PT-CE Ltd

PODE HOLE QUARRY

Surface Water Monitoring and Management Plan

UK0038843_2142-WSP-RP-GW-0006_C03
OCTOBER 2025

TYPE OF DOCUMENT (VERSION) CONFIDENTIAL

PROJECT NO. UK0038843.2142

OUR REF. NO. UK0038843_2142-WSP-RP-GW-0006_C03

DATE: OCTOBER 2025

WSP

Attenborough House, Browns Lane Business Park
Stanton-on-the-Wolds
Nottingham
NG12 5BL

Phone: +44 115 9371111

WSP.com

QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	Final for Issue			
Date	14 October 2025			
Prepared by	Karen Henwood			
Signature	Henwood, Karen (UKKXH850) 2025.10.14 15:03:40 +01'00'			
Checked by	Nicola White			
Signature	White, Nicola (UKNEW850) 2025.10.14 14:47:42 +01'00'			
Authorised by	Nicola White			
Signature	White, Nicola (UKNEW850) 2025.10.14 14:48:01 +01'00'			
Project number	UK0038843.2142			
Report number	UK0038843.2142-WSP-RP-GW-0006_C03			
File reference				

CONTENTS

TABLES

APPENDICES

1 REPORT CONTEXT

This report has been prepared by WSP, on behalf of PT-CE Ltd (PT-CE) and presents a Surface Water Management and Monitoring Plan in support of its Environmental Permit (EP) for waste Deposit for Recovery (DfR) (hereafter referred to as the 'permit application') for Pode Hole Quarry, The Causeway, Thorney, Peterborough, PE6 0QH (hereafter referred to as the 'Site'). The Site's quarry operator, Aggregate Industries UK Ltd (Aggregate Industries), has engaged PT-CE to deliver restoration of the Site.

The Site currently consists of a site entrance, reception, weighbridge, wheel wash, access road and quarry void. The Site void covers a surface area of approximately 617,500 m^2 as a result of the mineral extraction of sand and gravel. Current ground levels in the surrounding area are fairly flat at about 3 m above Ordnance Datum (AOD). The maximum depth of the quarry void is approximately -3.9 m AOD.

The restoration proposal for the Site is described in Planning Permission Ref. 18/02044/MMFUL dated 12 April 2019 for the "Importation of up to 1,807,000 cubic metres of inert waste to restore Pode Hole Quarry". The Directive on Waste (2008/98/EC), amended in 2018 (2018/851) includes a definition of 'backfilling' as a recovery operation where suitable non-hazardous waste is used for reclamation in excavated areas or for engineering in landscaping (i.e. waste material is used instead of non-waste material to perform a function). To take advantage of this definition, Planning Permission Ref. 19/01373/NONMAT dated 16 October 2019 was subsequently issued to amend the wording of Condition 20 and 22 of Planning Permission Ref. 18/02044/MMFUL to remove reference to the 'waste hierarchy' and refer to the use of 'inert materials' to restore the quarry as opposed to 'waste materials'. This is to enable restoration to be performed as a waste for recovery operation using rather than as landfilling of waste.

This report details the Surface Water Management and Monitoring Plan to be implemented specifically at the proposed Pode Hole Quarry DfR. This Plan is a 'live' document, which shall be updated accordingly as the project is progressed. Consequently, the Plan should be reviewed after 12 months operation at the site and revised as required. This Plan should be read in conjunction with the EP application for Pode Hole Quarry, in particular Environmental Setting and Installation Design (ESID; ref. UK0038843.2142-WSP-RP-GW-0002), and Hydrogeological Risk Assessment (HRA; ref. UK0038843.2142-WSP-RP-GW-0003).

2 SURFACE WATER MANAGEMENT

There are surface waterbodies located on Site that are associated with the quarrying operations. Surface water drainage ditches (dikes) run 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).

