

Gale Common Extraction Project

Cobcroft Lane, Cridling Stubbs, Knottingley, North Yorkshire WF11 0BB

Environmental Statement Volume II – Technical Appendices

Appendix 7I: Terrestrial Invertebrate Survey Report



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GLOSSARY

Abbreviation	Description
AOD	Above Ordnance Datum
CEH	Centre for Ecology and Hydrology
CIEEM	Chartered Institute of Ecology and Environmental Management
ES	Environmental Statement
NERC	Natural Environment and Rural Communities Act 2006
OMH	Open Mosaic Habitat
PEA	Preliminary Ecological Appraisal
PFA	Pulverised Fuel Ash
SINC	Site of Importance for Nature Conservation

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EXECUTIVE SUMMARY

This report provides the results of the terrestrial invertebrate survey undertaken in 2019 at the Gale Common Ash Disposal Site, as part of a wider suite of surveys commissioned to determine the baseline ecological value of the Site and to inform an ecological impact assessment of the Proposed Development, which comprises the extraction of secondary aggregate materials from the Gale Common Ash Disposal Site.

The purpose of the terrestrial invertebrate survey and report is to:

- provide data on the presence/ absence of notable terrestrial invertebrates assemblages within relevant construction and operational areas of the Gale Common Ash Disposal Site;
- provide the above data in a manner that allows the results to be used to support an assessment of relative nature conservation value, including review against relevant criteria (see Section 2 of this report); and
- inform any necessary requirements for impact avoidance, mitigation and/ or habitat compensation to achieve legal compliance.

At the time of submission of this report, one of the two scheduled survey visits (a two day site appraisal in late April/ early May 2019) had been completed. During this survey a specialist consultant (Richard Wilson Ecology) appraised the habitat conditions present and confirmed there were habitats present of likely nature conservation value for terrestrial invertebrates. This nature conservation value derives from the history of land management and operation of the Gale Common Ash Disposal Site and to a large extent is tied to the exposed PFA deposits and associated 'open mosaic habitat on previously developed land' (OMH) described in Appendix 7K (ES Volume II). Other habitats were also identified of potential value for the terrestrial invertebrate assemblage linked to the PFA deposits and OMH.

Based on the findings of the first survey, follow-up survey in late June/ early July 2019 were advised as appropriate given the potential nature conservation value of the site. The purpose of the follow-up survey is to confirm the terrestrial invertebrate value of the Gale Common Ash Disposal Site, and to refine requirements for the avoidance or mitigation of impacts.

1.0 INTRODUCTION

Background

- 1.1 This appendix describes the approach and findings of the terrestrial invertebrate survey undertaken in support of the Ecological Impact Assessment (EclA) of the Proposed Development. The terms of reference used to describe the Proposed Development in this report are consistent with those defined within the main chapters of the Environmental Statement (ES) (Volume I).

Site Description

- 1.2 The Gale Common Ash Disposal Site is located approximately 700 m east of the village of Cridling Stubbs in North Yorkshire and approximately 25 m south of the M62 motorway. The Gale Common Ash Disposal Site is surrounded by low-lying arable farmland.
- 1.3 The Gale Common Ash Disposal Site comprises approximately 307 ha in total and commenced operation in 1967 when it accepted pulverised fuel ash (PFA) from Eggborough and Ferrybridge Power Stations. The Gale Common Ash Disposal Site was developed in stages. Since the closure of the coal-fired power stations the Gale Common Ash Disposal Site no longer accepts PFA, and has a current planning permission for the export of 30,000 tonnes of PFA per year. The PFA has a commercial re-use value in the building industry, and is exported from the Gale Common Ash Disposal Site to customers by road.
- 1.4 Deposition within the Stage I ash disposal area was completed in 1994, with the area being capped and planted with wildflower grassland, woodland, hedgerows and pasture fields along with surface water drains and an attenuation pond. The wildflower grassland areas are cut annually for hay and the pasture fields are grazed at a low intensity by sheep. The height of the restored Stage I landform is approximately 69 m above ordnance datum (AOD).
- 1.5 Stages II and III ash disposal areas and Lagoons C and D are still currently being worked as part of the PFA extraction permission. These areas are dominated by bare ground. However, where semi-natural habitats have become established in these areas (including shallow ephemeral waterbodies) they are transient in nature due to ongoing operations.
- 1.6 An area of land to the south associated with the former Wood Hall moated manor is within the Gale Common Ash Disposal Site boundary but has not been subject to any PFA disposal works. This area comprises agricultural land.
- 1.7 Given the large scale of the Site it has been split into the following broad areas to assist with clarity of reporting:
- Stage I ash disposal area – the restored landform area in the north-eastern part of the Gale Common Ash Disposal Site;
 - Stage II ash disposal area – area in the south-eastern part of the Gale Common Ash Disposal Site to be worked as part of the Proposed Development;
 - Stage III ash disposal area – area in the south-western part of the Gale Common Ash Disposal Site to be worked as part of the Proposed Development;
 - Lagoons C and D – area in the north-western part of the Gale Common Ash Disposal Site to be worked as part of the Proposed Development;
 - Main offices – existing buildings, plant, car parking, access to Whitefield Lane and adjacent semi-natural habitats; and
 - the area around Whitefield Lane at Whitley which will be subject to realignment works.
- 1.8 A full description of the Site is provided in Chapter 3: Description of the Site (ES Volume I).

