

Rochdale Sixth Form College, Rochdale OL12 6HY

ECOLOGICAL SURVEY AND ASSESSMENT

November 2022

[ERAP (Consultant Ecologists) Ltd ref: 2022-049]

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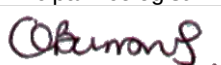
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Document Control

Survey Type:	Surveyors¹	Survey Date(s)
Phase 1 Habitat Survey and daylight licensed bat survey	Victoria Burrows B.Sc. (Hons) M.Sc. CEnv MCIEEM Principal Ecologist	20 th May 2022
Reporting	Personnel	Date
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Signature(s)		
Checked	Rachel Platt B.Sc. (Hons) M.Sc. Graduate Ecologist	8 th November 2022
Revised and issued	Victoria Burrows	8 th November 2022
Report issued to	Rochdale Sixth Form College / ABW Architects	
Version Number	1	

¹ Licence reference numbers

Bats

Victoria Burrows, Natural England Class Survey Licence (bats, Level 2) Registration Number 2015-10390-CLS-CLS

SUMMARY

Introduction and Scope

- i. This ecological survey and assessment has been prepared to inform a planning application to expand the teaching block at Rochdale Sixth Form College to the north. This report will also be used to inform the assessment of credits achievable under criteria LE02 to LE05 of the BREEAM.
- ii. This report presents the results of a desktop study and extended Phase 1 Habitat Survey, including surveys for relevant protected species carried out in May 2022. The scope of survey undertaken is appropriate to identify potential ecological constraints, make recommendations in relation to the site proposals, and identify opportunities for biodiversity associated with the development proposals.

Results of Survey and Assessment

- iii. The approximately 0.77 hectare site is located within the Rochdale Sixth Form College campus and comprises the existing college building and a hard-standing car park with verges of introduced shrubs, mown amenity grassland and young planted trees.
- iv. The eastern site boundary is demarcated by the concrete lined bank of the River Roch. The south-eastern boundary meets the bridge that carries St. Mary's Gate road over the river. The western site boundary meets a mown grassed verge beyond which lies a fence and concrete panel wall and an Asda supermarket and the northern boundary meets the access over the River Roch.
- v. The proposals will have no adverse direct or indirect effect on statutory or non-statutory designated sites for nature conservation.
- vi. None of the habitats within the proposed development site are representative of semi-natural habitat or are Priority Habitat. The site contains only common and widespread plant species; although the presence of the Southern Marsh-orchid spikes is of interest at the site / campus geographic scale.
- vii. The off-site grassland verge at the western site margin and the mown grassland verge within the site that support Marsh-orchid spikes will not be directly affected by the construction activities. Protection of these verges will be achieved by the project, refer to **Sections 5.2** and **5.3**.
- viii. The presence of Japanese Knotweed and Montbretia, both invasive plant species listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), is an essential consideration. The proposals can be achieved whilst securing the appropriate treatment and disposal of these species to avoid spread in the wild, refer to **Section 5.3**.
- ix. The off-site river corridor will not be directly affected by the proposals. Protection of the integrity of the river corridor, its habitat connectivity function and associated fauna will be achieved during the construction activities (refer to **Section 5.3**) and the risk of long-term effects as a result of the inappropriate use of lighting (for example) will be avoided by implementation of the recommendations at **Section 5.2**.
- x. Appropriate survey effort and / or assessment in accordance with standard guidance, has been carried out to reasonably discount adverse effects on other relevant protected species and Priority Species.

Recommendations

- xi. In addition to the guidance and actions to be applied for the protection of existing features at the site as outlined in **Sections 5.2** and **5.3**, **Section 5.4** of the report outlines the works to be carried out to enhance the site for biodiversity in the presence of the proposals and comprises the installation of opportunities for nesting birds of conservation priority targets.

Conclusion

- xii. The development proposals at Rochdale Sixth Form College can be achieved with no adverse effect on designated sites for nature conservation, ecologically valuable habitats, protected species and Priority Species.
- xiii. Actions to ensure compliance with wildlife legislation and best practice will be implemented and are described in **Section 5.0**. Measures to achieve enhancements for biodiversity in accordance with the development proposals are specified in **Section 5.0** and are entirely feasible to achieve compliance with the NPPF, relevant local planning policy and the BREEAM.

1.0 INTRODUCTION

1.1 Background and Rationale

- 1.1.1 ERAP (Consultant Ecologists) Ltd was commissioned to carry out an ecological assessment of land at Rochdale Sixth Form College, Rochdale OL12 6HY (hereafter referred to as the 'site'). The Ordnance Survey (OS) grid reference at the centre of the site is SD 89279 13290. An aerial image of the site and its surrounding habitats is appended at **Figure 1** (source image: ESRI World Imagery).
- 1.1.2 The assessment was requested to inform a planning application proposing an expansion of the existing teaching block to the north.
- 1.1.3 The report is also required to inform the credits achievable under criteria LE02 to LE05 (Route 2) of the BREEAM; the BREEAM is presented as a separate document.

1.2 Scope of Works

- 1.2.1 The scope of ecological works undertaken in May 2022 comprised:
- A desktop study and data search for known ecological information at the site and the local area;
 - An Extended Phase 1 Habitat Survey and assessment;
 - Assessment of the ecological value of the habitats within the site with the use of the National Vegetation Classification (NVC) and the Ratcliffe criteria, as presented in *A Nature Conservation Review* (Ratcliffe, 1977);
 - Survey and assessment of all habitats for relevant statutorily protected species¹ and other wildlife including badger (*Meles meles*), great crested newt (*Triturus cristatus*), water vole (*Arvicola amphibius*), otter (*Lutra lutra*), bird species and reptiles;
 - A licensed daylight bat survey of the elevation of the building to be extended and trees within the redline boundary;
 - The identification of any potential ecological constraints on the proposals and the specification of the scope of mitigation and ecological enhancement required in accordance with wildlife legislation, planning policy guidance and other relevant guidance; and
 - The identification of any further surveys or precautionary actions that may be required prior to the commencement of construction activities.

2.0 METHOD OF SURVEY

2.1 Desktop Study and Data Search

- 2.1.1 The following sources of information and ecological records were consulted:
- MAGiC Maps: A web-based interactive map which brings together geographic information on key environmental schemes and designations, including details of statutory nature conservation sites;
 - Greater Manchester Local Record Centre (GMLRC); a request was made for records of non-statutory designated sites and protected species / notable species within a 1 kilometre buffer of the site boundary;
 - Greater Manchester Biodiversity Action Plan (BAP); and

¹ In accordance with *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and Their Impact on the Planning System* (Ministry of Housing, Communities & Local Government, 2005) developers should not be required to undertake surveys for protected species unless there is reasonable likelihood of the species being present and affected by the development.

- d. Environment Agency Main River Map (Environment Agency, 2022).

