

Our Reference: 4046-G-LR031

Date: 15th February 2023

Mr Matt Davis
Story House
Lords Way
Kingmoor Business Park
Carlisle
CA6 4SL



North West & Midlands
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Dear Mr Davis,

Phase 3A, Edgehill, Whitehaven (Incl. Plots 206-208, 233-235 & 241-308); Verification of Absence of Contamination or Ground Gas Risk

Further to recent correspondence, we are pleased to provide verification of the ground conditions at the above site following removal of natural topsoil and preparatory works to achieve proposed site levels.

This report is prepared in accordance with the requirements of Remediation Strategy Report reference 4046-G-R021, dated June 2021. The site lies within Phase 3 of Story Homes Edgehill Park Development located off Wilson Pit Road, Whitehaven. The Phase 3A site location is shown on Drawing 4046-G-D048 in Appendix A.

Ground Investigation Report History

Prior to commencement of development the site has been subject to several phases of ground investigation undertaken on behalf of Story Homes to establish ground conditions, risks associated with soil contamination and hazardous ground gas. We understand that these reports have been previously submitted to and approved by the Local Planning Authority. Reports prepared by Integra and latterly IDG between 2011 and 2021 are listed below.

- Geotechnical Investigation land at High Road, Rhodia, Whitehaven Cumbria, reference 2546 dated September 2011 prepared by Integra Consulting Engineers Limited (Integra)
- Phase 2 Geoenvironmental Ground Investigation land at High Road, Rhodia, Whitehaven Cumbria, reference 2725 dated February 2014 prepared by Integra Consulting Engineers
- 4046-G-R019 Rev B Supplementary Geoenvironmental Appraisal of land at Phase 3, Edgehill Park, Whitehaven, Cumbria, dated January 2021 prepared by IDG
- 4046-G-R021 Remediation Strategy for land at Phase 3A, Edgehill Park, Whitehaven dated June 2021 prepared by IDG
- 4046-G-L012 Edgehill Park, Phase 3 Materials Classification dated 3rd August 2021 prepared by IDG
- 4046-G-L022 Edgehill Park Phase 3 - Topsoil Stockpile Testing Results dated July 2022 prepared by IDG
- 4046-G-R027 Verification Report for the Treatment of Shallow Mineworkings & Crown Hole at Phase 3A Edgehill Park Whitehaven dated July 2022 prepared by IDG.

A detailed summary of the findings of Integra's geoenvironmental investigations is provided in the Supplementary Geoenvironmental Report 4046-G-R019 Rev B and Remediation Strategy Report reference 4046-G-R021 dated June 2021.

Further discussion of correspondence 4046-G-L012 Phase 3 Materials Classification, 4046-G-L022 Topsoil Stockpile Testing Results and report reference 4046-G-R027 Verification Report for the Treatment of Shallow Mineworkings (principally this reports re-assessment of the sites mines gas risk) are presented below. Findings associated with investigation, assessment and treatment of ground stability have been verified in separate correspondence.

Site features and exploratory hole locations associated with all the above phases of ground investigation are depicted on Drawings 4046-G-D079A (without development layout) and 4046-G-D079B (showing development layout).

Remediation Requirements

Remediation Strategy Report reference 4046-G-R021 required the following:

- Delineation & Excavation of lead hotspot within Topsoil at TP733
- Further Investigation of former Phosphorite Storage Area
- Provision of Topsoil in Garden & POS Areas
- Contingency for Previously Unidentified Contamination
- Export to Landfill

Post Remediation Strategy Works & Findings

The following summarises the findings of further works undertaken since issue of the Remediation Strategy which are considered to satisfy the above remediation requirements.

4046-G-L022 Edgehill Park Phase 3 - Topsoil Stockpile Testing Results (July 2022)

Correspondence reference 4046-G-L022 demonstrates that the site won Topsoil, including Topsoil sourced from the localised minor lead contamination at TP733, does not represent a risk to end users and site won Topsoil is suitable for re-use as growing medium.

Edgehill Park, Phase 3 Materials Classification - 4046-G-L012 (August 2021)

Further to the preparatory works carried out by RHI in June & July 2021 and removal of Topsoil, IDG inspected the site in August 2021 to carry out further investigation. The letter report presents the findings of trial pitting carried out in August 2021 to obtain samples of the superficial deposits and bedrock for materials testing to inform an Earthworks Specification. As part of the investigation, trial pits TP912-TP922 were excavated within the site.

The trial pits proved between 0.15-0.5m of cohesive made ground (reworked clay Glacial Till recently deposited by Story Homes as part of ongoing building works) underlain by 0.45-1.4m thickness of Glacial Till and weathered mudstone or sandstone bedrock proven between 0.6m and 1.4m and to be in excess of 1.8m. While no chemical analysis was undertaken at this time, there was no evidence of significant contamination noted within the reworked clay.

Site Inspection & Verification August/September 2021

Additional earthworks were undertaken by RHI during August & September 2021 when site levels were remodeled to create the development platform.

At the request of Story Homes, IDG attended site on several dates to verify and record the earthworks. During our inspection we did not observe any evidence of previously unidentified contamination, historically infilled ground, anthropogenic material (i.e. evidence of historical spillages) within the site and were satisfied that no previously unidentified sources of contamination are present where the surface had been exposed.

