20th January 2015

Mr Clive Holt
Burnley FC Holdings Limited
Turf Moor
Harry Potts Way
Burnley
Lancashire
BB10 4BX

Dear Clive,

COAL MINING RISK ASSESSMENT FOR PROPOSED REDEVELOPMENT OF TRAINING FACILITIES, STOCKBRIDGE DRIVE, PADIHAM, BURNLEY, LANCASHIRE, BB12 8UA,
JANUARY 2015

1. INTRODUCTION

A planning application has been made to Burnley Borough Council by C Campbell Driver Partnership on behalf of Burnley Football Club regarding the proposed redevelopment of a training facility to the north of Gawthorpe Hall and the River Calder, on Stockbridge Drive, Padiham, Burnley, Lancashire BB12 8UA. The local authority have indicated that a Coal Mining Risk Assessment would need to be undertaken to support any planning application.

PWA Geoenvironmental Limited (PWAG) have been commissioned by Burnley Football Club to prepare this Coal Mining Risk Assessment Report for the proposed development site, in order to provide The Coal Authority and the local authority with information on coal mining, including an assessment of its impact on land stability at the application site.

Site Location and Description

The site is located to the north of Gawthorpe Hall and can be accessed from Stockbridge Drive. The main site is roughly rectangular in shape (approx. 510m x 340m) and covers an area of approximately ~190,000m² (19Ha).

The site currently comprises a roughly rectangular area of land which is currently utilised as open grass fields, with a sports ground and a number of football pitches marked within the eastern area of the site.

The current site layout is shown in more detail on Campbell Driver Partnership Drawing No. 14 159 02 OS and presented in Appendix 1.
In terms of topography the site itself is reasonably level, however the gradient of the surrounding area slopes from the north to the south.

Description and Layout of Proposed Development

It is understood that the proposed development will comprise the construction of a covered football pitch along with changing facilities, housed within a steel frame unit, the refurbishment of existing football pitches along with the construction of additional mini football pitches, training areas and associated access road and car parking areas.

The proposed development is shown in more detail on Campbell Driver Partnership drawing No. MLD_1498_01 and presented in Appendix 1.

Scope of the Coal Mining Risk Assessment

The purpose of this Coal Mining Risk Assessment Report is to:

- Present a desk-based review of all available information on the coal mining issues which are relevant to the application site at this stage of the planning process. For the purposes of this report the term Coal Mining also includes the mining of other stratified minerals including ironstone, fireclay and limestone.
- Use that information to identify and assess the risks (if any) to the proposed development from a Coal Mining legacy, including the cumulative impact of such issues.
- Set out any appropriate mitigation measures to address the Coal Mining legacy affecting the site, including any necessary precautionary &/or remedial works, and to demonstrate to what extent Coal Mining issues have influenced or will influence the proposed development.
- Demonstrate to the Local Planning Authority that the application site is, or can be made, safe and stable to meet the requirements of national planning policy with regard to development on unstable or potentially unstable land.

2. SOURCES OF INFORMATION USED TO INFORM THIS REPORT AND SUMMARY

The information sources used in the preparation of this report include:

- An up to date Coal Mining Report, presented in Appendix 2.
- Geological information including the 1:10,000 scale British Geological Survey Sheet SD83SW.
- BGS Historical Borehole Logs SD83SW69 and SD73SE37.
- A site history based upon historic Ordnance Survey mapping.
- Campbell Driver Partnership scheme drawings.
- Phase 1 Preliminary Environmental Risk Assessment, PWA Geo, December 2014.

Site History

The site history has been derived from historical ordnance survey plans presented in Appendix 3.

The 1848 map shows the site as open rural land located to the south of the River Calder and to the north of Gawthorpe Hall. A stone is denoted within the site boundary and a number of trees are recorded within the northeast and north-western areas of the site. The River Calder is shown running to the north of the site, with a number of coal pits and a tramway recorded further to the north. A coal pit and a well are recorded to the southwest of the site, with the Hamlet of Padiham.
and Padiham quarries shown to the west of the site. Gawthorpe Hall is shown to the south of the site and Dog Kennel plantation is recorded to the immediate east of the site.

