

Report No: 20574/NB

December 2016

20574 COMPLETION REPORT
for the
REMEDIATION & PREPERATORY WORKS
of land at
Batley Fire Station

prepared for
Riva Homes



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APPENDICES

Appendix A – Drawings

Drawing No.	Title
11755-167_2DT	Topographical Survey 2D
ELL-563-RH-W-140	External Works Layout Rev A
20574_PRL_CP001	Sections
20574_PRL_CP002	As Built Survey
20574_PRL_CP003	Base Of Dig
20574_PRL_CP004	CBR Locations
20574_PRL_CP005	Base Of Made Ground ISO
20574_PRL_TP001_C	Proposed Contours
20574_PRL_TP003_A	6F2 Placement

Appendix B - Geotechnical Test Results

	Certificate Reference	Test Undertaken
i	Rec 14 10 16	Particle Size Distribution Test: Class 6F2
ii	PSL5205	Insitu California Bearing Ratio Test

Appendix C - Chemical Test Results

Certificate Reference	Material Analysed
Rec 17 10 16	Site-derived aggregate: Class 6F2

Appendix D – Photographic Record Of Site Works

	Activity	Reference
i	Formation	Formation 01 - 17
ii	Excavation	Excavation 01 - 38

FOREWORD (Completion Report)

This report has been prepared for the sole internal use and reliance of the Client named on page 1. This report shall not be relied upon or transferred to any other parties without the express written authorisation of Professional Remediation Limited (PRL); such authorisation not to be unreasonably withheld. If any unauthorised third party comes into possession of this report, they rely on it at their peril and the authors owe them no duty of care and skill.

The report should be read in its entirety, including all associated drawings and appendices. PRL cannot be held responsible for any misinterpretations arising from the use of extracts that are taken out of context.

The report represents the data obtained/generated during remedial and preparatory works of experienced geo-environmental contractors.

COMPLETION REPORT
for the
REMEDIATION & PREPARATORY WORKS
of land at
Batley Fire Station

1 INTRODUCTION

1.1 The Commission and Brief

1.1.1 Professional Remediation Limited (PRL) has been engaged by Riva Homes to undertake remedial and preparatory works at the former fire station, off Carlinghow Lane, Batley.

1.1.2 The remedial and preparatory works were to be undertaken in accordance with the following reports and information:

- Report H1994-GR-01, Batley Fire Station Redevelopment Phase 1 Land Quality Assessment, dated 7th of October 2014, produced by PSA Design
- Report G2172-GR-02-o, Batley Fire Station Redevelopment Phase 2 Geo-Environmental Investigation and Assessment Report, dated 1st of March 2016, produced by PSA Design
- Report 5062/1 Remediation Strategy for land at Batley fire station, dated September 2016, produced by Calabrian
- AutoCAD drawing "ELL-563-RH-W-140 EXTERNAL WORKS REV A BOUND", dated July 2016, drawn by Elluc Projects
- AutoCAD drawing "11755-167_2DT" Topographical Survey 2D, conducted by MET Geo Environmental, dated 28/04/2014
- Formation drawing produced by PRL 20574_PRL_TP001 revisions 0 through to C

1.1.3 Works undertaken by PRL were confined to within the red line boundary as detailed on drawing "ELL-563-RH-W-140 EXTERNAL WORKS REV A BOUND", presented in Appendix A. This report only considers works limited to this area.

1.1.4 All works were conducted under the supervision of Calabrian (acting as supervising geoenvironmental engineers) who will be producing a final verification report for submission to the relevant parties, separate to this document.

1.1.5 The purpose of this document is to:

Describe the remediation and ground preparatory works undertaken.

Report the chemical test results undertaken as the works progressed

Report the geotechnical test results undertaken as the works progressed

Provide drawings detailing the depth of placed materials and the achieved levels

1.2 The Proposed Development

1.2.1 The proposed development comprises semi-detached and terraced houses with associated highways and garages. The layout, is shown on External Works Layout (Drawing No. ELL-563-RH-W-140 Rev A, dated July 2016) produced by Elluc Projects, presented in Appendix A.

- 1.2.2 Access to the development will be from Carlinghow Lane to the north and west of the site.

2 BACKGROUND

2.1 Ground Investigation

- 2.1.1 Various phases of investigation have been undertaken at the site and these are summarised in Report 5062/1 Remediation Strategy for land at Batley fire station, dated September 2016 by Calabrian.

- 2.1.2 In summary, the following ground conditions existed at the site (pre-remediation).

Made Ground

- 2.1.3 Made ground was encountered in all exploratory locations within the site boundary ranging from 0.90m to a maximum of 3.00m.
- 2.1.4 Generally three types of made ground fill were encountered during the site investigation, described as pavement fill, gravel fill and cohesive fill.

Natural Ground

- 2.1.5 Natural ground consisted of stiff clay (glacial till) overlying mudstone.

Groundwater & Stability

- 2.1.6 Localised seepages of perched groundwater were encountered above the natural clay within the made ground at three locations over the site.

Contamination

- 2.1.7 The made ground on site was identified to contain contaminants including (but not limited to) TPH (*total petroleum hydrocarbons*) along with isolated asbestos fibres.
- 2.1.8 The elevated TPH value associated with WS6 was likely to be linked with the underground diesel tank.
- 2.1.9 Quantification analysis undertaken on selected samples of made ground identified to contain asbestos detected concentrations within the range of <0.001% - 0.004%.
- 2.1.10 Consequently a 600mm clean cover system to be placed in gardens and soft landscaped areas is required, underlain by residual made ground, in order to break the pollutant linkage between the contaminated made ground and future end users.

Risk Assessment and Remedial Options

2.1.11 In terms of the proposed redevelopment the 'main' pollutant linkages and feasible remediation option is summarised below:

Receptors	Pathways	Contaminant Source	Remediation Options
Human Health (Future residents and construction workers)	Consumption of vegetables Ingestion Inhalation (dust and/or vapours) Dermal contact Migration & accumulation of explosive gas Infiltration of water supply pipes	Metals, PAHs & asbestos in made ground Hotspots of petroleum hydrocarbon contamination	Placement of 600mm clean soil cover in garden and landscaped areas underlain by residual made ground. Treatment or removal of hydrocarbons

3 OVERVIEW OF PREPARATORY AND REMEDIATION WORKS

3.1 Aims

3.1.1 Remediation aims were to:

- Resolve contamination issues in order to protect human health receptors and render the site suitable for the proposed development
- Provide a stable development platform (to agreed levels and gradients) for subsequent construction of the proposed development and associated infrastructure
- Satisfy the requirements of the Local Planning Authority and the National House Building Council (NHBC)

3.2 Scope of Works

3.2.1 The Remediation Strategy detailed the works necessary to enable residential development at the site, most notably:

- General site clearance of surface materials and vegetation.
- Demolition of existing structures
- Break-up of slabs and hardstand and removal of relict foundations & infrastructure
- Crushing of all suitable artificial hard material (i.e. concrete/brick etc)
- Excavation and removal of likely localised contamination (soil and possibly groundwater) around the underground fuel tank
- Backfill of all resultant excavations, with nominal compaction
- Preparation of adoptable highway corridors
- Regrade of site to design levels with construction thicknesses specified by Riva Homes

4 DETAILS OF REMEDIATION WORK

4.1 Site Clearance

4.1.1 Cleared of residual debris, vegetation, shrubs, bushes and unprotected trees as instructed by Riva.

4.2 Asbestos Strip

4.2.1 Prior to the demolition of the fire station, all asbestos materials contained within the asbestos survey was removed and disposed of according to legislation.

4.3 Demolition

- 4.3.1 Demolition works commenced upon the completion of the asbestos removal and “soft strip”.
- 4.3.2 Existing fire station and structures demolished in accordance with industry standard recognized best practices and conforming to BS 6187:2000.

4.4 Removal Of Hardstanding

- 4.4.1 Following the site clearance works and demolition, areas of concrete surface hardstanding were broken out and grubbed-up.
- 4.4.2 Suitable materials derived from grubbing-up were broken into smaller fragments using a breaker and a hydraulic concrete muncher, and then stockpiled prior to processing (see Section 4.6).

