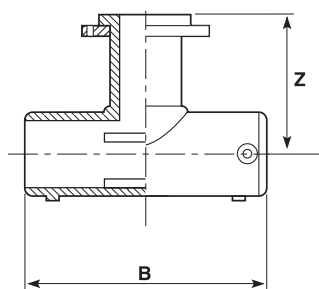
Equal Tees - 39.5 Volt



Size (mm)	B (mm)	Z ₁ (mm)	Z ₂ (mm)	Weight (kg)	Fusion Time (Sec)	Cooling Time (mins)	Code
90	211	83.5	150	1.1	120	10	PL408313
110	240	108	171	1.7	160	10	PL408314
125	280	119	177	2.3	240	12	PL408315
160	314	150	227	4.4	260	14	PL408317
180	365	161	225	5.8	440	20	PL408318

Supplied factory-wrapped to ensure complete barrier performance.

Flanged Branch Tees - 39.5 Volt



Size (mm)	B (mm)	Z (mm)	Weight (kg)	Fusion Time (Sec)	Cooling Time (mins)	Code
90 x 80 PN16	211	296	2.6	12	10	PL301313
110 x 80 PN16	240	515	3.9	160	10	PL301314
125 x 80 PN16	280	532	4.7	240	12	PL301315
160 x 80 PN16	314	615	6.7	260	14	PL301317
180 x 80 PN16	365	834	7.9	440	20	PL301318
90 x 100 PN16	211	534	3.2	100	10	PL302313
110 x 100 PN16	240	310	3.9	160	10	PL302314
125 x 100 PN16	280	301	4.3	240	12	PL302315
160 x 100 PN16	314	650	7.6	260	14	PL302317
180 x 100 PN16	365	671	9.2	440	20	PL302318
160 x 150 PN16	314	410	8.5	260	14	PL303317
180 x 150 PN16	365	415	5.2	440	20	PL303318

Supplied factory-wrapped to ensure complete barrier performance.

Flange Adaptor Kits



Adaptor Kit comprises of:-

- 1 x Stub Flange
- 1 x Coupler
- 1 x Gasket (representation)
- 1 x Backing Ring
- 1 x Bolt set

Size (mm)	SDR 11 Code	SDR 17 Code
90 x 80 PN16	PL251313	
110 x 100 PN16	PL251314	
125 x 100 PN16		PL250315
160 x 150 PN16		PL250317
180 x 150 PN16		PL250318
225 x 200 PN16		PL250320
250 x 200 PN16		PL250534
250 x 250 PN16		PL250321
280 x 250 PN16		PL250542
315 x 250 PN16		PL250543
315 x 300 PN16		PL250323
355 x 300 PN16		PL250547
355 x 350 PN16		PL250324

Procedures for Butt-Fusion and Electrofusion of Protecta-Line Pipelines of 90mm and above in Diameter

When made in accordance with GPS PE Pipe Systems' recommended procedures, butt-fusion and electrofusion joints of the Protecta-Line system have been independently shown to meet the requirements of WIS 4-32-19 without any need for subsequent wrapping. This does not exempt installers from local regulations and the local Water Company preferences must be adhered to.

Standard butt-fusion and electrofusion procedures must be adhered to, but please note the following additional points:

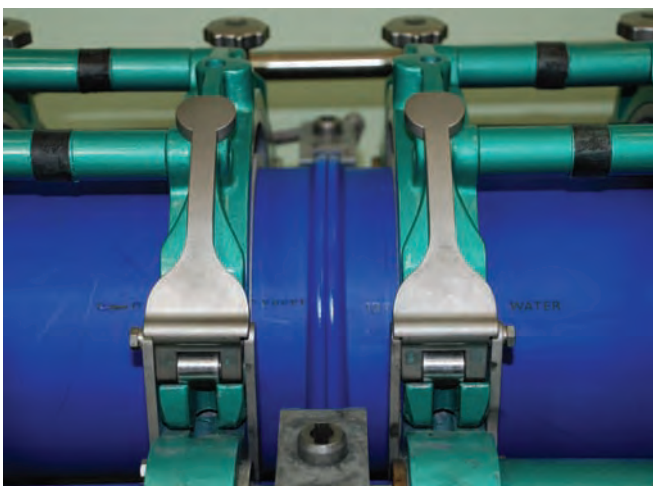
Butt-Fusion

Where this is permitted by the local water company, it is important that the outer PE and aluminium layers are removed far enough back, using the Protecta-Line Surprep tool (see next pages), to prevent the aluminium from coming into contact with the butt-fusion machine trimmer or heater plates.

In addition, the outer PE and aluminium layers should be removed far enough back to permit normal debearing of the completed joint for normal quality control purposes.

It is recommended that the layers should be removed to a length equal to the width of the debearing tool on the end of each pipe. This should be increased by 50% when carrying out dummy weld procedures prior to final jointing.

Butt-fusion clamps should be checked for suitability before commencing work, particularly in larger sizes. Care should be taken not to damage the outer layers of Protecta-Line pipe when clamping it in the butt-fusion machine. In the case of some machines this may necessitate gently radiusing the edges of the jaw shutlines.



Electrofusion

It is essential that the Protecta-Line pipe is properly prepared prior to electrofusion jointing. It is necessary first to remove the outer PE layer, aluminium layer and any residual adhesive layer material.

Note: It is potentially dangerous to carry out electrofusion jointing where the aluminium layer is still in place.

The Protecta-Line Surprep Scraper must be used for pipe end preparation, as it not only removes the outer layers, but it also prepares the core pipe for electrofusion jointing.

Electrofusion clamps should be checked for suitability before commencing work, particularly in larger sizes. All electrofusion joint assemblies must be held in clamps throughout the fusion and cooling periods.