2.2 Vegetation and Habitats

- 2.2.1 An Extended Phase 1 Habitat Survey of the site was carried out by Victoria Burrows B.Sc. (Hons) M.Sc. CEnv MCIEEM on 20th May 2022. The weather was dry with sunny intervals, a light air (Beaufort scale 1) and an air temperature of 14°C.
- 2.2.2 A habitat and vegetation map was produced for the site and the immediate surrounding area (refer to **Figure 2**). The mapping is based on the Joint Nature Conservation Committee Phase 1 Habitat Survey methodology (JNCC, 2010) with minor adjustments to illustrate and examine the habitats with greater precision.
- 2.2.3 The plant species within the site boundary were determined with estimates of the distribution, ground cover, abundance and constancy of individual species. The estimation of abundance was based on the DAFOR system, where D = Dominant, A = Abundant, F = Frequent, O = Occasional and R = Rare, this being a widely used and accepted system employed by ecological surveyors. The terms L = Locally and V = Very were additionally used to describe the plant species distributions with greater precision.
- 2.2.4 Stands of vegetation and habitats were described and evaluated using the National Vegetation Classification (NVC). The NVC provides a systematic and comprehensive analysis of British vegetation and is a reliable framework for nature conservation and land-use planning.
- 2.2.5 Habitats within the site were assessed in accordance with the UK Habitats Classification / UKHab (Butcher, et al., 2020). The UKHab has been designed to function at two scales: fine scale (25m² or 5 metres length) and large scale (400m² or 20 metres length). It has been considered for the purposes of this survey that the fine scale of 25m² or 5 metres length is appropriate.
- 2.2.6 Searches were made for uncommon, rare and statutorily protected plant species, those species listed as protected in the *Wildlife and Countryside Act 1981* (as amended) and species which are indicators of important and uncommon plant communities. Plant nomenclature follows *New Flora of the British Isles 3rd Edition* (Stace, 2010).
- 2.2.7 Searches were carried out for the presence of invasive species, including those listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), including Japanese Knotweed (*Fallopia japonica*), Indian Balsam (*Impatiens glandulifera*) and Giant Hogweed (*Heracleum mantegazzianum*).

2.3 Animal Life

Badger

- 2.3.1 The survey area for badger covered the site (as annotated on **Figure 2**) and extended to accessible land within a radius of 50 metres from the site boundary.
- 2.3.2 The survey was conducted in accordance with guidance presented within *Badgers and Development* (Natural England, 2007) and *Badgers: surveys and mitigation for development projects* (Natural England, 2015).
- 2.3.3 The following signs of badger activity were searched for:
- Sett entrances, e.g. entrances that are normally 25 to 35cm in diameter and shaped like a 'D' on its side;
 - Large spoil heaps outside sett entrances;
 - Bedding outside sett entrances;
 - Badger footprints;
 - Badger paths;
 - Latrines;

- g. Badger hairs on fences or bushes;
- h. Scratching posts; and
- i. Signs of digging for food.

2.3.4 Habitats within and surrounding the site were assessed in terms of their suitability for use by foraging and sheltering badger in accordance with their known habitat preferences as detailed in current guidance and *Badger* (Roper, 2010).

Bat Species

Habitat Assessment for Commuting / Foraging Bats

2.3.5 Habitats within and adjacent to the site were assessed for their value and suitability for commuting and foraging bats in accordance with Table 4.1 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*, (Collins, J. (ed), 2016). Reference has been made to the categories and descriptions / examples, presented below.

Table 2.1: Consideration of Suitability of Foraging and Commuting Habitat for Bats

Suitability	Commuting Habitat	Foraging Habitat
Negligible	Negligible habitat features on site likely to be used by commuting bats.	Negligible habitat features on site likely to be used by foraging bats.
Low	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated i.e. not very well connected to the surrounding landscape by other habitat.	Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree or patch of scrub.
Moderate	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens.	Habitat that is linked to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	Continuous, high-quality habitat that is well connected to the wider landscape and is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. Habitats close to and connected to known roosts.	High-quality habitat that is well-connected to the wider landscape and is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Habitats close to and connected to known roosts.

Daylight Survey

Survey Personnel and Guidelines

2.3.6 The northern elevation of the building to be extended and all trees within the site boundary were examined and assessed for their suitability for use by roosting bats by Victoria Burrows (Natural England Class Survey Licence WML CL18 (Bat Survey Level 2), Registration Number 2015-10390-CLS-CLS). The surveyor's qualifications and experience meet the criteria as defined in the *Technical Guidance Series Competencies for Species Survey: Bats* (CIEEM, 2013).

2.3.7 The surveys was carried out in accordance with standard methodology including the *Bat Mitigation Guidelines* (Mitchell-Jones, 2004), the *Bat Workers' Manual 3rd Edition* (Mitchell-Jones & Mcleish, 2004) and *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)* (Collins, J. (ed), 2016).

Building

2.3.8 An inspection of the external surfaces, walls and roof of the building was carried out to find potential bat roosting habitat or accesses into internal areas where roosts may be present. Searches for evidence of bat presence in the form of droppings, urine stains, feeding signs, grease marks and other evidence were also carried out.

2.3.9 An internal survey was not undertaken as there is no roof void at the existing building and the proposals will not directly affect the internal structure of the existing building.

2.3.10 The suitability of the building for use by roosting bats has been assessed in accordance with Table 4.1 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*, (Collins, J. (ed), 2016), taking into account any presence of gaps suitable for access by bats, features suitable for use by roosting bats within the building (including crevice dwelling species and species which can roost in the open in roof voids), and the suitability of the surrounding habitats for use by foraging and commuting bats.

Trees

2.3.11 Trees were examined from the ground using binoculars and a high-powered torch and assessed for their suitability for use by roosting bats. Each tree was searched for the presence of the following features:

Woodpecker holes, rot holes, hazard beams, other vertical or horizontal cracks or splits in stems and branches, partially decayed platey bark, knot holes, man-made holes, tear-outs, cankers in which cavities have developed, other hollows or cavities, including butt-rots, double-leaders forming compression forks with included bark, gaps between overlapping stems or branches, partially detached Ivy (Hedera helix) with stem diameters in excess of 50mm and bat, bird or dormouse (Muscardinus avellanarius) boxes.

2.3.12 Terms used to describe any features present follow (where possible) those outlined and described in *Bat Tree Habitat Key, 2nd Edition* (Andrews, H (ed), 2013) and *Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-care and Ecology Professionals* (BTHK, 2018).

2.3.13 The requirement for further presence / absence surveys at each tree was then considered.

Equipment

2.3.14 A list of equipment used is detailed below:

Table 2.2: Survey Equipment Used / Available for Use During Daylight Bat Survey

Ladders
LED Lenser P14 torch
Canon Ixus digital camera
8x20 binoculars
Ridgid Micro Inspection Camera Borescope CA-300

Water Vole and Otter

2.3.15 The site lies adjacent to a concrete bank lined section of the River Roch,

2.3.16 The section of river adjacent to the site and a distance of 50 metres upstream and downstream beyond the site boundary was searched for water vole and otter field signs and assessed for its suitability for use by these protected species. For health and safety reasons the river channel was not entered and the banks (both sides) were examined from the foot and road bridges and from the tops of the banks.