4.5 Removal Of Below ground Obstructions

- 4.5.1 All relict foundations and the majority of the drainage infrastructure and other below-ground obstructions evident at the surface or encountered during the works were chased out and grubbed-up, suitable materials were stockpiled for subsequent processing (see Section 4.6).
- 4.5.2 The drainage run to the west of the site was retained along with one other manhole, leaving three access chambers in total as agreed with Riva Homes over the course of the works.
- 4.5.3 Beneath all hardstanding areas the full thickness of made ground was turned over insitu to ensure no obstructions were left in the ground that could subsequently be encountered.
- 4.5.4 Excavated made ground was sorted to remove significant unsuitable materials (oversize material, timber, metal *etc.*) in order to produce fill material suitable to allow satisfactory re-compaction.
- 4.5.5 All made ground has been retained at depth or removed with levels being built back up using reworked natural clay.

4.6 Crushing & Processing

- 4.6.1 Selected oversize material generated by the removal of hardstanding and relict foundations / obstructions were crushed to produce a well-graded granular material with a nominal maximum particle size of 125mm.
- 4.6.2 The crushed product was screened and picked to remove any unsuitable elements and stockpiled for reuse during the subsequent construction works.
- 4.6.3 Geotechnical laboratory testing was scheduled on three samples of the crushed material to confirm its properties. The material grading for each sample fell within the specification for Class 6F2 selected granular fill, as defined in Series 600 of the Specification for Highway Works (SHW Series 600). These results are presented in Appendix B (i).
- 4.6.4 Chemical laboratory testing was undertaken by Scientific Analysis Laboratories Limited (SAL), acting on behalf of Professional, on samples obtained by PRL. These results are presented in Appendix C.

4.7 Preparation of Adoptable Highway Corridors

- 4.7.1 A complete turnover of the made ground resulted in the removal of all below ground obstructions.

- 4.7.2 Made ground materials were re-engineered across the site to a level in accordance with Professional Remediation drawing 20574_PRL_TP001 Proposed Contours (presented in Appendix A). Materials were placed in nominal 200mm thick (compacted thickness) layers and compacted with a Bomag BW213 self-propelled vibratory roller (3,310 kg/m width).
- 4.7.3 A total of four plate load tests were undertaken at highway formation with one located on the plot footprint, and the results were used to derive CBR values using the method detailed in Section 7.14 of the Highways Agency Interim Advice Note 73/06 Revision 1 (2009). Equivalent CBR values of between 10.8% and 27.2% were recorded at formation on the finished highway corridors.
- 4.7.4 The test locations are shown on PRL Drawing 20574_PRL_CP004 CBR Locations October 2016 which is presented in Appendix A, with the certificate references, test results and CBR calculations presented in Appendix B (ii).

Table 1 - Results of CBR Tests

Test ID	CBR %
Access Road 1	17.2
Access Road 2	14.9
Access Road 3	10.8
Access Road 4	18.2
Pile Mat	27.2

5 OBSERVATIONS

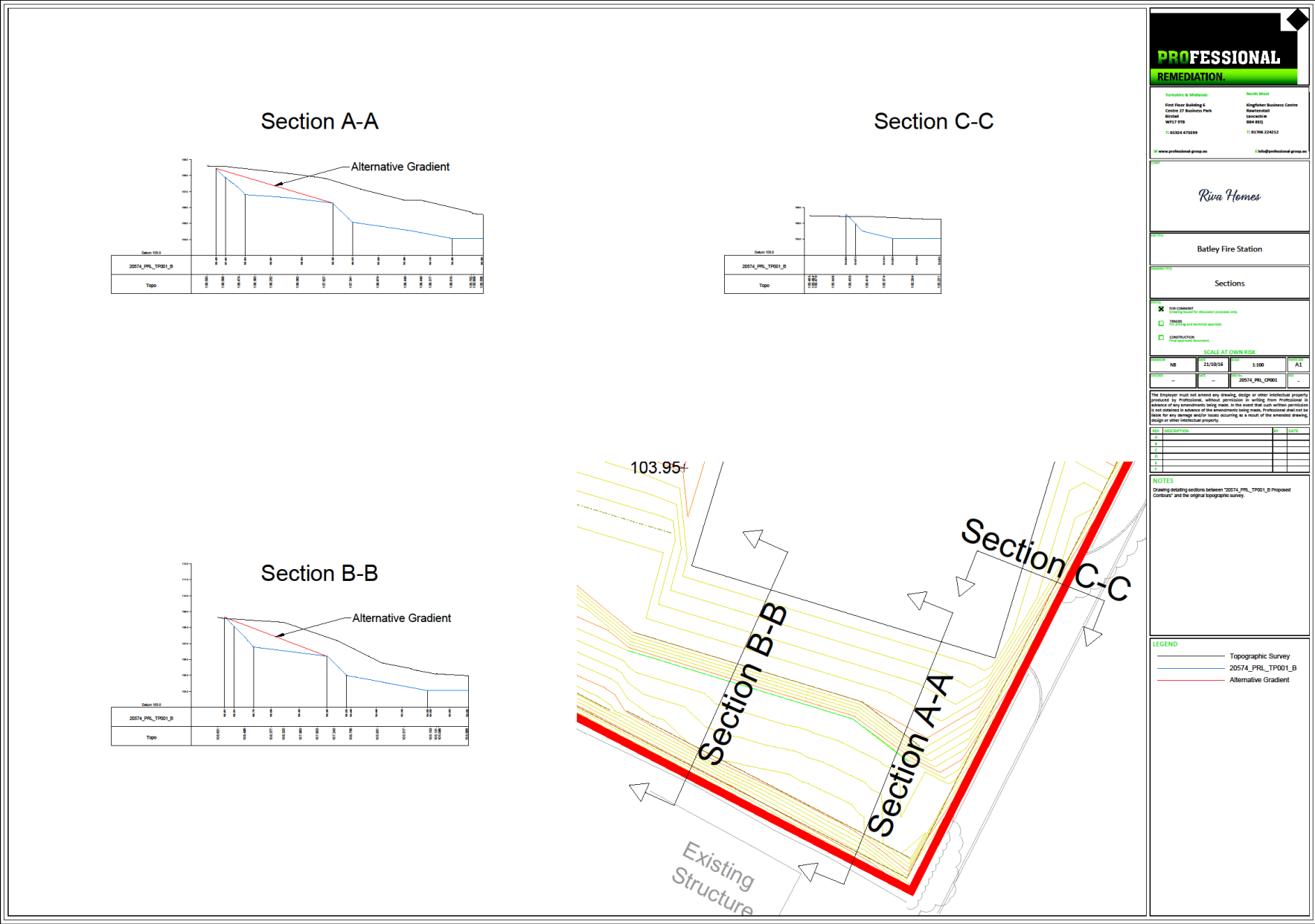
- 5.1 Topographic surveys were conducted over the course of the works which have been used as the basis for drawings contained within Appendix A.
- 5.2 PRL have kept photographic records of the progression of the works. These are compiled in Appendix D.
- 5.3 Drawing 20574_PRL_CP002 As Built Survey (Appendix A) shows that the majority of the site has achieved tolerances of +/- 75mm with a significant portion of the area being within 30mm of the design.
- 5.4 Over the course of the works there was a requirement to change various aspects of the design in order to both account for the sites impact on its surroundings and better use the materials available. This has resulted in multiple revisions of the initial proposed contour drawing finalising in revision C (Appendix A) and reflected in the as built survey.
- 5.5 Drawing 20574_PRL_CP005 Base Of Made Ground ISO (Appendix A) shows that over an area of 1,594m² an average depth of made ground relative to drawing 20574_PRL_TP003_A 6F2 Placement (Appendix A), (which allows for Elluc designed finished floor levels less 500mm), equates to an average depth of approximately 2 metres with localised areas within plots being up to 3 meters in depth and the well excavation being in excess of 4.9 metres deep.
- 5.6 On leaving site the one remaining stockpile of 6F2 contained a volume of approximately 70m³ of material (no air voids accounted for).
- 5.7 Both the water tank and diesel tank have been successfully dealt with along with surrounding contamination. However in addition to the already known tanks a further tank was exposed and dealt with (all remediation protocols followed) and a previously unidentified well was removed to a depth of 5 meters below existing ground level. The former well is located within an area of car parking and is identified on drawing "20574_PRL_CP003 Base Of Dig" within Appendix A.
- 5.8 A live drain was left in place to the west of the site, running from the south to the north, in agreement with Riva homes. This was decided upon due to the potential implications of removing the drain on both the site itself and the surrounding properties.