Protecta-Line Jointing End Preparation for Electrofusion Procedures

Pipe Size (mm)	Length (B) (mm)	Register (Z) (mm)	Min preparation insertion depth (mm)	Max preparation depth (mm)
90	127	3	62	67
110	135	3	66	71
125	147	3	72	77
160	164	3	81	86
180	167	3	82	87
225	220	8	106	111
250	224	8	108	113
280	256	8	124	129
315	291	8	142	147
355	295	8	144	149

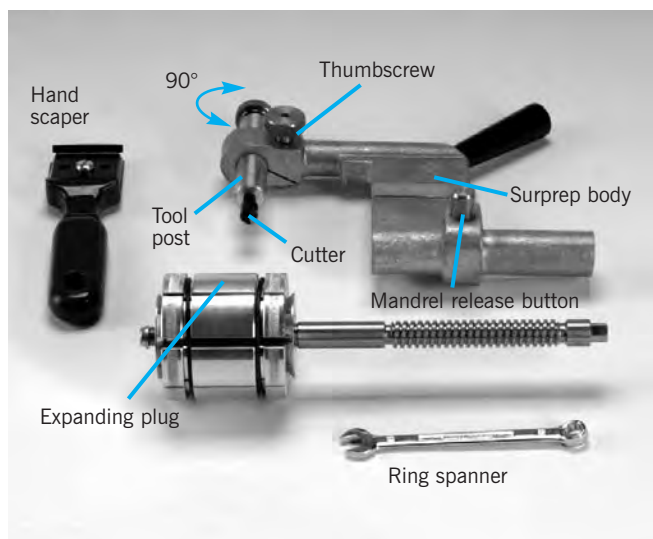
Aluminium Foil Wrapping Lengths - Foil width 50mm

Size (mm)	E/F fitting length (mm)	Amount of foil required (metres)	Joints per roll
25	76	0.38	132
32	83	0.69	72
63	111	2.04	25
90	130	3.37	15
110	135	4.46	11
125	150	5.06	10
160	165	7.41	7
180	165	8.22	6
225	220	14.05	4
250	225	15.71	3
280	260	19.58	3
315	290	25.42	2
355	300	27.12	2

Only Protecta-Line fittings shall be used with Protecta-Line pipe. The use of alternative fittings will have the following effects on your Protecta-Line system:

- Invalidity of WRAS approval and manufacturers system performance warranty.
- Compromised permeation resistance (causing non-compliance with WIS 4-32-19 and possible risks to health).
- Danger of pipe-layer delamination, compromising system performance integrity and risking pipe bursts.
- It would be illegal to install non-WRAS approved fittings.

Procedure for Using the Protecta-Line Surprep Scraper (90mm-180mm)



Code	90mm	110mm	125mm	160mm	180mm
01-07-081	●	●			
01-07-083			●	●	●

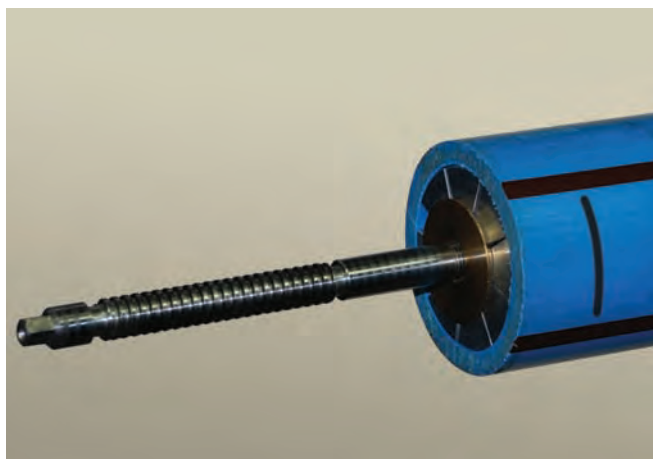
To order, please contact Caldervale directly on 01924 469571 or sales@caldertech.co.uk

The Surprep Kit is available for hire through MCA Hire Services www.mcahire.com and Plant & Site Services Ltd www.psshire.com

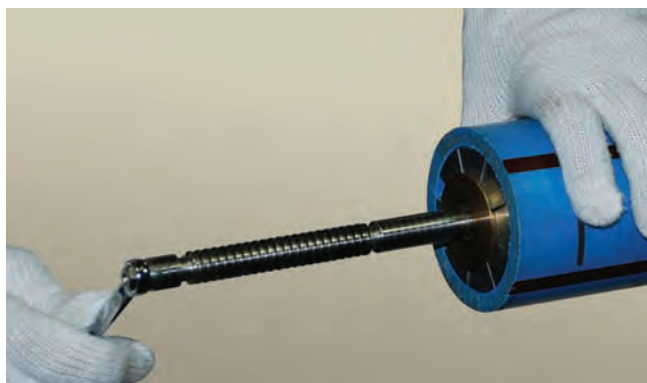


The Protecta-Line Surprep Kit has been designed to allow the correct scraping of Protecta-Line barrier pipe prior to electrofusion jointing.

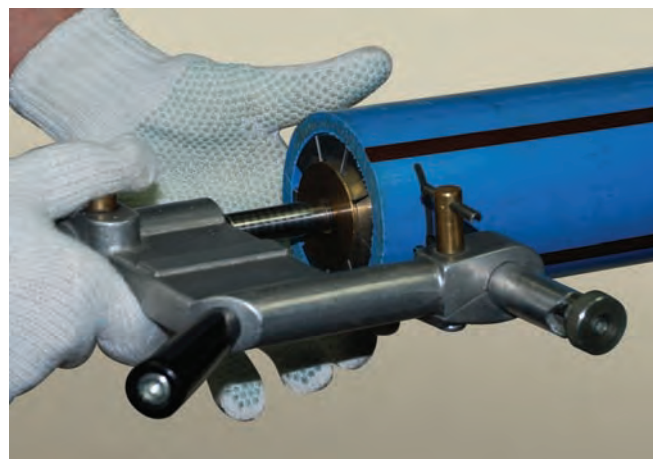
1. Measure the insertion depth of the electrofusion fitting to be used. Place a mark on both pipes to show the position where the edge of the fitting will be.
2. Clamp the pipe to be prepared taking care to avoid damage to the pipe's outer covering.
3. Separate the mandrel from the body of the Protecta-Line Surprep Scraper.