2.3.17 The survey methods detailed in *The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series)* Eds. Fiona Mathews and Paul Chanin (Dean, et al., 2016), were applied and the river and associated banks were searched for burrows, latrines, feeding remains, runs, feeding lawns, nests and footprints.

2.3.18 The otter survey was undertaken in accordance with the habitat requirements and preferences detailed in *Ecology of the European Otter. Conserving Natura 2000 Rivers, Ecology Series 10* (Chanin, 2003) and searches were made for signs of otter (such as dung (spraints), tracks (footprints), feeding remains, otter slides (into water), holts (underground dens) and couches (above ground sites where otters rest during the day)) in accordance with *Monitoring the Otter Lutra lutra. Conserving Natura 2000 Rivers Monitoring Series No 10* (Chanin, 2003) and current Natural England guidance (Natural England, 2014).

Bird Species

- 2.3.19 Bird species observed and heard during the survey were recorded.
- 2.3.20 Habitats throughout the site and in the immediate surrounding area were assessed for their value to roosting, feeding and nesting birds, including Priority Species, as indicated by the habitats present at the site and in the surrounding area.

Great Crested Newt and Amphibians

- 2.3.21 In accordance with current Natural England guidance (Natural England, 2020) all ponds within an unobstructed 500 metres of a site should be considered for their suitability to support breeding great crested newts. The potential of the proposed development to impact upon any great crested newt population(s) whose breeding ponds are within 500 metres must be considered.
- 2.3.22 There are no ponds within an unobstructed 500 metres radius from the site boundary; adverse impacts on great crested newt and amphibians are reasonably discounted and no further surveys for amphibian species are required to support a planning application.

Reptile Species

- 2.3.23 The site and its surroundings were assessed in terms of their suitability for use by reptile species using the important characteristics for reptiles outlined in the draft document '*Reptile Mitigation Guidelines*' (Natural England, 2011), and the *Reptile Habitat Management Handbook* (Edgar, et al., 2010). These habitat characteristics are outlined below.

Table 2.3: Important Habitat Characteristics for Reptiles

1. Location (in relation to species range)	7. Connectivity to nearby good quality habitat
2. Vegetation Structure	8. Prey abundance
3. Insolation	9. Refuge opportunity
4. Aspect	10. Hibernation habitat potential
5. Topography	11. Disturbance regime
6. Surface geology	12. Egg-laying site potential

2.4 Survey and Reporting Limitations

- 2.4.1 No survey limitations were experienced.
- 2.4.2 All measurements within this report are approximate only, and have been either estimated whilst on site or calculated using mapping software (QGIS) or internet-based mapping services such as MAGiC Maps and Google Earth.

2.5 Evaluation Methods

- 2.5.1 The habitats, vegetation and animal life were evaluated with reference to standard nature conservation criteria as described in *A Nature Conservation Review* (Ratcliffe, 1977). These are size (extent), diversity, naturalness, rarity, fragility, typicality, recorded history, position in an ecological or geographical unit, potential value and intrinsic appeal.
- 2.5.2 Habitats have been assessed to determine whether they meet those described in *UK Biodiversity Action Plan: Priority Habitat Descriptions* (Maddock, A (ed), 2008); these lists are used to help draw up the statutory lists of Priority Habitats, as required under Section 41 of the *Natural Environment and Rural Communities (NERC) Act 2006*. Where suitable, the ecological value of the habitats present has been assessed using the terms outlined in *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018).
- 2.5.3 Government advice on wildlife, as set out in the *National Planning Policy Framework* (Ministry of Housing, Communities and Local Government, 2021) and associated government circulars has been taken into consideration. Legislation relating to protected species, such as those listed under Schedules 1, 5, 6 and

8 of the *Wildlife and Countryside Act 1981* (as amended) and *The Conservation of Habitats and Species Regulations 2017* (as amended), is referenced where applicable, and any impacts to protected species are evaluated in accordance with current guidance.

- 2.5.4 The presence of any Priority Species, as listed under Section 41 of the *Natural Environment and Rural Communities (NERC) Act 2006* is noted, and habitats are assessed in terms of their suitability and value for these species. The presence of habitats and/or species listed by the Greater Manchester Biodiversity Action Plans has been taken into account in the evaluation of the site.

3.0 SURVEY RESULTS

3.1 Desktop Study and Data Search

Statutory Designated Sites for Nature Conservation and SSSI Impact Risk Zones

- 3.1.1 The site and adjacent land have no statutory designation for nature conservation.
- 3.1.2 The site lies within a Site of Special Scientific Interest (SSSI) Impact Risk Zone for the Rochdale Canal Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI) located 1.3 kilometres to the south-east. The canal is designated for supporting important habitats for submerged aquatic plants and emergent vegetation, including Floating Water Plantain (*Luronium natans*) which is nationally scarce.
- 3.1.3 The SSSI Impact Risk Zone requires the Local Planning Authority to consult with Natural England on likely risks from the following development categories (Ordnance Survey, 2022):
- Pipelines, pylons and overhead cables. Any transport proposals including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals;
 - Planning applications for quarries including new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions. Oil and gas exploration / extraction;
 - Any industrial / agricultural development that could cause air pollution (including industrial processes, livestock and poultry units with floorspace greater than 500m², slurry lagoons and digestate stores greater than 200m² and manure stores greater than 250 tonnes;
 - General combustion processes greater than 20 megawatts energy input including energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis / gasification, anaerobic digestion, sewage treatment works and other incineration / combustion;
 - Landfill including inert landfill, non-hazardous landfill and hazardous landfill;
 - Any composting proposals with more than 75,000 tonnes maximum annual operational throughput including open windrow composting, in-vessel composting, anaerobic digestion and other waste management; and
 - Large infrastructure such as warehousing / industry where total net additional gross internal floorspace following development is 1,000m² or more.
- 3.1.4 It is considered that the proposals do not meet the criteria which would require the local planning authority to consult with Natural England in respect of likely risks to the statutory designated sites as a consequence of the proposed development.

Non-statutory Designated Sites for Nature Conservation

- 3.1.5 The site and adjacent land have no non-statutory designations for nature conservation.
- 3.1.6 There are no non-statutory designated sites for nature conservation (termed or Site of Biological Importance 'SBI' in Greater Manchester) within a 1 kilometre buffer of the site.

Main River Designation

- 3.1.7 The River Roch which flows adjacent to the eastern site boundary is a statutory main river (Environment Agency, 2022).