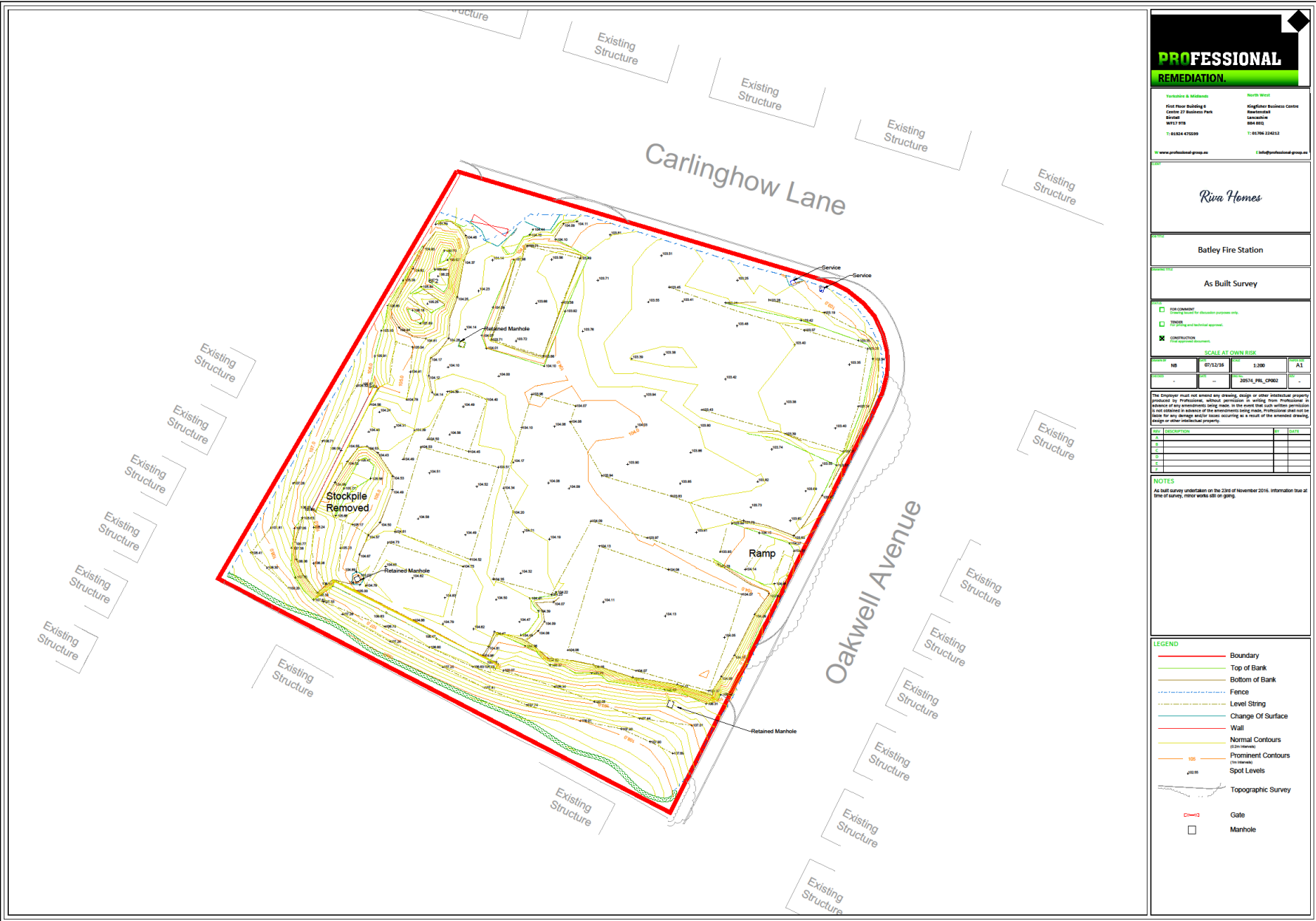
- 5.9 The Elluc design required the slope to the south of the site to be reprofiled in order to make better use of the area for rear gardens associated with the new properties. However we were unable to achieve the desired slopes due to the variation in the ground conditions found within the banking from the site investigation works and the made ground encountered within the slope. This resulted in the banking being left at its current gradient to prevent any slope slippage and possible damage to surrounding properties. Drawing 20574_PRL_CP001 (Appendix A) demonstrates the difficulties encountered.
- 5.10 In order to best use the materials generated from the works on site and considering the possible foundation solutions, part of the site generated 6F2 was placed in layers across the works. The areas defined by depth can be found within drawing 20574_PRL_TP003_A (Appendix A) with the intended use of creating a piling mat area within the new build properties and a good quality running surface within the proposed highway and drives.
- 5.11 Information contained within the report is factual based upon the information available at the time with no interpretations made.