Surface water currently accumulates in the quarry void and is pumped and discharged to one of the Site's silt lagoons for infiltration to groundwater. Clean outflow from the lagoons falls to Internal Drainage Board (IDB) drains. This will continue during restoration activities.

The restored landform will maintain the existing direction of surface drainage towards the southeast of the Site. Rainfall will therefore be directed towards the nature conservation and pond area via a series of ditches and drains. The banks around the pond have been designed to facilitate a wide draw-down area for water. The restoration plan is shown on **Drawing ESID6 – Restoration Plan**.

The surface water management system and sampling points will be inspected at six monthly intervals to ensure that the system is not damaged, or its effectiveness impaired by fouling by vegetation, collapse, silting etc, and any remedial works required will be undertaken within a month or such other period as may be agreed in writing with the Environment Agency (EA). Details of all inspections and remedial works undertaken on the surface water management system will be recorded in the site monitoring records.

3 SURFACE WATER MONITORING

3.1 MONITORING LOCATIONS

During restoration activities it is proposed to monitor the quality within one of the Sites silt lagoons (SW1), as shown on **Drawing ESID10 – Monitoring and Extraction Point Plan**.

Should discharge from the Site be required at other locations during the lifetime of the Site (for example if further dewatering is required) it is proposed that monitoring be undertaken upstream and downstream of the discharge point into the surface water body to monitor and control the emissions from Site. It is recommended that a regime of surface water monitoring in the receiving surface water body be undertaken prior to installing any surface water discharges to adequately characterise the background surface water quality.

3.2 SURFACE WATER QUALITY MONITORING

The surface water quality within the silt lagoon is proposed to be monitored on a monthly basis following the EA guidance (LFTGN02) during the restoration activities. Where flow permits, the surface water is proposed to be monitored for the list of determinands given in **Table 3-1**.

Table 3-1 - Proposed Surface Water Monitoring Requirements

Location	Parameter	Frequency	Monitoring Standard or Method
SW1 (Silt Lagoon)	pH, Electrical Conductivity, Ammoniacal Nitrogen, Chloride, Sulphate, BOD, suspended solids, visual oil and grease.	Monthly	As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), Horizontal Guidance Note H1 - Environmental Risk Assessment for permits, Annex J3, version 2.1, Dec 2011, or such other subsequent guidance as may be agreed in writing with the Environment Agency.

3.3 SURFACE WATER QUALITY EMISSIONS LIMITS

Table 3-2 shows the compliance limits and control levels that are proposed for the Silt Lagoon monitoring point. The Compliance Limits are set to the UK DWS/FW EQS. The Control Level has been set to 90% of the Compliance Limit.

Table 3-2 - Proposed Compliance Limits and Control Levels for Surface Water

Determinand	Units	Compliance Limit	Control Level
pH	pH units	<9 > 6	<8.5>6.5
Chloride	mg/l	250	225
Ammoniacal Nitrogen	mg/l	0.39	0.35
Sulphate	mg/l	250	225

Determinand	Units	Compliance Limit	Control Level
BOD	µg/l	10	8
Suspended Solids	mg/l	100	90
Oil and Grease	-	None visible	-

3.4 SURFACE WATER ACTION PLAN

If surface water compliance limits are exceeded, the following action plan shall be undertaken:

- Advise site management, environmental manager of landfill operating company and EA.
- If the result is above the compliance level and outside of the level of uncertainty, the sample will be retested by the laboratory within two weeks to confirm the measurement.
- If the result is confirmed by the laboratory the surface water sampling point should be resampled within one month.
- If repeat analysis confirms breach, then a specific action plan will be implemented, including where appropriate review of existing monitoring data using statistics and graphical presentation to establish the presence of any trends or patterns, increased monitoring frequency and/or review of site management and operations.
- In the event that the compliance limit is exceeded for more than six months then a further specific action plan will be submitted to the Environment Agency and implemented, including review of the assumptions incorporated into the conceptual site model, along with the existing risk assessment, and compliance limits.

