2 & 3 Angel Square, Manchester M4 4AF

ECOLOGICAL SURVEY AND ASSESSMENT

August 2019

[ERAP (Consultant Ecologists) Ltd ref: 2019-160]

ERAP (Consultant Ecologists) Ltd
49a Manor Lane
Penwortham
Preston
Lancashire
PR1 0TA

Tel: 01772 750502

mail@erap.co.uk
www.erap.co.uk

CONTENTS

Summary 3

1.0 Introduction 4
1.1 Background and Rationale 4
1.2 Scope of Works 4

2.0 Method of Survey 5
2.1 Desktop Study 5
2.2 Vegetation and Habitats 5
2.3 Animal Life 5
2.4 Survey and Reporting Limitations 8
2.5 Evaluation Methodology 8

3.0 Survey Results 9
3.1 Desktop Study 9
3.2 Vegetation and Habitats 9
3.3 Animal Life 11

4.0 Evaluation and Assessment 12
4.1 Introduction and Description of Proposals 12
4.2 Designated Sites for Nature Conservation 12
4.3 Vegetation and Habitats 12
4.4 Protected Species and Other Wildlife 12

5.0 Recommendations and Ecological Enhancement 13
5.1 Introduction 13
5.2 Bats 13
5.3 Birds 14
5.4 Landscape Planting and Provision of Wildflower Grassland 16

6.0 Conclusion 17

7.0 References 18

8.0 Appendix: Tables, Photographs and Figures 20
8.1 Plant Species Lists 20
8.2 Photographs 23

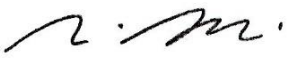
List of Tables

Table 2.1: Consideration of Suitability of Foraging and Commuting Habitat for Bats 7
Table 2.2: Important Habitat Characteristics for Reptiles 7
Table 5.1: Suitable Native Species for Tree and Shrub Planting 16
Table 8.1: Plant Species List for Hard Standing and Colonising Shrubs and Ruderal Herbs 20
Table 8.2: Plant Species List for Unmanaged Trees, Scrub and Tall Herb Vegetation 21
Table 8.3: Plant Species List for Amenity Grassland 22
Table 8.4: Plant Species List for Seeded Wildflower Grassland 22

List of Figures

Figure 8.1: Aerial Image of the Site and its Surrounding Habitats 25
Figure 8.2: Phase 1 Habitat and Vegetation Map 26

Document Control

Survey Type:	Surveyors[1]	Survey Date(s)
Phase 1 Habitat survey	Brian Robinson B.Sc. (Hons) MCIEEM Senior Ecologist	1st August 2019
Reporting	**Personnel**	**Date**
Author	Brian Robinson B.Sc. (Hons) MCIEEM Senior Ecologist	20th August 2019
Signature(s)		
Checked by	Catie Haworth B.Sc. (Hons) M.Sc. Graduate Ecologist	20th August 2019
Revised and issued by	Brian Robinson B.Sc. (Hons) MCIEEM Senior Ecologist	20th August 2019
Report issued to	NOMA (GP) Ltd	
Version Number	1	

SUMMARY

Introduction and Scope

i. This Ecological Appraisal presents the ecological, biodiversity and nature conservation status of the land at 2 & 3 Angel Square, Manchester.

ii. The appraisal presents the results of a desktop study and extended Phase 1 Habitat Survey carried out in August 2019. The scope of survey undertaken is appropriate to identify potential ecological constraints, the remit of mitigation required and opportunities for biodiversity associated with the development proposals.

iii. The Site is located within an urban area of Manchester city centre and comprises a hard standing car park, areas of unmanaged vegetation (comprising vegetation colonising hard standing and areas of unmanaged trees, scrub and tall-herb vegetation), ornamental planting, semi-improved neutral grassland (a seeded wildflower mix) and an allotment area.

Results of Survey and Assessment

iv. The proposals will have no adverse effect on statutory designated sites for nature conservation.

v. The Site contains only common and widespread plant species. None of the habitats within the Site are of significant interest in terms of their plant species composition. None of the habitats present are representative of semi-natural habitat. The NVC communities present are typical of the geographical area and conditions present. No Priority Habitats are present.

vi. The trees and seeded wildflower grassland are of 'site' value as they provide structural diversity and will provide habitats suitable for nectaring invertebrates and foraging and nesting birds. The proposals present an opportunity to provide a greater number of trees and areas of habitat favourable for use by nectaring invertebrates as part of the landscaping at the Site; these recommendations are presented at **Section 5.0**, below.

vii. No invasive species listed under Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) are present within the Site.

viii. The trees and scrub are suitable for use by nesting birds; all wild birds are protected whilst they are nesting under the *Wildlife and Countryside Act 1981* (as amended). Recommendations for the protection of nesting birds are presented at **Section 5.3**.

ix. No other protected species have been detected.

Recommendations

x. The recommendations in **Section 5.0** address all the mandatory measures and ecological recommendations to be applied to ensure compliance with wildlife legislation, the National Planning Policy Framework (NPPF) and best practice.

xi. The proposals will secure an opportunity to implement beneficial measures such as habitat creation that will safeguard habitats for wildlife such as birds and bats, with the aim of providing a net gain in biodiversity in accordance with the principles of the NPPF.

Conclusion

xii. It is concluded that the proposals are feasible and acceptable in accordance with ecological considerations and relevant planning policy. Development at the Site will provide an opportunity to secure ecological enhancement for wildlife associated with urban areas.

1.0 INTRODUCTION

1.1 Background and Rationale

1.1.1 ERAP (Consultant Ecologists) Ltd was commissioned by NOMA (GP) Ltd to carry out an ecological survey and assessment of NOMA, 2 & 3 Angel Square, Manchester M4 4AF (hereafter referred to as the 'Site'). The Ordnance Survey (OS) grid reference at the centre of the Site is SJ 84388 98988. An aerial image of the Site and its surrounding habitats is appended at **Figure 8.1** (Source image: ESRI World Imagery).

