

PARRY'S QUARRY LANDFILL, ALLTAMI, FLINTSHIRE

Environmental Permit Application

Site Condition Report

Prepared for: Mold Investments Limited

Client Ref: 416.07238.00001

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Drawing ESID2	Installation Site Layout
Drawing ESID3	Environmental Site Setting
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1.0 Introduction

Mold Investments Limited (Mold) has retained SLR Consulting Ltd (SLR) to prepare a Site Condition Report (SCR) in support of an application for an Environmental Permit (EP) for the Parry's Quarry Landfill and Waste Transfer Station (WTS) in Mold, Flintshire under the Environmental Permitting (EP) Regulations (England and Wales) 2016.

The location of the site is illustrated in Drawing ESID1 and the installation site layout is illustrated on Drawing ESID2.

1.1 Report Context

This SCR has been prepared in accordance with the Natural Resources Wales (NRW) H5 Guidance Note on Site Condition Reports¹. The objective of the SCR is to record and describe the condition of the land at the time of the permit application and prior to work beginning. This provides baseline environmental data and a point of reference so that upon surrender of the permit it can be demonstrated that there is no deterioration of the land as a consequence of the proposed operations, and ensure that the condition of the land is in a 'satisfactory state' on surrender of the permit.

An SCR is not a requirement for the permanent deposit of waste (the proposed landfill) so therefore this SCR only focuses on the areas of land contained within the EP boundary not subject to the infilling of waste. The installation site layout is detailed on ESID2, which illustrates the areas that this SCR relates to.

Sections 1 to 3 of NRW's SCR template have been completed in the preparation of this document, which comprises the following:

- Site details;
- Condition of the land at permit issue;
 - Geology;
 - Hydrology;
 - Hydrogeology;
- Pollution history;
- Evidence of historic contamination; and
- Permitted activities.

Sections 4 to 7 of the SCR template will be maintained during the life of the permit and Sections 8 to 10 will be completed and submitted in support of the application to surrender the permit.

¹ Natural Resources Wales – Environmental Permitting Regulations, Guidance for applicants; H5 Site Condition Report – guidance and templates, October 2014, Version 5.0.

2.0 Site Condition Report H5 Template

2.1 Site Details

The following section details all site information;

1.0 SITE DETAILS	
Name of the applicant	Mold Investments Limited
Activity address	Parry's Quarry Landfill Pinfold Lane Alltami Mold Flintshire CH7 6NY
National grid reference	SJ 2755 6652

Document reference and dates for Site Condition Report at permit application and surrender	416.07238.00001/SCR - for a new bespoke environmental permit application for a non-hazardous landfill and associated WTS, dated July 2019.
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Document references for site plans (including location and boundaries)	Drawing ESID1 – Site Location Plan Drawing ESID2 – Installation Site Layout Drawing ESID3 – Environmental Site Setting Drawing ESID4 – Cultural and Natural Heritage Drawing ESID10 – Superficial Deposits Geology Drawing ESID11 – Bedrock Geology
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Note:

In Part A of the application form you must give us details of the site's location and provide us with a site plan. We need a detailed site plan (or plans) showing:

- Site location, the area covered by the site condition report, and the location and nature of the activities and/or waste facilities on the site.
- Locations of receptors, sources of emissions/releases, and monitoring points.
- Site drainage.
- Site surfacing.

If this information is not shown on the site plan required by Part A of the application form then you should submit the additional plan or plans with this site condition report.

2.2 Condition of Land

The following section details the current condition of the land at the time of permit issue;

2.0 Condition of the land at permit issue²

Environmental setting including:

- geology
- hydrogeology
- surface waters

2.2.1 Geology

Published mapping of the superficial geology (British Geological Survey (BGS), 2019); as shown on Drawing ESID10 indicates that glacial till is present above bedrock across much of the area surrounding the site. However, superficial deposits are absent along the route of Alltami Brook where it is closest to the site (i.e. 250m to the northeast). Elsewhere alluvium is present along the course of the brook to the south; and alluvium and glacio-fluvial (sand and gravel) deposits are present on both Alltami and Wepre brooks to the north. The mapping also shows that superficial deposits are absent from across much of the site; this is due to the development that has taken place

Published mapping of the bedrock geology (BGS, 2019); as shown on Drawing ESID11 shows that the Site is situated within an outcrop of Carboniferous aged Coal Measures strata (predominately comprising mudstones with sub-ordinate sandstones, siltstones and coal beds). The bedrock succession is complicated by local structural controls, which have created a series of fault bounded blocks in the area, resulting in various lithologies to locally become juxtaposed against each other.