Priority Habitats Inventory and Soilscape Information

- 3.1.8 The Priority Habitats Inventory² was checked via MAGiC Maps. No Priority habitats are identified on the site or on adjacent land.
- 3.1.9 In accordance with *Soilscape (England)* as presented on MAGiC Maps (National Soil Resources Institute, 2005), the site supports 'loamy and clayey floodplain soils with naturally high groundwater', and the characteristic semi-natural habitats associated with the soils comprise 'wet flood meadows and pastures with wet carr woodlands'.

Protected and Notable Species

- 3.1.10 GMLRC hold no records of protected and notable species for the site.
- 3.1.11 Records of protected and notable species for a 1 kilometre radius of the site are summarised below.

Table 3.1: Records of Protected Species Within a 1 kilometre Radius of the Site

Taxon Group	Species Name and Designations ¹ and Notes
Amphibians	Great crested newt (<i>Triturus cristatus</i>): EPS, WCAs5, PS & GMBAP. 2 records, dated 2005 and 2014. The closest record is 815 metres west of the site in 2014.
Birds – WCAs1 Species	Kingfisher (<i>Alcedo atthis</i>): WCAs1. 1 record, dated 2016, 95 metres north of the site. Peregrine (<i>Falco peregrinus</i>): WCAs1. 63 records, dated between 2006 and 2021. The closest record is 190 metres south-east of the site and dated 2014.
Birds – Priority Species & GMBAP Species	PS Only: Bullfinch (<i>Pyrrhula pyrrhula</i>), dunnoek (<i>Prunella modularis</i>), herring gull (<i>Larus argentatus</i>), house sparrow (<i>Passer domesticus</i>), lesser redpoll (<i>Carduelis cabaret</i>), song thrush (<i>Turdus philomelos</i>) and starling (<i>Sturnus vulgaris</i>).
Bony Fishes (Actinopterygii)	Brown Trout (<i>Salmo trutta</i>): PS. 1 record, dated 2014, 225 metres south-east of the site.
Insect Butterflies	PS Only: Wall (<i>Lasiommata megera</i>).
Insects - Moths	PS Only: Cinnabar (<i>Tyria jacobaeae</i>) and small square-spot (<i>Diarsia rubi</i>).
Terrestrial Mammals	Common Pipistrelle (<i>Pipistrellus pipistrellus</i>): EPS, WCAs5, GMBAP. 37 records, dated between 2001 and 2013. The closest record is 95 metres north of the site in 2009. This includes records of 2 roosts, the closest roost record is located 235 metres south-east of the site and dated 2014. Daubenton's Bat (<i>Myotis daubentonii</i>): EPS, WCAs5 and GMBAP. 2 records, both dated 2009. The closest record is 295 metres east of the site. This includes records of 2 roosts, the closest roost record is located 235 metres south-east of the site and dated 2014. Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>): EPS, WCAs5, PS, GMBAP. 1 record, dated 2013, 295 metres north-east of the site. This includes records of 2 roosts, the closest roost record is located 235 metres south-east of the site and dated 2014. Bat (Order <i>Chiroptera</i>): EPS, WCAs5 & GMBAP. 1 record, dated 2008, 955 metres south-west of the site. Nathusius's pipistrelle (<i>Pipistrellus nathusii</i>): EPS, WCAs5 & GMBAP. 1 record, dated 2013, 325 metres north of the site. Pipistrelle sp. (<i>Pipistrellus</i>): EPS, WCAs5, GMBAP. 7 records, dated between 2002 and 2008. The closest record is 450 metres north-east of the site.

² A spatial dataset that describes the geographic extent and location of Natural Environment and Rural Communities Act (2006) Section 41 habitats of principal importance.

Taxon Group	Species Name and Designations ¹ and Notes
	Whiskered Bat (<i>Myotis mystacinus</i>): EPS, WCAs5, GMBAP. 1 record, dated 2003, 720 metres west of the site.
	Western European Hedgehog (<i>Erinaceus europaeus</i>): PS. 3 records, dated between 2018 and 2020. The closest record is 240 metres south-west of the site from 2020.
¹ Key to Designation Codes: EPS = European Protected Species under the <i>Conservation of Habitats and Species Regulations 2017</i> (as amended). WCAs1 = Species receives full protection under Schedule 1 of the <i>Wildlife and Countryside Act 1981</i> (as amended). WCAs5 = Species receives full protection under Schedule 5 of the <i>Wildlife and Countryside Act 1981</i> (as amended). PS = Priority Species listed under Section 41 of the NERC Act 2006. GMBAP = Species listed on the Greater Manchester Biodiversity Action Plan Provisional Long List.	

- 3.1.12 The presence of these protected and notable species within the wider area has been taken into account throughout this report.

3.2 Vegetation and Habitats

General Description

- 3.2.1 The approximately 0.77 hectare site is located within the wider Rochdale Sixth Form College campus in the centre of Rochdale town.
- 3.2.2 The site is characterised by the existing college building to the south and by a hard-standing car park with verges of introduced shrubs, mown amenity grassland and young planted trees in the northern portion.
- 3.2.3 The eastern site boundary is demarcated by the concrete lined bank of the River Roch. The south-eastern boundary meets the bridge that carries St. Mary's Gate road over the river. The western site boundary meets a mown grassed verge beyond which lies a fence and concrete panel wall and an Asda supermarket and the northern boundary meets the vehicular access bridge over the River Roch.
- 3.2.4 A Phase 1 Habitat Survey map is appended at **Figure 2**. Photographs are appended at **Table 8.1**.

Buildings and Hard-standing

- 3.2.5 Refer to **Photos 1** and **2**. The building and hard-standing do not support any vegetation. The building is described in terms of its suitability for use by roosting bats in **Section 3.3**.

Introduced Shrub

- 3.2.6 Refer to **Photo 3**. At the northern tip of the site the sides of the sloping approach to the vehicular access over the River Roch are planted with Cherry Laurel (*Prunus laurocerasus*) shrubs with an understorey of wood chippings.
- 3.2.7 The introduced shrubs are not characteristic of an NVC community and are described by the UKHab as h3h mixed scrub with secondary code 48 non-native.

Amenity Grassland and Planted Trees

- 3.2.8 Refer to **Photos 4** and **5**. Seven verges of mown amenity grassland lie within the redline boundary. The verges may have been sown with a wildflower seed mix as the grassland is characterised by constant and abundant Red Fescue (*Festuca rubra*) with constant and frequent Ox-eye Daisy (*Leucanthemum vulgare*) and frequent Perennial Rye-grass (*Lolium perenne*), Yorkshire-fog (*Holcus lanatus*) and locally abundant Annual Meadow-grass (*Poa annua*). Herb species comprise very locally frequent Herb-Robert (*Geranium robertianum*), Self-heal (*Prunella vulgaris*), White Clover (*Trifolium repens*) and Common Mouse-ear (*Cerastium fontanum*) with very locally abundant Lesser Trefoil (*Trifolium dubium*), Black Medick (*Medicago lupulina*) and rare Evening Primrose (*Oenothera biennis*), Common Figwort (*Scrophularia nodosa*) and Yarrow (*Achillea millefolium*).
- 3.2.9 In addition the verges support Spanish Bluebell (*Hyacinthoides hispanica*) and two spikes of Southern Marsh-orchid (*Dactylorhiza praetermissa*) were detected.

