PT-CE Ltd

PODE HOLE QUARRY

Site Condition Report

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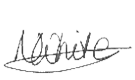
Signature	 White, Nicola (UKNEW850) 2025.10.14 14:49:58 +01'00'			
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CONTENTS

TABLES

1 INTRODUCTION AND SITE DETAILS

PT-CE Ltd (PT-CE) has requested WSP prepares an application for an Environmental Permit (EP) for waste deposit for recovery at Pode Hole Quarry, The Causeway, Thorney, Peterborough PE6 0QH (hereafter referred to as the 'Site'). The Site is a shallow quarry for the extraction of sand and gravel operated by Aggregate Industries UK Ltd (Aggregate Industries) from which most of the aggregate has been extracted. Aggregate Industries has engaged PT-CE to deliver restoration of the Site. Restoration will be performed as a waste deposit for recovery operation.

The application for an EP for a waste recovery operation requires a Site Condition report that presents the baseline conditions prior to the activity subject to the EP taking place.

This document has been prepared in accordance with the information required by sections 1 to 3 of the Environment Agency's site condition report template (Environment Agency, 2008). Section 4 to 7 of that template are to be added and maintained during the life of the EP. Section 1 will be updated and sections 8 to 10 added when the EP is surrendered.

This report details the site condition at the time of the EP application. The Site details are presented in Table 1-1.

Table 1-1 – Site Details

Information Required	Detail
Name of applicant	Quarry Restoration Partnerships Ltd
Activity address	Pode Hole Quarry The Causeway Thorney Peterborough PE6 0QH
National grid reference	TF2593402866 (approximate centre of site)

The following drawings detail the location, layout and environmental setting of the Site and are included in the ESID Report (Report ref UK0038843_2142-WSP-RP-GW-0002_C01):

- Drawing ESID1 – Site Location Plan;
- Drawing ESID2 – Environmental Site Setting;
- Drawing ESID3 – Cultural and Natural Heritage;
- Drawing ESID4 – Site Layout and Waste Deposition;
- Drawing ESID5 – Engineering Details;
- Drawing ESID6 – Restoration Plan;
- Drawing ESID7 – Regional Geology;
- Drawing ESID8 – Regional Hydrogeology;
- Drawing ESID9 – Local Hydrogeology and Hydrology; and
- Drawing ESID10 – Monitoring and Extraction Point Plan.

2 CONDITION OF THE LAND AT PERMIT ISSUE

2.1 ENVIRONMENTAL SETTING

2.1.1 LOCAL GEOLOGY

The British Geological Survey (BGS) has mapped the geology at the Site at the 1:50,000 scale as River Terrace Deposits overlying the Oxford Clay Formation (BGS, 2025). The River Terrace Deposits are described as comprising sand and gravel, locally with lenses of silt, clay or peat. The Oxford Clay Formation is a slightly silty mudstone with sporadic beds of argillaceous limestone nodules. The Oxford Clay is typically 50 m to 70 m thick over much of the East Midlands Shelf.

There is a small area of Tidal Flat deposits mapped in the southern part of the Site and no superficial deposits are mapped along the eastern part of the Site. The River Terrace Deposits are also mapped to the west and south of the Site but are not laterally extensive; other superficial deposits such as Tidal Flat Deposits, which normal comprise a soft silty clay, and Peat dominate the mapped superficial geology east of the Site and further to the south. No faults are mapped at the Site.

There are four BGS borehole records located within the Site (BGS, 2025 – BGS borehole references TF20SE4, TF20SE5, TF20SE50 and TF20SE51). These describe the local geology as comprising topsoil over silty sands, and sand and gravel to between about 4 m and 6 m below ground level, underlain by a grey, blue-grey or bluish-green clay. This geology correlates well with additional logs from boreholes and trial pits completed in 1989, 1991 and 2017 on nearby parcels of land also targeted for sand and gravel reserves (Aggregate Industries, 2017 and 2018). These show topsoil underlain by around 3 m to 8 m (but typically to about 6 m) of alternating layers of sand and gravel, and silty clay, that are underlain by a grey clay.