1.1.2 The survey and assessment was requested in connection with a planning application for the following (Deloitte LLP, 2019):

'The Proposed Development involves the redevelopment of Plots M and N of the adopted NOMA Masterplan (to be known as 2&3 Angel Square) to deliver office-led development (Use Class B1a), with ground floor retail and commercial units, external terraces at upper levels, car parking and cycle facilities.

The Proposed Development will comprise two buildings, one of lower and upper ground plus 10 storeys (2 Angel Square) and one of lower and upper ground plus 11 storeys (3 Angel Square).

The Proposed Development will include a comprehensive public realm scheme with hard and soft landscaping, access and highways, and other associated works.'

1.2 Scope of Works

1.2.1 The scope of ecological works undertaken in August 2019 comprised:

a. A desktop study for known ecological information at the Site and the local area;

b. An Extended Phase 1 Habitat Survey and assessment;

c. 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);

d. Survey and assessment of all habitats for relevant statutorily protected species[1] and other wildlife including badger (*Meles meles*), barn owl (*Tyto alba*), bird species, invertebrates and reptiles;

e. A bat survey of the trees (no buildings are present within the Site);

f. 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

g. The identification of any further surveys or precautionary actions that may be required prior to the commencement of any development activities.

[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. In this instance there are no ponds within 500 metres of the Site, and no ditches or other waterbodies within or adjacent to the Site. There has therefore been no requirement to consider the likely presence of great crested newt (*Triturus cristatus*), water vole (*Arvicola amphibius*) or otter (*Lutra lutra*), for example.

2.0 METHOD OF SURVEY

2.1 Desktop Study

2.1.1 The following sources of information and ecological records were consulted:

a. MAGiC: A web-based interactive map which brings together geographic information on key environmental schemes and designations, including details of statutory nature conservation sites; and

b. Greater Manchester Biodiversity Action Plan (GM BAP).

2.1.2 In accordance with *Guidelines for Accessing and Using Biodiversity Data* (CIEEM, 2016), the proposals at the Site are small scale and will be of limited impact upon the Site and local area. It is therefore considered that the purchase of ecological records (as provided by Greater Manchester Local Record Centre) is not required in this instance.

2.2 Vegetation and Habitats

2.2.1 An Extended Phase 1 Habitat Survey of the Site was carried out by Brian Robinson on 1st August 2018. The weather was dry with sunny intervals, a light breeze (Beaufort scale 2) and 20°C at 10am. The conditions and time of year were favourable for the ecological survey.

2.2.2 A habitat and vegetation map was produced for the Site and the immediate surrounding area at a scale of 1:1250 (refer to **Figure 8.2**). 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 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 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).

2.2.6 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 **Figures 8.1 and 8.2**) and extended to accessible land within a radius of 50 metres from the Site boundary. Private gardens / land were excluded from the survey.

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:

a. Sett entrances, e.g. entrances that are normally 25 to 35cm in diameter and shaped like a 'D' on its side;
b. Large spoil heaps outside sett entrances;
c. Bedding outside sett entrances;
d. Badger footprints;
e. Badger paths;
f. 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

Daylight Survey: Trees

2.3.5 A preliminary assessment of the trees within the Site was conducted to assess their suitability for use by roosting bats, and to inform whether further surveys or precautionary measures were required.

2.3.6 Trees were assessed from the ground using binoculars and a high-powered torch. 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.

2.3.7 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).

Habitat Assessment for Commuting / Foraging Bats

2.3.8 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 using the following categories and descriptions / examples, presented at **Table 2.1**, 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.

Bird Species

2.3.9 Bird species observed and heard during the survey were recorded.

2.3.10 Habitats throughout the Site and in the immediate surrounding area were assessed for their value to roosting, feeding and nesting birds, as indicated by the amount of shelter, feeding value, woody vegetation structure and species diversity of tree and shrub species in the Site.

Invertebrates

2.3.11 Invertebrate species observed during the walkover survey were recorded.

2.3.12 The Site was assessed for its potential to support notable invertebrate assemblages as indicated by the presence of habitat features such as heathland, bogs and mires, ancient woodland, deadwood, water bodies and / or extensive species-rich or semi-natural habitats associated with high invertebrate diversity or rare species.

Reptile Species

2.3.13 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 in **Table 2.2**, below.

Table 2.2: 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 The survey was completed under suitable conditions, and no access constraints were encountered. No survey limitations were experienced.

2.4.2 All measurements have been either estimated whilst on Site or measured using QGIS or internet-based mapping software, such as MAGiC Map and Google Earth.

2.5 Evaluation Methodology

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) and *Guidelines for the Selection of Biological SSSIs* (Bainbridge, et al., 2013). 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 have 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, 2019) 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*, 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

Statutory Designated Sites for Nature Conservation

3.1.1 The Site lies within a Site of Special Scientific Interest (SSSI) Impact Risk Zone for the Rochdale Canal SSSI, located 5 kilometres to the north-east and designated for its important habitats for submerged aquatic plants and emergent vegetation, including extensive colonies of the nationally scarce Special Area of Conservation (SAC) species Floating Water-plantain (*Luronium natans*). 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, 2019):

a. Livestock and poultry units with a floorspace greater than 500m², and slurry lagoons greater than 4000m²; and

b. General combustion processes greater than 50 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.

3.2 Vegetation and Habitats

General Description

3.2.1 The Site measures approximately 0.83 hectares of previously developed land. The Site is bound by 1 Angel Square (the Cooperative Group headquarters), Miller Street, Angel Gardens residential scheme (under construction and due for completion late 2019) and Angel Street.

3.2.2 The majority of the Site is currently in temporary use as surface car parking.

3.2.3 The vegetation and habitats within the Site comprise a hard standing car park, areas of unmanaged vegetation (comprising vegetation colonising hard standing and areas of unmanaged trees, scrub and tall-herb vegetation), ornamental planting, semi-improved neutral grassland (a seeded wildflower mix) and an allotment area.