4. Hold the expanding plug and rotate the mandrel anti-clockwise until the plug is a light interference fit in the pipe bore.
5. Push into pipe until edge of plug is level with edge of pipe. Expand plug further using the 10mm ring spanner. Do not over-tighten in order to avoid pipe distortion.

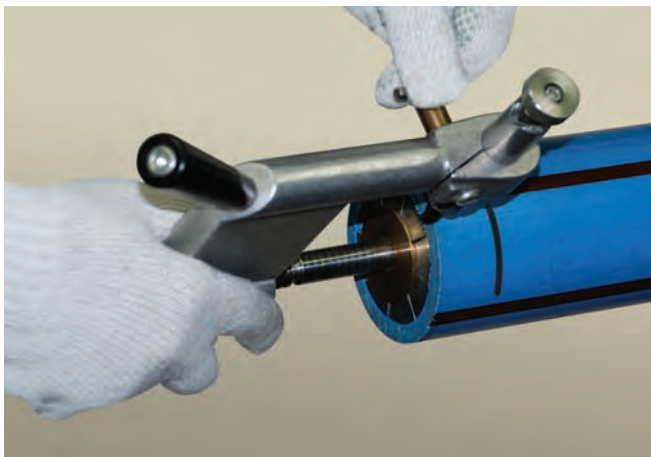


6. Slide the body of the Protecta-Line Surprep Scraper onto the mandrel, depress the release button and position the cutter close to the edge of the pipe.

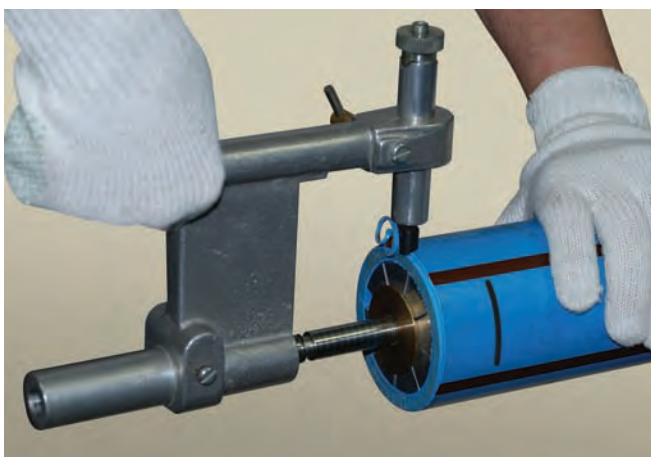


Note: Protecta-Line Surprep Scraper cuts in an anti-clockwise direction, beginning at the end of the pipe.

7. Rotate the knob on the top of the tool post through 90°, against the spring tension, such that the cutter is in its raised position.



8. Loosen the body thumbscrew and position the cutter shoe on the edge of the pipe. Tighten the thumbscrew.



9. Rotate the knob on top of the post through 90° so that spring pressure is applied to the cutter.
10. Rotate the tool anti-clockwise in a smooth continuous motion to remove the outer layers in a continuous strip.
11. Stop cutting when the socket depth mark is reached.



12. Rotate the knob on top of the tool post so that the spring pressure is released.

13. Use the hand scraper to remove the peeled strip from the pipe.

Caution: Do not attempt to break the peeled strip by pulling with bare hands, it has a sharp edge!

Remove the tool in the reverse order of assembly (steps 3-6).

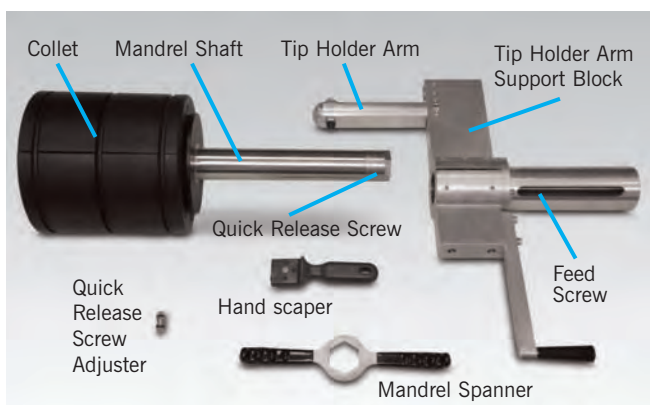


14. Inspect the prepared surface to ensure:
- i) All of the metallic layer has been removed.
 - ii) All of the adhesive which bonds the metallic layer to the blue core has been removed.
15. If, for any reason, the prepared surface is not a uniform blue colour all over, use the hand scraper to complete the preparation process.

Never attempt a second pass with the Protecta-Line Surprep Scraper.

When made in accordance with GPS PE Pipe Systems' recommended procedures, butt-fusion and electrofusion joints of the Protecta-Line system have been independently shown to meet the requirements of WIS 4-32-19 without any need for subsequent wrapping. This does not exempt installers from local regulations and the local Water Company preferences must be adhered to.