The 1891-95 map shows a rectangular pitch denoted as a ‘Cricket ground’ is now shown within the site boundary along with a cutting/land drain feature denoted running from the centre to the southwest of the site. East Pit is recorded to the northwest of the site, Grove Lane plantation is shown to the north of the River Calder and the site. Additional industrial and residential developments are shown within the Padiham district to the west including a number of ‘Works’. Habergham Colliery is shown to the south of Gawthorpe Hall. A Colliery is also recorded to the east of the site (to the north of Cornfield House) and Dog Kennel plantation is no longer recorded.

The 1914 map shows the Colliery to the east is now recorded as Cornfield Pit (pumping shaft). East Pit is now recorded as East Pit (pumping shaft). Padiham quarries to the west of the site are now recorded as disused.

In the 1956 map, Cornfield Pit and East Pit are no longer shown to the east and north of the site. The tramway running to the north of the site is no longer recorded.

The 1965 maps shows an opencast quarry to the north of the site. The River Calder has been diverted and is shown running to the south of the subject site. The area adjacent to the eastern border of the site is recorded as Playing fields. A building/development is recorded to the west southwest of the site.

On the 1973 map the opencast quarry to the north is no longer recorded. The building/development to the west of the site is now recorded as Works.

There are no significant changes until the 2006 map, when land drainage features are recorded in the area to the immediate west of the subject site

**Geology**

The BGS 1:10,000 geological map (sheet SD83SW) indicates that the site is directly underlain by superficial deposits comprising Alluvial deposits of clay, silt, sand and gravel. To the north of the site, the area is underlain by River Terrace deposits comprising sands and gravels.

The solid geology of the area around the site comprises Pennine Lower Coal Measures formation, which comprises interbedded mudstone, siltstone and sandstone, along with coal seams.

Two faults, orientated northwest – southeast are located within the east of the site with a further fault orientated north – south, crossing the northwest corner of the site. The Low Bottom Coal seam outcrops in the far south eastern corner of the site and is orientated northeast - southwest. The Padiham Thick Coal outcrops to the north of the site, where it has been worked by opencast methods. The 1:50,000 geological map indicates strata to the north of the site dips ~8° to the south, which suggests that the Padiham Thick Coal is at relatively shallow depth beneath the site.

**Historical Borehole Records**

Historical borehole logs held by the British Geological Survey record the ground conditions in the local area:

- **Cornfield Colliery No. 1 Bore: SD83SW69, 520m northeast** – This hole intersected sands and gravels to 11.58m bgl, ‘Metals, Ragg and Rock’ over coal to 17.8m bgl, interbedded ‘Metals, Ragg and Rock’ over Black Shale to 46.5m bgl and the Padiham Thick Mine Coal strata from 47.4m to 51.8m bgl.
• **Bancroft Colliery No. 3 Bore: SD73SE37, 680m southwest** – This hole intersected marl, sand, loess and gravel to 11.66m bgl, Brown Rock to 13.95m, Ragg to 15.2m, White Rock to 20.47m, interbedded metals and soapstone to 30.89m and the Padiham Thick Mine Coal strata, from 31.52m to 34.75m bgl.

3. **IDENTIFICATION AND ASSESSMENT OF SITE SPECIFIC COAL MINING RISKS**

The table below summarises the potential risks associated with the Coal Mining legacy for the site at Stockbridge Drive, Burnley, as identified from the Sources of Information above. The assessed risks are laid out within the table and specific items are further described below:

<table>
<thead>
<tr>
<th>Coal Mining Issue</th>
<th>Yes</th>
<th>No</th>
<th>Risk Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underground Coal Mining (recorded at shallow depths)</td>
<td>No</td>
<td>See comments below.</td>
<td></td>
</tr>
<tr>
<td>Unrecorded Coal Mining (probable at shallow depths)</td>
<td>No</td>
<td>See comments below.</td>
<td></td>
</tr>
<tr>
<td>Mine Entries (shafts and adits)</td>
<td>No</td>
<td>See comments below.</td>
<td></td>
</tr>
<tr>
<td>Coal Mining geology (fissures)</td>
<td>Yes</td>
<td>Low Risk (see comments below).</td>
<td></td>
</tr>
<tr>
<td>Record of past mine gas emissions</td>
<td>Yes</td>
<td>Low Risk (see comments below).</td>
<td></td>
</tr>
<tr>
<td>Recorded coal mining surface hazard</td>
<td>No</td>
<td>See comments below.</td>
<td></td>
</tr>
<tr>
<td>Surface mining (opencast workings)</td>
<td>No</td>
<td>See comments below.</td>
<td></td>
</tr>
</tbody>
</table>

