

Science and Industry Museum

Manchester

(Viaduct)

Ecological Appraisal

2023



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Client Science Museum Group

Project Title The Science and Industry Museum, Manchester

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Executive Summary

Development Details

The client is proposing repair and maintenance works at the Science and Industry Museum, Manchester, hereafter referred to as the 'site'.

This report describes the ecological features of the site and its surroundings and assesses the potential impacts of the development on the ecological interest. Recommendations are provided so that the development is compliant with biodiversity policy and legislation.

Ecological Interest

The site has a negligible level of ecological interest. Ecological features of interest include small areas of ephemeral vegetation on the railway ballast.

Outcomes

Opportunities to enhance the value of the site for wildlife have been identified.



1. Introduction

1.1 Project Brief

- 1.1.1 Rachel Hacking Ecology Limited was commissioned by the Science Museum Group to carry out an ecological appraisal at The Science and Industry Museum, Manchester, hereafter referred to as the 'site'. The site is in Castlefield on the site of the former Liverpool Road railway station at O.S. grid reference: SJ 830978 (see Figure 1).

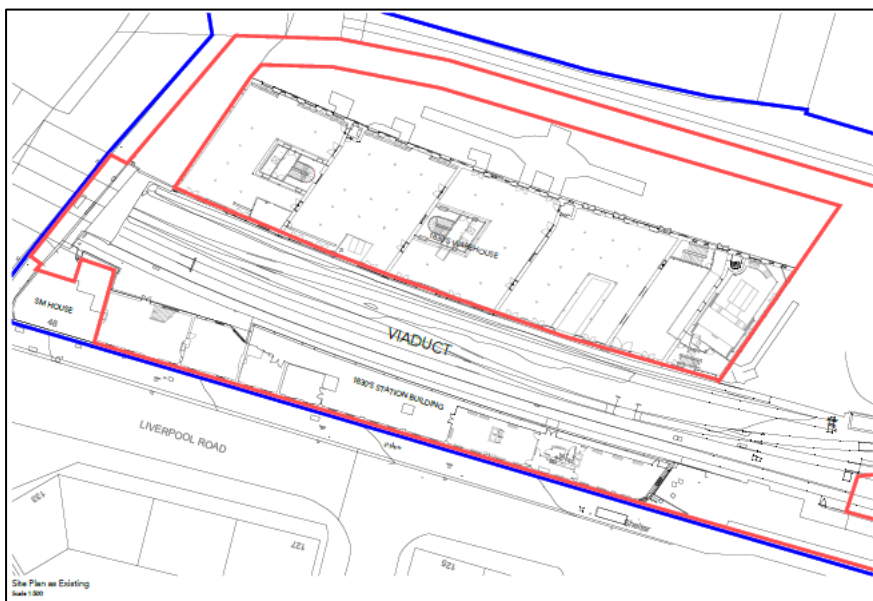


Figure 1. Map showing the red line boundary

Description of Development

- 1.1.2 Due to the Site's location within the curtilage of two Grade I listed assets within the Museum Estate, two correlating planning and Listed Building Consent applications will be submitted with alternate addresses. The Descriptions of Development for the applications are as follows:
- 1.1.3 Planning and listed building consent is being sought for phased refurbishment and repair works at the Viaduct and Station Building, Science and Industry Museum, where Phase 1 works shall include temporary removal of the hard landscaping, tracks and ballast, installation of the new waterproofing solution across the viaduct and the covered platform, replacement of asphalt flashing with lead flashing, replace existing wooden plank trough covers with new concrete covers, repairs to internal fabric at the Station building including to ceilings, redecoration and repairs to the façade of the Station building and viaduct where required, and other associated works, and Phase 2 works which shall include the reinstatement of the hard landscaping, ballast and tracks following completion of the waterproofing works to the Viaduct.

- 1.1.4 Planning and listed building consent is being sought for phased refurbishment works at the Viaduct and 1830s Warehouse, Science and Industry Museum where Phase 1 works shall include temporary removal of the hard landscaping, tracks and ballast, installation of the new waterproofing solution across the viaduct, installation of new lead flashing at the juncture of the viaduct and 1830s warehouse, and other associated works, and Phase 2 works which shall include the reinstatement of the hard landscaping, ballast and tracks following completion of the waterproofing works to the Viaduct.

Relevant Planning History

- 1.1.5 Bat surveys of the New Warehouse have been undertaken in 2023 to inform the proposed re-roofing and repair works. These are reported separately.

1.2 Scope of Work

- 1.2.1 The Client commissioned Rachel Hacking Ecology to carry out the following works:
- Desk-based study to obtain details of designated sites within 2km
 - Record the extent, type, and condition of habitats within the site
 - Assess the sites potential to support protected and notable species

1.3 Site Visit Information

Surveyor Details

- 1.3.1 The Extended Phase 1 Habitat Survey was undertaken by Simon Holden MCIEEM (Associate Ecologist) on 27th June 2023. Simon has 18 years' professional experience and is suitably qualified to undertake this type of assessment.