3.2.4 A Phase 1 Habitat Survey map is appended at **Figure 8.2**, and can be referred to for all habitat descriptions. Photographs are appended at **Section 8.2**.

Hard Standing and Colonising Shrubs and Ruderal Herbs

3.2.5 Refer to **Photos 1** to **3**. The hard standing within the Site comprises asphalt, compacted stone and paving slabs. The colonising shrubs and ruderal herbs are characterised by occasional and locally frequent Butterfly-bush (*Buddleja davidii*), Mugwort (*Artemisia vulgaris*), Canadian Fleabane (*Conyza canadensis*) and occasional Sycamore (*Acer pseudoplatanus*), Creeping Thistle (*Cirsium arvense*), Great Willowherb (*Epilobium hirsutum*), Ribbed Melilot (*Melilotus officinalis*), Weld (*Reseda luteola*) and Dandelion (*Taraxacum officinale* agg.). A plant species list is appended at **Table 8.1**.

3.2.6 The vegetation is not typical of any NVC community, but holds characteristics of an *MG1a False Oat-grass grassland*, *Red Fescue* sub-community (Rodwell, 1992).

Unmanaged Trees, Scrub and Tall Herb

3.2.7 Refer to **Photos 4** to **7**. An area of unmanaged grassland, tall-herb vegetation, scrub and trees is present at the approximate centre of the Site and near the south-western end of the Site.

3.2.8 The vegetation is characterised by constant and occasional Yorkshire-fog (*Holcus lanatus*), constant, occasional and locally abundant Ribwort Plantain (*Plantago lanceolata*) and Bramble (*Rubus fruticosus* agg.), occasional and locally abundant Sycamore, Butterfly-bush, frequent and locally abundant Red

Fescue (*Festuca rubra*), occasional and locally abundant Michaelmas-daisy (*Aster novi-belgii* agg.) and locally abundant Rosebay Willowherb (*Chamerion angustifolium*). A plant species list is appended at **Table 8.2**.

3.2.9 The vegetation is not typical of any NVC community, but holds characteristics of the *W24 Bramble – Yorkshire-fog* underscrub (Rodwell, 1991)*, OV27 Rosebay Willowherb* tall-herb (Rodwell, 2000) and *MG1 False Oat-grass* grassland (Rodwell, 1992) communities of the NVC.

Ornamental Planting and Amenity Areas

Amenity Grassland

3.2.10 Refer to **Photo 8**. An area of short-mown amenity grassland is present at the north-western end of the Site. The vegetation is characterised by constant and frequent Perennial Rye-grass (*Lolium perenne*), constant occasional and locally abundant White Clover (*Trifolium repens*) and constant, occasional and locally frequent Ribwort Plantain. Springy Turf-moss (*Rhytidiadelphus squarrosus*) is occasional and locally abundant, and Garden Lady's-mantle (*Alchemilla mollis*), Red Fescue, Black Medick (*Medicago lupulina*), Common Ragwort (*Senecio jacobaea*) and Common Chickweed (*Stellaria media*) are all occasional. A plant species list is appended at **Table 8.3**.

3.2.11 The vegetation is typical of an *MG7 Perennial Rye-grass* ley (Rodwell, 1992).

Ornamental Planting

3.2.12 Refer to **Photo 9**. The ornamental planting is located at the north-western end of the Site and comprises garden exotics with occasional Maple (Acer sp.) saplings. The vegetation is not typical of any NVC community.

Seeded Wildflower Grassland

3.2.13 Refer to **Photo 10**. The seeded wildflower grassland is located at the north-western Site boundary and has been seeded to enhance habitats for urban pollinators.

3.2.14 The grassland is characterised by constant, frequent and locally abundant Yarrow (Achillea millefolium), Yorkshire-fog, Ribwort Plantain, constant and frequent Red Fescue, Perennial Rye-grass and Crested Dog's-tail (*Cynosurus cristatus*) and constant, occasional and locally abundant Common Bird's-foot-trefoil (Lotus corniculatus), occasional and locally abundant Great Burnet (*Sanguisorba officinalis*) and occasional Great Willowherb and Common Knapweed (*Centaurea nigra*). A plant species list is appended at **Table 8.4**.

3.2.15 The vegetation holds characteristics of an *MG6 Perennial Rye-grass – Crested Dog's-tail* grassland (Rodwell, 1992), although is not typical of any NVC community; the seeded nature of the wildflower grassland is not semi-natural in origin.

Urban Allotment Area

3.2.16 Refer to **Photo 11**. The urban allotment area is characterised by panels of woven branches with locally abundant Garden Strawberry (*Fragaria ananassa*), Rosemary (*Rosmarinus officinalis*) and Ivy (*Hedera helix*). The vegetation is not typical of any NVC community.

Invasive Species

3.2.17 No invasive species listed under Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) were detected within the Site.

3.3 Animal Life

Badger

3.3.1 No badger or signs of badger were detected within the Site or within the access 50 metres around the Site. The presence of badger is reasonably discounted.

Bat Species

Roosting Bats: Trees

3.3.2 None of the trees support any features suitable for use by roosting bats. The presence of roosting bats is reasonably discounted at the Site.

Habitat Assessment for Commuting and Foraging Bats

3.3.3 The urban setting of the Site and the hard standing which characterises the majority of the Site are both of poor suitability for use by foraging or commuting bats. The trees and shrubs within the Site are suitable for use by foraging bats, particularly pipistrelle species, however the Site is overall assessed to be of negligible to low suitability for use by foraging or commuting bats.

Bird Species

3.3.4 Carrion crow (*Corvus corone corone*) was observed within the Site during the survey. No other bird species were observed. The trees and scrub are suitable for use by passerine (i.e. perching) species of nesting bird. This is considered further at **Section 4.4**, below.