A deeper BGS borehole (TF20SW53) located approximately 850 m to the south-west of the site reports 0.61 m of topsoil with underlying River Terrace Deposits to a depth of 8.23 m BGL (thickness of 7.62 m), and then Oxford Clay to a depth of 18.59 m BGL (thickness of 10.36 m), beneath which lies the “Kellaways Beds” comprising 0.31 m of “stone” to 18.9 mBGL (likely to be the Kellaways Sands) over 5.18 m “blue clay” to 24.08 mBGL (likely to be the Kellaways Clay). Another BGS borehole in the vicinity of the Site (TF20SW55) recorded a thickness of Oxford Clay of 15.24 m and Kellaways Sand of 1.53 m.

Six monitoring wells were installed at Site during April 2024 (Key GeoSolutions, 2024). The works involved drilling six boreholes to depths ranging between 4.0 and 7.4 metres below ground level (m BGL) and installing monitoring wells (BH01 to BH06) to depths ranging between 3.0 m BGL and 6.1 m BGL. The geology encountered is summarised in Table 2-1 and broadly correlates with that found in BGS boreholes and during earlier ground investigations.

Table 2-1 – Summary of Geology Encountered by 2024 Ground Investigation

Depth (m BGL)	Thickness (m)	Geology
0.5 – 0.7	0.5 – 0.7	Soft dark brown sandy clay topsoil
0.5 – 1.1	0.2 – 0.4	Soft brown mottled orange brown slightly sandy gravelly clay – River Terrace Deposits.
07 – 0.8	0.1	BH05 only: Mottled brown slightly clayey gravelly sand – River Terrace Deposits.
0.7 – 6.4	2.2 – 5.5	Orange brown slightly clayey very sandy gravel (flint and sst) – River Terrace Deposits A layer of soft grey slightly gravelly silt was encountered in BH02 from 5.0-5.1 mBGL (0.1 m thick), in BH05 from 2.8-4.1 mBGL (1.3 m thick) and in BH06 from 2.9-4.0 mBGL (1.1 m thick).
3.0 – 7.4 (Base not proven)	1-1.1 (Thickness not proven)	Stiff to very stiff bluish grey clay - Oxford Clay

2.1.2 SURFACE WATERS AND FLOOD RISK

There are surface waterbodies located on Site that are associated with the quarrying operations. There are surface water drainage ditches (dikes) around much of the perimeter of the Site and across the wider area that provide land drainage. The dikes around the Site drain towards Thorney Dike and Thorney River before discharging into the River Nene at North Side (approximately 3.5 km south of the Site).

There are some limited shallow pools currently present on-site as a result of surface water and groundwater seepage accumulating in the base. This water is currently managed by pumping to one of the Site's silt lagoons for soak away into the ground.

Part of the eastern half of the Site is mapped by the EA as being located in Flood Zone 3 (EA, 2025a). This means it is located on land that has a high probability of flooding from rivers and/or the sea. Flood defences have been built to protect against flooding. Flood risk from rivers or the seas is given as medium (i.e. there is a between 1% and 3.3% chance of flooding each year taking account of the effect of flood defences) (EA, 2025b).

There are also localised areas mapped as being at up to high risk from surface water flooding (i.e. there is a more than a 3.3% chance of flooding each year) (EA, 2025b). Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding. The Site is not at risk from flooding from reservoirs.

2.1.3 WATER SUPPLIES AND ABSTRACTIONS

The site is not located in a source protection zone (SPZ). The nearest SPZ is located over 10 km west of the Site and is associated with an abstraction located between Peterborough and Markey Deeping (DEFRA, 2025).