Procedure for Using the Large Diameter Protecta-Line Scraper (above 180mm)



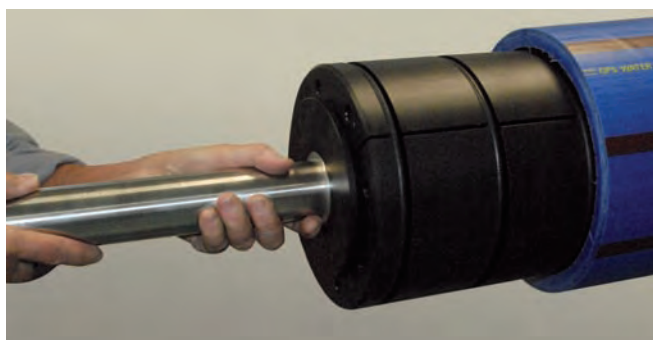
For Protecta-Line sizes above 180mm, the Surprep Scraper is a dedicated tool for each pipe size, with the cutter set to produce the required outside diameter. Adjustments must be done by a competent person and should not be carried out on site.

	225mm	250mm	280mm	315mm	355mm
Pipe insert collet					
01-07-255	●				
01-07-256		●			
01-07-257			●		
01-07-258				●	
01-07-259					●
Rotary tool c/w mandril shaft*					
01-07-251	●	●	●	●	●

* Includes 2 collet expanding cones

To order, please contact Caldervale directly on 01924 469571 or sales@caldertech.co.uk

The Large Diameter Scraper is available for hire through MCA Hire Services www.mcahire.com and Plant & Site Services Ltd www.psshire.com

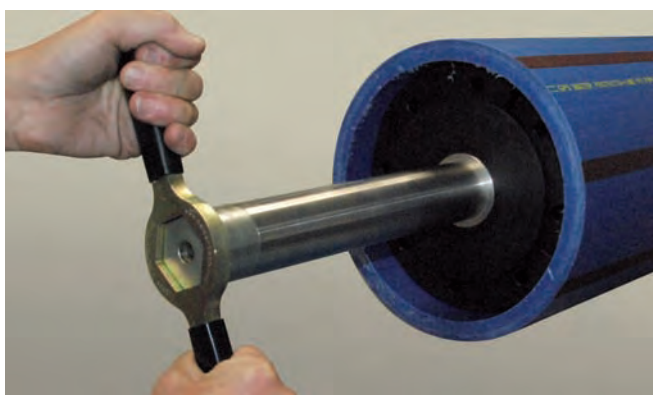


1. First mark the required length of pipe to be scraped (see table on page 23).

Ensure that the correct size collet for the pipe to be scraped is fitted to the mandrel.

Adjust the collet by twisting the mandrel shaft anti-clockwise until it achieves its smallest outside diameter.

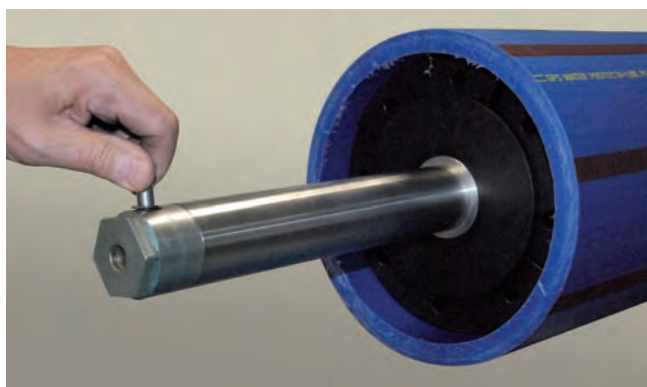
Slide the collet into the bore of the pipe, allowing 20mm of pipe to show after the collet, to allow for the barrelling effect found at the end of the pipe.



2. Adjust the collet by twisting the mandrel shaft clockwise until the mandrel becomes secure in the bore of the pipe and tighten with the mandrel spanner.

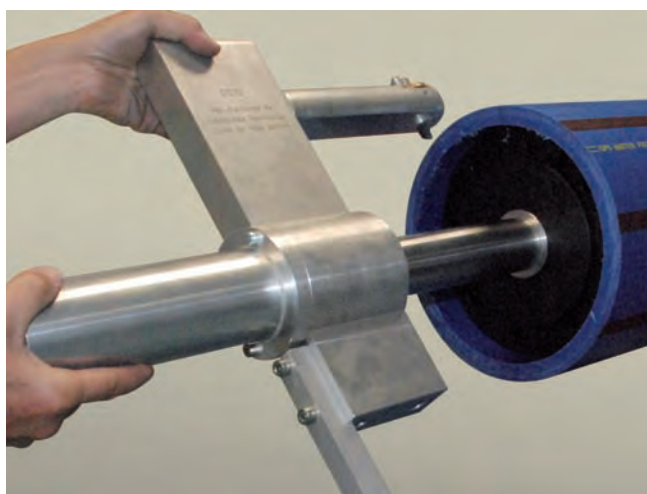
To achieve the correct alignment parallel to the pipe bore, a joggling action in all directions is required.

The collet also acts to re-round the pipe so check for gaps between the collet and the bore of the pipe.



3. Once the mandrel is secure and is parallel with the pipe bore, screw down the quick release screw to its full extent (about one and a half turns) using the adjuster, which is stored at the base of the tip arm support block.

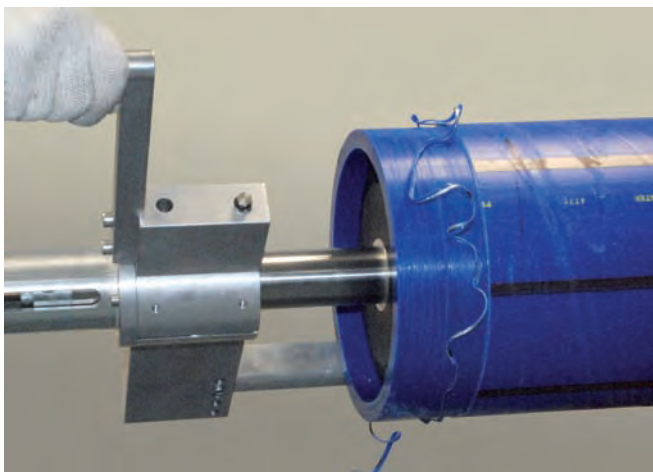
Note: Remember the position of the quick release screw.