Group	Formation	Member	Rock types
Warwickshire Group	Etruria Formation	-	Mudstones with subordinate sandstones (generally lacking coal)
Pennine Coal	Pennine Middle	Hollin Rock	Mudstones with

² Information provided for Geology, Hydrogeology and Hydrology has been sourced from the Hydrogeological Risk Assessment prepared by Stantec, for the original environmental permit application (Report Ref: 66388R1D1) dated July 2019.

	Measures Group	Coal Measures Formation	Member (sandstone)	subordinate sandstones, siltstones and coal seams
		Pennie Lower Coal Measures Formation		

Published geological mapping (BGS, 2019); as shown on Drawing ESID11 indicates that sandstones of the Etruria Formation are present across the eastern two thirds of the Site (and extend to the area immediately to the east); and mudstones, sandstones and conglomerates of the Etruria Formation are present across the western third of the site. The Middle Coal Measures are present at outcrop further to the west, including the Hollin Rock Member which is identified beyond a north-south faulted boundary (with an apparent 50m downthrow) present close to the western boundary of the site. The Lower Coal Measures Formation is present ~50 m to the east of the site beyond another approximately north-south trending fault line.

2.2.2 Hydrogeology

Aquifer Characteristics

The Coal Measures and surrounding bedrock are classified as a Secondary A Aquifer. Jones *et al*³. (2000) describe how these strata are expected to behave as a multi-layered aquifer system in which lower permeability mudstones act as aquicludes between sandstone aquifer horizons. Both the mudstones and sandstones (which are well cemented) possess minimal primary porosity. Groundwater flows predominately occur within joints and fractures within the sandstone strata to depths of up to 250m bgl; transmission of groundwater will depend on how locally well connected these hydrogeological units are. Groundwater movement is considered likely to be limited as the hydraulic continuity of the aquifer is disrupted by the faulting which effectively splits the aquifer units into isolated blocks. No groundwater abstractions have been identified within 1 km of the site.

Historical coal mining within the Coal Measures occurred in the local area and mine workings are known to be present beneath the site. However, the depth of the seams that were worked (>150 m) suggest that they are unlikely to affect groundwater pathways at the site.

³ Jones, H.K., Morris B.L., Cheney, C.S., Brewerton, L.J., Merrin, P.D., Lewis, M.A., MacDonald, A.M., Coleby, L.M., Talbot, J.C., McKenzie, A.A., Bird, M.J., Cunningham, J. and Robinson, V.K. 2000. The physical properties of minor aquifers in England and Wales. British Geological Survey Technical Report WD/00/4, Environment Agency R&D Publication 68.

	<p>The superficial deposits (alluvium and glacio-fluvial) locally present along Alltami Brook and Wepre Brook are classified as Secondary A Aquifers. The Glacial Till is classified as unproductive strata.</p> <p>Aquifer properties</p> <p>Two distinct ranges of hydraulic conductivity values have been identified from aquifer testing that has been performed at the Site (TerraConsult⁴, 2015). Values of $<10^{-6}$ m/s were deemed to be consistent with primary (rock matrix) permeability; and values in the order of 6×10^{-5} m/s were considered to represent the secondary permeability of the Coal Measures rock types (i.e. bulk flow via the fracture network).</p> <p>Source Protection Zone</p> <p>The site is not located within a Source Protection Zone.</p> <p>2.2.3 Hydrology</p> <p>The site lies within the catchment area of the River Dee. The nearest water course to the site is Alltami Brook which is situated to the west of the site; flowing from south-west to north-east. At its closest point, the brook is c. 250m to the north-west of the site; it converges with Wepre Brook c. 700m to the north of the site.</p> <p>Wepre Brook flows from west to the east and is a tributary to the River Dee which is located c. 4km to the north-east of the site. New Inn Brook, another tributary to Wepre Brook, is present c. 900m to the east of the Site.</p> <p>It is understood that any surface water run-off that accumulates in the base of the existing quarry void is managed via ad hoc pumping via a permitted discharge activity to Alltami Brook via a point on the north-western boundary of the Site.</p> <p>2.2.4 Flooding</p> <p>A review of the NRW Development Advice Map⁵ shows surface water features associated with previous quarrying activities that are no longer present. The mapping advises that there is a risk from surface water flooding in these areas, however, as the features have not been present since 2015, the site is considered to be classified as having a very low risk of flooding (typically 0.1% a year).</p>
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⁴ Terraconsult, 2015. Parrys Quarry Landfill Site. Hydrogeological Risk Assessment. December 2015. Report: 2434-R05.