The Environment Agency and Peterborough City Council have been contacted for information about licensed and private water supplies near the Site. There are five EA licensed abstractions from groundwater positioned within 2 km of the Site. These are all for agricultural or industrial purposes, and not for human consumption. There are no private water supplies recorded by Peterborough City Council located within 2 km of the Site.

There are numerous EA licenses for the abstraction of surface water within 2km of the Site, largely for agricultural spray irrigation, positioned on watercourses both on Site and in the immediate surrounding area. No abstractions are listed as being for human consumption.

2.1.4 HYDROGEOLOGY

Water strikes recorded on the BGS borehole records located within the Site boundary (BGS, 2025 – BGS borehole references TF20SE4, TF20SE5, TF20SE50 and TF20SE51) indicate groundwater was encountered near, or within about 2 m of, the surface. Additional information supplied for five monitoring boreholes on site (referred to as Locations A-E) provides groundwater level data between 2017 and 2023. Groundwater level in these boreholes ranged between 1.1 and 3.8 m from the surface. Six groundwater monitoring boreholes were installed during April 2024, the response zones for which are located within the River Terrace Deposits. Fourteen groundwater monitoring rounds were carried out between April 2024 and April 2025, inclusive. Groundwater levels are generally consistent with those previously observed.

Groundwater flow in the near-surface superficial deposits is likely to be heavily influenced by the surface network of drainage dikes and the River Nene. It will also be influenced groundwater abstractions that are dewatering the sands and gravels for mineral extraction. Therefore, natural groundwater flow in the area is likely to be towards major drainage ditches and the River Nene to the south, but may be locally and temporarily influenced by dewatering to the west.

During quarrying at the Site, the sands and gravels were temporarily dewatered by a groundwater abstraction that took place from a point towards the north of the Site (at grid reference TF 26040,03040)). Dewatering at that location has ceased but continues at the neighbouring Bar Pastures Quarry and the Land Logical sites, which keeps surrounding groundwater levels low.

The superficial deposits (River Terrace Deposits) at the Site are classified as a Secondary A Aquifer. Secondary A aquifers are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. The hydrogeological map of England and Wales (DEFRA, 2025) indicates that such superficial deposits, which mainly comprise silty clays, could provide limited supplies of uncertain quality from the sand and gravel components. The bedrock aquifer (Oxford Clay) designation is ‘unproductive’. The Oxford Clay Formation comprises largely clays that confine underlying aquifers and is described as rocks with essentially no groundwater (BGS, 2025). Underlying the Site at depth are the Kellaways Sand, also classified as a Secondary A aquifer.

Groundwater vulnerability is classified as medium-low over most of the Site. The eastern-most part of the Site is located on an area classified as being unproductive, so has no groundwater vulnerability classification.

The site is not located in a source protection zone (SPZ). The nearest SPZ is located over 10 km west of the Site and is associated with an abstraction located between Peterborough and Markey Deeping.

2.2 POLLUTION HISTORY

Historical land use at the Site was agricultural until quarrying started in the early 2000's. Other than possible diffuse pollution from fertilisers, pesticides and/or herbicides that might be expected on any farmland, and localised small spills or leaks of hydrocarbons from farm or quarry machinery, no contamination is anticipated. No reports, or visual/olfactory evidence, of pollution have been provided.

There are no pollution prevention measures at the Site.

2.3 HISTORICAL CONTAMINATION

Quarrying operations have been taking place on the Site since 1998 and prior to that the Site was agricultural land.

Quarrying on the land to the north of the Site took place from the 1990s and the land has been restored to agriculture. This restoration took place using site-derived overburden from quarrying operations only, and no waste was imported. There are other areas of active quarrying on the immediate surrounding, and nearby, land and the remaining neighbouring land is agricultural.

