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Eich cyf / Your ref: 20/0443/FUL

Ein cyf / Our ref: WK/202003817

Dyddiad / Date: 2 March 2022

Os yn galw gofynnwch am /

If calling please ask for: Anthony Bullen

Dear Mr Davies,

RE: Coelbren Health Centre, Heol Eglwys, Coelbren, Castell-nedd, Powys – Change of use from D1 Non-Residential Institution to C3 Residential Dwelling House.

A review of the following report has been undertaken:

- Terra Firma Wales Ltd (TFW) 'Phase 1 Desk Study Report: Coelbren Health Centre' (ref: 17059) 24th January 2022.

Based on the information submitted, in the above referenced report, the following advice is provided for your consideration:

1. Section 1.3 'Historical Site Investigations and Assessments' of the 'Phase 1 Desk Study Report' references the following report:
 - Earth Science Partnership (ESP) 2010 'Proposed New Branch Surgery, Coelbren, Neath. Geo-Environmental Assessment. Draft. Reference: 4715e/1681REV1'.

In addition, section 1.3 of the Phase 1 Desk Study Report' recommends, that all necessary permissions and reliance are gained before submission of the ESP 'Geo-Environmental Assessment' in support of planning application 20/0443/FUL.

As the preliminary investigation and preliminary risk assessment, presented in the TFW 'Phase 1 Desk Study Report', rely on data from the ESP 'Geo-Environmental Assessment' a copy of this report should be submitted in support of planning application 20/0443/FUL and will be required to satisfy condition 6 of the planning permission.

The ESP 'Geo-Environmental Assessment' is referenced as 'Draft' – only approved finalised reports should be submitted in support of formal planning applications.

All the necessary permissions should be obtained from ESP, including the ESP 'Ground Gas Assessment' (ref: hd/4715ePh2.1805), for the use of their reports.

2. Under section 2.4.4 'Waste' of the 'Phase 1 Desk Study Report' it is stated: "[...] *the Coelbren landfill site was likely to have been closed before 1974 [...]*". The date of closure of the Coelbren landfill is unknown and has not been confirmed.

In addition, the 'Phase 1 Desk Study Report' does not consider the information presented in table 2.1 'Historical Development from Map Information' or the historic maps presented in Appendix A 'Envirocheck Report', which indicate that the filling at the Coelbren landfill was undertaken after 1974 i.e., the published 1979 map (1:2,500) displays the former railway cutting and identifies the railway line as dismantled, and the 1987 map (1:2,500) identifies some filling has occurred with the presence of a playground, associated with the adjoining to school to the East.

The later filling of the Coelbren landfill site and uncertainty concerning the filling operations should be factored into the ground gas risk assessment.

3. Section 2.6.3 'Ground Gas' of the 'Phase 1 Desk Study Report' details that Powys County Council (PCC) Waste Compliance Department provided ESP with gas monitoring results for both the Coelbren and Moorside Villas landfill sites. In addition, it is stated: "*Gas monitoring of four boreholes was carried out annually at Coelbren landfill [...] Moorside Villas landfill 5no. boreholes were monitored annually [...]*."

The available PPC records do not confirm that the gas monitoring undertaken at the Coelbren landfill, by the Waste Compliance Department, was from borehole installations. It was frequent practice for the PCC Waste Compliance Department to monitor ground gas from spike hole positions.

Available PCC records do confirm that the ground gas monitoring undertaken at the Moorside Villas landfill was from spike hole positions.

As advised in BS8576:2013 'Guidance on Investigations for Ground Gases – Permanent Gases and Volatile Organic Compounds (VOCs)', spike holes should not be used to monitor for the presence of permanent gases.

Therefore, the ground gas monitoring data from the Coelbren and Moorside Villas landfills should not be used in the ground gas risk assessment, and the assessment should be revised to exclude this data.

4. Section 3.2.1 'Mine Gas Risk' of the 'Phase 1 Desk Study Report' presents an outline Mine Gas Risk Assessment (MGRA) and states: "*The assessment is based on guidance published in CL:AIRE Good Practice for Risk Assessment for Coal Mine Gas Emissions [...]*".

In accordance with current guidance and industry best practice (e.g., Environment Agency 'Land Contamination Risk Management' guidance and CL:AIRE 'Good Practice for Risk Assessment for Coal Mine Gas Emissions' [2021]) MGRAs must be undertaken by competent, qualified and experienced mine gas risk assessors. The qualifications, experience and competence of the mine gas risk assessor must be demonstrated in the MGRA.

Under previous consultations and planning applications with PCC, TFW have confirmed that they are not competent mine gas risk assessors. Therefore, it is not possible to accept the MGRA presented in the 'Phase 1 Desk Study Report'.

As the approved development involves a change to a more sensitive end use (residential) and the site is in a defined coal mining area (Development Low Risk Area) an appropriate MGRA will be required to satisfy condition 6 of planning approval 20/0443/FUL. The MGRA must be completed in accordance with current guidance and industry best practice, by a competent, qualified and experienced mine gas risk assessor – evidence of which must be provided.

5. Under section 7.1.1.1 'Coelbren Landfill (CS11/43)' of the 'Phase 1 Desk Study Report' it is stated: "*Terra Firma Wales Ltd also investigated the Coelbren landfill site in 2020 [...]*".

Powys County Council records identify that the intrusive investigation undertaken at the Coelbren landfill site related to planning application 20/0448/OUT and an appropriate ground gas investigation and risk assessment are yet to be completed for that application site.

In addition, the submitted information only provides a factual description of the ground conditions encountered in the trial pits excavated at the Coelbren landfill – no monitoring data or quantitative risk assessment has been provided in support of the qualitative assessment that has been presented in the 'Phase 1 Desk Study Report'.