⁵ Natural Resource Wales Development Advice Map: Long Term Flood Risk, <https://naturalresources.wales/evidence-and-data/maps/long-term-flood-risk>, accessed in July 2019

<p>Pollution history including:</p> <ul style="list-style-type: none"> • pollution incidents that may have affected land • historical land-uses and associated contaminants • any visual/olfactory evidence of existing contamination • evidence of damage to pollution prevention measures 	<p>2.2.5 Pollution Incidents</p> <p>The EA website What's in Your Backyard?³ includes details of pollution incidents on and off site;</p> <p>On site: There have been no on-site pollutions incidents on record.</p> <p>Off site: There have been no off-site pollution incidents within 1km of the site.</p> <p>2.2.6 Historical Land-Uses & Contaminants</p> <p>On site: The site has been subject to the quarrying of clay and the manufacture of bricks, as detailed in Section 2.2.7 below. No further potentially polluting land uses have been undertaken on site.</p> <p>Off Site: Within 1km of the site boundary, there has been a history of quarrying and waste management activities. A review of the Lle Geo-Portal for Wales⁶ shows that there are 7 historic landfills within a 1km radius of the site, at the following distances:</p> <ul style="list-style-type: none"> • 120m North; • 250m South; • 725m North; • 805m North; • 875m North East; • 960m West; and • 1km South. <p>2.2.7 Historic Development</p> <p>1874 to 1964</p> <p>Historical maps indicate that the southern part of the site was being quarried prior to 1874 and is identified as a brick works with a clay pit, kilns and a railway track shown on the 1874 map. There is also a colliery (later identified as Elm Collieries) present in the south western corner which is now approximately the location of the current site entrance.</p> <p>Between 1874 and 1912 historic maps show the development and expansion of the brickworks and colliery with a new brickworks identified as Castle Brickworks being developed in the northern half of the site. The quarry development identified above is in the western half of the current site as is visible in historic aerial photographs (Google Earth) from 1945 with the eastern half remaining as agricultural fields.</p> <p>Historic Maps for the wider area, from 1900 onwards, show a number of</p>
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⁶ Lle Geo-Portal for Wales, Historic Landfill Sites <http://lle.gov.wales/catalogue/item/HistoricLandfillSites>, accessed in June 2017

	<p>brickworks having been developed to the south of the site with a small pit or pond shown immediately to the west of Pinfold Lane near the Castle Brickworks.</p> <p>1964 to 1982</p> <p>The original brickworks to the south are identified as disused on the 1964 map and the colliery is no longer shown but disused shafts are identified. By 1970 the former Colliery is identified as a works with industrial buildings having been erected. The Castle Brickworks to the north appears to still be in use in 1964 but over the years the scale of the buildings diminish and eventually it is shown as a workshop which is approximately half the size of the original buildings. The railway is still present on the 1963 map but is shown as dismantled on the 1970 map.</p> <p>The former brick pits remain shown as disused throughout this period and the brickworks buildings to the south remain until the 1982 map when they are shown as having been removed.</p> <p>1982 to 2004</p> <p>The site remains identified as a disused quarry and on the 1988 map the A55 has been developed to the north east of the site. A hotel and filling station are shown on the 1991 Map in the location that is now the A55 services. The situation remains the same on the 2004 map with the exception of Ewloe Barns Industrial Estate being identified to the south.</p> <p>2004 to Present</p> <p>The situation as described in 2004 above remains the same with the exception that the small pit identified to the west of Pinfold Lane has now developed into a quarry which is identified as disused on 2015 Ordnance Survey data.</p>
Evidence of historic contamination, for example, historical site investigation, assessment, remediation and verification reports (where available)	Not Applicable
Baseline soil and groundwater reference data	Not applicable
Supporting information	

3.0 Permitted Activities

The following section details the proposed permitted activities at the time of the EP application and any non-permitted activities undertaken;

3.0 Permitted activities	
Permitted activities	<p>The landfilling operation on site falls under Schedule 1 of the EP Regulations, under Section 5.2, Part A (1) a) ii) <i>'The disposal of waste in a landfill with a total capacity of more than 25,000 tonnes'</i> and associated Directly Associated Activities.</p> <p>The associated waste management activities that will be carried out at the WTS, are as specified in Annex I and II of the Waste Framework Directive are detailed below:</p> <ul style="list-style-type: none"> • R3: Recycling/reclamation of organic substances which are not used as solvents; • R4: Recycling/reclamation of metals and metal compounds; • R5: Recycling/reclamation of other inorganic materials; • D9: Physico-chemical treatment not specified elsewhere which results in final compounds or mixtures which are disposed of by any of the operations numbered D1 to D12. • R13: Storage of wastes pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced) • D14: Repackaging prior to submission to any of the operations numbered D1 to D13. • D15: Storage pending any of the operations numbered D1 to D14.
Non-permitted activities undertaken	N/A
Document references for:	<p>Drawing ESID2 – Installation Site Layout</p> <ul style="list-style-type: none"> • plan showing activity layout; and • environmental risk assessment. <p>Environmental Risk Assessment, prepared for the original environmental permit application (SLR Ref: 416.07238.00001/ERA).</p>

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