**Underground Coal Mining (recorded at shallow depth)** – whilst the Coal Authority hold no plans of past mine workings at shallow depth (i.e. within 30m of the surface) beneath the site, two seams are noted as likely worked between 50 and 170m bgl. A number of mine shafts are recorded within the vicinity of the site on the historical maps. It is understood that the coal seam at 50m bgl relates to the Padiham Thick Coal Seam.

**Unrecorded Coal Mining (probable at shallow depth)** – as discussed above and with reference to the published geological maps, the site is located on Glacial Till, underlain by Pennine Lower Coal Measures. No ‘coal pits’ or ‘shafts’ have been identified on-site through the review of the historical OS maps. The Low Bottom Coal seam, which outcrops in the far southeast of the site and dips to the south is unlikely to have been worked beneath the site, given the presence of alluvium and associated groundwater issues. If underground mining of this seam has been undertaken, it is likely further to the south, where sufficient rock cover exists to mine it safely.

**Mine Entries (shafts and adits)** – The Coal Mining Report states that there are no recorded mine shafts within the site boundary of within 20m of the site boundary.

**Coal Mining Geology (fissures)** – whilst the Coal Authority have no record of instability directly relating to fissures for this site, it should be noted that the site is located over Pennine Lower Coal Measures (predominantly sandstone, with mudstone at the western margin of the site). There are two faults within the vicinity of the site, one orientated northwest – southeast at the east of the site and one orientated north – south, crossing the northwest corner of the site.

When faulted or jointed sandstone is undermined at shallow depth there is often a tendency for the resulting subsidence to open up the joints to form open fissures within the sandstone. Were that to happen then some of those fissures may extend to outcrop. However, the sandstone is covered by a unit of alluvium, which is likely to prevent fissures extending to the ground surface. Given this, the risk of these being present at foundation depth is low.

**Record of past mine gas emissions** – the Coal Authority hold no record of mine gas issues at the site. The presence of mudstones and Glacial Till beneath the site will limit the extent of fissures and joints which mine gas could potentially migrate along and the risk is assessed as low.
**Recorded coal mining surface hazard** – the Coal Authority hold no records relating to surface hazards at the site. Any unrecorded historical mine shaft is likely to be located outside of the alluvial channel to mitigate against the risk of surface flooding and be located where shaft construction is easier.

**Surface mining (opencast workings)** – the Coal Authority records indicate that the site is not within the boundary of a former opencast site or within the site of a future opencast site which the Authority is determining.

**4. MITIGATION STRATEGY PROPOSED**

The foregoing section on Identification and Assessment of Site Specific Coal Mining Risks has identified a potential risk, arising from the Coal Mining geology. Given the risk identified, a mitigation strategy is not likely to be required.

**5. SUMMARY AND CONCLUSIONS**

1. The site is located within a former mining area where past workings (shafts) for coal are known to be widespread. However, the site is located within the River Calder alluvial channel and all recorded shafts are located outside this feature.

2. Coal Mining is recorded to have been undertaken between 50 and 170m beneath the site. There is no record of open cast workings or underground workings shallower than 50m on-site.

3. The Padiham Thick is present beneath the site and is likely to relate to the seam worked to 50m bgl in the Coal Authority Mining Report. The Low Bottom Coal Seam is very unlikely to have been worked beneath site.

4. The only identified risk to the site is from the Coal Mining geology (fissures), as the majority of the site is underlain by sandstone. However, the site is underlain by alluvium, which will limit the potential for any fissure to extend to the ground surface.