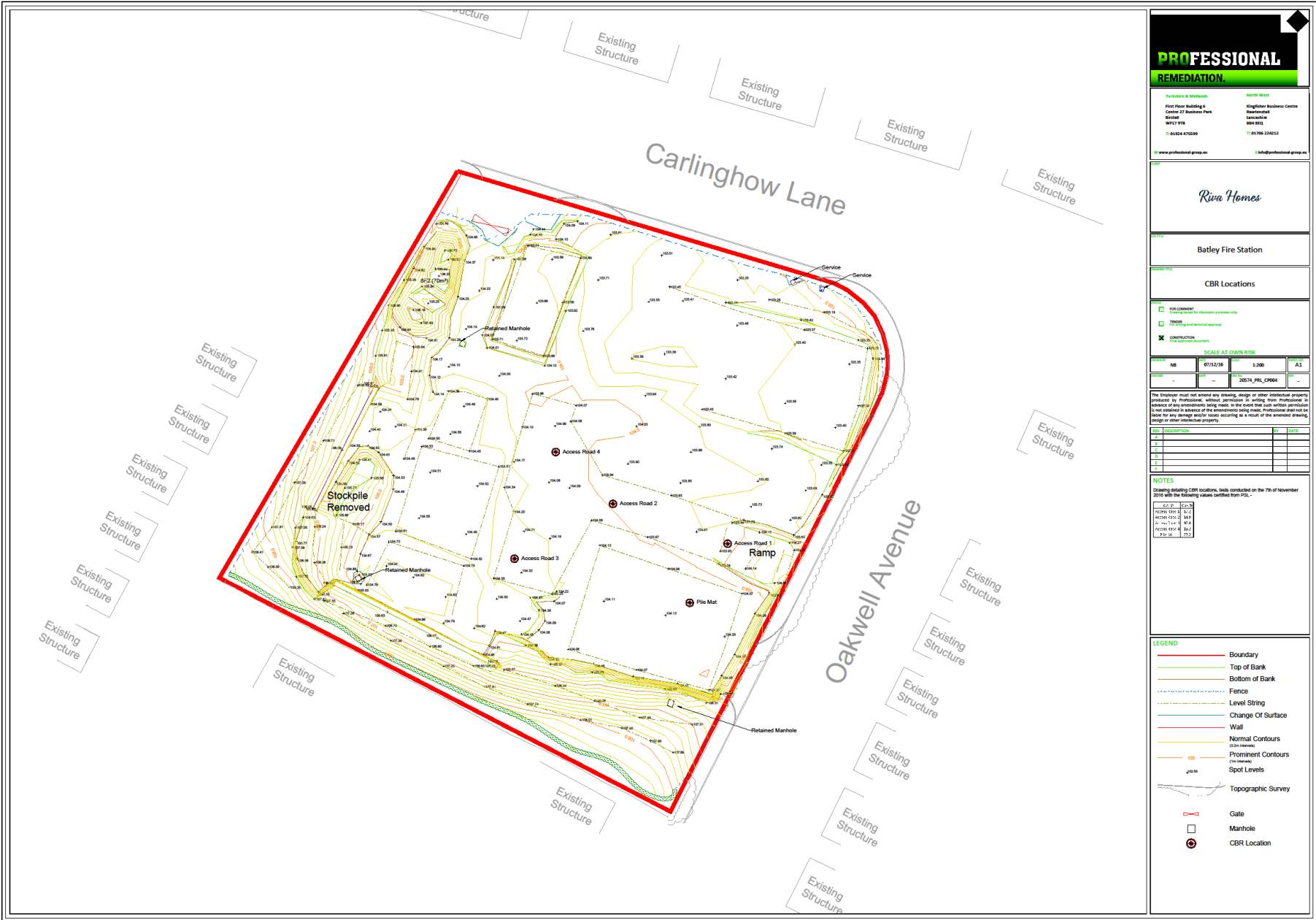
APPENDIX A DRAWINGS

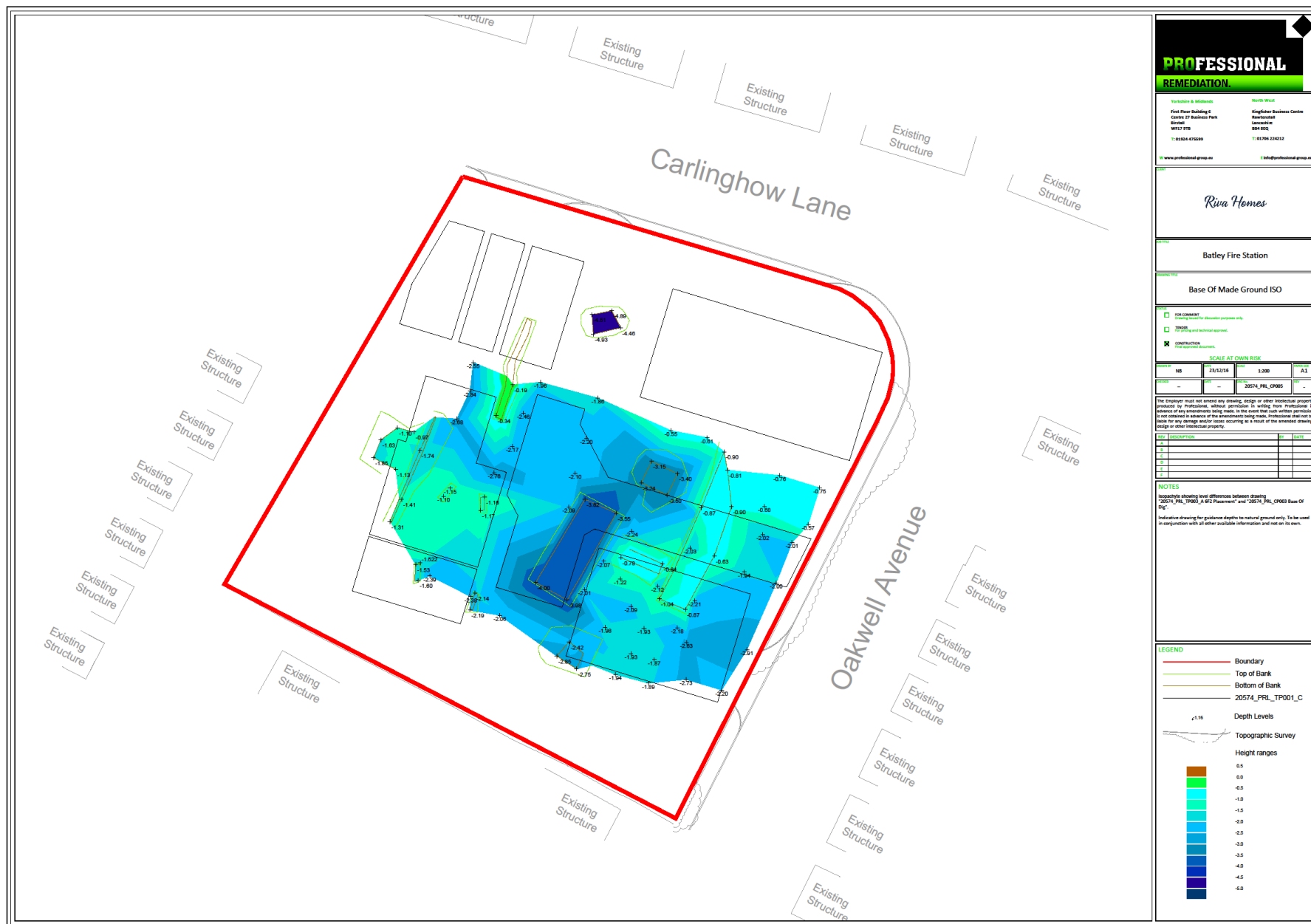


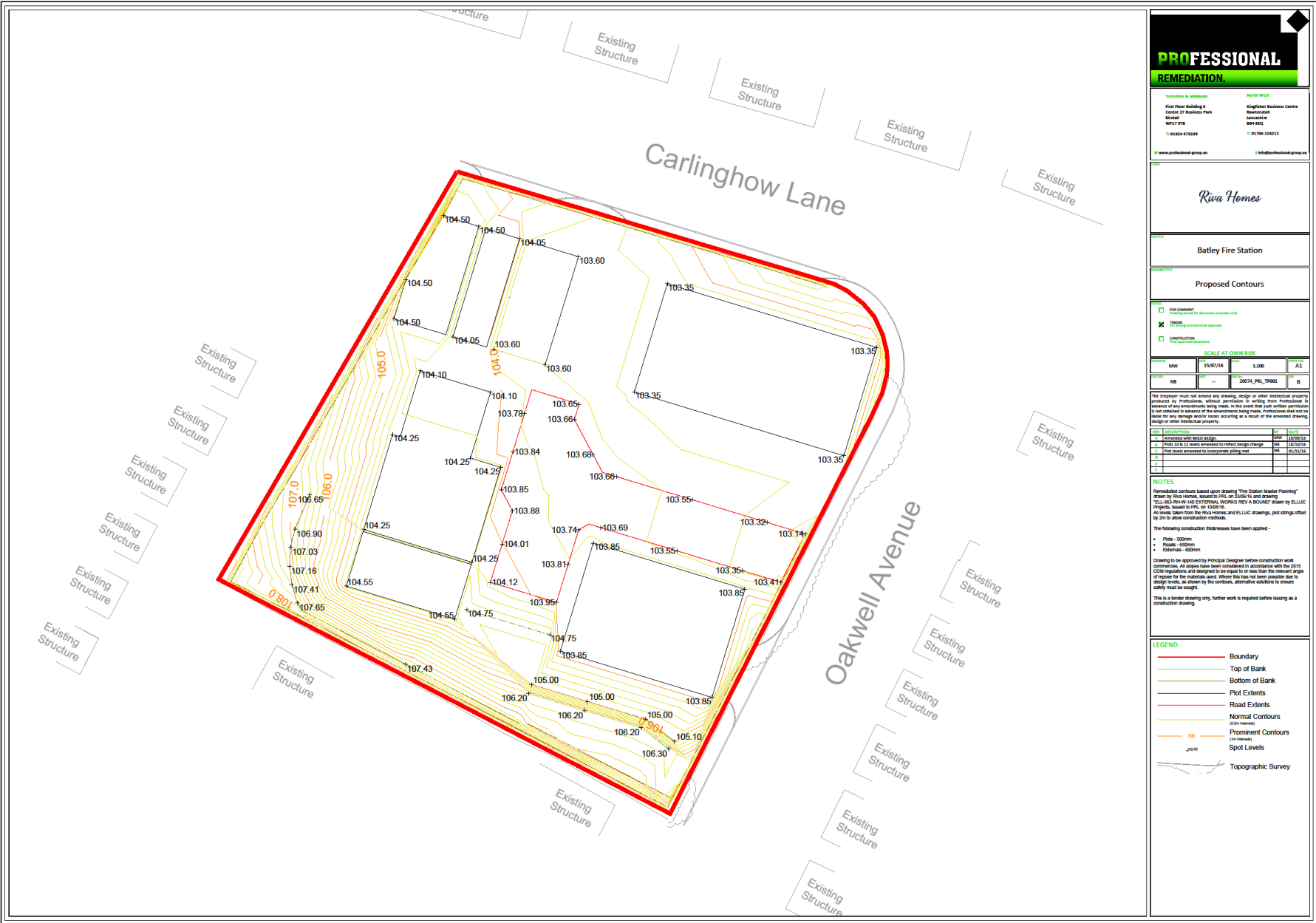


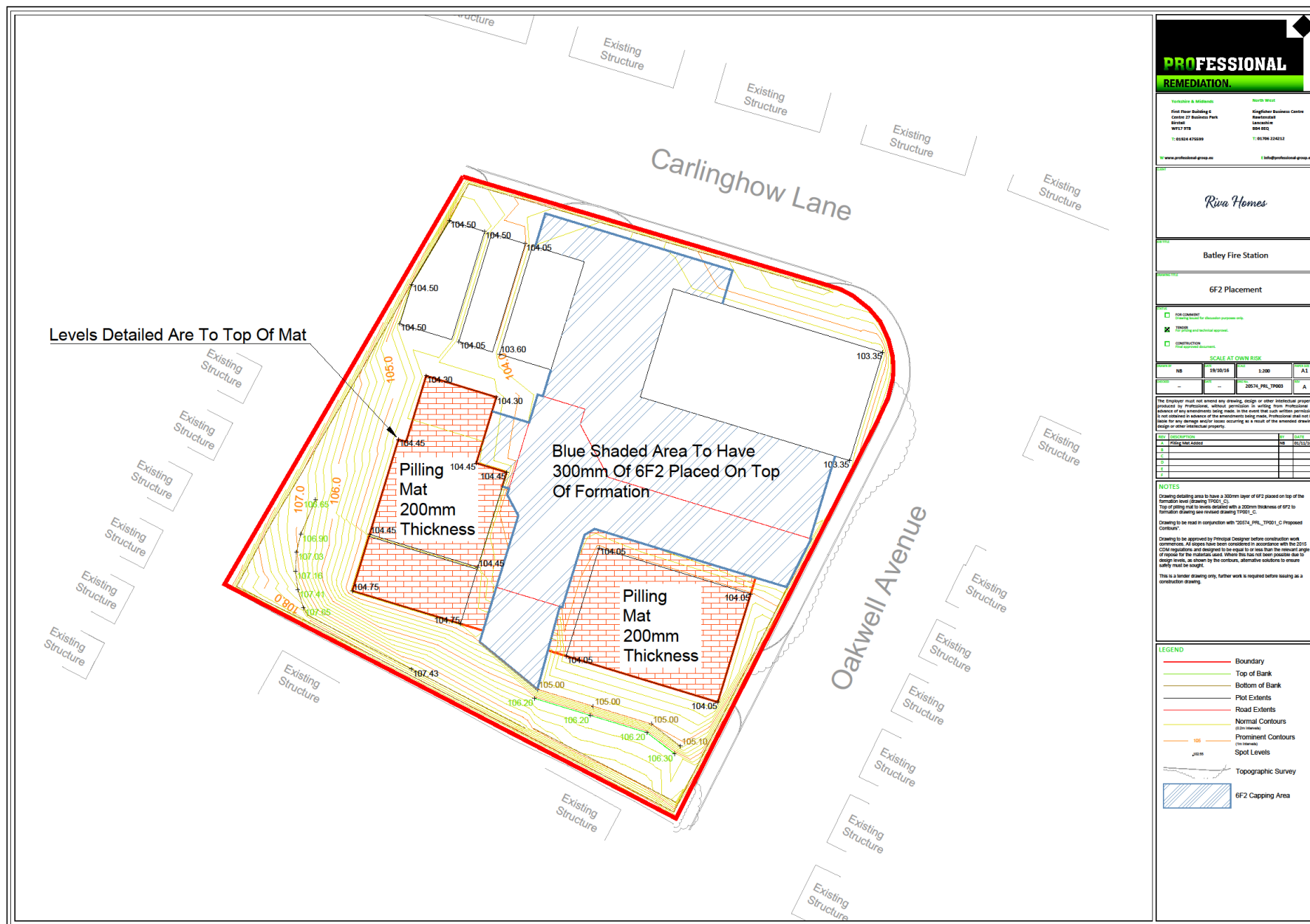












APPENDIX B

GEOTECHNICAL TEST RESULTS



LABORATORY REPORT



4043

Contract Number: PSL16/5205

Report Date: 08 November 2016

Client's Reference:

Client Name: Professional Remediation Group
First Floor Building 6
Centre 27 Business Park
Birstall
WF17 9TB

For the attention of: Reiss Wood

Contract Title: Batley Fire Station

Date Received: 7/11/2016

Date Commenced: 7/11/2016

Date Completed: 8/11/2016

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

R Gunson
(Director)

A Watkins
(Director)

R Berriman
(Quality Manager)

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(Senior Technician)

S Royle