Invertebrates

3.3.5 Common species of invertebrate were noted during the survey, comprising the common carder-bee (*Bombus pascuorum*), honey bee (*Apis mellifera*), small white (*Pieris rapae*), small skipper (*Thymelicus sylvestris*) and cinnabar (*Tyria jacobaeae*), a Priority Species.

3.3.6 The seeded wildflower grassland and self-seeded Butterfly-bush within the Site all provide a food source for nectaring invertebrates, however the Site (due to its location and the size of the available habitat) is unlikely to provide core or important habitat to an abundance or rich diversity of invertebrate species.

Reptiles

3.3.7 The habitats within the Site provide poor quality habitat for sheltering, basking and hibernating reptiles. There are no piles of garden waste or other suitable debris for use by sheltering or hibernating reptiles, and species-poor habitats within the Site are reasonably unlikely to support a large populations or a variety of invertebrate prey.

3.3.8 The Site is not adjacent or linked to any areas of favourable habitat for reptile species. 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 In accordance with *2 & 3 Angel Square: Proposed Site Plan, Drawing Number MAS_AHR_AR_00_005 Rev. 2* (AHR Architects, 2015) and NOMA, 2&3 Angel Square (formerly Plots M&N) Project Brief, (Deloitte LLP, 2019):

'The Proposed Development involves the redevelopment of Plots M and N of the adopted NOMA Masterplan (to be known as 2&3 Angel Square) to deliver office-led development (Use Class B1a), with ground floor retail and commercial units, external terraces at upper levels, car parking and cycle facilities.

The Proposed Development will comprise two buildings, one of lower and upper ground plus 10 storeys (2 Angel Square) and one of lower and upper ground plus 11 storeys (3 Angel Square).

The Proposed Development will include a comprehensive public realm scheme with hard and soft landscaping, access and highways, and other associated works.'

4.1.2 **Section 4.2** provides an assessment of any impacts of the Proposed Development on the statutory designated sites for nature conservation present in the wider area. The ecological value of habitats within the Site are evaluated at **Section 4.3**, and the presence of protected and notable species is considered at **Section 4.4**.

4.1.3 Note that the Applicant is seeking flexibility to enable the buildings to be delivered in different phases, with potentially either 2 or 3 Angel Square being delivered as a first phase dependent on demand. It is considered that the evaluation and recommendations presented within this report are appropriate for the site as whole, and any future phase of the Site.

4.2 Designated Sites for Nature Conservation

4.2.1 It is considered that the Site is sufficiently small and distant from all statutory designated sites for nature conservation that the proposals will have no impact upon any present within the wider area.

4.3 Vegetation and Habitats

4.3.1 The Site contains only common and widespread plant species. None of the habitats within the Site are of significant interest in terms of their plant species composition. None of the habitats present are representative of semi-natural habitat. The NVC communities present are typical of the geographical area and conditions present. No Priority Habitats are present.

4.3.2 The trees and seeded wildflower grassland are of 'site' value as they provide structural diversity and will provide habitats suitable for nectaring invertebrates and foraging and nesting birds. The seeded wildflower grassland is not semi-natural in character however and is not considered to be species-rich. The proposals present an opportunity to provide a greater number of trees and areas of habitat favourable for use by nectaring invertebrates as part of the landscaping at the Site; these recommendations are presented at **Section 5.0**, below.

4.4 Protected Species and Other Wildlife

4.4.1 The trees and scrub provide suitable foraging and nesting habitat for passerine bird species. Consideration of birds (including protection of breeding birds and recommended enhancements for Priority Species) are presented at **Section 5.3** of this report.

4.4.2 Cinnabar moth, a Priority Species, was noted within the Site.

4.4.3 Otherwise the presence of protected or notable species is reasonably discounted.

5.0 RECOMMENDATIONS AND ECOLOGICAL ENHANCEMENT

5.1 Introduction

5.1.1 These recommendations aim to ensure that the development is implemented in accordance with relevant wildlife legislation, Natural England guidance, the principles of the National Planning Policy Framework (NPPF), local planning policy and best practice.

5.1.2 In this instance, due to the absence of any European Protected Species (or other species covered by further UK wildlife legislation) and the absence of any likely significant effects on European sites or sites of international importance, relevant legislation in relation to ecology for the Site comprises the *Wildlife and Countryside Act 1981* (as amended) and Natural Environment and Rural Communities Act 2006 (NERC Act).

5.1.3 In accordance with Chapter 15, paragraph 175 point 'd' of the NPPF, when determining planning applications, local planning authorities should encourage opportunities to incorporate biodiversity improvements in and around developments, especially where this can secure measurable net gains for biodiversity.

5.1.4 Where possible, opportunities to enhance the ecological interest and habitat connectivity and seek biodiversity gain through appropriate landscape planting and habitat creation have been identified, as required by the NPPF and other relevant planning documents.

5.1.5 All recommendations are appropriate to the geographical area, the habitats in the wider area, the wildlife present in the local area (and likely to use the Site post-construction) and take into consideration the end use of the Site.

5.2 Bats

Lighting

5.2.1 Paragraph 180, bullet point 'c' in Chapter 15 (conserving and enhancing the natural environment) of the NPPF states that development should:

'limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.'

Development Lighting Design

5.2.2 The lighting scheme to be implemented at the developed Site must involve the use of appropriate products and screening, where necessary, to ensure no excessive artificial lighting shines over any landscape planting, as lighting overspill may deter use by wildlife such as foraging bats.

5.2.3 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).

Enhancing Habitats for Roosting Bats

5.2.4 Whilst the Site is not currently suitable for use by roosting bats, evidence shows that common pipistrelle can hibernate within large buildings such as apartment blocks within urban areas (Korsten, et al., 2016). Due to the type of building proposed, it is considered that bat access panels installed at the upper floors of the proposed buildings may provide suitable features for use by roosting bats (including hibernating common pipistrelle), despite the lack of favourable surrounding foraging and commuting habitats within the wider area.