- 3.2.10 Planted trees on the verges comprise Birch (*Betula* sp.) species and Italian Alder (*Alnus cordata*).
- 3.2.11 A plant species list is appended at **Table 8.2**. The mown verges have affinities with a managed MG1 *Arrhenatherum elatius*, *Festuca rubra* sub-community of the NVC (Rodwell, 1992) and are described by the UKHab as g3c5 *Arrhenatherum* neutral grassland with the secondary codes 66 frequently mown and 11 scattered trees.

Off-site Amenity Grassland Verge

- 3.2.12 Refer to **Photo 6**. A strip of mown amenity grassland lies to the west of the western site boundary (i.e. between the access road to the car park and the walled boundary with Asda). The plant species composition is similar to the verges in the car park with constant and abundant Red Fescue and locally abundant Perennial Rye-grass. The shaded conditions created by the adjacent Ivy (*Hedera helix*) covered concrete wall has facilitated the growth of moss species in the grassland. The grassland also supports very locally frequent Common Mouse-ear, very locally abundant White Clover and occasional Ribwort Plantain (*Plantago lanceolata*), Broad-leaved Dock (*Rumex obtusifolius*) and Common Cat's-ear (*Hypochaeris radicata*). Two spikes of Southern Marsh-orchid were detected.
- 3.2.13 A plant species list is appended at **Table 8.3**. The mown verges have affinities with a managed MG1 *Arrhenatherum elatius*, *Festuca rubra* sub-community of the NVC and are described by the UKHab as g3c5 *Arrhenatherum* neutral grassland with the secondary codes 66 frequently mown.

River Roch Corridor

- 3.2.14 Refer to **Photo 7 to 10**. Within the site (i.e. each side of the slipway) and beyond the metal fence at the eastern site boundary is a 2 to 3 metres wide vegetated bank along the concrete bank lined section of the River Roch. The banks are colonised by neutral grassland with scattered tall-herb vegetation and stands of Japanese Knotweed. The college wardens advised that the bank vegetation is strimmed annually.
- 3.2.15 The bankside vegetation is characterised by constant and abundant Broad-leaved Dock and frequent Japanese Knotweed and Alder saplings. Ox-eye Daisy, Ribwort Plantain, Common Figwort, Meadowsweet (*Filipendula ulmaria*), Wood Avens (*Geum urbanum*) and Perennial Rye-grass are reported to be locally frequent with locally abundant Cock's-foot (*Dactylis glomerata*) and Red Fescue. Greater Burnet (*Sanguisorba officinalis*) was recorded as rare with occasional Common Hogweed (*Heracleum sphondylium*) and Common Mugwort (*Artemisia vulgaris*).
- 3.2.16 A plant species list is appended at **Table 8.4**. The mown verges have affinities with MG1 *Arrhenatherum elatius* community of the NVC and are described by the UKHab as g3c other neutral grassland with the secondary code 75 active management.

Invasive Plant Species

- 3.2.17 Japanese Knotweed plants are present within the site and along the bank of the River Roch and one plant of Montbretia (*Crocasmia x crocosmiiflora*) was detected in the verge to the west of the site boundary (refer to **Figure 2**). These species are listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended); it is an offence to spread or cause their spread in the wild. This is considered further at **Section 4.3** below.

3.3 Animal Life

Badger

- 3.3.1 No evidence of badger was detected at the site. The hard-standing dominated habitats are not suitable for the attraction of foraging badger. The presence of this species and adverse effects on badger and their setts as a result of the proposals are reasonably discounted.

Bat Species

Habitat Assessment for Commuting and Foraging Bats

- 3.3.2 The hard-standing and bare ground with narrow strips of landscape planting within the site is unlikely to provide an abundance or diversity of invertebrate prey, and is therefore considered to be of 'low' suitability for use by foraging bats.
- 3.3.3 The off-site river corridor is a linear feature that provides habitat connectivity between land to the south of the site and the grassland, woodland and scrub habitats of greater value for the attraction of foraging bats to the north and west of the site. It is considered that the river corridor adjacent to the site, albeit with limited vegetation cover, will contribute to the wider foraging area of common species of edge-feeding foraging bat species, such as common pipistrelle (*Pipistrellus pipistrellus*), particularly in the context of the presence of the wider urban area.

Daylight Survey: Building

- 3.3.4 Refer to **Photo 13**. The existing teaching building is a six-storey modern structure with brick elevation walls with cladding and glazed elevations. The northern elevation of the building to be keyed into by the extension has brick walls, glazed areas and large cladding panels that are tightly sealed and provide no opportunities for bat access. The building within the site is assessed to be of 'negligible' suitability for use by roosting bats in accordance with Table 4.1 of *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*, (Collins, J. (ed), 2016).

Trees

- 3.3.5 No trees support any features suitable for use by roosting bats. All trees within the site are of 'negligible' suitability for use by roosting bats.
- 3.3.6 Refer to **Photo 14**. A row of off-site Sycamore and Alder trees (on the site boundary but within the Asda car park to the west of the site) support Ivy and are therefore assessed to be of 'low' suitability for use by roosting bats; these off-site trees will not be affected by the proposals.

Water Vole and Otter

- 3.3.7 The concrete lined banks at the water level of the surveyed section of River Roch are not suitable for use by burrowing water vole or for the creation of otter holts. No evidence of water vole or otter was detected higher up the bank where there are earth banks with neutral grassland and tall-herb vegetation.
- 3.3.8 The use of the area and likelihood of frequent disturbance is not likely to attract use by breeding otter, however, otter are known in the wider catchment in the local area and the river corridor may be used by passing otter; this is considered further in the guidance provided at **Sections 5.2 and 5.3**.

Bird Species

- 3.3.9 Birds detected in the site on 20th May 2022 are listed below.

Table 3.2: Bird Species Detected on 20th May 2022

Scientific Name	Common Name	BOCC Status ¹	Notes on Location / Habitat
<i>Anas platyrhynchos</i>	Mallard	Amber	On river
<i>Branta canadensis</i>	Canada goose	Introduced	Nesting on eastern bank of river
<i>Curruca communis</i>	Whitethroat	Amber	Tree in car park
<i>Erithacus rubecula</i>	Robin	Green	Tree in car park
<i>Turdus merula</i>	Blackbird	Green	Tree in car park
¹ BOCC: Birds of Conservation Concern (Stanbury, et al., 2021). Priority Species are presented in bold .			