Weather

- 1.3.2 Weather during the survey was dry and overcast with a temperature of 16°C.



2. Methods

2.1 Desk Study

- 2.1.1 The Magic (Multi-Agency Geographical Information for the Countryside) was interrogated for the presence of Statutory Designated Sites (and European Protected Species licences) within 2km radius of the site.
- 2.1.2 The Impact Risk Zones for any Site of Special Scientific Interest (SSSI) within 5km of the site was checked to determine whether the Local Planning Authority will need to consult with Natural England.

2.2 Field Survey

Extended Phase 1 Habitat Survey

- 2.2.1 In accordance with JNCC guidelines¹ the site was walked over and the habitats and features of ecological interest were mapped and described. Habitats and features of particular interest were target noted.
- 2.2.2 During the walkover habitat and features were assessed for their suitability to support of protected and notable species in accordance with CIEEM guidelines². Field signs of protected, notable, and invasive non-native species, if encountered, were mapped, and described.

Bats

- 2.2.3 The exterior of the buildings on site were surveyed from the ground using binoculars and a high-powered torch. Features offering potential access to roosting bats were recorded. Such features may include suitable gaps in roof coverings, gaps behind external cladding/facia and gaps in masonry.

¹ JNCC (2010). *Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit*. Joint Nature Conservation Committee, Peterborough

² CIEEM (2017). *Guidelines for Preliminary Ecological Appraisal*. Chartered Institute of Ecology and Environmental Management, Winchester.

- 2.2.4 Evidence indicating the presence of roosting bats was also searched for. This may include bat droppings on walls, windows or on the ground below roost entrances or staining from fur oil around roost entry points.

2.3 Mitigation Hierarchy

- 2.3.1 Mitigation measures should be embedded within the masterplan design and planning application process. Measures during the construction phases should be included in a Construction Environmental Management Plan: (CEMP: Biodiversity) which can be attached as a planning condition to the Decision Notice of the forthcoming consent. This process from proposal to implementation needs to consider the 'mitigation hierarchy' of avoid, reduce, compensate, and enhance:

- Aim to avoid negative effects through the design process.
- Mitigate if negative effects cannot be avoided.
- Use compensation measures to offset residual impacts.
- Identify and implement opportunities to enhance biodiversity.

3. Results

3.1 Constraints

- 3.1.1 Field survey results are valid for a limited duration and no investigation can provide a complete description and characterisation of a site. The composition of habitats and species can change depending on environmental variables and the mobility of species, so the results of a study become less reliable over time. In some cases, surveys that are 3 years old may be acceptable for a project assuming that habitats have not significantly changed in the intervening period, but for protected species it is likely that survey data will need to be no more than 18 months old.

3.2 Designated Sites

- 3.2.1 No statutory designated sites were identified within the study area.
- 3.2.2 The site is not within an Impact Risk Zone.
- 3.2.3 No non-statutory designated sites were identified within the study area.

3.3 Habitats

- 3.3.1 The habitats survey plan is provided at Appendix 2.

Developed Land; Sealed Surface

- 3.3.2 Platforms are surfaced with concrete or tarmac. This is mapped as bare ground.

Ephemeral/Short Perennial

- 3.3.3 Areas of railway ballast and platform are colonised by short perennial species including Sticky Ragwort *Senecio viscosus*, Herb Robert *Geranium robertianum*, Hare's-tail Grass *Lagurus ovatus*, Black Medick *Medicago lupulina* and Bird's-foot Trefoil *Lotus corniculatus* (see Photograph 1).



Photograph 1 showing the short ephemeral vegetation

Bare Ground (Unsealed Surface)

- 3.3.4 Some of the railway ballast is free of vegetation. This is mapped as bare ground.



Photograph 2 showing the unvegetated railway ballast

Built Structures

- 3.3.5 Built structures include various buildings and a railway platform canopy (see Photograph 3).



Photograph 3 showing the Station Building

3.4 Species

Invertebrates

- 3.4.1 The areas of ephemeral/short perennial vegetation on railway ballast offer suitable habitat for a range of invertebrates. The area is small and is of importance at the site level only.

Bats

- 3.4.2 The buildings on site appear largely well maintained with very few potential access points for bats. The buildings on site are assessed as offering negligible potential to support roosting bats.

4. Assessment

4.1 Development Context

- 4.1.1 The following assessment is based on the description of proposed works in the document Capital Works 22-25 New Warehouse (David Brown 2023).

4.2 Impacts on Designated Sites

- 4.2.1 No impacts to any statutory or non-statutory designated sites are predicted due to the absence of any impact pathways.

4.3 Impacts on Habitats

- 4.3.1 The proposed works will result in the temporary loss of the habitats on site, but these are of very limited importance. The ephemeral/short perennial vegetation colonising some of the railway ballast is of some value to invertebrates at the site level but this is simple to recreate.

4.4 Impacts on Species

Invertebrates

- 4.4.1 Loss of the ephemeral/short perennial vegetation will reduce the availability of habitat for invertebrates at the site level.