5.2.5 The bat access panels, which can be faced to match the external render or cladding of the proposed building, should not be positioned over windows or doorways where bat droppings may become a nuisance. Once the development layout has been finalised, an ecologist should advise on appropriate positions for the bat access panels. Suitable bat access panels are available from NHBS Ecology (www.nhbs.com) or Habibat (http://www.habibat.co.uk/) and are presented at **Insert 1**, below:



Insert 1: Example of commercially available bat access panels (Schwegler 2FR and Habibat). Note that both types can be faced to match external render or cladding.

5.3 Birds

Protection

5.3.1 All wild birds are protected under the *Wildlife and Countryside Act 1981* (as amended) while they are breeding. It is advised that any works such as vegetation clearance that will affect habitats suitable for use by nesting birds are scheduled to commence outside the bird nesting season. Commencement of works in the nesting season must be informed by a pre-works nesting bird survey, carried out by a suitably experienced ecologist. The bird breeding season typically extends between March to August inclusive.

5.3.2 If breeding birds are detected the ecologist will issue 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.

Enhancing Habitats for Nesting Birds

Black Redstart

5.3.3 If flat roofs are proposed at the new development at the Site, the opportunity to create suitable habitats for use by black redstart (*Phoenicurus ochruros*), a GM BAP Priority Species, should be taken.

5.3.4 The species action plan states that '*Records held from 1992 to 2007 show that black redstarts have bred or attempted to breed within the Piccadilly Basin area of central Greater Manchester every year except 2003. The total city population is unknown, but may be as low as 2 to 3 pairs.*' (Greater Manchester Biodiversity Project, 2008).

5.3.5 The inclusion of feeding and nesting habitat onto any proposed areas of flat roof at the proposed development will enhance the ecological value of the Site.

Habitat for Feeding Black Redstart

5.3.6 To boost the availability of invertebrate food for black redstart it is recommended that a section of the roof is covered with a mixed sized aggregate to a varied depth of between 0.05 and 0.2m.

5.3.7 The aggregate pieces should range in size from 0.10 to 0.15m diameter. The aggregate must cover a minimum area of 30m^2 to be effective.

5.3.8 **Insert 2** shows an example of a more extensive aggregate covered roof as an example. The aggregate will be colonised by small plants and will attract invertebrates for foraging black redstart and their young.



Insert 2: Example of aggregate placed on city roof for the attraction of Black Redstart

Installation of Two Black Redstart Boxes

5.3.9 Two Schwegler 2HW nest boxes will be installed on a north-facing wall within the roofing area. These nest boxes are recommended in the GM BAP for black redstart.

5.3.10 The model of box is shown at **Insert 3**, below.



Insert 3: Suitable bird boxes for Black Redstart

5.3.11 Suitable boxes can be purchased from www.nhbs.com.

Management and Maintenance

5.3.12 The black redstart nest boxes are to be checked annually in September/October. Old nest material and other debris will be removed and any damaged or fallen boxes to be repaired/reinstated.

Bee Hotels

5.3.13 Bee hotels such as those presented at **Insert 4**, below, can provide suitable nesting habitat for solitary bees associated with suburban and urban areas such as the red mason-bee (*Osmia bicornis*), mining bee species (*Andrena* sp.) and other pollinating invertebrates found within urban areas.



Insert 3: Bee hotels

5.3.14 Such bee hotels are available from the NHBS (www.nhbs.com) and Wild Care Shop (www.wildcareshop.com). If used, ERAP Ltd will advise on the siting of the bee hotels.

5.4 Landscape Planting and Provision of Wildflower Grassland

5.4.1 It is recommended that the landscape planting within the Site is composed from native species and species known to be of value for the attraction of wildlife.

5.4.2 It is recommended that trees which support blossom and fruit which will attract insects are incorporated into the landscape planting. Suitable species are presented at **Table 5.1**, below.

Table 5.1: Suitable Native Species for Tree and Shrub Planting

Scientific Name	Common Name	Scientific Name	Common Name
Acer campestre	Field Maple	*Prunus spinosa*	Blackthorn
Corylus avellana	Hazel	*Rosa arvensis*	Field Rose
Crataegus monogyna	Hawthorn	*Rosa canina*	Dog-rose
Ilex aquifolium	Holly	*Sambucus nigra*	Elder
Malus sylvestris	Crab Apple	*Sorbus aucuparia*	Rowan
Prunus avium	Wild Cherry	*Ulmus glabra*	Wych Elm
Prunus padus	Bird Cherry	*Viburnum opulus*	Guelder Rose

5.4.3 The understorey and ground cover planting design should be prepared to optimise the attraction of invertebrates such as feeding bumblebees and butterflies. Where possible the use of native species should be maximised but where necessary non-native species known to be attractive to invertebrates should be used.

5.4.4 Planting schemes that include flowering species such as *Viburnum, Ceanothus, Hebe*, *Lavandula*, *Lonicera, Potentilla, Rosmarinus* and *Vinca* can maximise opportunities for feeding invertebrates and for the attraction of foraging bats and birds.

5.4.5 For further plants suitable for the attraction of pollinators please refer to the *Perfect for Pollinators Plant List* (Royal Horticultural Society, 2012). It is recommended that the selection of plant species at the Site ensures that a variety of flowering species are available throughout the year.

5.4.6 It is recommended that areas of low-maintenance species-rich wildflower grassland are incorporated into the landscape design to enhance habitats for nectaring invertebrates.

6.0 CONCLUSION

6.1 This ecological appraisal has demonstrated that the Proposed Development at the Site is feasible and acceptable in accordance with ecological considerations and the National Planning Policy Framework.

6.2 It is possible to implement reasonable actions for the protection and long-term conservation of fauna such as nesting birds and commuting/foraging bats associated with the Site. The Proposed Development will provide an opportunity to secure ecological enhancement for fauna typically associated with urban areas such as breeding birds and roosting bats.