4. Ensure that the tip holder arm has been located in the hole corresponding to the pipe size in the tip holder support block.

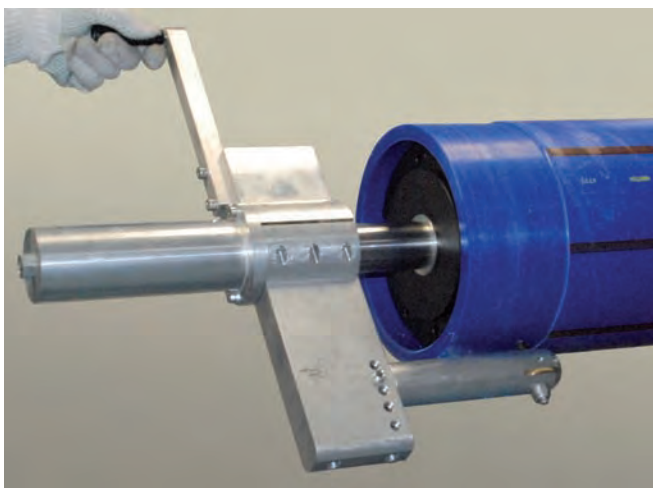
Locate the tool onto the mandrel shaft taking care not to damage the bore of the tool.

Slowly slide the tool along the mandrel shaft using a twisting action, until the feed screw touches the quick release feed screw nut.



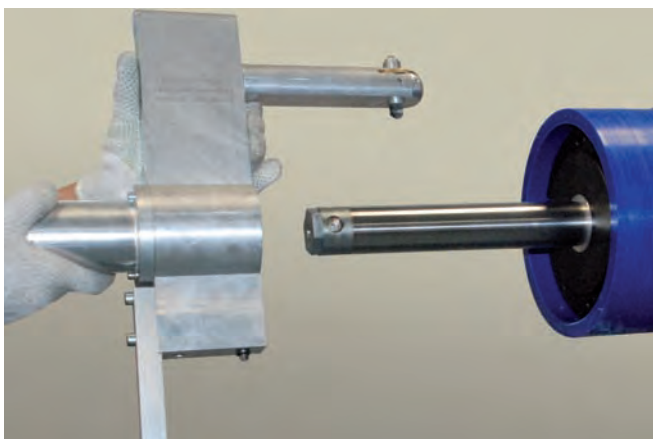
5. Taking care to avoid damaging the quick release nut and feed screw, rotate the tool in a clockwise direction with a slight force pushing forward.

Once the feed screw has engaged with the quick release nut, it will now proceed to travel along the length of the mandrel shaft, removing the outer barrier layers and preparing the pipe for electrofusion jointing.



6. When the required length of pipe has been prepared, raise the quick release screw to its top position (about one and a half turns).

The quick release screw can be accessed through the slot in the feed screw housing tube.

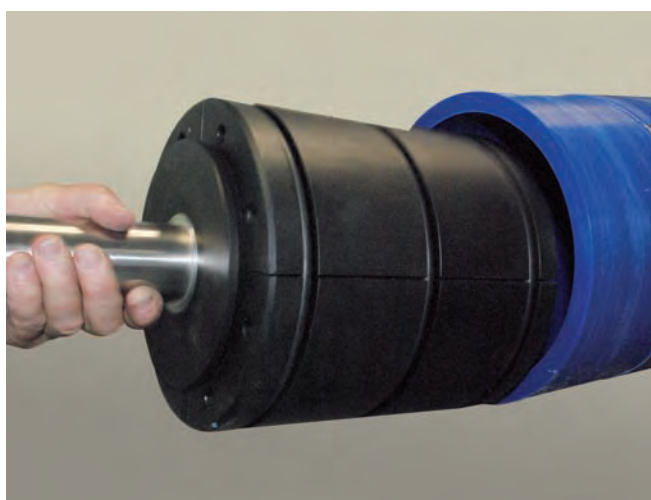


7. The tool can now be removed from the mandrel shaft.

Note: The tool should be removed to a clean dry and safe area.



8. Loosen the collet using the mandrel spanner on the mandrel shaft in an anti-clockwise direction until free.



9. Remove the collet and mandrel from the pipe.

The collet should be removed to a clean dry and safe area.

If there are any areas of pipe that have not been prepared properly, then the hand scraper should be used to complete the preparation process.

Note: The barrelling effect found at the end of the pipe may result in the barrier layers remaining on the pipe surface for a short distance in from the end of the pipe.

Repair Using Electrofusion (for Protecta-Line 225mm-355mm)

The pipe stops incorporated in the Protecta-Line or Durafuse couplers are shearable and have been provided for the specific purpose of using the fittings for making repairs or breaking into existing pipelines.