4 QUALITY ASSURANCE OF MONITORING AND SAMPLING

4.1 MONITORING PERSONNEL

Sampling will be undertaken by staff appropriately trained in environmental monitoring procedures, and who are familiar with the equipment and its limitations. PT-CE will ensure that the personnel engaged in monitoring activities are trained to undertake the task. These comprise the company's own technical personnel, the manager or nominated deputy, following appropriate training by technical personnel. All monitoring staff undergo a period of job training and in addition external courses are used to supplement internal training. Results are validated by the sampling personnel detailed above.

4.2 MONITORING PROCEDURES

Samples will only be taken when the discharge is active, and a sufficient volume of water is available to take a representative sample.

Surface water will be sampled using a scoop or other suitable equipment in accordance with the Site's internal guidance and procedures.

Samples will be filtered if required by the sampling requirements of the laboratory, will be collected in bottles, containing preservatives where required, supplied by the laboratory, and appropriate to the analysis to be undertaken.

All samples taken will be labelled with the time and date of sampling, sampling locations and any other relevant information. Alternatively barcoded sample bottles may be used which detail in barcoded form the above information and additionally details of analysis required.

All samples will be delivered to the analytical laboratory within 24-hours of sampling. Analyses are undertaken by a laboratory under UKAS accreditation (equivalent to EN45001). Because of the large batches of samples that are processed by laboratories, the QA/QC checks implemented are efficient in identifying any quality control analytical failures. Accordingly, it is not proposed to submit additional QC samples (sampling duplicates, field standards, or field blanks) from the site.