Survey Scope

- 1.9 The scope of the first survey visit detailed in this report was to:
- appraise habitat suitability to support notable assemblages of terrestrial invertebrates;
 - describe the existing habitats in the context of invertebrate ecology within the study site and the wider landscape in terms of connectivity;
 - sample/ identify any spring assemblages that may be present; and
 - identify if further detailed invertebrate survey is appropriate for purposes of robust ecological impact assessment.
- 1.10 The purpose of this report is to provide baseline technical information only in relation to the surveys undertaken and the results of these surveys. It does not seek to include recommendations, specify mitigation, or make an ecological impact assessment of the Proposed Development. The formal EclA is provided as Chapter 7 of the ES (Volume I), and this terrestrial invertebrate report constitutes an appendix to that chapter.

2.0 METHODS

Desk Study

- 2.1 A desk study was undertaken as part of the PEA (Appendix 7C) that was completed in advance of the terrestrial invertebrate survey and informed the scoping of requirements for further survey.
- 2.2 Desk study results of relevance to the assessment have been carried forward into this report, and this data is presented in more detail or re-interrogated for the needs of the current assessment.

Field Survey

- 2.3 Two survey visits to the Gale Common Ash Disposal Site were scheduled, of which one has been completed. The completed survey was undertaken by a specialist consultant (Richard Wilson Ecology).
- 2.4 It was considered that after the first visit in spring that a further survey in summer would be necessary to permit a more robust appraisal of the terrestrial invertebrate assemblage present, and to account for the succession terrestrial invertebrate species as flower-rich habitats develop over spring and early summer.
- 2.5 The completed survey was carried out in suitable weather conditions. Survey dates and weather conditions are summarised in Table 7I.1 below.

Table 7I.1 – Dates and Weather Conditions for Survey Visits

VISIT	SURVEY DATE	SURVEY TIME	WEATHER
1	30/04/19 and 01/05/19	12:00 – 16:00	17°C, sunny
2	<i>To be confirmed</i>	<i>To be confirmed</i>	<i>To be confirmed</i>

Nature Conservation Evaluation Approach

- 2.6 Evaluation of the relative nature conservation value of the identified ecological features within a site (encompassing nature conservation designations, ecosystems, habitat and species) is required to inform EclA. This report presents the evaluation of terrestrial invertebrate species and the impact assessment is presented in Chapter 7: Ecology and Nature Conservation (ES Volume I).
- 2.7 The method of evaluation that has been utilised has been developed with reference to the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland – Terrestrial, Freshwater and Coastal and Marine – Second Edition (CIEEM, 2018). These guidelines give advice on scoping and carrying out environmental assessments and place appraisal in the context of relevant policies. Data received through consultation, desk-based studies and field-based surveys are used to allow ecological features of nature conservation value or potential value to be identified, and the main factors contributing to their value described and related to available guidance. This data can also be used to identify other relevant values e.g. socio-economic or ecosystem services values, but this is beyond the remit of this report and requires the involvement of other relevant specialists.

- | ~~44.02.8~~ The value of a faunal species, such as terrestrial invertebrates, may relate, for example, to its geographic location (species may be rare and more valued towards the edge of their geographic range), the extent to which the species is threatened throughout its range, or to its rate of decline. The value of the terrestrial invertebrate assemblage associated with the Gale Common Ash Disposal Site has been defined with reference to the geographical level at which it is considered to matter. This assessment has been made with reference to published guidance and criteria where available e.g. criteria to assess relative value within the context of North Yorkshire are given in North Yorkshire Sites of Importance to Nature Conservation (SINC) Panel (2017).