1. Cut out the damaged section of the Protecta-Line pipe at least four times the length of the electrofusion repair couplers and ensure the pipe ends are cut square.
2. Measure the distance between the exposed pipe ends and cut a length of plain PE100 pipe of the same diameter and wall thickness as the existing Protecta-Line pipe, equal to the measured distance less 10mm ensuring that the pipe ends are cut square
3. Clean the ends of the cut section of plain pipe, for a distance slightly greater than the overall length of the repair couplers.
4. Using the pipe end preparation tool, remove the entire surface of the pipe over the marked area, preferably as a continuous ribbon or strip. **Note: The use of mechanical end preparation tools is preferred as hand scraping requires great care and can be time-consuming especially on larger diameter pipes. It is essential that material is removed by scraping or peeling; scratching or abrading is not sufficient.**
5. Remove the pipe stops in the coupler. This can be most satisfactorily achieved by placing one end of a **thoroughly cleaned** short length of pipe into the coupler and striking the other end onto a hard surface. The pipe stops can also be removed using a sharp knife, but care must be taken not to damage the bore of the fitting.
6. Clean the ends of the Protecta-Line pipe for repair and prepare for electrofusion jointing using the Protecta-Line Suprep Scraper as described on pages 26 and 27.
7. Using a suitable marker pen, draw circumferential lines half the length of the repair coupler on the prepared Protecta-line pipe ends which will be used to indicate the location of each repair coupler prior to fusion.
8. Care should be taken to ensure any residual water in the mains is not allowed to come into contact with the electrofusion area.
9. Insert the new plain section of pipe with repair couplers and then slide the repair couplers onto the Protecta-Line pipe ends, ensuring that they are positioned up to the marks on the prepared Protecta-Line pipe ends. Ensure that the surfaces are clean and dry.
10. Carry out the electrofusion jointing procedure as described in the GPS Installation & Technical Guidelines brochure - GP-IT005.



Alternative Method

Alternatively, stub flange assemblies may be fitted to the ends of the Protecta-Line pipe (after preparation with the Protecta-Line Surprep Scraper) and then connected with a double flanged ductile iron spacer.



This method may be used where there is a risk of water in the pipe contaminating electrofusion joints during installation. Foam pigs can be used to temporarily seal the pipe bore. When electrofusion jointing of the stub flange assemblies has been completed, they can be removed before installation of the double flanged ductile iron spacer.

Squeeze-off of Protecta-Line pipe

Protecta-Line pipe can be squeezed off in the industry-approved way, as summarised in the GPS Installation and Technical Guidelines. However, as a precaution after re-rounding previously squeezed off areas should be wrapped with Protecta-Line aluminium tape followed by a proprietary waterproof petrolatum tape (equivalent to Denso™), in addition to any reinforcement bands that may be required to be fitted. For information on acceptable usage conditions refer to Table 9.2 in the WRc PE Pipe Systems Manual version 01/02.

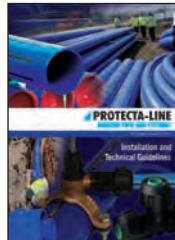
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GP-DP001/2
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Price List Brochure

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GP-PT003/2
Protecta-Line
Installation and
Technical Guidelines

☐

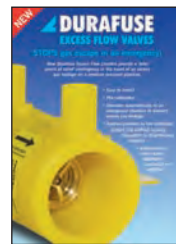

GP-IT005/2
Installation and
Technical Guidelines

☐


G0003/1
SlimFlange

☐


G0021/2
Protecta-Line
Self-tapping Ferrule
Off-takes

☐


GP-XF006
DuraFuse
Excess Flow Valves

☐


G0010/1
DuraFuse
Duck Foot Bends

☐


GP-SF004/1
SlimFlanges for Gas

☐


G0022
Protecta-Line
Ferrule Off-takes

☐


G0025
Protecta-Line
Traceability

☐


G0020
Large Diameter
Pipe Systems

☐


LS001
Push-Fast
System

☐

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Scan to view
Protecta-Line videos

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St Peter's Road, Huntingdon, PE29 7DA
Tel: +44 (0)1480 52121
Fax: +44 (0)1480 458829
Web: www.gpsuk.com
Email: enquiries@gpsuk.com
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Appendix I – Soil Cover Validation Field Records

Field Notes	Image with scaled measure.
Location: SCV01 Easting, Northing: 387553 396104 Description Dark brown clayey slightly sandy organic SILT with frequent rootlets. Cover Depth >450mm	
Location: SCV02 Easting, Northing 387531 396162 Description Dark brown clayey slightly sandy organic SILT (to 150mm) overlying light brown slightly sandy SILT to 450mm. Cover Depth >450mm	
Location: SCV03 Easting, Northing 387628 396246 Description Dark brown clayey slightly sandy organic SILT (to 150mm) overlying light brown slightly sandy SILT to 450mm. Cover Depth >450mm	



Field Notes	Image with scaled measure.
Location: SCV04 Easting, Northing 387641 396265 Description Dark brown clayey slightly sandy organic SILT (to 150mm) overlying light brown slightly sandy SILT to 450mm. NOTE pit wet. Cover Depth >450mm	
Location: SCV05 Easting, Northing 387613 396338 Description brown clayey slightly sandy SILT. Cover Depth >450mm	
Location: SCV06 Easting, Northing 387595 396318 Description brown clayey slightly sandy SILT with frequent rootlets. Cover Depth >450mm	



Field Notes	Image with scaled measure.
Location: SCV07 Easting, Northing 387565 396330 Description dark brown clayey slightly sandy SILT with frequent rootlets. Cover Depth >450mm	
Location: SCV08 Easting, Northing 387591 396214 Description Dark brown clayey slightly sandy organic SILT (to 150mm) overlying light brown slightly sandy SILT to 450mm. Cover Depth >450mm	



Appendix J – Contaminated Land Risk Assessment

The following background to the Contaminated Land regime and its planning context is extracted from Manchester City Council's Planning Guidance in Relation to Ground Contamination: Guidance Note for Applicants, Developers, Landowners and Consultants Version 6.00 September 2016.

Part 2A of the Environmental Protection Act 1990

Local Authorities are responsible for addressing contaminated land issues within two separate regimes: The Contaminated Land Regime (commonly known as Part 2A) and the Planning Regime (Development Control). The definition of contaminated land (from Section 78A(2) of the Environmental Protection Act 1990) is:

"...any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that:

(a) significant harm is being caused or there is the significant possibility of such harm being caused; or

(b) pollution of controlled waters is being, or is likely to be, caused..."

