



# **Pode Hole Inert Recovery Site**

## **Environmental Permit Application**

### **Environmental Setting and Site Design**

**November 2019**

Prepared on behalf of Mick George Limited





## Document control

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**Drawings**

- M15.137(a).D.001 - Location Plan
- M15.137(a).D.003 - Block Phasing Northerly Extension (Permit Boundary and Phasing Plan)
- 1660 – 135 – Overall Restoration Plan



## 1.0 Introduction

### 1.1 Report Context

- 1.1.1 This section of the Environmental Permit application corresponds to Question 1, Appendix 4 of Part B4 of the Environmental Permit application form, which requires the provision of an Environmental Setting and Site Design (ESSD) report.
- 1.1.2 The aim of this report is to describe the regulated facility in relation to the environmental setting, identifying the source terms, pathways and receptors that will be used as the basis for the Environmental Risk Assessment for this permit application.
- 1.1.3 This Environmental Recovery Permit application has been prepared on behalf of the operator, Mick George Limited (Mick George), by WYG.

### 1.2 Regulated Facility Details

#### Site Location

- 1.2.1 The application site is situated at Pode Hole Quarry, which is located to the south of the A47, west of the village of Thorney and approximately 5 kilometres west of Peterborough at Grid Reference TF 26170 03453. The site location and the environmental permit boundary is shown on Drawing Number M15.137(a).D.003.

#### Site Classification

- 1.2.2 The regulated facility is an inert recovery site. A Waste Recovery Plan has been agreed by the EA (See Appendices E and F of this permit application).

#### Site Context

- 1.2.3 The proposed application boundary is shown on Drawing Number M15.137(a).D.003. Access to the site is achieved directly from the A47 The Causeway via an established access point which benefits from appropriate visibility splays constructed to modern standards and a right turn lane into the site
- 1.2.4 The location of the application site is shown on Drawing Number M15.137(a).D.001. The immediate surroundings of the site comprise agricultural land to the north, east and south; the nearest being Pode Hole Farm, located immediately to the north east of the site. Another farm is located opposite the site beyond the A47 and another to the west of Willow Hall Lane close



to the south west corner of the Site. Directly to the east of the site is the Scheduled Ancient Monument of Bar Pastures, an Iron Age/Roman settlement. This will be protected from the quarry by a 20m stand-off and a temporary 3m high bund.

### Compliance with Environment Agency position statement on the location of landfills

- 1.2.5 With reference to the Multi Agency Geographic Information for the Countryside's (MAGIC) website under the Groundwater Vulnerability Map, the site is situated within an area of Minor Aquifer High vulnerability but does not lie in a Groundwater Source protection Zone. However, in terms of aquifers, the MAGIC website shows that the site doesn't overlie an aquifer in either the bedrock or the superficial deposits.
- 1.2.6 With reference to The Environment Agency's Approach to Groundwater Protection guidance (published February 2018), any proposed landfill will be objected to if the site is situated within an GSPZ 1 or within a Principal Aquifer. As stated above, the application site is not situated within a GSPZ or within a Principal Aquifer and would therefore not prompt objection from the Environment Agency.
- 1.2.7 Furthermore, an Environmental Risk Assessment (Appendix D of the Environmental Permit Application) has been undertaken which demonstrates that long term management will not be required due to the environmental protection measures and waste acceptance protocols proposed for the development.
- 1.2.8 As mentioned in Section 1.2.2, the proposed development comprises the importation of inert waste for the purpose of recovery. As such, the Environment Agency's approach to groundwater protection guidance has not been considered regarding the landfill location criteria.



## 2.0 Source Term Characterisation

### 2.1 The development of the installation

#### Historical Development

- 2.1.1 According to the environmental statement for the planning application, quarrying activities began at Pode Hole in 1996 under Planning Permission Reference Number 96/P0385. This Permission allowed for the extraction of sand and gravel and required the restoration of the site to a lower level for agricultural use and nature conservation.
- 2.1.2 Planning permission for the importation of inert fill for quarry restoration was granted in 1996 and 2002 under ref P/0385/96 and 02/00435/MMFUL. Since that time a number of shortcomings in the approved restoration scheme have been highlighted. In addition, the increasing depths and volumes of useable sand and gravel deposits have resulted in insufficient volumes of on-site restoration materials being available for use.
- 2.1.3 Permission reference 06/00404/WCMM was granted in 17/10/2011 that allowed an extension of time to complete the extraction of minerals and associated restoration until 31/12/2015. Permission for a further extension of time was granted under a Non-Material Amendment reference 13/01641/NONMAT for completion of quarrying activity and associated restoration by 31st December 2022.
- 2.1.4 Aggregate Industries (AI) received approval on 21st June 2018 (Reference Number 16/02447/MMFL) for an extension to the mineral extraction operations at Pode Hole, A Section 73 planning application was also approved in 2017 (Reference 17/1707/WCMM) to allow minor amendments to the previously approved restoration scheme for Pode Hole quarry to reflect the impacts that the haul road from Bar Pasture Farm would have on the site.