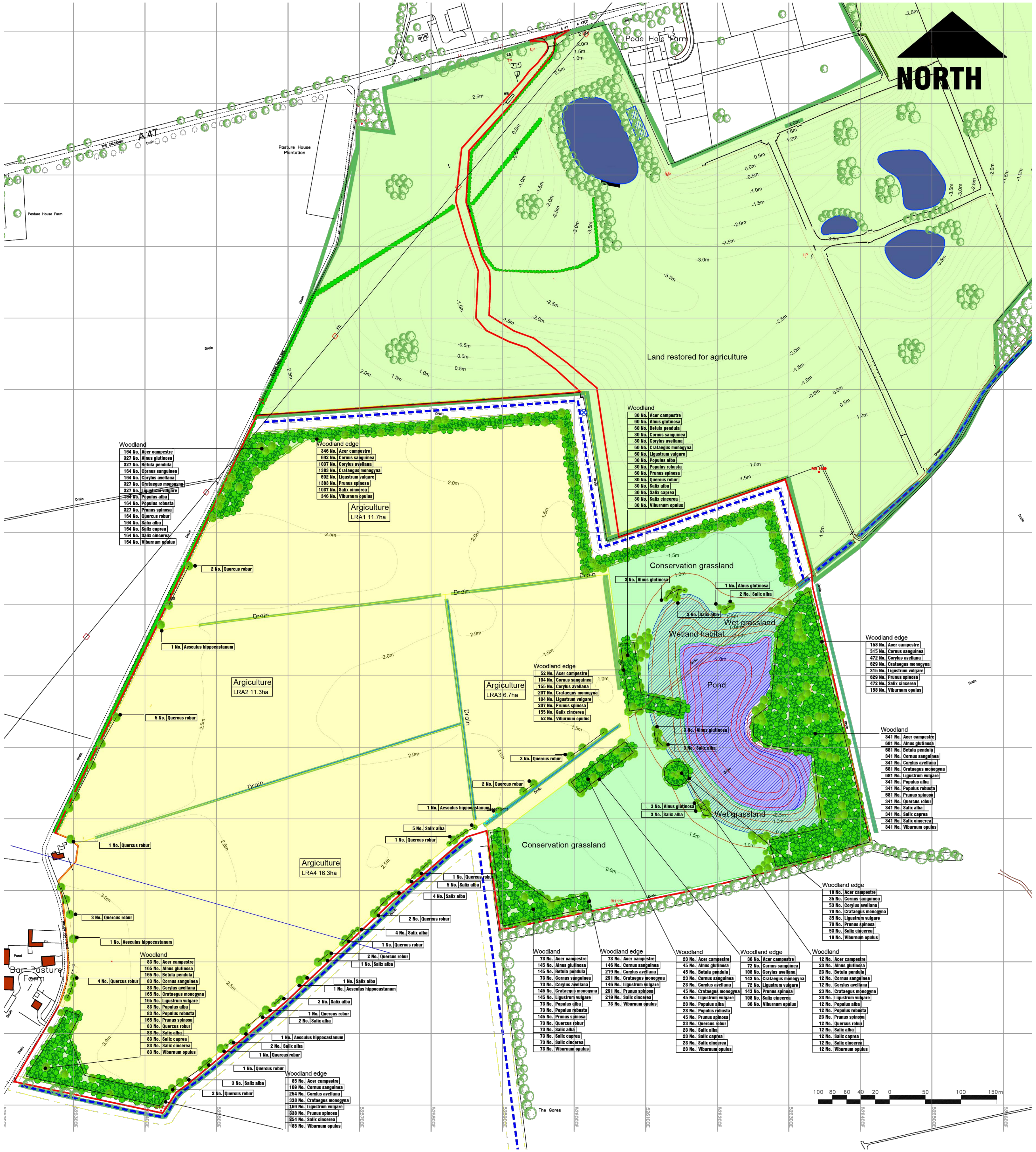
5 MAKING AND SUBMISSION OF RECORDS

Records of determinands and sampling points analysed, date of sampling, sampler, results, units and any repeat analysis or laboratory comment, or internal assessment, on the validity of the results are kept by PT-CE.

A copy of the results of sampling and analysis of surface water will be forwarded to the EA in accordance with the Permit, along with details of any parameters which have been identified as being in excess of compliance limits.

Drawings

DRAWING ESID6 – RESTORATION PLAN AND DRAWING ESID10 – MONITORING AND EXTRACTION POINT PLAN



Key

- Restored to agriculture
- Conservation grassland
- Woodland belt planting
- Water body
- Attenuation zone with grassland
- Existing trees
- Land previously restored

Woodland Planting

Trees

Number	Species	Girth	Height	Density
41 No.	Salix alba	6-8cm	2.5-3.0m	Counted
10 No.	Alnus glutinosa	6-8cm	2.5-3.0m	Counted
32 No.	Quercus robur	10-12cm	3.0-3.5m	Counted
5 No.	Aesculus hippocastanum	6-8cm	2.5-3.0m	Counted

Pode Hole Woodland

Number	Species	Specification	Density
726 No.	Acer campestre	1+1 :transplant - seed raised :BR	0.25/m²
1446 No.	Alnus glutinosa	1+1: transplant - seed raised :BR	0.25/m²
1446 No.	Betula pendula	1+1: transplant - seed raised :BR	0.25/m²
726 No.	Cornus sanguinea	1+1 :Branched :2/3 brks :BR	0.25/m²
726 No.	Corylus avellana	1+1: transplant - seed raised :BR	0.25/m²
1446 No.	Crataegus monogyna	1+1 :transplant - seed raised :BR	0.25/m²
1446 No.	Ligustrum vulgare	0/1 :Branched :2 brks :BR	0.25/m²
726 No.	Populus alba	1+1: transplant - seed raised :BR	0.25/m²
726 No.	Populus robusta	1+1: transplant - seed raised :BR	0.25/m²
1446 No.	Prunus spinosa	1+1: transplant - seed raised :Branched :2 brks :BR	0.25/m²
726 No.	Quercus robur	1+1: transplant - seed raised :BR	0.25/m²
726 No.	Salix alba	1+1: transplant - seed raised :BR	0.25/m²
726 No.	Salix caprea	1+1: transplant - seed raised :BR	0.25/m²
726 No.	Salix cincerea	1+1: transplant - seed raised :BR	0.25/m²
726 No.	Viburnum opulus	1+1 :Branched :2/3 brks :BR	0.25/m²
Total :14490 No.			