6. In reference to the previous planning approval P/2010/1151, section 7.3 'Installed Gas Protection Measures' of the 'Phase 1 Desk Study Report' outlines that the original developer installed ground gas protection measures in line with the ESP 'Ground Gas Assessment' report (ref: hd/4715ePh2.1805).

In addition, under section 7.3, it has been stated: "*At the time of this development the need for Verification of installed ground gas protection measures was not realised by the industry, and not routinely undertaken until post 2014 and the publication of CIRIA C735.*"

As previously advised in the memorandum (ref: WK/202003817) dated 23 July 2020, concerning planning approval P/2010/1151, only condition 4 was satisfied and a remediation strategy was outstanding to satisfy condition 5.

There is no record of the submission of a remediation strategy or a finalised ground gas protection measure design for the health centre, or of a verification/validation methodology for the installation of the ground gas protection measures, to satisfy condition 5 of planning approval P/2010/1151.

The statement made by TFW, regarding the requirement for verification, is not correct. Condition 6, of planning approval P/2010/1151, clearly states that a verification report that demonstrates the effectiveness of the remediation carried out must be produced and is subject to the approval in writing of the Local Planning Authority. There is no record of the submission of a verification report to satisfy condition 6 of planning approval P/2010/1151.

Also, guidance and best practice available during 2010/11, confirmed the requirements for the appropriate installation and verification of ground gas protection measures e.g., CIRIA C665 'Assessing Risks Posed by Hazardous Ground Gases to Buildings' (2007) – section 10.7

'Verification/Completion Reporting' and CIEH 'Ground Gas Handbook' (2008) – section 9.0 'Construction and Validation'.

The CIRIA C735 'Good Practice on the Testing and Verification of Protection Systems for Buildings Against Hazardous Ground Gases' (2014) document was produced to provide guidance concerning the standards for the appropriate testing and verification of ground gas protection measures.

The information and photographic record presented in Appendix E 'Construction Phase Records' does not provide the appropriate information to confirm the design/specification of the installed ground gas protection measures or to verify that any protection measures were installed appropriately,

The photographic records demonstrate, at the time of installation (2011), that the damp proof membrane was not installed across the building footprint to the required standards of the time i.e., poor lapping and taping of the membrane joints, numerous unsealed service penetrations and placement of iron reinforcement directly onto membrane without any protection.

7. Under section 7.4 'Conclusion' of the 'Phase 1 Desk Study Report' it is stated: "*The site should therefore be classified as Characteristic Situation 1 (CS1) and any ground gas protection measures installed to date are surplus to requirements.*"

The classification of the site's ground gas regime as CS1, at present, cannot be accepted – see points above concerning the completed ground gas risk assessment.

In addition, the recommendation for CS2 specification ground gas protection measures, under planning approval P/2010/1151, was made and accepted, on a precautionary basis, following a discussion between ESP and the Senior Contaminated Land Officer (SCLO) – as evidenced in the email 'RE: RE: Coelbren Surgery' dated 09 November 2012, and was proposed based on the uncertainties and limitations associated with the ground gas investigation completed by ESP and presented in the 'Ground Gas Assessment' (ref: hd/4715ePh2.1805), dated 15th December 2011 – these limitations and uncertainties have not been considered in the ground gas risk assessment presented in the 'Phase 1 Desk Study Report'.

An appropriate preliminary ground gas risk assessment will be required to satisfy condition 6 of planning approval 20/0443/FUL.

The investigation and assessment of ground gas risks to a development site should be completed by competent, qualified and experienced ground gas risk assessors, in accordance with current guidance and industry best practice e.g., BS8485:2015+A1:2019 'Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings', BS8676:2013 and EPG Ground Gas Information Sheet No 3 'Screening Approach for Landfill Gas Migration Around Landfill Sites' (ref: 1.0 5/9/2018).

8. Section 10.1 'General' of the 'Phase 1 Desk Study Report' states: "*An intrusive investigation [...] should be undertaken to investigate the medium risks as identified in the conceptual site model.*"

Once finalised, a detailed scope of works for the proposed intrusive investigation should be submitted for review and approval, prior to the investigation being undertaken – in accordance with the requirements of condition 6 of planning approval 20/0443/FUL.

The detailed scope of works should include a scale plan of the proposed site investigation sample locations and scale plans of any soft landscaped and garden areas proposed for the development site.

Summary

At present, based on the information submitted, it would not be possible to advise that condition 6, of planning approval 20/0443/FUL, has been satisfied.

To satisfy the requirements of condition 6, the following would be required:

- Obtainment of the necessary permissions and reliance from ESP for the use of their 'Geo-Environmental Assessment' (Ref: 4715e/1681REV1) and 'Ground Gas Assessment' (ref: hd/4715ePh2.1805) reports.
- Submission of the Earth Science Partnership (ESP) report 'Proposed New Branch Surgery, Coelbren, Neath. Geo-Environmental Assessment' (Ref: 4715e/1681REV1), November 2010.
- An appropriate Mine Gas Risk Assessment (MGRA) completed in accordance with current guidance and industry best practice, by a competent, qualified and experienced mine gas risk assessor – evidence of which must be provided.
- An appropriate preliminary ground gas risk assessment, completed by a competent, qualified and experienced ground gas risk assessor, in accordance with current guidance and industry best practice.
- A detailed scope of works for the proposed intrusive investigation should be submitted for review and approval, prior to the investigation being undertaken.

Yours sincerely

Anthony Bullen
Contaminated Land Officer – Environmental Health

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