#### Proposed Development

- 2.1.5 The proposal entails the importation of inert waste to infill and progressively restore the quarry void that will be created following mineral extraction activities that are currently underway by AI. See Drawing Number M15.137(a).D.003 for the full permit boundary and extent of filling.

#### Proposed Operational Phasing

- 2.1.6 The proposed phasing plan is detailed in Drawing Number M15.137(a).D.003. As detailed in these plans, the site will comprise three phases (Phase 1, 2 and 3) which will proceed from



south to north.

### Permitted Waste Types

- 2.1.7 Permitted wastes accepted at the site will be strictly inert as classified under the Landfill Directive (1999/31/EC) and Council Decision (2003/33/EC) of 19 December 2002 'establishing criteria and procedures for the acceptance of waste landfills'.
- 2.1.8 Details regarding the proposed waste types including restrictions are provided in the Operating Techniques (Appendix B of the Environmental Permit Application).
- 2.1.9 Sand and gravels are currently extracted from the quarry by Aggregate Industries. The estimated total void that will be available for filling is 1.98 Million tonnes.

### Landform and After Use

- 2.1.10 As detailed on the restoration scheme (Drawing Number 1660 – 135 - Overall Restoration Plan) the site will be restored to an agricultural use.



### 3.0 Pathway and Receptor Term Characterisation

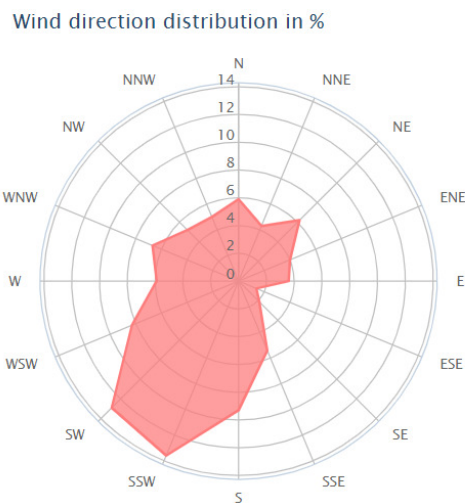
#### 3.1 Climate

3.1.1 Rainfall data is available from a rain gauge at Monks Wood, located approximately 12km south east of the site shown on the Met Office website (Met Office, 2019) from 1981 to 2010 with average monthly rainfall summarised in Table 1 below.

**Table 1: Monthly Rainfall Data from Monks Wood (1981 - 2010)**

Month	Average Rainfall mm (1981 – 2010)
January	47.0
February	35.0
March	40.1
April	47.0
May	47.9
June	54.1
July	48.3
August	51.7
September	53.3
October	60.2
November	54.2
December	47.1
Annual (Average)	585.8

3.1.2 The wind rose data, based on findings recorded at Peterborough (located approximately 6km west of the site) taken from [www.windfinder.com](http://www.windfinder.com) shows that for the period of May 2013 and January 2019, the prevailing wind direction is from the south west (SW).







### 3.2 Geology

#### Bedrock Geology

- 3.2.1 According to the British Geological Survey's (BGS) 'Geology of Britain Viewer', the bedrock geology of the site comprises of mudstones from the Oxford Clay Formation. These rocks were formed approximately 157 to 166 million years ago in the Jurassic Period in an environment dominated by shallow seas.

#### Superficial Deposits

- 3.2.2 The superficial deposits are River Terrace Deposits of sand and gravel which were formed up to 3 million years ago in the Quaternary Period. These sedimentary deposits are fluvial in origin. As the site is a quarry, all of the superficial deposit will be removed from site prior to any filling.

### 3.3 Hydrology

- 3.3.1 According to the Flood Map for Planning Service (FMPS) and the Abingdon Consulting Engineers (ACE) Flood Risk Assessment produced for the Planning Application, a large area of the eastern side of the site falls within Flood Zones 2 and 3 (medium probability or high probability of flooding respectively). The western side of the site where the inert filling will take place is located in Flood Zone 1 which has a low probability of flooding.
- 3.3.2 In terms of surface water features, drainage ditches run around the boundaries of the site and feed into the Dog-in-a-Doublet pumping station approximately 3km west of the site which pumps flows into the River Nene. Ditches on the northern and southern boundaries are operated and maintained by the North Level Internal Drainage Board. The western edge of the site is constrained by the Cat's Water Ditch.
- 3.3.3 The River Nene is located approximately 3km to the south. The River Nene flows eastwards with water levels controlled by a sluice gate in the vicinity of the site (ACE FRA January 2017).