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VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 07-Nov-16

Test Position: Access Road 1

Depth (m): GL

Plate Area (m²): 0.2922467

Type of Kentledge: Tracked

Maximum Applied Pressure (kPa):

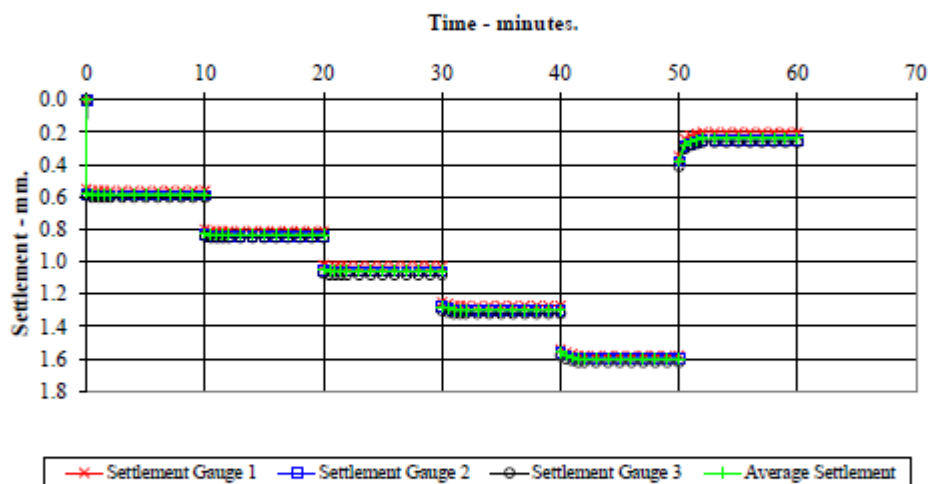
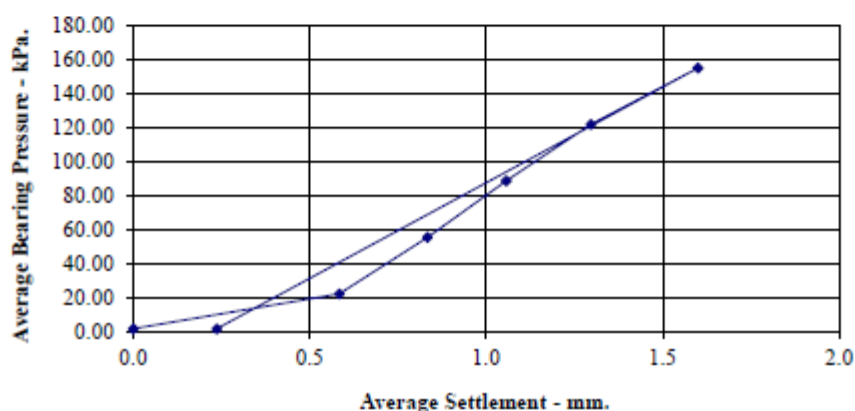
154.62

Maximum Deformation (mm):

1.60

Description:

6F2



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Calculation of Equivalent CBR Value from Plate Bearing Test
 Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
 Incorporating IAN 73/06

Date of Test	7-Nov-16	
Test Position	Access Road 1	
Depth (m)	GL	
Description	6F2	
Maximum Deflection	1.60	mm
Deflection required for CBR value	1.25	mm
Load(@1.25mm)	115.0	kN/m ²
Plate diameter	610	mm
Conversion factor for plate diameter	0.816	
K ₇₆₂ (modulus of subgrade reaction)	75.1	kN/m ² /mm
CBR Value	17.2	%