5. Intrusive investigations are required for substructure design, we do not believe that intrusive investigations are required to identify the presence of shallow coal workings.

Yours sincerely

Richard Caine
Geo-Environmental Engineer
For PWA Geo-Environmental Ltd

Enc:

**Appendix 1** – Drawings - Campbell Driver Partnership Drawings
- 11.126.19 Proposed New Build Site Layout
- 14.159.02 Existing Site Plan

**Appendix 2** – Coal Authority Mining Report
Appendix 1
Campbell Driver Partnership Drawings
proposed site layout  1:1000
Appendix 2

Coal Authority Mining Report
This report is for the property described in the address below and the attached plan.

Non-Residential Coal Authority Mining Report

BURNLEY FOOTBALL CLUB, HABERGHAM DRIVE, BURNLEY, LANCASHIRE,

This report is based on and limited to the records held by, the Coal Authority, and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

<table>
<thead>
<tr>
<th>Coal mining</th>
<th>See comments below</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brine Compensation District</td>
<td>No</td>
</tr>
</tbody>
</table>

**Information from the Coal Authority**

**Underground coal mining**

**Past**

The property is in the likely zone of influence from workings in 2 seams of coal at 50m to 170m depth, and last worked in 1940.

Any ground movement from these coal workings should have stopped by now.

In addition the property is in an area where the Coal Authority believe there is coal at or close to the surface. This coal may have been worked at some time in the past. The potential presence of coal workings at or close to the surface should be considered prior to any site works or future development activity. Your attention is drawn to the Comments on Coal Authority Information section of the report.

**Present**

The property is not in the likely zone of influence of any present underground coal workings.
Future
The property is in an area for which a licence to remove coal using underground methods is awaiting determination by the Coal Authority.
The property is not in an area for which a licence has been granted to remove or otherwise work coal using underground methods.
The property is not in an area that is likely to be affected at the surface from any planned future workings.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notice of the risk of the land being affected by subsidence has been given under section 46 of the Coal Mining Subsidence Act 1991.

Mine entries
There are no known coal mine entries within, or within 20 metres of, the boundary of the property.

Records may be incomplete. Consequently, there may exist in the local area mine entries of which the Coal Authority has no knowledge.

Coal mining geology
The Authority is not aware of any evidence of damage arising due to geological faults or other lines of weakness that have been affected by coal mining.

Opencast coal mining
Past
The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

Present
The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

Future
The property is not within 800 metres of the boundary of an opencast site for which the Coal Authority is determining whether to grant a licence to remove coal by opencast methods.
The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

Coal mining subsidence
The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres, since 31st October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.
The Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas
There is no record of a mine gas emission requiring action by the Coal Authority within the boundary of the property.

Hazards related to coal mining
The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

Withdrawal of support
The property is not in an area for which a notice of entitlement to withdraw support has been published.
The property is not in an area for which a notice has been given under section 41 of the Coal Industry Act 1994, revoking the entitlement to withdraw support.
Working facilities orders

The property is not in an area for which an Order has been made under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

Payments to owners of former copyhold land

The property is not in an area for which a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Comments on Coal Authority information

In view of the mining circumstances a prudent developer would seek appropriate technical advice before any works are undertaken.

Therefore if development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply good engineering practice developed for mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or mines of coal without the permission of the Coal Authority. Developers should be aware that the investigation of coal seams/former mines of coal may have the potential to generate and/or displace underground gases and these risks both under and adjacent to the development should be fully considered in developing any proposals. The need for effective measures to prevent gases entering into public properties either during investigation or after development also needs to be assessed and properly addressed. This is necessary due to the public safety implications of any development in these circumstances.

Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Additional Remarks

This report is prepared in accordance with the Law Society’s Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board’s Terms and Conditions 2006. The Coal Authority owns the copyright in this report. The information we have used to write this report is protected by our database right. All rights are reserved and unauthorised use is prohibited. If we provide a report for you, this does not mean that copyright and any other rights will pass to you. However, you can use the report for your own purposes.
Approximate position of property

Location map

Enquiry boundary

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Key

Approximate position of enquiry boundary shown