### 3.4 Hydrogeology

- 3.4.1 With reference to the Multi Agency Geographic Information for the Countryside's (MAGIC) website under the Groundwater Vulnerability Map, the site is situated within an area of Minor Aquifer High vulnerability but does not lie in a Groundwater Source protection Zone. However, in terms of aquifers, the MAGIC website shows that the site doesn't overlie an aquifer in either the bedrock or the superficial deposits.



### 3.5 Receptors and Compliance Points

#### Groundwater

- 3.5.1 The principal receptor is considered to be the groundwater within the River Terrace Deposits but as mentioned above this is being extracted as part of the quarrying operations.

#### Gas

- 3.5.2 No gas monitoring will be undertaken at this site.

#### Surface Water

- 3.5.3 The nearest surface water features to the site are drainage ditches which run around the boundaries of the site and feed into the Dog-in-a-Doublet pumping station approximately 3km west of the site which pumps flows into the River Nene. Ditches on the northern and southern boundaries are operated and maintained by the North Level Internal Drainage Board. The western edge of the site is constrained by the Cat's Water Ditch.
- 3.5.4 No surface water discharge will be undertaken from the site and therefore no surface water monitoring will be undertaken.

#### Amenity

- 3.5.5 The receptors identified in Table 2 of the Environmental Risk Assessment (Appendix D of the Environmental Permit Application), have been considered in the Environmental Risk Assessment.



## 4.0 Pollution Control Measures

### 4.1 Site Engineering

#### Basal and Side Slope Engineering

- 4.1.1 The proposed development comprises the importation of inert waste under a recovery permit to restore the site back to agriculture as approved under planning permission 16/02447/MMFUL. Furthermore, as mentioned in above, the site is not situated within a GSPZ and therefore it is considered that the risk to soil and groundwater is low. As such, it is considered that a geological barrier is not required for the development.

#### Capping

- 4.1.2 As mentioned in Section 1.2.3, the development comprises the importation of inert waste for the purpose of recovery. In accordance with the Environment Agency's 'Standards and Measures for the Deposit of Inert Waste on Land' guidance, an engineered cap is not required for sites that comprise the recovery of inert waste.

### 4.2 Leachate Management and Monitoring

#### Leachate Generation

- 4.2.1 Leachate is generated by rainfall infiltrating through areas of open waste and also through areas of restored waste. Due to the inert nature of the waste, it is considered that the generation of leachate is highly unlikely and therefore no leachate management or monitoring is proposed.

### 4.3 Gas Management and Monitoring Infrastructure

#### Gas Generation

- 4.3.1 A Gas Risk Assessment (GRA) has not been prepared for the infilling of the Pode Hole Quarry site, as the Landfill Technical Guidance Note LFTGN03 indicates that new inert landfills do not pose a landfill gas hazard.

### 4.4 Surface Water Management System

- 4.4.1 A surface water drainage scheme has been agreed with Peterborough City Council as part of the planning application process. According to ACE's Flood Risk Assessment:-



*"The restoration scheme will only have a gentle fall and the final surface will be profiled to distribute surface water towards the ditches located in the centre of the site in order to maintain relatively well drained fields during wet periods. There may be certain areas of the restoration scheme more prone to holding water more than others and these may require drainage enhancement such as field drains. These can be installed retrospectively and directed by gravity to the perimeter swales.*

*To prevent the flooding as a result of increased run-off rates, surface water will be captured using ditches which will feed into a balancing pond. The balancing pond will be used to attenuate flows and release the water into the IDB drain at a green-field run-off rate. The pond will be designed to provide storage for a 100 year storm event plus a 30% allowance for climate change. The balancing pond will be located in the north east of the site."*



## 5.0 Site Condition Report

- 5.0.1 Environmental Permitting Regulations – Site Condition Report (H5) states that as Site Condition Report is *‘not applicable to those parts of a permitted landfill that have permanent deposits of waste.’* As such, a Site Condition Report has not been prepared in support of this application.



### 6.0 Closure

- 6.0.1 The Environment Agency's Guidance 'Landfill (EPR 5.02) and other permanent deposits of waste: how to surrender your environmental permit' details that where records demonstrate that a recovery site has accepted Landfill Directive compliance inert wastes during its lifetime, the site is applicable for a low risk surrender based on records alone. As such no further monitoring or post closure monitoring is deemed necessary. As such, no further closure and aftercare plan has been prepared in support of this Environmental Permit Application.
- 6.0.2 However, as a function of the planning permission, a 5-year aftercare scheme will be implemented to manage and maintain the wider quarry site. This will ensure the successful establishment and continued thriving of the site.



## Drawings

M15.137(a).D.001 - Location Plan

M15.137(a).D.003 - Block Phasing Northerly Extension (Permit Boundary and Phasing Plan)

1660 – 135 – Overall Restoration Plan