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VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 07-Nov-16

Test Position: Access Road 2

Depth (m): GL

Plate Area (m²): 0.2922467

Type of Kentledge: Tracked

Maximum Applied Pressure (kPa):

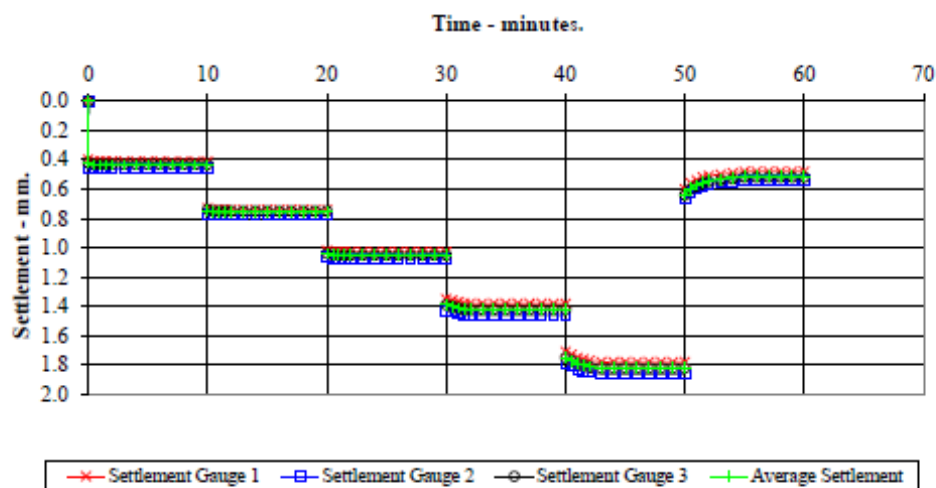
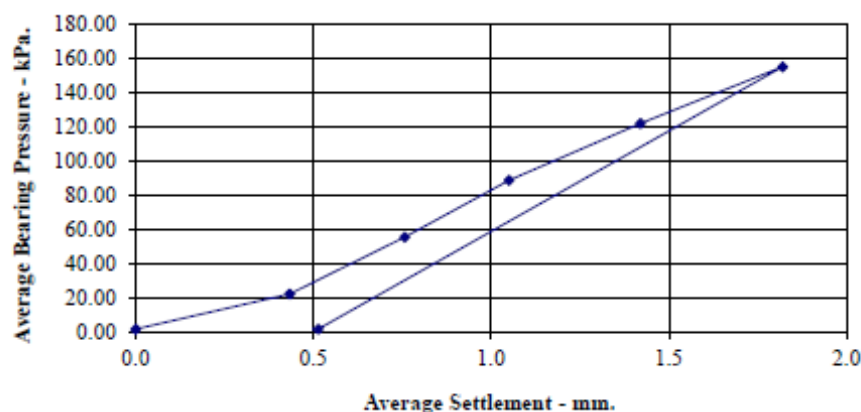
154.62

Maximum Deformation (mm):

1.82

Description:

6F2



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Calculation of Equivalent CBR Value from Plate Bearing Test
Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	7-Nov-16
Test Position	Access Road 2
Depth (m)	GL
Description	6F2
Maximum Deflection	1.82 mm
Deflection required for CBR value	1.25 mm
Load(@1.25mm)	106.0 kN/m ²
Plate diameter	610 mm
Conversion factor for plate diameter	0.816
K ₇₆₂ (modulus of subgrade reaction)	69.2 kN/m ² /mm
CBR Value	14.9 %

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VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 07-Nov-16

Test Position: Access Road 3

Depth (m): GL

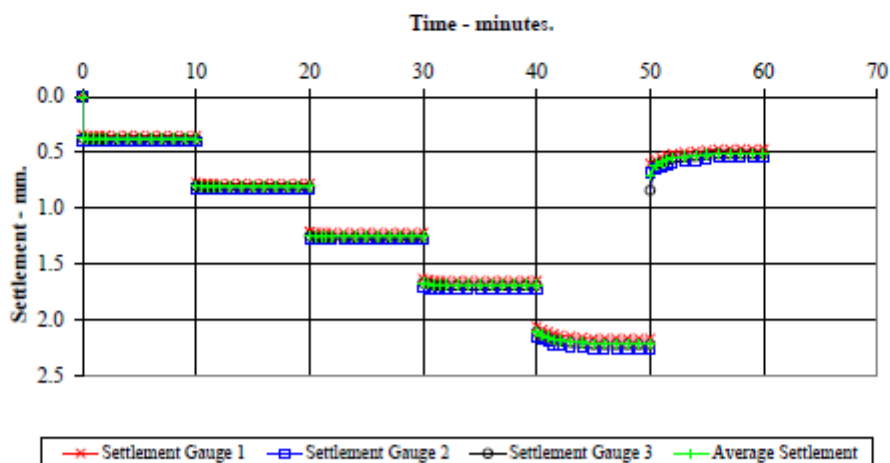
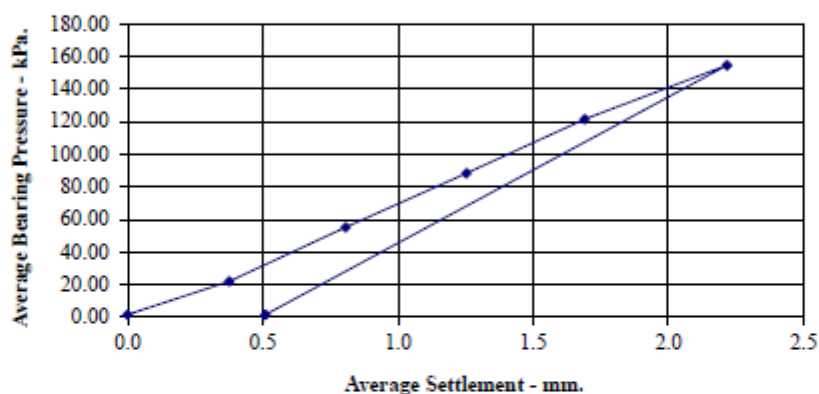
Plate Area (m²): 0.2922467

Type of Kentledge: Tracked

Maximum Applied Pressure (kPa): 154.62

Maximum Deformation (mm): 2.22

Description: 6F2



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Calculation of Equivalent CBR Value from Plate Bearing Test
Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4
Incorporating IAN 73/06

Date of Test	7-Nov-16
Test Position	Access Road 3
Depth (m)	GL
Description	6F2
Maximum Deflection	2.22 mm
Deflection required for CBR value	1.25 mm
Load(@1.25mm)	88.0 kN/m ²
Plate diameter	610 mm
Conversion factor for plate diameter	0.816
K ₇₆₂ (modulus of subgrade reaction)	57.5 kN/m ² /mm
CBR Value	10.8 %

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VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 07-Nov-16

Test Position: Access Road 4

Depth (m): GL

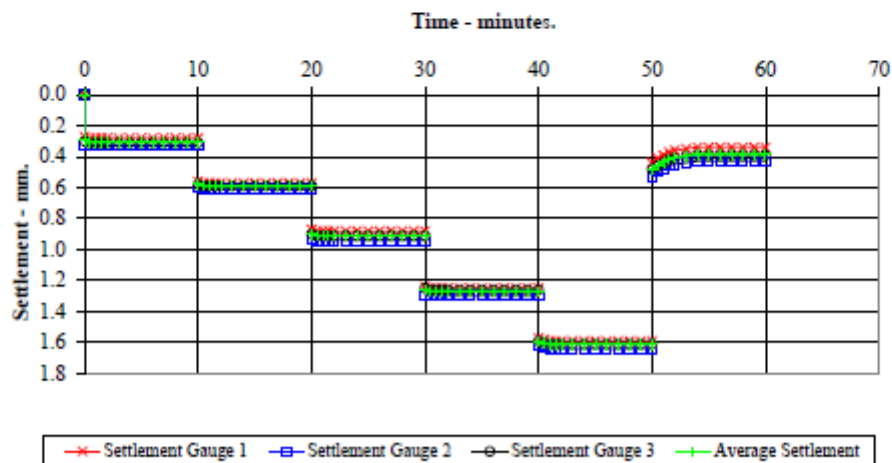
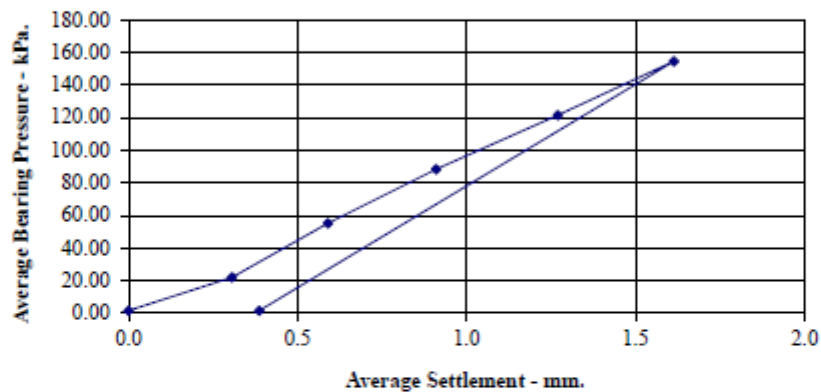
Plate Area (m²): 0.2922467