- 3.3.10 The tightly sealed elevations and cladding at the building provides no opportunities for access by nesting birds. No evidence of use of the roof of the building by nesting birds (gulls, for example) was observed on the survey date.

- 3.3.11 The limited areas of landscape planting comprising mown grassed verges and scattered young trees provide very limited opportunities for nesting birds and no evidence of use was detected on the survey date.
- 3.3.12 As reported in **Table 3.2** and shown on **Photo 12** an active Canada goose nest was present on the eastern (opposite) bank of the river across from the site (the college wardens advised that the goose has nesting there consistently in recent years).

Reptiles

- 3.3.13 The hard-standing dominated habitats within the site provide no opportunities for basking and hibernating reptiles. The site is not adjacent or linked to any areas of favourable habitat for reptile species, and there are no records of reptile for the site or the wider area. The presence of reptiles within the site is reasonably discounted.

4.0 EVALUATION AND ASSESSMENT

4.1 Introduction and Description of Proposals

- 4.1.1 The proposals comprise the expansion of the existing teaching block at Rochdale Sixth Form College by construction of a purpose-designed extension to the north of the existing building. The proposals are outlined at the *Proposed Site Plan* (drawing 3940-A-1002P) prepared by ABW Architects Ltd.
- 4.1.2 The zone of influence of the proposed development is considered to be the land within the site boundary, including the northern elevation of the existing building and any trees with their root protection zones within proximity to the site / construction zone.
- 4.1.3 The River Roch and associated corridor lies adjacent to the eastern site boundary. The river corridor and its banks will not be directly affected by the proposals, however, the river corridor and associated fauna are considered to be within the zone of influence in relation to potential impacts associated with construction-related disturbance and artificial lighting, as discussed below.
- 4.1.4 **Section 4.2** provides an assessment of any impacts of the proposed development on the designated sites for nature conservation present in the wider area. The ecological value of habitats within the site is evaluated at **Section 4.3**, and protected and notable species are considered at **Section 4.4**.

4.2 Designated Sites for Nature Conservation

- 4.2.1 Owing to the distance between the site and any statutory and non-statutory designated sites for nature conservation within the wider area, direct and indirect effects on any statutory and non-statutory designated sites are reasonably discounted.

4.3 Vegetation and Habitats

- 4.3.1 None of the habitats within the proposed development site are representative of semi-natural habitat or are Priority Habitat. The site contains only common and widespread plant species; although the presence of the Southern Marsh-orchid spikes is of interest at the site / campus geographic scale³.
- 4.3.2 The presence of Japanese Knotweed (within the site and along the river corridor) and Montbretia (off-site), both invasive plant species listed on Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended), is an essential consideration in connection with the proposals. The proposals can be achieved whilst securing the appropriate treatment and disposal of these species to avoid spread in the wild, refer to **Section 5.3**.

³ Using the terms presented at Section 4.7 of *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine* (CIEEM, 2018), i.e. International and European, National, Regional, Local Authority-wide area, River Basin District, Estuarine system / Coastal cell or Local. The term 'site' value is additionally used to highlight ecological features considered to be of importance in the context of the wider site habitats, but which are of negligible value in the context of the local area.

- 4.3.3 The on-site and off-site grassland verges with orchid species will not be directly affected by the construction activities. Protection (and continued conservation) of these verges will be achieved by the project, refer to **Sections 5.2 and 5.3**.
- 4.3.4 The off-site river corridor and associated banks will not be directly affected by the proposals. Protection of the integrity of the river corridor, its habitat connectivity function and associated fauna will be achieved during the construction activities (refer to **Section 5.3**) and the risk of long-term effects as a result of the inappropriate use of lighting (for example) will be avoided by implementation of the recommendations at **Section 5.2**.
- 4.3.5 Based on the alignment of the building and the relatively small footprint of the proposals that are an extension to the existing building, it is advised that any significant adverse effects on the off-site river corridor in relation to shading / creation of a shadow are reasonably discounted.

4.4 Protected Species and Other Wildlife

Bat Species

- 4.4.1 The proposals will not affect any habitats assessed to be of suitability for use by roosting bats. Habitats adjacent to the site are suitable for foraging and commuting bats. Guidance in relation to the avoidance of an adverse effect / deterrence of foraging bats from the site and local area comprising the retention of features suitable for use by foraging and commuting bats and the appropriate use of lighting are described at **Sections 5.2 and 5.3**.

Otter

- 4.4.2 In the presence of an appropriate artificial lighting strategy and given the current presence of buildings along the river corridor, the proposals are not likely to have a significant adverse effect on the suitability of the river corridor for the movement of fauna such as otter.

Nesting Birds

- 4.4.3 The trees and shrubs provide limited opportunities foraging and nesting for passerine bird species. Consideration of birds (including protection of breeding birds and recommended enhancements for Priority Species) are presented at **Sections 5.3 and 5.4** of this report.

Other Protected Species

- 4.4.4 Appropriate survey effort and / or assessment in accordance with standard guidance, has been carried out to reasonably discount adverse effects on other relevant protected species.

5.0 RECOMMENDATIONS AND ECOLOGICAL ENHANCEMENT

5.1 Introduction

- 5.1.1 The recommendations outlined below aim to ensure that the development is implemented in accordance with the mitigation hierarchy and relevant wildlife legislation, Natural England guidance, the principles of the National Planning Policy Framework (NPPF), local planning policy and best practice.
- 5.1.2 The recommendations also aim to address the requirements of the consideration of the project under the BREEAM.
- 5.1.3 The recommendations are appropriate and proportionate to the scale of the proposals and the ecological baseline conditions. Where possible, opportunities to enhance the ecological value of the proposals and seek biodiversity gain through appropriate habitat creation have been identified, as required by the NPPF, other relevant planning documents and the BREEAM.

5.2 Recommendations in Relation to Site Design

5.2.1 To achieve the protection of the identified off-site features of ecological value and to enhance the value of the site for biodiversity in the presence of the proposals, the following ecological recommendations will be implemented / achieved:

- a. The building extension covers a maximum footprint of 19.3 metres by 24.2 metres and is positioned over existing hard-standing and hard-landscaping (refer to **Photo 2**). No trees or vegetation will be removed to accommodate the proposals;
- b. No structures or planting will be carried out within the River Roch main river corridor or in closer proximity to the river corridor than the existing building;
- c. To achieve compliance with paragraph 185, bullet point 'c' in Chapter 15 (conserving and enhancing the natural environment) of the NPPF which seeks to ensure developments '*limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation*', any lighting to be installed at the site must involve the use of appropriate products and screening, where necessary, to ensure no excessive artificial lighting shines over the River Roch corridor and any landscape planting, as lighting overspill may deter use by wildlife such as foraging bats and commuting otter. This guidance applies to both external lighting and any internal lighting which may be emitted from the building (for example via windows on the eastern elevation). The lighting scheme will be designed with reference to current guidance, namely:
 - a. *Guidance Note 8: Bats and Artificial Lighting in the UK* (Institution of Lighting Professionals & Bat Conservation Trust, 2018); and
 - b. *Bats and lighting: Overview of current evidence and mitigation guidance* (Stone, 2014).