5. Recommendations

5.1 Mitigation and Enhancement Measures

Habitats

- 5.1.1 Once the works are completed it is recommended that areas of railway ballast are allowed to vegetate naturally. Ephemeral, early successional species are expected to colonise and these will provide a source of nectar and pollen for invertebrates. Herbicide should not be used on the ballast if possible. If it has to be used, some areas should be left permanently untreated.

Nesting Birds

- 5.1.2 Nest boxes could be installed on buildings to enhance the site for species of conservation concern such as House Sparrow *Passer domesticus*. These should be installed facing northeast to northwest at least 3m high.

Bats

- 5.1.3 Bat boxes could be installed on buildings to enhance roosting opportunities for bats on the site. These should be installed facing southeast to southwest at eaves level, but not directly above windows or doorways.

Appendix 1: Planning Policy & Legislation

National Policy

The National Planning Policy Framework (NPPF 2021) describes the Government's planning policy for England and how it should be applied. Within this framework, the requirements in relation to biodiversity are included within several policies. The two most relevant to individual planning decisions are Paragraphs 174 and 180, shown below:

- 174. Planning policies and decisions should contribute to and enhance the natural and local environment by:
 - a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
 - b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
 - c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
 - d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures; etc...
- 180. When determining planning applications, local planning authorities should apply the following principles:
 - a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
 - b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
 - c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

Legislation

The Wildlife and Countryside Act 1981 (as amended by the CROW Act 2000) includes the notification and confirmation of Sites of Special Scientific Interest (SSSIs). SSSIs can be notified for their floral, faunal, geological, or physiographical features. Protection against damaging operations and management of SSSIs is also included within the Act. Impact Risk Zones (IRZs) are zones around an SSSI account for the particular sensitivities of the features for which it is notified and identify development proposal which could have adverse impacts.

The Wildlife and Countryside Act 1981 (as amended by the CROW Act 2000) protects native animals, plants and habitats. Under the Act it is an offence to intentionally kill, injure or take any wild animal listed on Schedule 5 and it is an offence to interfere with places used for shelter or protection, or intentionally disturb animals occupying such places. The Act prohibits picking, uprooting or destroy any wild plant (or any attached seed or spore) listed in Schedule 8.

European Protected Species (EPS) such as bats, Hazel Dormouse, Otter, Natterjack Toad, Smooth Snake, Sand Lizard and Great Crested Newt are protected by the Wildlife and Countryside Act 1981 (as amended by the CROW Act 2000) and the Conservation of Habitats and Species Regulations 2017. The Acts make it an offence to:

- a) Deliberately capture, injure or kill an EPS;
- b) Deliberately impair an EPS's ability to survive, breed, reproduce, rear or nurture young; to hibernate or migrate; or significantly affect the local distribution or abundance of the EPS.
- c) Possess or control live or dead EPS or any part of, or anything derived from a EPS;
- d) Damage or destroy a breeding site or resting place of an EPS;
- e) Intentionally or recklessly obstruct access to any place that is used for shelter or protection by an EPS;
- f) Intentionally or recklessly disturb a structure or place that it uses for shelter or protection that is occupied by an EPS.

All common herptiles are protected under the Wildlife and Countryside Act 1981 (as amended by the CROW Act 2000). Grass Snake, Slow Worm, Common Lizard, Adder are protected against intentional killing or injury.



Common Frog, Common Toad, Smooth Newt and Palmate Newt is protected against sale. In addition, all British reptiles, Common toad and Great Crested Newt are listed as Species of Principal Importance.

All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended). It is an offence to intentionally kill, injure or take any wild bird or take, damage, or destroy its nest whilst in use or being built, or take or destroy its eggs. It is an offence to intentionally or recklessly disturb a species listed on Schedule 1 of the Act while they are nest building or at or near a nest with eggs or young, or to disturb the dependent young.

The Protection of Badgers Act 1992 makes it an offence to wilfully, or to attempt to kill, injure, take, possess or cruelly ill-treat a Badger, or intentionally or recklessly interfere with a sett. Interference of a sett includes disturbing badgers during occupation of a sett, or damaging or destroying a sett, or obstructing access to the sett.

Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 places a duty on every public authority to have regard to conserving biodiversity. Section 41 of the same Act requires the Secretary of State to publish a list of the living organisms and types of habitats that are of 'Principal Importance' for the purpose of conserving biodiversity. The Secretary of State must take steps, as appear reasonably practicable, to further the conservation of those living organisms and habitats in any list published under this section. The list of species and habitats of principal importance currently includes 943 species and 56 habitats. These are the species and habitats found in England which are regarded as conservation priorities under the UK Post-2010 Biodiversity Framework

The Hedgerows Regulations 1997 protect 'important' hedgerows from destruction or damage. A hedgerow is 'important' if it (a) has existed for 30 years or more; and (b) satisfies at least one of the criteria listed in Part II of Schedule 1 of the Regulations. Under the Regulations, it is against the law to remove or destroy 'important' hedgerows unless permitted by the local planning authority.



Appendix 3: Habitats Plan