When IDG attended site during July 2021 to supervise ongoing earthworks, RHI had removed topsoil and the remaining thin deposits of made ground from the east of the former Phosphate Storage Area to expose natural Glacial Till within the site. No evidence of contamination of the natural Glacial Till was observed by IDG during subsequent visits to site. Photographs provided in Appendix B show the site prior to topsoil stripping in 2020, the topsoil stripped surface and reworked clay stockpile present during June 2021 and during September 2022 following removal of the reworked clay stockpile from the southwest of the site.

Correspondence dated 12th December 2021 received from R.H. Irving which also confirms that they did not encounter any evidence of contamination during site preparatory works is presented in Appendix C.

Shallow Mining & Supplementary Gas Monitoring (Report reference 4046-G-R027)

Site preparatory works to create the development platform during September 2021 identified a small area of artisanal underground shallow mineworkings and associated opencast coal workings beneath the Phase 3 development within the zone depicted on Drawing 4046-G-D079A. The opencast workings had been infilled with reworked natural clay, mudstone and sandstone, capped with up to 2.0m of clean yellow-brown reworked Glacial Till. Detailed records are presented in Report Reference 4046-G-R027.

The site has previously been subject to ground gas monitoring. However, given the presence of shallow underground mine workings it was concluded that supplementary ground gas monitoring was required to further establish potential risks associated with mines gases. As detailed in Report Reference 4046-G-R027, supplementary monitoring wells MW01-MW05 were installed within representative strata around the perimeter of the treatment works which were monitored as the works progressed and continued to be monitored for one month after completion of the treatment works. Gas monitoring was also carried out daily at treatment holes during drilling and at holes which were allowed to remain ungrouted during the treatment works. No significant ground gas concentrations or positive flow rates were detected and it was concluded that the site classification of Characteristic Situation 1 remained appropriate.

Conclusions

IDG consider that site inspections and supplementary investigation during preparatory works have not identified any significant sources of contamination or further risk from hazardous ground gas and that the site is suitable for the proposed residential end use. In addition, Topsoil stockpile sampling demonstrates that topsoil is suitable for re-use as growing medium in residential gardens.

We trust IDGs verification report is appropriate and is sufficient for Regulatory Approvals. Please do not hesitate to contact the undersigned if you have any questions.

Yours sincerely,

Nick Ward BSc (Hons) FGS.
for and on behalf of
iD GEOENVIRONMENTAL LIMITED

Enclosed:

- Appendix A: Drawing No's. 4046-G-D048, 4046-G-D079A & 4046-G-D079B
- Appendix B: Site Photographs
- Appendix C: RHI Correspondence dated 12th December 2021.

APPENDIX A



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CLIENT	Story Homes
JOB TITLE	Phase 3A, Edgehill Park, Whitehaven
DRAWING TITLE	Site Location Plan

DRAWN BY NW	SIGNATURE	DATE 17-06-21	STATUS FINAL	
APPROVED BRB	SIGNATURE	DATE 18-06-21	SCALE 1:25,000@A4	DRG No. 4046-G-D048

APPENDIX B

Client	Story Homes Plc	Project No.	4046
Project	Edgehill Phase 3 Plots 320-322 & 330-335	Date	15-02-2023
Photograph 1: Eastern site corner (foreground) looking northeast from southern boundary, prior to topsoil strip (August 2020)			
Photograph 2: Exposed natural clay deposits on site surface in eastern site corner following topsoil removal. Looking west from south-eastern boundary, (June 2021).			

Client	Story Homes Plc	Project No.	4046
Project	Edgehill Phase 3 Plots Plots 320-322 & 330-335	Date	15-02-2023
Photograph 3: Exposed natural clay deposits on southern site surface following topsoil removal and preparatory earthworks. Viewed from the western boundary. (September 2021).			
Photograph 4: Exposed natural red mudstone & siltstone bedrock on the southern site surface following topsoil removal prior to treatment of shallow mineworkings. Viewed from the southwest site corner. (October 2021).			

Client	Story Homes Plc	Project No.	4046
Project	Edgehill Phase 3 Plots Plots 320-322 & 330-335	Date	15-02-2023
Photograph 5: Exposed natural red mudstone & siltstone bedrock on the southern site surface following topsoil removal during treatment of shallow mineworkings. Grey deposits are grout associated with the mine treatment works. Viewed from the north-west. (April 2022).			
Photograph 6: Exposed natural red mudstone & siltstone bedrock on site surface following topsoil removal during treatment of shallow mineworkings. Grey deposits are grout associated with the mine treatment works. Viewed from the northwest boundary (June 2022)			

APPENDIX C

Craig Kerr
Story Homes
Story House
Lords Way
Kingmore Business Park
Carlisle
CA6 4SL
Date 12th December 2021

Afternoon Craig,

We have now completed our earth work and soil stripping operations on first section of phase3A at Edge Hill Park, Whitehaven. I can confirm during the works up to the present date we have not encountered any contaminated material.

Kind Regards
Andrew Barnes
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