With respect to controlled waters, the Water Act 2003 (Chapter 37, Section 86) has amended the second limb of the definition so that it applies only where:

"significant pollution of controlled waters is being caused, or there is a significant possibility of such pollution being caused"

Part 2A of the Environmental Protection Act 1990, as inserted by Section 57 of the Environment Act 1995, was brought into force on 01 April 2000. It requires all local authorities to identify contaminated land in its area and secure its remediation to a condition suitable for its current use.

To fall within the Part 2A definition, the land when assessed in the context of its current use must be capable of causing significant harm to human health or other specified receptors and/or pollution of controlled waters. Development of land will have to take into account Part 2A because a change in the use of the land may bring the development inside the statutory definition of contaminated land by creating a pollutant linkage.

A key element of the Part 2A regime is the Source-Pathway-Receptor pollutant linkage concept. Each element is defined as follows:

- the source is the contamination in, on or under the land
- the pathway is the route by which the contamination reaches the receptor;
- and, the receptor is defined as living organisms, ecological systems or property which may be harmed.



Without the clear identification of all three elements of the pollutant linkage, land cannot be identified as contaminated land under the regime.

Planning

The planning system uses a slightly different definition for contaminated land, which is not based solely on the legal definition set out in Part 2A. A wider range of contamination and receptors is relevant to planning but the degree of harm or pollution and the approach to remediation are essentially the same.

However, to avoid confusion with the term 'Contaminated Land' the planning regime uses the wider term "*land affected by contamination*". This is intended to cover all cases where: "the actual or suspected presence of substances in, on or under the land may cause risks to people, human activities or the environment, regardless of whether or not the " land meets the statutory definition in Part 2A .

The NPPF states that: "*As a minimum, the land should not be capable of being determined as contaminated land under Part 2A of the Environmental Protection Act 1990*"

The principal difference is that under the planning system, risks have to be assessed based upon the new or intended use of the land, rather than the existing use.

However, the principles underlying both regimes are fundamentally the same, namely, the identification and remediation of land that may pose a risk to human health and/or the environment.

Role of the Owner/Developer

Where development is proposed, the developer is responsible for ensuring that development is safe and suitable for use for the purpose for which it is intended. The developer is therefore responsible for determining whether land is suitable for a particular development or can be made so by remedial action. In order to demonstrate this, the developer should determine:

- whether the land in question is already affected by contamination through source –pathway – receptor pollutant linkages;
- whether the proposed development will create new linkages, e.g. new pathways by which existing contaminants might reach existing or proposed receptors; and
- what action is needed to break those linkages and avoid new ones, deal with any unacceptable risks and enable safe development and future occupancy of the site and neighbouring land.

A potential developer will need to satisfy the local authority that unacceptable risk from contamination will be successfully addressed through remediation without undue environmental impact during and following the development.

In doing so, a developer should be aware that actions or omissions on their part could lead to liability being incurred under Part 2A, e.g. where development fails to address an existing unacceptable risk or creates such a risk by introducing a new receptor or pathway.



Where an agreed remediation scheme includes future monitoring and maintenance schemes, arrangements will need to be made to ensure that any subsequent owner is fully aware of these requirements and assumes ongoing responsibilities that remain with the new landowner.

Role of the LPA

The Local Planning Authority (LPA) has a duty to take account of all material planning considerations including land contamination during the preparation of Local Plans and when considering an application for planning permission. Usually where there is reason to believe land may be contaminated, or the proposed development is of particular sensitivity e.g. housing a full assessment may be required in advance of planning approval being issued, a planning condition requiring assessment of possible contamination may be recommended by the LPA and applied to the decision notice.

When considering development on land affected by contamination, the principal objective of the LPA is to ensure that any unacceptable risks to human health, property and/or the wider environment are identified so that appropriate action can be considered and then taken to address those risks. In achieving this objective, the LPA should assist in providing the necessary confidence to owners and occupiers of the land after development, regarding the condition and the ranking of the land in relation to relevant environmental protection regimes, such as Part 2A. The NPPF states that 'the effects (including cumulative effects) of pollution on health, the natural environment or general amenity, and the potential sensitivity of the area or proposed development to adverse effects from pollution, should be taken into account' (Department for Communities & Local Government, 2012).

On any site where there is the potential for contamination to influence the site, or where the proposed development is vulnerable, the Planning Officer will consult with the Council's Contaminated Land Officer. The Contaminated Land Officer will then assess the application and may recommend that further information be submitted or planning conditions be imposed upon the development, to ensure that the site will be suitable and safe for the end users, the environment and the public. You may wish to contact the Council's Contaminated Land Officer for advice before submitting your application.

Assessing Risk

CIRIA C552 utilises the concept of a risk ranking matrix as a tool to assess levels of risk by considering the likelihood and severity of a hazard occurring. If a source – pathway – receptor linkage is identified, further consideration is required to identify where the hazard or event is located in the matrix. The following definitions of likelihood and severity are adapted from C552:

Likelihood

- **Highly Likely** – the event appears very likely to occur in the short term and almost inevitable over the longer term, or there is evidence of the event already occurring.

Severity

- **Severe** – significant acute (short term) risk to human health
- **Medium** – significant chronic (longer term) risk to human health or sensitive environmental receptors



- **Likely** – the event is more likely than not to occur in the longer term and possible in the shorter term.
- **Unlikely** – the event is possible in the longer term
- **Extremely Unlikely** – there is no significant possibility of the event occurring even in the long term.
- **Mild** – significant chronic harm to less sensitive environmental receptors.
- **Minor** – possibility of harm but not significant harm.