5.3 Protection of Existing Vegetation and Habitats During Construction Period

5.3.1 It is advised that the protective measures outlined below are incorporated into a Construction Environment Management Plan (CEMP) or similar document.

Demarcation of the Construction Zone and Protection of Trees and River Corridor

- 5.3.2 During the construction phase, temporary protective demarcation fencing will be used to demarcate the construction zone and to protect the grassed verge with orchids to the west, the trees to be retained and the river corridor. The fencing must extend outside the canopy of the retained trees and must remain in position until the end of the construction phase.
- 5.3.3 Where appropriate the fencing will be in accordance with BS5837:2012 *Trees in Relation to Design, Demolition and Construction: Recommendations* (BSI, 2012).

Protection of River Roch

- 5.3.4 The River Roch corridor will not be directly affected by the construction activities.
- 5.3.5 To protect the riparian habitats and water quality it is recommended that no earthworks are carried out beyond the existing fence along the top of the bank of the river (i.e. no construction activities, including the storage of materials must occur on the riverside of the metal fencing along the margin of site as shown on the left side of **Photo 1**).
- 5.3.6 In the absence of updated guidance, the following Pollution Prevention Guidelines (PPG) will be adhered to at any works near the river:
 - a. PPG1: Basic good environmental practices (Environment Agency, 2013);
 - b. PPG5: Works in, near or over watercourses (Environment Agency, 2014);
 - c. PPG6: Construction and demolition sites (Environment Agency, 2012); and
 - d. PPG7: Operating refuelling sites (Environment Agency, 2011).

Protection of Nesting Birds

- 5.3.7 All wild birds are protected under the *Wildlife and Countryside Act 1981* (as amended) while they are breeding. Based on the habitats to be affected by the proposals the risk of affecting habitats suitable for use by nesting birds is minimal. However, if breeding birds are detected in or near to the construction zone the ecologist must be contacted for guidance in relation to the protection of the nesting birds in conjunction with the scheduled works. This may involve cordoning off an area of the site until the young birds have fledged.

Invasive Plant Species

- 5.3.8 It is an offence under the *Wildlife and Countryside Act 1981* (as amended) to cause the spread of Montbretia and Japanese Knotweed in the wild. It is advised that works near these species is carried out in accordance with an Invasive Species Management Plan.

Construction Lighting

- 5.3.9 Any lighting to be used at the site during construction period should be directional and screened where possible to avoid any additional illumination of the river corridor and habitats beyond the site boundary.

5.4 Recommendations for Ecological Enhancement

Installation of Opportunities for Nesting Birds

- 5.4.1 To enhance the opportunities for nesting birds at the site and local area it is recommended that the bird boxes detailed at **Insert 1** are installed on the elevation walls of the plant rooms (or similar) on the roof of the new building. An ecologist will advise on the siting of the boxes, as needed.



Insert 1: Schwegler 1SP House Sparrow Nesting Terrace (left) and Vivara Pro Burgos WoodStone Swift Nest Box (right)

- 5.4.2 The boxes specified above are suitable for use by house sparrow (a Priority Species) and swift (a red-listed species). House sparrow can be associated urban and suburban areas. Monitoring suggests a severe decline in the UK house sparrow population, estimated as halving in rural areas, and dropping by 60% in towns and cities since the mid-1970's (RSPB, 2018). The swift (*Apus apus*) has recently been added to The Birds of Conservation Concern Red list (Stanbury, et al., 2021) owing to the recorded recent declines and its identified status as a high conservation priority.

6.0 CONCLUSION

- 6.1 The development proposals at Rochdale Sixth Form College can be achieved with no adverse effect on designated sites for nature conservation, ecologically valuable habitats, protected species and Priority Species.
- 6.2 Actions to ensure compliance with wildlife legislation and best practice will be implemented and are described in **Section 5.0**. Measures to achieve enhancement for biodiversity in accordance with the

development proposals are specified in **Section 5.0** and are entirely feasible to achieve compliance with the NPPF, relevant local planning policy and the BREEAM.

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8.0 APPENDIX 1: TABLES

8.1 Photographs

Table 8.1: Photographs



Photo 1: View of the site from the north



Photo 2: Footprint of the building expansion proposals (facing north)



Photo 3: Cherry Laurel shrubs (introduced shrubs) at the northern tip of the site



Photo 4: Mown verges of amenity grassland with planted trees



Photo 5: Mown verges of amenity grassland with planted trees



Photo 6: Off-site mown verge with Southern Marsh-orchid (beyond western site boundary)



Photo 7: View of the site from the east



Photo 8: Neutral grassland vegetation with Japanese Knotweed each side of the concrete slipway to the River Road



Photo 9: Bankside vegetation at the River Roch (site on the right)



Photo 10: Japanese Knotweed within the site



Photo 11: Montbretia plant just outside the western site boundary (near concrete panel walled boundary with Asda)



Photo 12: Nesting Canada goose on eastern (opposite) bank of the River Roch



Photo 13: Northern elevation of the existing building; 'negligible' suitability for use by roosting bats



Photo 14: Off-site Sycamore and Alder trees with Ivy; 'low' suitability for use by roosting bats

8.2 Plant Species Lists

Table 8.2: Plant Species List for Mown Verges with Planted Trees within the Site

Scientific Name	Common Name	DAFOR ¹	Cover
Woody Species			
<i>Alnus cordata</i>	Italian Alder	LF	5%
<i>Betula</i> sp.	Birch species	LF	5%
<i>Quercus robur</i>	Oak (sapling)	O	<1%
Herb Species			
<i>Achillea millefolium</i>	Yarrow	R	<1%
<i>Buddleia davidii</i>	Butterfly-bush (sapling)	R	<1%
<i>Cerastium fontanum</i>	Common Mouse-ear	VLF	<1%
<i>Cirsium vulgare</i>	Spear Thistle	R	<1%
<i>Dactylis glomerata</i>	Cock's-foot	LA/F	10%
<i>Dactylorhiza praetermissa</i>	Southern March-orchid	R	<1%
<i>Euphorbia</i> sp.	Spurge species	R	<1%
<i>Festuca rubra</i>	Red Fescue	A*	50%
<i>Geranium robertianum</i>	Herb-Robert	VLF	<1%
<i>Heracleum sphondylium</i>	Common Hogweed	O	<1%
<i>Holcus lanatus</i>	Yorkshire-fog	F/LA	20%
<i>Hyacinthoides hispanica</i>	Spanish Bluebell	R	<1%
<i>Leontodon autumnalis</i>	Autumn Hawkbit	VLF	<1%
<i>Leucanthemum vulgare</i>	Ox-eye Daisy	F*	5%
<i>Lolium perenne</i>	Perennial Rye-grass	F	10%
<i>Medicago lupulina</i>	Black Medick	VLA	<1%
<i>Oenothera biennis</i>	Evening Primrose	R	<1%
<i>Plantago lanceolata</i>	Ribwort Plantain	LF	2%
<i>Poa annua</i>	Annual Meadow-grass	LA	10%
<i>Prunella vulgare</i>	Self-heal	VLF	<1%
<i>Ranunculus acris</i>	Meadow Buttercup	R	<1%
<i>Scrophularia nodosa</i>	Common Figwort	R	<1%
<i>Senecio jacobaea</i>	Common Ragwort	O	<1%
<i>Senecio vulgare</i>	Groundsel	O	<1%
<i>Taraxacum officinale</i> agg.	Dandelion	O	<1%
<i>Trifolium dubium</i>	Lesser Trefoil	VLA	<1%
<i>Trifolium repens</i>	White Clover	VLF	<1%