Type of Kentledge: Tracked

Maximum Applied Pressure (kPa): 154.62

Maximum Deformation (mm): 1.61

Description: 6F2



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		Professional Soils Laboratory Ltd. 5-7 Hexthorpe Road Hexthorpe Doncaster, DN4 0AR. tel: 0844 8156641 fax: 0844 8156642	
Calculation of Equivalent CBR Value from Plate Bearing Test Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4 Incorporating IAN 73/06			
Date of Test	7-Nov-16		
Test Position	Access Road 4		
Depth (m)	GL		
Description	6F2		
Maximum Deflection	1.61	mm	
Deflection required for CBR value	1.25	mm	
Load(@1.25mm)	119.0	kN/m ²	
Plate diameter	610	mm	
Conversion factor for plate diameter	0.816		
K ₁₆₂ (modulus of subgrade reaction)	77.7	kN/m ² /mm	
CBR Value	18.2	%	
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VERTICAL DEFORMATION TESTS.

BS 1377 : Part 9 : 1990.

Date of Test: 07-Nov-16

Test Position: File Mat

Depth (m): GL

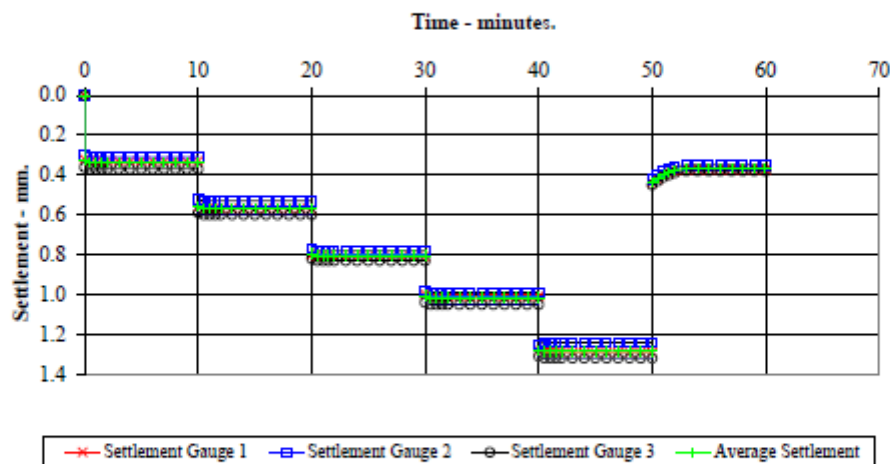
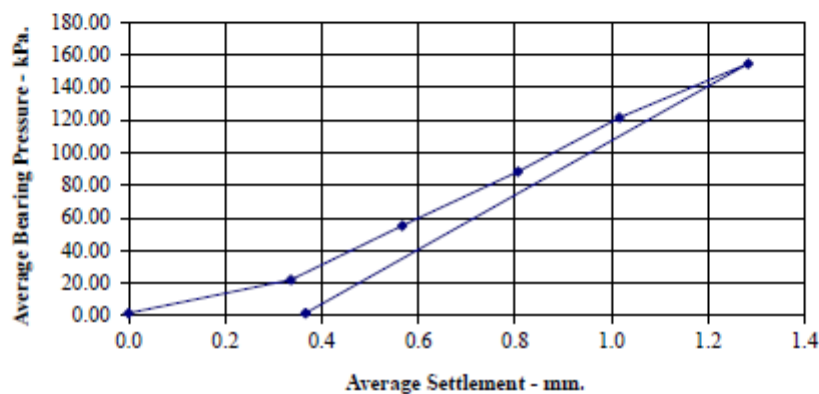
Plate Area (m²): 0.2922467

Type of Kentledge: Tracked

Maximum Applied Pressure (kPa): 154.62

Maximum Deformation (mm): 1.28

Description: 6F2



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Calculation of Equivalent CBR Value from Plate Bearing Test Design Manual for Roads and Bridges Volume 7 Section 2 Chapter 4 Incorporating IAN 73/06			
Date of Test	7-Nov-16		
Test Position	Pile Mat		
Depth (m)	GL		
Description	6F2		
Maximum Deflection	1.28	mm	
Deflection required for CBR value	1.25	mm	
Load(@1.25mm)	150.0	kN/m ²	
Plate diameter	610	mm	
Conversion factor for plate diameter	0.816		
K ₇₆₂ (modulus of subgrade reaction)	98.0	kN/m ² /mm	
CBR Value	27.2	%	
		Checked/Approved	Date
			08/11/16
Batley		Contract No. PSL16/5205	



LABORATORY REPORT



Contract Number: PSL16/4767

Report Date: 14 October 2016

Client's Reference:

Client Name: Professional Remediation Group
First Floor Building 6
Centre 27 Business Park
Birstall
WF17 9TB

For the attention of: Andrew Shepherd

Contract Title: Batley Fire Station

Date Received: 11/10/2016

Date Commenced: 11/10/2016

Date Completed: 14/10/2016

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

R Gunson
(Director)

A Watkins
(Director)

R Berriman
(Quality Manager)

D Lambe
(Senior Technician)

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Page 1 of

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PARTICLE SIZE DISTRIBUTION TEST

BS1377:Part 2:1990

Wet Sieve: Clause 9.2

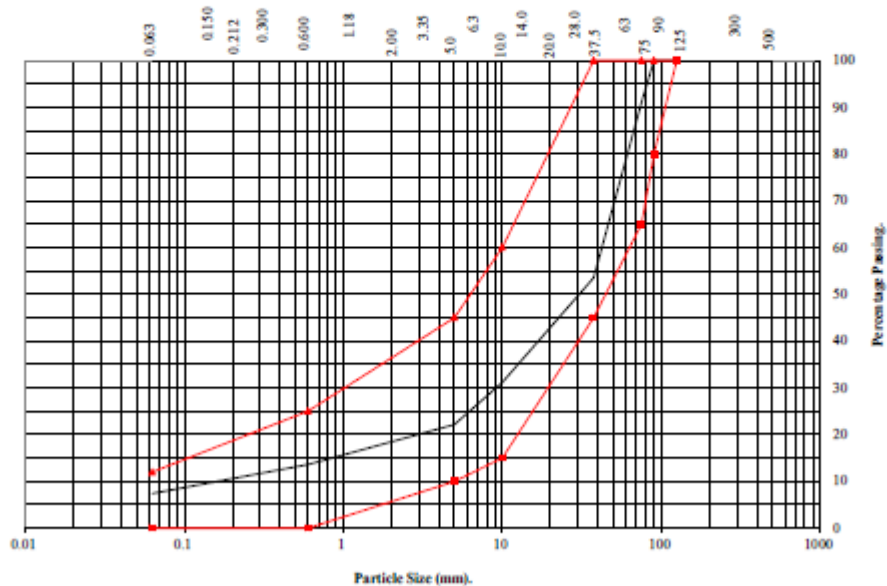
Classification for Acceptable Earthworks

Sample Number:

1

Classification Type

6F2



BS Test Sieve mm	Percentage Passing %	Table 6/2 Grading Requirements	
		Lower	Upper
500	100		
300	100		
125	100	100	100
90	100	80	100
75	91	65	100
63	62		
37.5	54	45	100
28	49		
20	43		
14	36		
10	31	15	60
6.3	25		
5	22	10	45
3.35	21		
2	18		
1.18	16		
0.6	14	0	25
0.3	11		
0.212	10		
0.15	9		
0.063	7	0	12

Soil Fraction	Total Percentage
Cobbles	38
Gravel	44
Sand	11
Silt/Clay	7

Remarks:
SHW Series 600 Table 6/2 : 6F2

 PSL Professional Soils Laboratory		Checked and Approved	Date	14/10/16
		Batley Fire Station	Contract No.:	PSL16/4767
			Client Ref:	

PARTICLE SIZE DISTRIBUTION TEST

BS1377:Part 2:1990

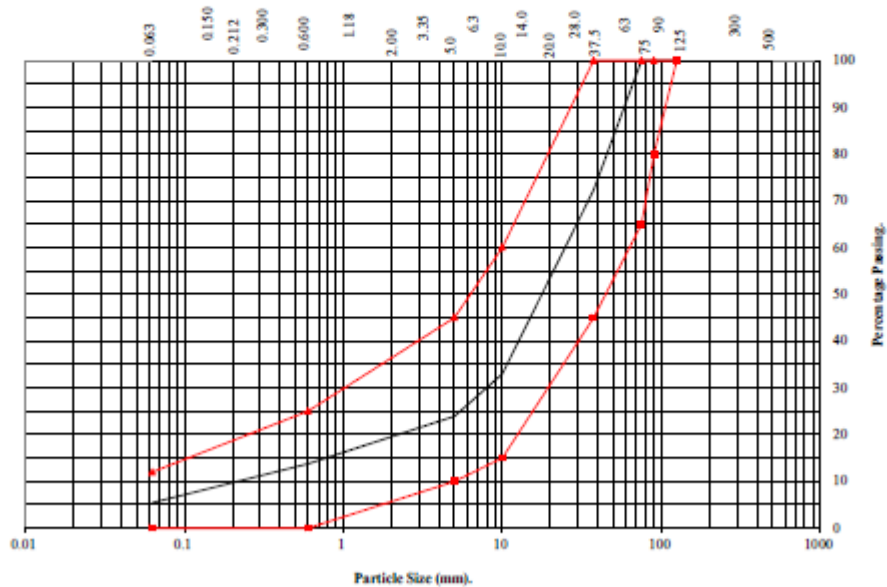
Wet Sieve: Clause 9.2

Classification for Acceptable Earthworks

Sample Number: **2**

Classification Type

6F2



BS Test Sieve mm	Percentage Passing %	Table 6/2 Grading Requirements	
		Lower	Upper
500	100		
300	100		
125	100	100	100
90	100	80	100
75	100	65	100
63	92		
37.5	72	45	100
28	62		
20	49		
14	39		
10	33	15	60
6.3	26		
5	24	10	45
3.35	21		
2	19		
1.18	16		
0.6	14	0	25
0.3	11		
0.212	9		
0.15	8		
0.063	5	0	12

Soil Fraction	Total Percentage
Cobbles	8
Gravel	73
Sand	14
Silt/Clay	5

Remarks:
SHW Series 600 Table 6/2 : 6F2

 PSL Professional Soils Laboratory		Checked and Approved	Date	14/10/16
		Batley Fire Station		

PARTICLE SIZE DISTRIBUTION TEST

BS1377:Part 2:1990

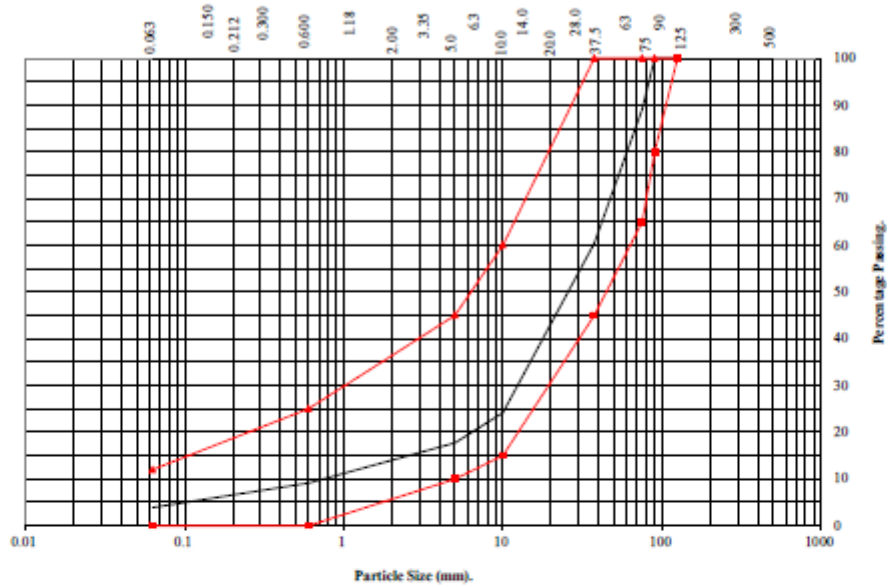
Wet Sieve: Clause 9.2

Classification for Acceptable Earthworks

Sample Number: 3

Classification Type

6F2



BS Test Sieve mm	Percentage Passing %	Table 6/2 Grading Requirements	
		Lower	Upper
500	100		
300	100		
125	100	100	100
90	100	80	100
75	89	65	100
63	80		
37.5	60	45	100
28	51		
20	39		
14	30		
10	24	15	60
6.3	20		
5	18	10	45
3.35	16		
2	13		
1.18	11		
0.6	9	0	25
0.3	7		
0.212	6		
0.15	5		
0.063	4	0	12

Soil Fraction	Total Percentage
Cobbles	20
Gravel	67
Sand	9
Silt/Clay	4

Remarks:
SHW Series 600 Table 6/2 : 6F2

	Checked and Approved	Date	14/10/16
	Batley Fire Station	Contract No.:	PSL16/4767
		Client Ref:	

APPENDIX C CHEMICAL TEST RESULTS



FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 16/06565
Issue Number: 1 Date: 17 October, 2016

Client: Professional Remediation Ltd
Bld 6,
Centre 27 Business Park
Bankwood Way
Birstall, Batley
West Yorkshire
WF17 9TB

Project Manager: Reiss Wood
Project Name: Batley Fire Station
Project Ref: 20574
Order No: 20574/KB/ 3820
Date Samples Received: 14/10/16
Date Instructions Received: 14/10/16
Date Analysis Completed: 16/10/16

Prepared by:

Approved by:

Danielle Brierley
Administrative Assistant

Gill Walker
Laboratory Manager



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Envirolab Job Number: 16/06565

Client Project Name: Batley Fire Station

Client Project Ref: 20574

Lab Sample ID	16/06565/1	16/06565/2	16/06565/3	16/06565/4					Units	Method ref
Client Sample No	1A	2A	3A	4A						
Client Sample ID	6F2 Fines	6F2 Fines	6F2 Fines	6F2 Fines						
Depth to Top										
Depth To Bottom										
Date Sampled	14-Oct-18	14-Oct-18	14-Oct-18	14-Oct-18						
Sample Type	Solid - Fines	Solid - Fines	Solid - Fines	Solid - Fines						
Sample Matrix Code	8	8	8	8						
Bulk Fibre ID in Solid Fines										
Bulk Fibre Identification in Solid Fines ^a	NAD	NAD	NAD	NAD						2-7-008
Asbestos ACM - Suitable for Water Absorption Test? SOLID Fines	N/A	N/A	N/A	N/A						



REPORT NOTES

General:

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

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.

Soil chemical analysis:

All results are reported as dry weight ($<40^{\circ}\text{C}$).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments $>10\text{mm}$ 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 $>10\text{mm}$ '.

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 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.

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.

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

Please contact us if you need any further information.

APPENDIX D
PHOTOGRAPHIC
RECORD
OF
SITE WORKS

(i)

Formation



































APPENDIX D
PHOTOGRAPHIC
RECORD
OF
SITE WORKS

(ii)

Excavation





































































