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Our reference: 076755-CUR-00-XX-RP-GE-001-P01

08 December 2020

Muse Developments Ltd,
By EMAIL

Dear Sirs,

Re: Statement to Support the Planning Application for Works at Harton Quays

Introduction and Background

Curtins has been instructed by Muse Ltd. To undertake a Phase 1 Desk Study, Ground Investigation and a Phase 2 Ground Investigation Report.

Curtins has undertaken a comprehensive assessment of the readily available information to guide preparation of a detailed Phase 1 Desk Study and to design a suitable ground investigation for the proposed scope of the works.

Curtins has been provided with the following information:

- Greenhatch Topographical Survey Ref: 35957_T_REV0
- Harton Staithed Site, Mill Damn, South Tyneside Council Drawing Red: N/A
- SMR Architects- Floor Plan Option 9 Ref. 7200-SMR-35-ZZ-DR-A-8012-S4-P1;
- Ryder Glassworks Harton Quays Design Report Ref: N/A

Curtins has reviewed the following readily available sources of information:

- Coal Authority Interactive Map
- British Geological Society (BGS) 1:50,000 Scale Online Map,
- British Geological Survey Historical Exploratory Hole Archive
- Zetica UXO Map
- Old Maps
- Google Maps
- Britain from Above Map and historic photos

Following review of all the available information, we have determined the following:

- The site is anticipated to be underlain by made ground overlaying superficial deposits of glaciolacustrine overlaying a solid geology of Pennine Middle Coal Measures.
- Significant thickness of made ground is anticipated, in line with previous uses of the site.
- Significant thickness of made ground at the location of the soil mound presented on the topographical plan is anticipated.
- The made ground present on site has potential to be contaminated by onsite and adjacent offsite land uses and phases of demolition including, but not limited too:
    - Swinburn Glass Works (pre1850s to c.1915)
    - Railway land/sidings (1915 to 1999)
    - Use as a car park (1999 to present)
- The site is not within a Development High-Risk Development area in terms of coal mining
- The closest mine entries recorded are >200m away from the site boundary,
- The site is within a high risk UXO risk area with a number of Luftwaffe targets surrounding the site.
- Underground obstructions are highly anticipated due to previous use of the site and presence of the made ground.

- A historic tunnel has been observed to enter the site from east, however it is shown to turn into a cutting at the site boundary, coming back to at grades levels. This is anticipated to have been backfilled now.
- Three different type walls are present across the eastern boundary of the site, foundation types of which are unknown.
- A chimney is present to southwestern area of the site, foundation types of which are unknown.
- A sub-station is present to west of the site.
- The site requires some archaeological supervision, as recommended by the archaeologist report Ref: HAR01-01.

Scope of Works

In line with the findings of the preliminary review the following scope of the works has been proposed to assess the ground and groundwater conditions across the site:

- Up to Four Boreholes with Rotary Follow on to depths of up to 30m bgl.
- Window sampling (up to 5 no. locations) to characterise ground conditions, allowing for in situ testing and installation of gas and groundwater monitroing wells in selected boreholes, advanced to around 6.0m bgl or hard stratum.
- Machine excavated trial pitting to establish shallow ground conditions and allow sampling of materials for classification testing.
- Machine Excavated trial trenches to determine the nature of the backfill to the tunnel entrance cutting
- Hand excavated trial pits to assess the foundation to the chimney and the three different types of the walls.
- Groundwater and ground gas installations and monitoring
- Geotechnical and Geo-environmental laboratory and in-situ Testing
- Preliminary Material Waste Classification Testing.

A UXO specialist is present on site full time during excavations within the superficial deposits.
An archaeologist will be present on site full time during trial pitting.
A suitably qualified and experienced geo-environmental engineer will be supervising the ground investigations works full time.

A Phase 2 ground investigation report will be provided to the client covering:

- Ground and groundwater conditions on site
- Geo-hazards and likely associated risks with preliminary recommendations on mitigation methods.
- Preliminary recommendations on foundations, slabs, excavations and ground aggressivity
- Preliminary material waste classification
- Generic Quantitative Risk Assessment with preliminary recommendations for remediation where required

Preliminary Programme

The associated programme with the proposed deliverable is presented in table below:

Description	Anticipated Delivery Date
Phase 1 Desk Study	15/12/2020
Phase 2 Ground Investigation Report	22/02/2021

Factual exploratory hole information will be provided within 3 working days, post completion of the site works.

We hope that this letter provides you with the information you require.

Yours sincerely,

Ronak Amirhosseiny
Senior Geotechnical Engineer
For and on behalf of
Curtins Consulting Ltd
Enclosed:
Exploratory Hole Location Plan

Chimney Inspection Trial Pit

Sum-station Targeting Trial Pit

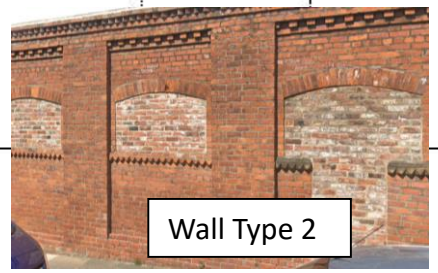
Tunnel Inspection Trial Pit/Trial Trenches locations

Wall Foundation Inspection – Wall Type 1

Wall Foundation Inspection – Wall Type 2

Wall Foundation Inspection – Wall Type 3

Wall Type 1



Wall Type 2

Wall Type 3

Key

- Rotary Cored Borehole
- Window Sample
- Foundation Inspection Trial Pit
- Trial Pit

Note:
The exploratory hole positions are preliminary and subject to change where affected by underground and over ground services.

Scope of the Works

- **Four Boreholes** with Rotary Follow on to depths of up to 30m bgl.
- **One day of window sampling** (up to 5 no. locations) to characterise ground conditions, allowing for in situ testing and installation of gas and groundwater monitroing wells in selected boreholes, advanced to around 6.0m bgl or hard stratum.
- **Two days of machine excavated trial pitting** to establish shallow ground conditions, allow sampling of materials for classification testing and inspect the existing retaining wall foundation.
- Full time engineering supervision during siteworks.

Harton Quays

Exploratory Hole Location Plan

Curtins