



Phase 5 Bryn-Y-Groes Gresford REMEDIATION STRATEGY SG Estates

REPORT No: 15SGE008/RS

Date: 13.02.19

1. Introduction

Following completion of the ground investigation by Betts Geo reference 15SGE008/GI/004 dated 17th October 2018, Betts Geo have been commissioned to undertake a Remediation Strategy for Phase 5 of the Bryn Y Groes development. The boundary of this area is shown on the ECUS drawing in Appendix A.

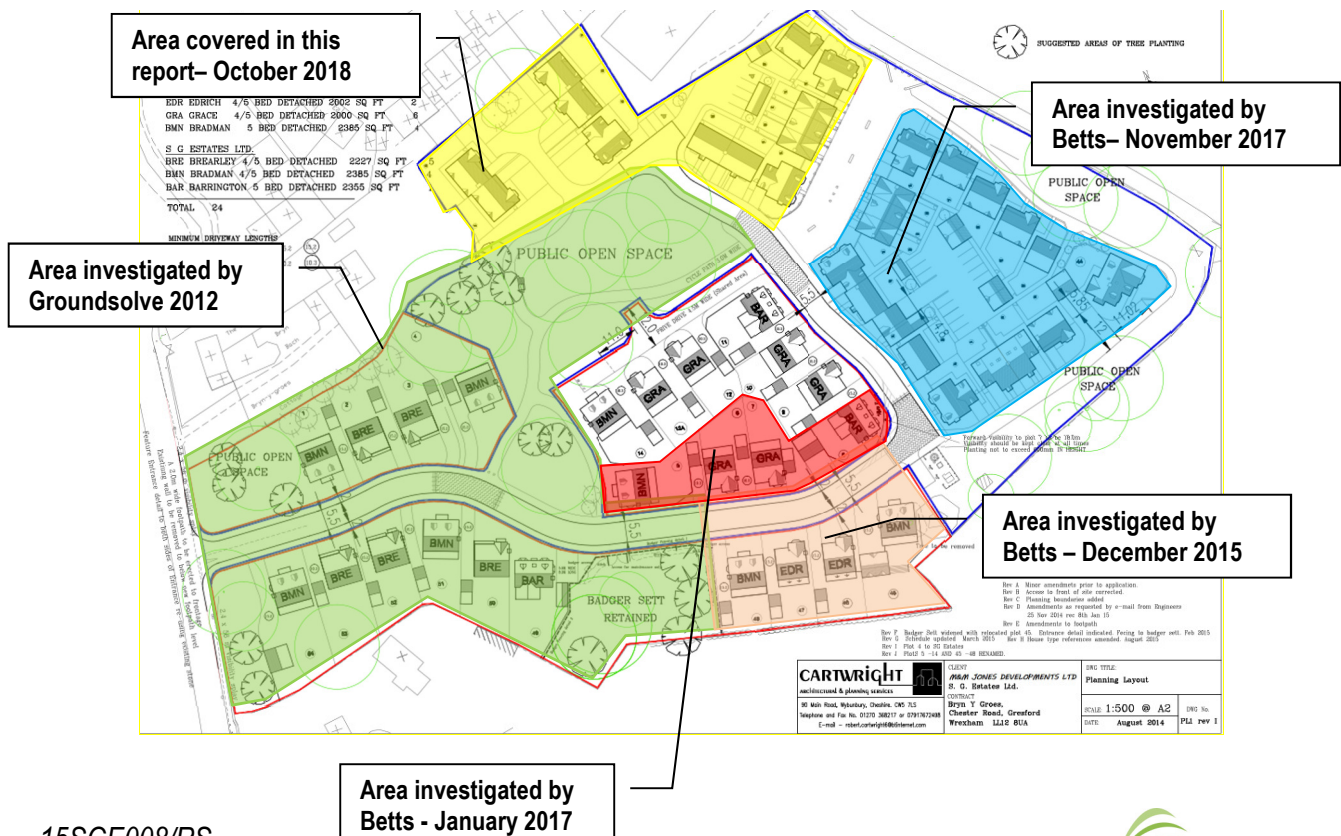
This letter report should be read in conjunction with the aforementioned Ground Investigation Letter Report.

2. Betts Report Summary

The main site at Bryn-Y-Groes in Gresford was investigated in 2012 by Groundsolve (reference 1387, Phase 2 Environmental Report issued October 2012).

Further Investigation was undertaken by Betts in December 2015 for plots 1 – 4, in January 2017 for plots 5 – 8 and in November 2017 for Phase 3.

Betts were contracted to undertake further trial pitting and chemical testing in October 2018 to investigate the ground conditions and confirm geotechnical requirements for plots 22-33. The additional investigation area is outlined in yellow on the extract below;



Whilst Betts Geo Environmental Ltd cannot be held liable for the third party, Client furnished, results/data, it is suggested that it is reasonable to assume that the data provided in these reports have been undertaken with suitable care and due diligence by suitably experience consultants. As such the data is regarded as being of an appropriate standard to utilise within this report.