Limitations

- | ~~2.82.9~~ There are no limitations to the survey work undertaken. The surveys were completed in appropriate weather conditions and at an appropriate time of year to meet the scope of the survey.

3.0 LEGISLATION, PLANNING POLICY AND RELATED GUIDANCE

- 3.1 Sixteen species of invertebrate present in the UK are protected through international law; largely arising from the Habitats Directive (92/43/EEC) and transposed in to domestic legislation by the Conservation of Habitats and Species Regulations 2017.
- 3.2 Approximately 50 species of invertebrate are protected through inclusion on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).
- 3.3 Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 requires all local authorities to consider biodiversity when undertaking their public duty. To support this, the Government has published a list of Species of Principal Importance (SoPI) under the requirements of Section 41 of the Act. This Section 41 list includes a number of terrestrial invertebrate species.
- 3.4 A full list of all species covered by legislation and policy is available via the Buglife website (Buglife, 2014).
- 3.5 Wider relevant biodiversity legislation, policy and guidance is detailed in Appendix 7A: Relevant Biodiversity and Nature Conservation Legislation, Planning Policy and Guidance.

4.0 RESULTS

Desk Study Results

4.1 The desk study returned no recent records of terrestrial invertebrate species.

Field Survey Results

4.2 At the time of this report, one of the two scheduled terrestrial invertebrate surveys had been completed.

4.3 The first survey which was intended to be a habitat appraisal to inform confirmatory risk assessment and confirm requirements for mitigation, supplemented by observations made by AECOM ecologists during other surveys, identified the following:

- dingy skipper (*Erynnis tages*) was recorded from grassland habitats on the periphery of, but not within, the Stage III ash disposal area and Lagoons C and D. Dingy skipper is a priority species pursuant to Section 41 of the NERC Act;
- a diverse assemblage of solitary bees, including cuckoo bees, was recorded in association with exposed PFA in the Stage II and III ash disposal areas. The survey data (pending further confirmatory assessment) indicated the presence of a notable terrestrial invertebrate assemblage tied to the PFA deposits and associated OMH, and the associated diverse topography;
- the woodlands and more mature grasslands are considered of lower interest for terrestrial invertebrates than the more open areas where PFA remains exposed and influences the vegetation and the topography is more varied. However, these habitats may supplement and contribute to the maintenance of the terrestrial invertebrate of the PFA and OMH; and
- an additional survey visit will be undertaken to confirm the initial assessment. This data will also allow integration using Pantheon to inform which plants (species, genera or families) are particularly important at the Site for sustaining the terrestrial invertebrate interest. Pantheon is a database tool developed by Natural England and Centre for Ecology & Hydrology (CEH) to analyse invertebrate sample data in a structured and consistent manner to permit cross-comparison of individual sites and their relative nature conservation value for terrestrial invertebrates.

5.0 CONCLUSIONS

- 5.1 The Gale Common Ash Disposal Site is considered to be of up to county (North Yorkshire) nature conservation value for terrestrial invertebrates closely linked with exposed deposits of PFA and associated OMH in operational area. This encompasses the Stage II and III ash disposal area, and Lagoons C and D. Further confirmatory assessment will be undertaken after a follow-up survey in late June 2019 to confirm the relative nature conservation value using Pantheon (see Section 4).
- 5.2 Other habitats outside these areas are likely to complement and help sustain the above interest, but would not be able to maintain this interest in isolation i.e. it is the PFA and OMH that is the main habitat for the terrestrial invertebrate assemblage of interest.
- 5.3 In reading this, cross-reference should also be made to Appendix 7K (ES Volume II) which qualifies and describes the characteristics of these habitats in more detail. This report also emphasises the importance of the operation of the Gale Common Ash Disposal site for the ongoing maintenance of these habitat conditions. Operation of the site is likely to be beneficial for the terrestrial invertebrate assemblage. A follow-up survey is programmed to confirm the habitats of specific interest for terrestrial invertebrates.

6.0 REFERENCES

Buglife (2014) *Policy and Legislation Summary*. Available from: https://www.buglife.org.uk/sites/default/files/Policy%20and%20legislation%20summary%20final%202014_0.pdf [Accessed June 2019]

North Yorkshire SINC Panel (2017) *Sites of Importance for Nature Conservation in North Yorkshire, Guidelines for Site Selection*. <http://www.neyedc.org.uk/wp-content/uploads/2018/04/SINC-Guidelines-V3.0-December-2017.pdf> [accessed May 2019]