Pode Hole Woodland Edge

Number	Abbreviation	Species	Specification	Density
768 No.	Ac	Acer campestre	1+1 :transplant - seed raised :BR	1/m²
1533 No.	CORSA	Cornus sanguinea	1+1 :Branched :2/3 brks :BR	1/m²
2298 No.	Cav	Corylus avellana	1+1: transplant - seed raised :BR	1/m²
3061 No.	Cmo	Crataegus monogyna	1+1 :transplant - seed raised :BR	1/m²
1533 No.	LIGVU	Ligustrum vulgare	0/1 :Branched :2 brks :BR	1/m²
3061 No.	PRUSP	Prunus spinosa	1+1: transplant - seed raised :Branched :2 brks :BR	1/m²
2298 No.	SLCI	Salix cincerea	1+1: transplant - seed raised :BR	1/m²
768 No.	VIBOP	Viburnum opulus	1+1 :Branched :2/3 brks :BR	1/m²
Total :15320 No.				

Restoration Land Budget

Land use	Area ha
Pond > -0.7m	2.5
Wet grassland/attenuation > 0.7m	5.5
Conservation grassland	10.0
Woodland planting	7.1
Restored to Agriculture, margins and ditches	45.8
Total planning application area	70.9

CLIENT
PT-CE LTD

PROJECT
PODE HOLE QUARRY PERMIT APPLICATION

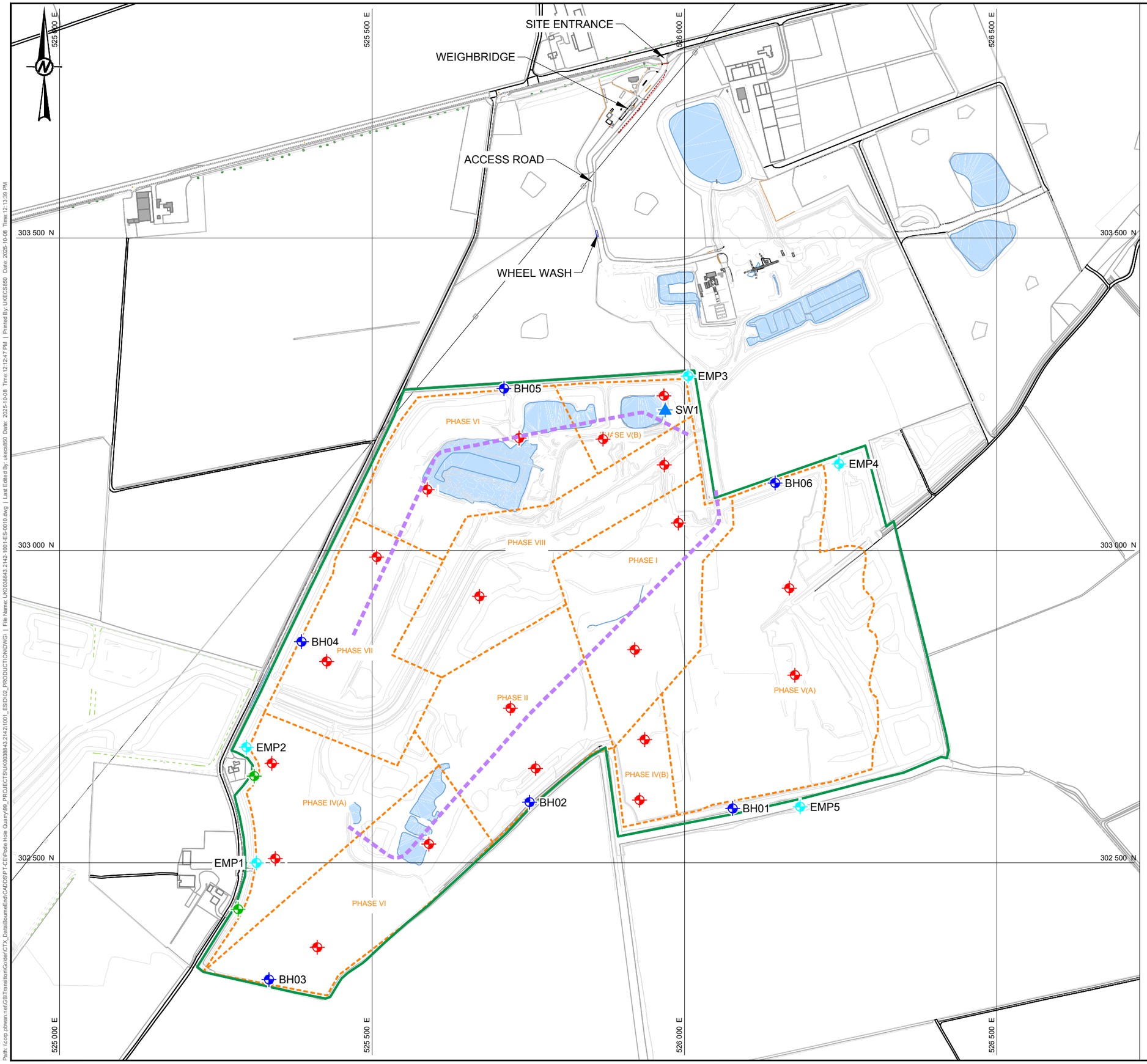
TITLE
RESTORATION PLAN

CONSULTANT

YYYY-MM-DD	2025-07-02
DESIGNED	PH
PREPARED	TS
REVIEWED	PH
APPROVED	NW

PROJECT NO.	CONTROL	REV.	DRAWING
UK0038843.2142	1001_ES_0007	-	ESID6