3. Site Location

The site is located at Bryn-Y-Groes, Gresford. The coordinates on National Grid are 334756, 354318. A Site Location Plan can be seen enclosed with this letter report.

4. Scope of Works

Additional Ground Investigation work was carried out on 19th September and 2nd October 2018 and included the following;

- Five (5 No) machine excavated trial holes to between 1.75mbgl (TP503) and 2.60mbgl (TP501);
- Chemical analysis (Metals, PAH's and TPH's) of five (5 No) samples.
- Analysis of five (5 No) samples for asbestos screening.

The trial pits were targeted to areas that were previous inaccessible due to ecological constraints and the former house in this area

The exploratory hole positions were selected and set out by Betts Geo Environmental (BGE) as shown on the Exploratory Hole Location Plan enclosed with this letter.

5. Ground Conditions

The exploratory holes were logged by an Engineer in general accordance with the recommendations of BS5930:1999+A2:2010. Detailed descriptions together with relevant comments are within the Ground Investigation letter referenced at the start of this letter.

	General Description	Thickness m		No of Holes Located
		Top	Base	
TOPSOIL	Dark brown clayey SAND rare gravel of glass	0.00	0.60	TP502
MADE GROUND	MADE GROUND: Blackish brown gravel of ash and clinker rare gravel of brick and concrete	0.00	0.20	TP504
MADE GROUND (2)	MADE GROUND: brown fine-coarse SAND and GRAVEL (reworked) with some brick, concrete and rootlets	0.00	2.30	TP504, TP505
SAND & GRAVEL	Loose to medium dense brown fine to medium SAND & GRAVEL.	0.00	2.60+	All

6. Contamination Assessment

Soil was sent to a UKAS accredited laboratory, and were generally analysed in accordance with ISO 17025 and/or MCERTS accreditation. The results are summarised within the Ground Investigation letter referenced at the start of this letter.



Localised ash/clinker fill was encountered within TP504 and can be seen at surface. Amosite asbestos was encountered within the fill along with elevated lead levels (980mg/kg over the Atrisk 2017 guidance level of 200mg/kg). Given the location of this fill to the rear of the former building this may have been used to store ash waste/other materials and is visible at surface in this locality.

This material should be removed prior to placement of a garden in this locality to protect site end users. Photos should be taken post removal or evidentiary trial pits should be undertaken post placement of the garden area. Following removal, there is no significant ongoing risk from this source in this locality.

All determinants for Metals, TPH'S, PAH's and asbestos screening fell below the residential with home grown produce guidance levels other than one very slightly elevated level of lead (203mg/kg over the atrisk 2017 guidance level of 200mg/kg). This results is not deemed to be a statistical outlier, and is only very slightly elevated above guidance level therefore is not deemed to be a significant risk to receptors on site.

Following removal of the ashy fill in the vicinity of TP504, 300mm growing medium should be applied within garden areas as per NHBC guidance. This is anticipated to be made up from site won materials.

7. Remediation Scope

Following the Betts investigation, the following scope of works are required to address the identified contamination;

- Removal of the Made Ground in the vicinity of TP504, and installation of nominal 300mm clean and inert soil to provide a suitable growing medium using site won topsoil and subsoil.
- Provision of validation report showing photographic evidence of the made ground removal, amount of waste removed and details of cart off of material

8. Removal Of Made Ground

Removal of the made ground to circa 0.20mbgl will be required in the area of TP504. Following removal of the made ground, confirmatory trial pits should be undertaken. The soils are physically different to the made ground in the adjacent areas and to the underlying reworked sand and gravel, therefore physical confirmation of removal should be sufficient.

Following removal of this made ground, 300mm growing medium should be applied to soft landscaped areas using site won topsoil and subsoil as encountered elsewhere on the site and deemed chemically suitable for re-use.

Waste soils will require disposal at a suitably licensed facility.

9. Site Vigilance and Contingency for Unknown

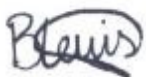
There is, at this stage, a potential risk of localised, unidentified contaminated Made Ground being present at the site.

Site vigilance will need to be maintained during site works to identify any unforeseen evidence of contamination on site. Assistance should be sought from a suitably qualified engineer should any differences in strata/evidence of contamination be encountered.

Should any suspicious material be encountered, the area will be investigated further by a Betts Geo Environmental engineer and sampled as necessary. The Contaminated Land Officer at the Local Authority will also be notified if the material is deemed to represent a risk to environmental receptors or public health. Samples will be forwarded to a UKAS accredited laboratory for a suite of analytical testing deemed appropriate based upon a visual and olfactory appraisal of the material identified. Once the results of any analysis are known, the required remedial action (if any) will be determined.