7.0 REFERENCES

AHR Architects, 2015. *2 + 3 Angel Square: Proposed Site Plan, Drawing Number MAS_AHR_AR_00_005 Rev. 2,* Manchester: AHR Architects.

Andrews, H (ed), 2013. *Bat Tree Habitat Key, 3rd Edition.* Bridgewater: AEcol Ltd.

Bainbridge, I. et al., 2013. *Guidelines for the Selection of Biological SSSIs.* Peterborough: Joint Nature Conservancy Council.

Bat Conservation Trust, 2014. *Artificial Lighting and Wildlife: Interim Guidance: Recommendations to help minimise the impact of artificial lighting.* [Online]
Available at: http://www.bats.org.uk/pages/bats_and_lighting.html

BTHK, 2018. *Bat Roosts in Trees - A Guide to Identification and Assessment for Tree-Care and Ecology Professionals,* Exeter: Pelagic Publishing.

CIEEM, 2016. *Guidelines for Accessing and Using Biodiversity Data,* Winchester: Chartered Institute of Ecology and Environmental Management (CIEEM).

CIEEM, 2018. *Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine,* Winchester: Chartered Institute of Ecology and Environmental Management.

Collins, J. (ed), 2016. *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn).* London: The Bat Conservation Trust.

Deloitte LLP, 2019. *NOMA, 2&3 Angel Square (formerly Plots M&N) Project Brief,* London: Deloitte LLP.

Edgar, P., Foster, P & Baker, J., 2010. *Reptile Habitat Management Handbook.* Bournemouth: Amphibian and Reptile Conservation.

Great Britain, 1981. *Wildlife and Countryside Act.* London: H.M.S.O.

Great Britain, 2006. *Natural Environment and Rural Communities Act.* London: H.M.S.O.

Great Britain, 2017. *The Conservation of Habitats and Species Regulations.* London: H.M.S.O.

Greater Manchester Biodiversity Project, 2008. *Make Room for Black Redstarts: A Species Action Plan for Greater Manchester,* Manchester: Greater Manchester Biodivesity Project.

H.M.S.O., 1997. *The Hedgerows Regulations 1997, SI 1997/1160.* London: H.M.S.O.

Institution of Lighting Professionals & Bat Conservation Trust, 2018. *Guidance Note 8: Bats and Artificial Lighting in the UK.* [Online]
Available at: https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/
[Accessed 18 October 2018].

JNCC, 2010. *Handbook for Phase 1 Habitat Survey: A technique for Environmental Audit.* Peterborough: NCC.

Korsten, E. et al., 2016. Swarm and switch: on the trail of the hibernating common pipistrelle. *Bat News,* No. 110 (Summer 2016), pp. 80-10.

Maddock, A (ed), 2008. *UK Biodiversity Action Plan: Priority Habitat Descriptions.* [Online]
Available at: http://jncc.defra.gov.uk/page-5718

Maddock, A., 2008. *UK Biodiversity Action Plan; Priority Habitat Descriptions (Updated Dec 2011).* [Online]
Available at: http://jncc.defra.gov.uk/page-5706

Ministry of Housing, Communities & Local Government, 2005. *Circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact Within The Planning System,* London: Office of the Deputy Prime Minister.

Ministry of Housing, Communities and Local Government, 2019. *National Planning Policy Framework.* London: H.M.S.O.

Natural England, 2007. *Badgers and Development,* Peterborough: Natural England.

Natural England, 2011. *The Reptile Mitigation Guidelines.* Peterborough: Natural England.

Natural England, 2015. *Badgers: Surveys and mitigation for development projects.* [Online]
Available at: https://www.gov.uk/guidance/badgers-surveys-and-mitigation-for-development-projects
[Accessed 3 December 2015].

Ordnance Survey, 2019. *Site Check Report Centroid Grid Ref: SD89100096.* [Online]
Available at: http://magic.defra.gov.uk/magicmap.aspx
[Accessed 01 August 2019].

Ratcliffe, D. A., 1977. *A Nature Conservation Review.* Cambridge: Cambridge University Press.

Rodwell, J. S., 1991. *British Plant Communities: Volume 1, Woodlands and Scrub.* Cambridge: Cambridge University Press.

Rodwell, J. S., 1992. *British Plant Communities: Volume 3, Grasslands and Montane Communities.* Cambridge: Cambridge University Press.

Rodwell, J. S., 2000. *British Plant Communities Volume 5, Maritime Communities and Vegetation of Open Habitats.* Cambridge: Cambridge University Press.

Roper, T., 2010. *Badger (Collins New Naturalist Library, Book 114).* Glasgow: Harper Collins.

Royal Horticultural Society, 2012. *Perfect for Pollinators, Garden Plants.* [Online]
Available at: https://www.rhs.org.uk/science/conservation-biodiversity/wildlife/encourage-wildlife-to-your-garden/plants-for-pollinators

Stace, C. A., 2010. *New Flora of the British Isles 3rd Edition.* Cambridge: Cambridge University Press.

Stone, E. L., 2014. *Bats and Lighting: Overview of current evidence and mitigation guidance.* Bristol: University of Bristol.