25 mm
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ISO A3



LEGEND

- ENVIRONMENTAL PERMIT APPLICATION BOUNDARY
- EXISTING GROUNDWATER MONITORING BOREHOLE
- INDICATIVE IN-WASTE LANDFILL GAS MONITORING BOREHOLE
- PROPOSED EXTERNAL GAS MONITORING BOREHOLE
- PROPOSED SURFACE WATER MONITORING POINT
- ENVIRONMENTAL MONITORING POINT
- PHASE BOUNDARY
- TEMPORARY HAUL ROAD

0 100 200
1:6,000 METRES

CLIENT
PT-CE LTD

PROJECT
PODE HOLE QUARRY PERMIT APPLICATION

TITLE
MONITORING AND EXTRACTION POINT PLAN

CONSULTANT

YYYY-MM-DD	2025-07-24
DESIGNED	PH
PREPARED	TS
REVIEWED	PH
APPROVED	NW

PROJECT NO.	CONTROL	REV.	DRAWING
UK0038843.2142	1001_ES_0010	A	ESID10

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ISO A3

25 mm 0

Path: \\corp.ptwan.net\GB\Transition\Golder\CTX_Data\Bourne\End\CADD\SPT.CE\Pode Hole Quarry\99_PROJECTS\UK0038843.2142\1001_ESID\02_PRODUCTION\DWG\ | File Name: UK0038843.2142-1001-ES-0010.dwg | Last Edited By: ukecs850 Date: 2025-10-08 Time:12:12:47 PM | Printed By: UKECS850 Date: 2025-10-08 Time:12:13:39 PM

Attenborough House, Browns Lane Business Park
Stanton-on-the-Wolds
Nottingham
NG12 5BL

wsp.com