Written and compiled by:



Beverley Lewis

Director

BETTS GEO ENVIRONMENTAL

References:

Betts Ground Investigation Letter Report reference 15SGE008/GI/004 dated 17th October 2018

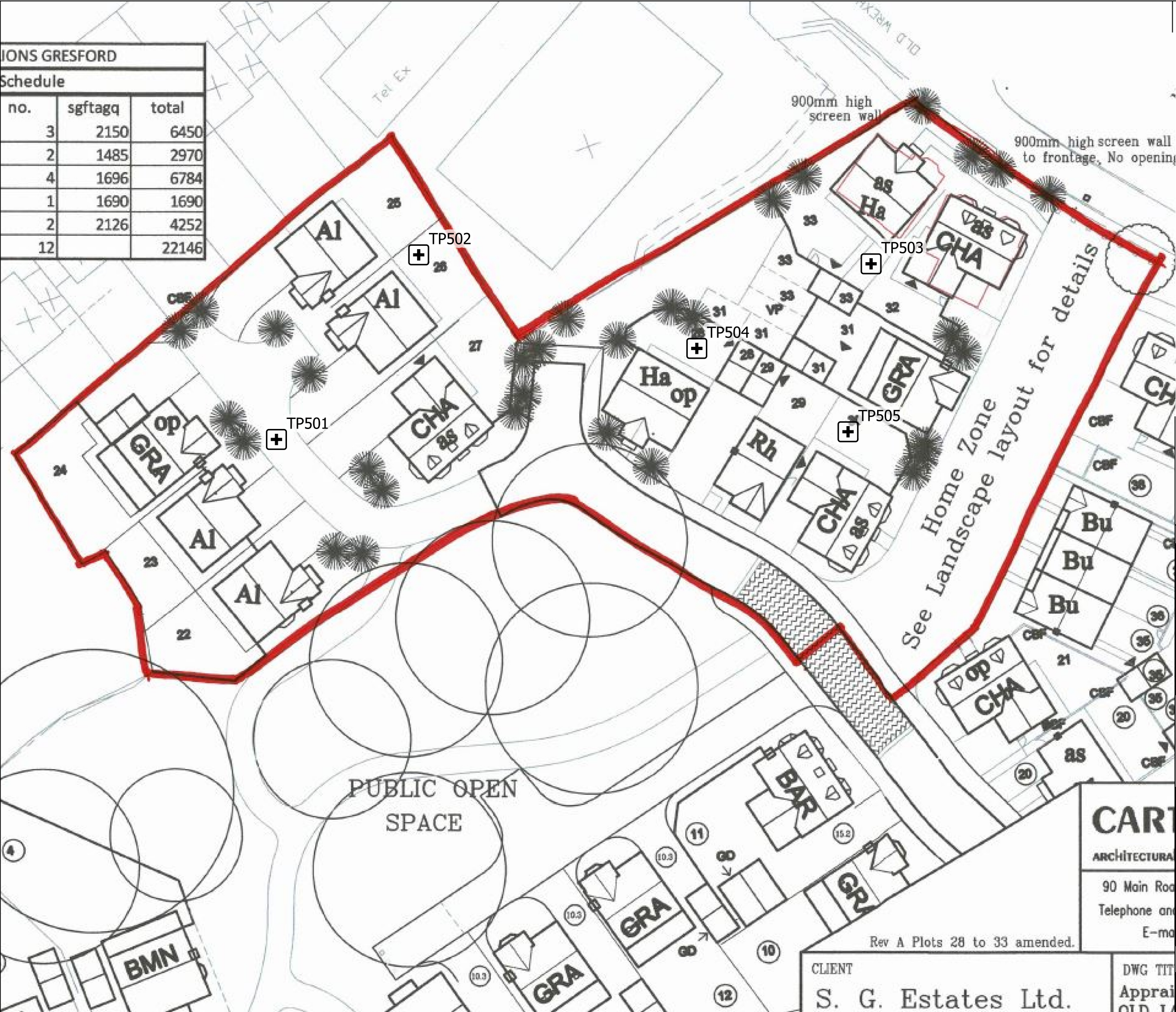


APPENDIX A

- (i) Site Location Plan
- (ii) Exploratory Hole Location Plan



IONS GRESFORD		
Schedule		
no.	sgftagq	total
3	2150	6450
2	1485	2970
4	1696	6784
1	1690	1690
2	2126	4252
12		22146



DO NOT SCALE

EXPLORATORY HOLE LOCATION PLAN
SHOWS INDICATIVE LOCATIONS OF TRIAL
PITS OVERLAIN DRAWING 'APPRAISAL
LAYOUT PHASE 5 (AREA) OLD LAYOUT REF
ONLY', No. PH5 SK3A, DATED JULY 2018
BY CARTWRIGHT.

+ TRIAL PIT

0	17/10/18	RD	DRAFT	BL
REV	DATE	BY	DESCRIPTION	CHK

DRAWING STATUS: DRAFT



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SG ESTATES
AWARD WINNING HOUSING DEVELOPER

PROJECT: GRESFORD WREXHAM

TITLE: EXPLORATORY HOLE LOCATION PLAN

DATE: 17/10/18	SCALE @ SIZE: NTS	DRAWN: RD	CHECKED: BL
PROJECT No: 15SGE008	DRAWING No: 1	REV: 0	

CLIENT
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