8.0 APPENDIX: TABLES, PHOTOGRAPHS AND FIGURES

8.1 Plant Species Lists

Table 8.1: Plant Species List for Hard Standing and Colonising Shrubs and Ruderal Herbs

Scientific Name	Common Name	DAFOR	% Cover
Woody Species			
Acer pseudoplatanus	Sycamore	O	<1%
Betula pendula	Silver Birch	R	<1%
Buddleja davidii	Butterfly-bush	O/LF	1%
Salix caprea	Goat Willow	O/VLF	<1%
Herb Species			
Agrostis stolonifera	Creeping Bent	O/VLF	<1%
Alchemilla mollis	Garden Lady's-mantle	VLF	<1%
Artemisia vulgaris	Mugwort	O/LF	<1%
Aster novi-belgii agg.	Michaelmas-daisy	VLF	<1%
Cirsium arvense	Creeping Thistle	O	<1%
Conyza canadensis	Canadian Fleabane	O/LF	<1%
Epilobium hirsutum	Great Willowherb	O	<1%
Epilobium montanum	Broad-leaved Willowherb	VLF	<1%
Equisetum arvense	Field Horsetail	VLF	<1%
Festuca rubra	Red Fescue	LF	1%
Geranium robertianum	Herb-Robert	VLF	<1%
Hieracium sp.	Hawkweed species	R	<1%
Holcus lanatus	Yorkshire-fog	O/VLF	<1%
Hordeum murinum	Wall Barley	O	<1%
Lapsana communis	Nipplewort	VLF	<1%
Lolium perenne	Perennial Rye-grass	VLF	<1%
Matricaria discoidea	Pineappleweed	O/VLF	<1%
Medicago lupulina	Black Medick	VLF	<1%
Melilotus officinalis	Ribbed Melilot	O	<1%
Papaver sp.	Poppy species	R	<1%
Plantago lanceolata	Ribwort Plantain	LF	<1%
Plantago major	Greater Plantain	O/VLF	<1%
Poa annua	Annual Meadow-grass	VLF	<1%
Ranunculus repens	Creeping Buttercup	VLF	<1%
Reseda luteola	Weld	O	<1%
Rubus fruticosus agg.	Bramble	O/VLF	<1%
Senecio vulgaris	Groundsel	VLF	<1%
Sisymbrium officinale	Hedge Mustard	VLF	<1%
Taraxacum officinale agg.	Dandelion	O	<1%
Trifolium pratense	Red Clover	O/LF	<1%
Trifolium repens	White Clover	VLF	<1%
Tussilago farfara	Colt's-foot	R	<1%
Tussilago farfara	Colt's-foot	VLF	<1%
Urtica dioica	Common Nettle	VLF	<1%
Veronica persica	Common Field-speedwell	R	<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 8.2: Plant Species List for Unmanaged Trees, Scrub and Tall Herb Vegetation

Scientific Name	Common Name	DAFOR	% Cover
Woody Species			
Acer pseudoplatanus	Sycamore	O/LA	30%
Betula pendula	Silver Birch	O	1%
Buddleja davidii	Butterfly-bush	O/LA	20%
Crataegus monogyna	Hawthorn	O	1%
Fraxinus excelsior	Ash	R	5%
Ilex aquifolium	Holly	VLF	<1%
Prunus avium	Wild Cherry	VLF	<1%
Rosa canina	Dog-rose	LA	5%
Salix caprea	Goat Willow	O	5%
X Cuprocyparis leylandii	Leyland Cypress	R	5%
Herb Species			
Agrostis stolonifera	Creeping Bent	VLF	<1%
Anisantha sterilis	Barren Brome	VLF	<1%
Arrhenatherum elatius	False Oat-grass	VLF	<1%
Artemisia vulgaris	Mugwort	O/LF	5%
Aster novi-belgii agg.	Michaelmas-daisy	O/LA	1%
Calystegia sepium	Hedge Bindweed	LF	<1%
Chamerion angustifolium	Rosebay Willowherb	LA	10%
Cirsium arvense	Creeping Thistle	O	<1%
Epilobium montanum	Broad-leaved Willowherb	VLF	<1%
Equisetum arvense	Field Horsetail	VLF	<1%
Festuca rubra	Red Fescue	F/LA	1%
Geranium robertianum	Herb-Robert	VLF	<1%
Heracleum sphondylium	Hogweed	O	<1%
Holcus lanatus	Yorkshire-fog	O*	1%
Leucanthemum vulgare	Oxeye Daisy	VLF	<1%
Medicago lupulina	Black Medick	O/LF	<1%
Plantago lanceolata	Ribwort Plantain	O/LA*	5%
Plantago major	Greater Plantain	VLF	<1%
Poa pratensis	Smooth Meadow-grass	VLF	<1%
Ranunculus repens	Creeping Buttercup	VLF	<1%
Reseda luteola	Weld	VLF	<1%
Rubus fruticosus agg.	Bramble	O/LA*	10%
Rumex obtusifolius	Broad-leaved Dock	O/VLF	<1%
Senecio jacobaea	Common Ragwort	O	<1%
Sonchus oleraceus	Smooth Sow-thistle	O	<1%
Tussilago farfara	Colt's-foot	O/LF	<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 8.3: Plant Species List for Amenity Grassland

Scientific Name	Common Name	DAFOR	% Cover
Agrostis stolonifera	Creeping Bent	O/VLF	1%
Alchemilla mollis	Garden Lady's-mantle	O	<1%
Bellis perennis	Daisy	O/LF	5%
Festuca rubra	Red Fescue	O	<1%
Geranium molle	Dove's-foot Crane's-bill	VLF	<1%
Holcus lanatus	Yorkshire-fog	O/LF	1%
Leucanthemum vulgare	Oxeye Daisy	R	<1%
Lolium perenne	Perennial Rye-grass	F*	60%
Medicago lupulina	Black Medick	O	<1%
Plantago lanceolata	Ribwort Plantain	O/LF*	20%
Potentilla anserina	Silverweed	VLF	<1%
Potentilla reptans	Creeping Cinquefoil	VLF	<1%
Prunella vulgaris	Selfheal	VLF	<1%
Rhytidiadelphus squarrosus	Springy Turf-moss	O/LA	1%
Rumex obtusifolius	Broad-leaved Dock	R	<1%
Senecio jacobaea	Common Ragwort	O	<1%
Sisymbrium officinale	Hedge Mustard	R	<1%
Stellaria media	Common Chickweed	O	<1%
Taraxacum officinale agg.	Dandelion	O/VLF	10%
Trifolium repens	White Clover	O/LA*	30%

[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 Seeded Wildflower Grassland