¹Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

Table 8.3: Plant Species List for Off-site Mown Grassland Verge (to the west)

Scientific Name	Common Name	DAFOR ¹	Cover
Woody Species			
<i>Acer pseudoplatanus</i>	Sycamore (sapling)	O	<1%
<i>Alnus cordata</i>	Italian Alder	LF	1%
<i>Alnus glutinosa</i>	Alder	O	<1%
<i>Fraxinus excelsior</i>	Ash (sapling)	O	<1%
<i>Quercus robur</i>	Oak (sapling)	O	<1%
Herb Species			
-	Moss species	LA	5%
<i>Calystegia sepium</i>	Hedge Bindweed	VLA	<1%
<i>Carex pendula</i>	Pendulous Sedge	R	<1%
<i>Cerastium fontanum</i>	Common Mouse-ear	VLF	<1%
<i>Chamerion angustifolium</i>	Rosebay Willowherb	R	<1%
<i>Choisya</i> sp.	Mexican Orange species	LF	1%
<i>Cirsium palustre</i>	Marsh Thistle	R	<1%
<i>Cirsium vulgare</i>	Spear Thistle	R	<1%
<i>Crocsmia x crocosmiiflora</i>	Montbretia	R	<1%
<i>Dactylorhiza praetermissa</i>	Southern March-orchid	R	<1%
<i>Epilobium hirsutum</i>	Great Willowherb	LA	5%
<i>Equisetum arvense</i>	Field Horsetail	LF	1%
<i>Festuca rubra</i>	Red Fescue	A*	90%
<i>Galium aparine</i>	Cleavers	VLF	<1%
<i>Hedera helix</i>	Ivy	LA	5%
<i>Hosta</i> sp.	Hosta species	R	<1%
<i>Hypericum androsaemum</i>	Tutsan	O	<1%
<i>Hypochaeris radicata</i>	Common Cat's-ear	O	<1%
<i>Lolium perenne</i>	Perennial Rye-grass	LA	10%
<i>Plantago lanceolata</i>	Ribwort Plantain	O	<1%
<i>Ranunculus acris</i>	Meadow Buttercup	R	<1%
<i>Ranunculus repens</i>	Creeping Buttercup	VLF	<1%
<i>Rubus fruticosus</i> agg.	Bramble	R	<1%
<i>Rumex obtusifolius</i>	Broad-leaved Dock	O	<1%
<i>Senecio jacobaea</i>	Common Ragwort	O	<1%
<i>Sonchus oleraceus</i>	Smooth Sow-thistle	O	<1%
<i>Taraxacum officinale</i> agg.	Dandelion	O	<1%
<i>Trifolium repens</i>	White Clover	VLA	1%
¹ Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species			

Table 8.4: Plant Species List for the Western Bank of the River Roch

Scientific Name	Common Name	DAFOR ¹	Cover
Woody Species			
<i>Acer pseudoplatanus</i>	Sycamore (sapling)	O	<1%
<i>Alnus cordata</i>	Italian Alder	O	<1%
<i>Alnus glutinosa</i>	Alder (sapling)	F	10%
Herb Species			
<i>Alliaria petiolata</i>	Garlic Mustard	R	<1%
<i>Angelica sylvestris</i>	Angelica	VLF	<1%
<i>Artemisia vulgaris</i>	Common Mugwort	O	<1%
<i>Cerastium fontanum</i>	Common Mouse-ear	VLF	<1%
<i>Cirsium arvense</i>	Creeping Thistle	O	<1%
<i>Dactylis glomerata</i>	Cocks'-foot	F/LA	20%
<i>Epilobium hirsutum</i>	Great Willowherb	VLA	<1%
<i>Equisetum arvense</i>	Field Horsetail	LF	1%
<i>Eupatorium cannabinum</i>	Hemp Agrimony	VLF	<1%
<i>Fallopia japonica</i>	Japanese Knotweed	F	2%
<i>Festuca rubra</i>	Red Fescue	F/LA	50%
<i>Filipendula ulmaria</i>	Meadowsweet	LF	2%
<i>Geranium robertianum</i>	Herb-Robert	VLF	<1%
<i>Geum urbanum</i>	Wood Avens	LF	1%
<i>Heracleum sphondylium</i>	Common Hogweed	O	<1%
<i>Leucanthemum vulgare</i>	Ox-eye Daisy	LF	2%
<i>Lolium perenne</i>	Perennial Rye-grass	LF	5%
<i>Lotus pedunculatus</i>	Greater Bird's-foot-trefoil	VLA	<1%
<i>Myosotis</i> sp.	Forget-me-not species	O	<1%
<i>Oenothera biennis</i>	Evening Primrose	O	<1%
<i>Plantago lanceolata</i>	Ribwort Plantain	LF	5%
<i>Prunella vulgaris</i>	Self-heal	VLA	<1%
<i>Rubus fruticosus</i> agg.	Bramble	LF	5%
<i>Rumex obtusifolius</i>	Broad-leaved Dock	A*	20%
<i>Sanguisorba officinalis</i>	Greater Burnet	R	<1%
<i>Scrophularia nodosa</i>	Common Figwort	LF	1%
<i>Senecio jacobaea</i>	Common Ragwort	O	<1%
<i>Sonchus oleraceus</i>	Smooth Sow-thistle	O	<1%
<i>Stachys sylvatica</i>	Hedge Woundwort	LF	1%
<i>Taraxacum officinale</i> agg.	Dandelion	O	<1%
<i>Tellima</i> sp.	Fringe-cups	R	<1%
<i>Urtica dioica</i>	Common Nettle	LF	1%

¹Key to DAFOR: D=Dominant, A=Abundant, F=Frequent, O=Occasional, R=Rare, V=Very, L=Local and *denotes a constant species

9.0 APPENDIX 2: FIGURES

Figure 1: Aerial Image of the Site and Surrounds



Figure 2: Phase 1 Habitat and Vegetation Map