Assessing a site in the planning context, Low Risk means that the exposure pathway under consideration is suitable for the proposed end use and no remedial work is required with respect to that pathway. In the Part 2A context low risk would mean that there is *no significant possibility of significant harm* (SPOSH) with respect to that pathway. Low risk defined for all plausible pathways would confirm that the site is not *capable of being determined as contaminated land under Part 2A of the Environmental Protection Act 1990*.

Other definitions (i.e. moderate to low, moderate, high or very high risks) mean that potentially significant risks have been identified and that further assessment, investigation or remedial work is required.

			Consequence – Significance or severity of harm			
			Significant		Insignificant	
			Severe	Medium	Mild	Minor
Probability of Harm Occurring	Significant	Highly Likely	Very High Risk	High Risk	Moderate Risk	Low Risk
		Likely	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
		Unlikely	Moderate Risk	Moderate / Low Risk	Moderate / Low Risk	Low Risk
	Insignificant	Extremely Unlikely	Low Risk	Low Risk	Low Risk	Low Risk



Risks to Human Health from Soil Contamination

GECL utilises assessment criteria contained in widely accepted guidance documents^{1&2} to assess risks to human health from soil contamination. The criteria have been derived in general accordance with the EA's Contaminated Land Exposure Assessment (CLEA) guidance and consider six generic land uses and a range of Soil Organic Matter contents. The generic land uses are:

- Residential with plant uptake
- Residential without plant uptake
- Allotments
- Commercial
- Public Open Space (residential)
- Public Open Space (park)

Each land use makes a set of generic assumptions about the receptor type and behaviour, the building type and soil properties. Where these assumptions are valid, the assessment criteria provide an indication of the chemical concentration in soil below which the long-term human health risks for the generic land-use scenarios are considered to be tolerable or minimal, ensuring that the criteria are 'suitable for use' under planning.

Exceedance of a generic screening criteria does not necessarily mean that there is significant possibility of significant harm, however it would indicate the need for further investigations or assessment or the need for a detailed quantitative risk assessment (DQRA) to confirm suitability for use.

Where the assumptions underlying the generic land uses are not valid – a more detailed / specific consideration of the risks is required. The generic assessment criteria (GAC) do not for example consider risks to workers in excavations, inhalation of vapours generated from contaminants in groundwater, or diffusion of contaminants through drinking water pipes. These risks are considered separately.

Protection of Groundwater and Surface Water.

GECL adopts the Environment Agency's Guidance³ on contamination of groundwater which states that: *'Where pollutants are in the soil and haven't entered groundwater, you must take all necessary and reasonable measures to:*

- *prevent the input of hazardous substances⁴ into groundwater*
- *limit the entry of non-hazardous pollutants into groundwater to avoid pollution, deterioration in the status of groundwater bodies and to prevent sustained and upward trends in pollutant concentrations in groundwater*

¹ CL:AIRE - Soil Generic Assessment Criteria for Human Health Risk Assessment January 2010. ISBN 978-1-905046-20-1.

² LQM – The LQM/CIEH S4ULs for Human Health Risk Assessment. 2015 Land Quality Press Nottingham.

³ The UK Government's web pages on: *Land contamination groundwater compliance points: quantitative risk assessments.*

⁴ A list of substances confirmed as hazardous pollutants following public consultation can be found [here](#). Contaminants not defined as hazardous on this list are considered non-hazardous for the purposes of groundwater risk assessment.



Where pollutants have already entered groundwater your priority is to take all necessary and reasonable measures to:

- *minimise further entry of contaminants where there is a defined source*
- *limit the pollution of groundwater or any effect on the status of the groundwater body from the future expansion of the plume, if necessary, by actively reducing its extent*

In groundwater risk assessments on sites affected by land contamination, “reasonable” means feasible without involving disproportionate costs. What costs are “disproportionate” depends on site specific circumstances. These circumstances may include:

- *considerations of technical feasibility such as identified by the remedial options appraisal, this may be due to the distribution or nature of the contamination and the available remedial methods to treat the identified contamination*
- *sustainability considerations*

You should follow a risk-based methodology such as the land contamination remedial targets methodology to remediate sites. Remediation should be undertaken following sustainable remediation principles.’

Where the prevention of input of a hazardous substance to groundwater is required, GECL consider the appropriate assessment criteria to be that the concentration of the substance is below background concentrations in the aquifer or below the minimum reporting value defined by the EA⁵ or offered by laboratories. Where non-hazardous substances are to be limited to avoid pollution or deterioration, appropriate quantitative risk assessment is carried out to determine remedial targets with the agreement of regulators.

Environmental Quality Standards⁶ (EQS) are used as the criteria to assess pollution or deterioration in quality where the conceptual model identifies a surface water body as a receptor. However, where the model identifies a public water supply as a potential receptor, The Water Supply (Water Quality) Regulations⁷ are the appropriate source of assessment criteria. Other guidance documents which may also be used where appropriate include The Private Water Supplies Regulations⁸ and the World Health Organisation (WHO) drinking water guidelines.⁹

In a case where both surface waters and public supplies are identified as potential receptors in the conceptual model, the assessment criteria is the lower of the public supply and surface water criteria.

⁵ The EA's indicative minimum reporting values are posted [here](#).

⁶ EQSs are contained in Directive (2008/2015/EC amended by 2013/39/EU) outlining requirements for priority substances and priority hazardous substances. It is a daughter directive of the Water Framework Directive.

⁷ The Water Supply (Water Quality) Regulations 2016 (SI 2016/619)

⁸ The Private Water Supplies (England) Regulations 2016. SI 2016 / 618.

⁹ WHO (2011), Guidelines for drinking-water quality, 4th edition.