Scientific Name	Common Name	DAFOR	% Cover
Agrostis stolonifera	Creeping Bent	O/VLF	1%
Alchemilla mollis	Garden Lady's-mantle	O	<1%
Bellis perennis	Daisy	O/LF	5%
Festuca rubra	Red Fescue	O	<1%
Geranium molle	Dove's-foot Crane's-bill	VLF	<1%
Holcus lanatus	Yorkshire-fog	O/LF	1%
Leucanthemum vulgare	Oxeye Daisy	R	<1%
Lolium perenne	Perennial Rye-grass	F*	60%
Medicago lupulina	Black Medick	O	<1%
Plantago lanceolata	Ribwort Plantain	O/LF*	20%
Potentilla anserina	Silverweed	VLF	<1%
Potentilla reptans	Creeping Cinquefoil	VLF	<1%
Prunella vulgaris	Selfheal	VLF	<1%
Rhytidiadelphus squarrosus	Springy Turf-moss	O/LA	1%
Rumex obtusifolius	Broad-leaved Dock	R	<1%
Senecio jacobaea	Common Ragwort	O	<1%
Sisymbrium officinale	Hedge Mustard	R	<1%
Stellaria media	Common Chickweed	O	<1%
Taraxacum officinale agg.	Dandelion	O/VLF	10%
Trifolium repens	White Clover	O/LA*	30%

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

8.2 Photographs



Photo 1: Hard standing with colonising ruderal herbs at the southern end of the Site



Photo 2: Hard standing car park at the northern end of the Site



Photo 3: Hard standing car park at the southern end of the Site



Photo 4: Sycamore and unmanaged vegetation



Photo 5: Unmanaged tall-herb and grassland



Photo 6: Unmanaged scrub



Photo 7: Sycamore and unmanaged grassland and tall-herb vegetation



Photo 8: Short-mown amenity grassland



Photo 9: Ornamental planting



Photo 10: Seeded wildflower grassland



Photo 11: Urban allotment area

Figure 8.1: Aerial Image of the Site and its Surrounding Habitats

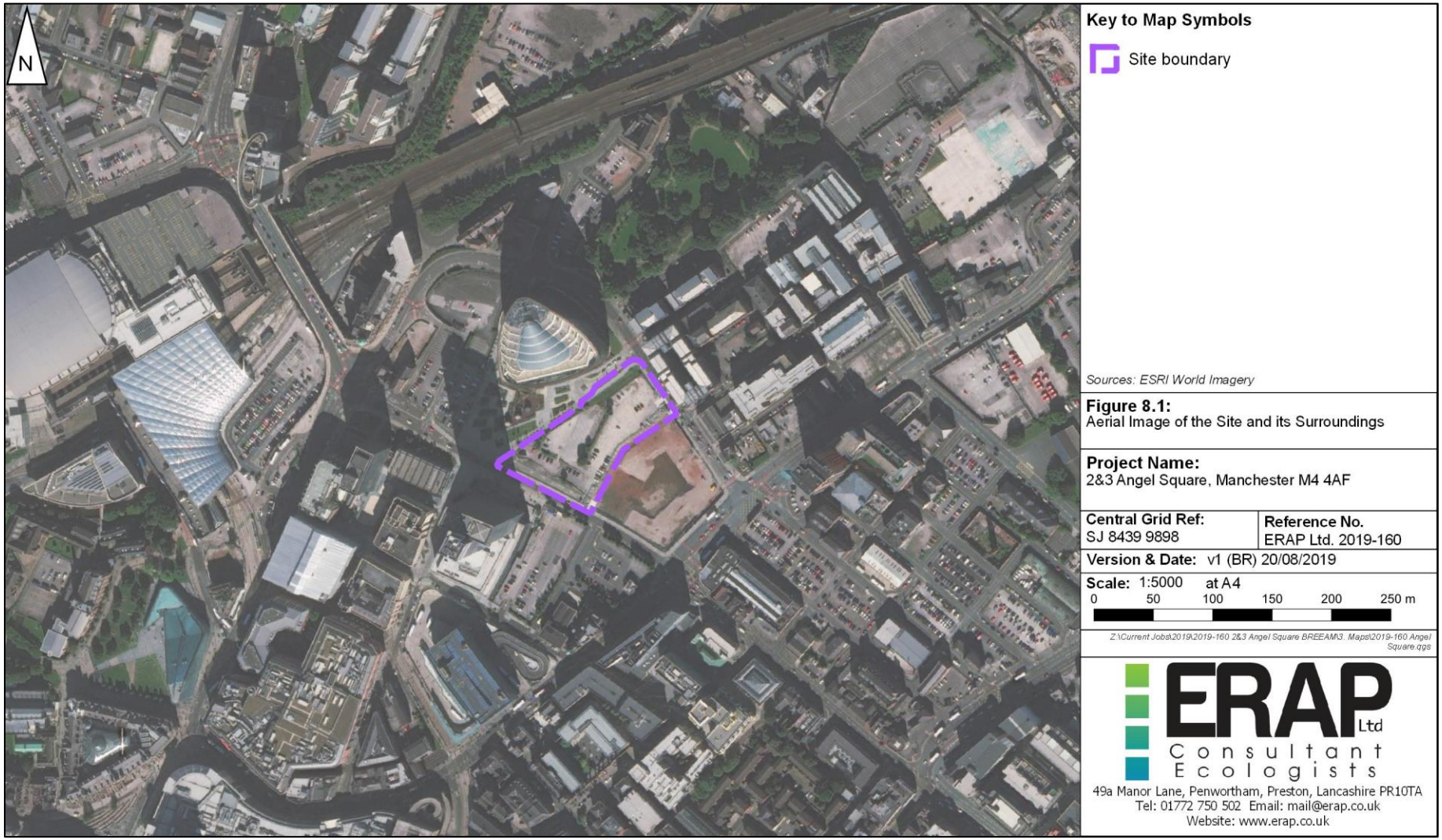


Figure 8.2: Phase 1 Habitat and Vegetation Map