There have been no known site investigations with respect to land contamination at the Site or on the immediate neighbouring land; only geology and mineral reserve studies. Boreholes located within the Site boundary (see Local Geology, section 2.1.1) only record natural deposits (i.e. no waste, man-made materials or contamination observations). The boreholes and trial pits developed as part of the investigation into mineral reserves on the land immediately west of the Site did not encounter any materials that would suggest contaminative past land uses (Aggregate Industries, 2017 and 2018).

Based on the above, no historical contamination is anticipated on Site.

2.4 BASELINE SOIL AND GROUNDWATER DATA

There is no baseline soil quality information within the Site. Soils were stripped as part of the quarrying activities that precede the intended restoration.

There is no existing groundwater or surface water monitoring data (other than groundwater levels as detailed in section 2.1.4) associated with the Site.

Baseline groundwater monitoring data will be collected prior to the restoration material emplacement commencing (see Hydrogeological Risk Assessment ref UK0038843_2142-WSP-RP-GW-0003). This monitoring will continue and be submitted to the Environment Agency as per the EP associated with the restoration activities.

3 PERMITTED ACTIVITIES

3.1 PERMITTED ACTIVITIES

Within the planning application boundary, only activities associated with restoration by a waste recovery operation will take place. Those activities are presented in Table 3-1.

Table 3-1 – Permitted Activities

Process/Activity	WFD Annex II Operations	Limitations
Main Activity		
Activity 1 - Pode Hole Quarry restoration by deposit for recovery	R5: recycling/reclamation of other inorganic materials	This activity is limited to the placement of up to 1,800,000 m^3 of restoration materials as a deposit for recovery operation. This will be achieved using materials currently on Site as well as suitable imported material.
	R10: Land treatment resulting in benefit to agriculture or ecological improvement	As R5
	R13: storage of waste pending any of the operations numbered R1 to R12.	Excludes temporary storage, pending collection, on the site where it is produced.
Associated Activities		
Activity 2 - storage of raw materials and waste generated on site		Applies to the temporary storage of wastes generated at the site before collection and disposal at an appropriate authorised facility.

3.2 NON-PERMITTED ACTIVITIES

No non-permitted activities are included within the EP for the Site.

3.3 PLANS AND ENVIRONMENTAL RISK ASSESSMENTS

Plans for the Site and environment risk assessments associated with the proposed operations are included in the following documents:

- Environmental Setting and Installation Design (Report Ref UK0038843_2142-WSP-RP-GW-0002);
- Hydrogeological Risk Assessment (Report Ref UK0038843_2142-WSP-RP-GW-0003);
- Stability Risk Assessment (Report Ref UK0038843_2142-WSP-RP-GW-0004);
- Gas Risk Assessment (Report Ref UK0038843_2142-WSP-RP-GW-0005);
- Habitats Risk Assessment (Report Ref UK0038843_2142-WSP-RP-GW-0007);
- Surface Water Management Plan (Report Ref UK0038843_2142-WSP-RP-GW-0006);
- Dust Management Plan (Report Ref UK0038843_2142-WSP-RP-GW-0010); and
- Noise Management Plan (PT-CE, Version 2, July 2019).

4 REFERENCES

- Aggregate Industries (2017) Pode Hole Quarry – Bar Pasture East Trail Pit & Reserve Reconciliation Report: Review of remaining mineral deposits in Bar Pasture East. August 2017
- Aggregate Industries (2018) Pode Hole Quarry – Bar Pasture West 2017 Drilling Report: Review of extension mineral. January 2018
- Key Geosolutions Ltd (2024). Pode Hole Boreholes, Construction Quality Assurance (CQA) Validation Report. Ref. 11436-001-R-01-0, June 2024.
- British Geological Survey (2025) GeoIndex Onshore. Available online at https://mapapps2.bgs.ac.uk/geoindex/home.html [accessed June 2025]
- Department for Environment, Food and Rural Affairs (2025) MAGIC interactive map. Available at https://magic.defra.gov.uk/MagicMap.aspx [accessed June 2025]
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